

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

NAIL SETS.



KEEN KUTTER
Highest Grade Crucible
Steel.
Beautiful in Finish.

Forged from Highest
Grade Crucible Steel,
Cup Point Oil Tem-
pered; Polished Head
and Point; Round
Knurled Barrel $\frac{5}{16}$
inch in Diameter,
Length 4 inches.

No. 200 Assorted.

No. 200—Assorted Sizes, $\frac{1}{32}$, $\frac{2}{32}$, $\frac{3}{32}$, $\frac{4}{32}$ inch. \$2.50 Per Dozen

One Dozen in a Display Box.

No. 200—STRAIGHT SIZES.

Size of Points, inch	$\frac{1}{32}$	$\frac{2}{32}$	$\frac{3}{32}$	$\frac{4}{32}$
Per dozen	\$2.50	2.50	2.50	2.50

One Dozen in a Wood Box; Weight per Dozen about 1½ lbs.

MAGNETS.



Horse Shoe Pattern, Steel; Body Painted
Red; Ends and Block Polished.

Length, inches	2	3	3½	4
Weight per dozen about, lbs.	¾	1½	2¼	3½
Quantity in package, dozen	6	4	3	2
Per dozen	\$1.25	1.90	2.75	3.50
Length, inches	5	6	8	10
Weight per dozen about, lbs.	6¼	10¼	24½	40
Quantity in package, dozen	1	1	½	½
Per dozen	\$5.60	8.00	16.50	28.00

COLD CHISELS.



KEEN KUTTER®—MACHINIST'S.

No necessity for the
Blacksmith to make his
own Cold Chisels.
KEEN KUTTER Chisels do
the work.

Forged from Highest Grade Octagon Crucible Steel, Oil Tempered; Polished Bevel and Head; Natural Finish Body.

Nos.	31	78
Width of Cut, inches	¾	¾
Diameter of Steel, inches	¾	¾
Length, inches	10	10
Weight per dozen about, lbs.	10½	15
Per dozen	\$7.00	9.50

One-half Dozen in a Cardboard Box.

Made of a Special Quality
of Tool Steel.
Cutting Edges are Care-
fully Ground.



KEEN KUTTER®—REGULAR.

Forged from Highest Grade Octagon Crucible Steel, Oil Tempered; Polished Bevel and Head; Natural Finish Body.

Width of Cut, inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Diameter of Steel, inches	$\frac{5}{16}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$
Length, inches	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	$7\frac{1}{2}$
Weight per dozen about, lbs.	1¾	3½	4½	7½	11	15
Per dozen	\$1.75	2.50	3.50	5.00	7.00	9.00

$\frac{3}{8}$ inch, One Dozen; Other Sizes One-half Dozen in a Cardboard Box.

CAPE CHISELS.

STANDARD—CAPE.

Forged from Octagon Tool Steel, Tempered; Natural Finish.



Width of Cut, inches	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Diameter of Steel, inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$
Length, inches	$6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$	$6\frac{1}{2}$
Weight per doz. about, lbs.	4½	4½	7	9	11½
Per dozen	\$1.75	2.00	2.85	3.75	4.50

One-half Dozen in a Cardboard Box.



SAW SWAGES.



DISSTON'S.

Forged Steel Body; Polished Edges; Hardened Face, with Inserted Crucible Steel Hardened Jaws; Blued Steel Cap; Slot in Gullet prevents blunting or injuring Fine Cutting Edge of Tooth.

Nos.	D0	D1	D2	D3
Length over all, inches.....	5 3/4	5	3 3/4	2 3/4
Weight each about, lbs.....	1 3/4	1 1/4	1/2	1/4
Each	\$3.00	2.75	2.25	1.75

The No. D0 has Protecting Tongue for use when a Spread Set is desired; No. D1 adapted for large Circular Saws; No. D2 for small Circular and Mill Saws; No. D3 for small Circular and Narrow Band Saws.

One in a Cardboard Box.



MITER'S; CHAMPION.

Automatic; Self-Feeding; Japanned Finish; Malleable Iron Plate and Carriage, and Cranks 9 1/2 inches Long, with Hardwood Handle; Steel Driving Shaft with Ratchet; Sliding Brass Gauge; Steel Feed Screw, with Malleable Iron Head; Two Japanned Malleable Iron Clamps; Complete with Adjusting Screws; Japanned Malleable Iron T-Head Wrench, 7 1/2 inches Long; Adjustable Cutter Grinder for Holding Cutters when Sharpening.

No. 11—MITER'S, CHAMPION, LARGE: Shaft 10 3/4 inches Long, with 1/2 inch Arbor; Length over all 11 1/2 inches; Complete with Two Cranks and Hardened Steel Gummer Cutters, One each 1 1/2 and 3/4 inch Outside Diameter; Weight each complete about 27 1/2 lbs.\$20.00

NOTE—No. 11L is adapted for Circular Saws, 40 inch Diameter and Larger; Full Directions for use accompany each Gummer.

GUMMER CUTTERS.



Crucible Tool Steel; Natural Finish; Carefully Milled and Hardened.

No. B—STANDARD.

For Miter's and Standard Saw Gummers.					
Diameter, inches	1/2	5/8	3/4	7/8	1
Thickness, inches.....	15/16	15/16	15/16	15/16	15/16
Size of Arbor Hole, in....	5/16	3/16	1/2	1/2	3/4
Weight each, ounces	1	1	2	2	3
Each	\$0.50	.50	.60	.70	.80

One Dozen in a Cardboard Box.

No. C—GENUINE MITER'S.

For Miter's Saw Gummers.			
Diameter, inches	3/4	7/8	1
Thickness, inches.....	15/16	15/16	15/16
Size of Arbor Hole, in....	1/2	1/2	3/4
Weight each, ounces	1	2	3
Each	\$0.60	.70	.80

Packed Loose.

No. B, 1/2 and 5/8 inch, are for STANDARD, Nos. B and C, 3/4 to 1 inch, are for STANDARD and No. 11L, Miter's Gummers.

SAW GUMMERS.



VICTOR.

Self-feeding and Adjustable; Japanned Finish; Cast Iron Plate; Malleable Iron Carriage, and Cranks 9 1/2 inches Long; Hardwood Handle; Steel Driving Shaft, with Ratchet; Sliding Brass Gauge; Steel Feed Screw, with Ratchet and Malleable Iron Wheel Head; Two Japanned Malleable Iron Clamps; Complete with Adjusting Screws; Japanned Malleable Iron T-Head Wrench, 5 1/2 inches Long; Adjustable Cutter Grinder for Holding Cutters when Sharpening.

No. 1—VICTOR, LARGE: Shaft 10 1/2 inches Long, with 5/16 inch Arbor; Length over all 13 inches; Complete with Hardened Steel Gummer Cutters, One each 1 1/2, 1 and 3/4 inch Outside Diameter; Weight each about 26 lbs.\$18.00

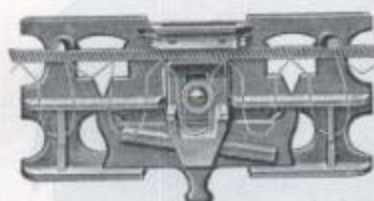
No. 2—VICTOR, SMALL: Shaft 9 1/4 inches Long, with 5/16 inch Arbor; Length over all 13 inches; Complete with Hardened Steel Gummer Cutters, One each 1 1/2, 1 and 3/4 inch Outside Diameter; Weight each about 25 lbs. 18.00

NOTE:—No. 1 is adapted for Circular Saws 40 inches Diameter and Larger; No. 2 for Circular Saws, Smaller than 40 inches Diameter; Full Directions for use accompany each Gummer.

One in a Wood Box.

TRADE MARK:
E. C. SIMMONS' **KEEN KUTTER**,
REGISTERED.

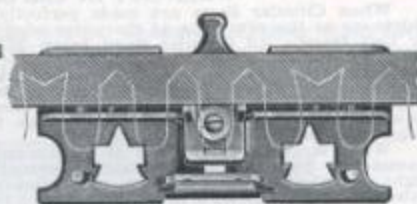
SAW TOOLS.



No. K as a Jointer.



No. K as a Raker-Tooth Gauge.



No. K as a Side File.



Setting Block.



Tooth Set Gauge.

KEEN KUTTER*

Select Hardened Iron, Nickel-Plated Finish, Unpolished, with Accurately Ground Top Filing-Plate, Adjustable by a Screw; Double-acting Sliding Cam Device for Holding File; Can be locked in any Position by a Screw; Complete with No. AB Setting Block (see below) and Hardened Iron Tooth-Set Gauge $3\frac{1}{2} \times 1\frac{1}{2}$ inches.

No. K—KEEN KUTTER*; Frame $5\frac{1}{4}$ inches Wide, $2\frac{1}{4}$ inches High, with Three $\frac{1}{2}$ inch Flanges; Weight per dozen sets about 16 lbs. Per Dozen Sets \$12.00
One Set in a Cardboard Box; Twelve and One-half Dozen Sets in a Case.

No. AB—Setting Blocks (or Anvils); EXTRA HARDENED IRON, 7 inches Long, for Saw Tools Nos. K, A and C; Weight per dozen about 8 lbs. Per Dozen \$3.60
Packed Loose.

SAW TOOTH GAUGES.



No. ST.



No. DT.

ATKINS'.

Malleable Iron, Flanged; Plain Finish; Length over all $5\frac{1}{2}$ inches.

No. S/T—SINGLE TOOTH, for Gauging Length of Raker Teeth; Weight per dozen about $2\frac{1}{2}$ lbs. Per Dozen \$0.80	No. DT—DOUBLE TOOTH, for Gauging Set of Teeth and Length of Raker Teeth; Weight per dozen about 3 lbs. Per Dozen \$1.20
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One Dozen in Cardboard Box.

CIRCULAR SAWS.



HOW TO TELL THE DIFFERENCE BETWEEN RIGHT AND LEFT HAND CIRCULAR SAWS.

WHEN IN USE ON SAW MILL.

Standing in front of a Circular Saw, with the Saw revolving toward you, if the carriage upon which the log rests passes to the right of the Saw, it is a Right Hand Saw; if to the left, it is a Left Hand Saw.

WHEN NOT IN USE ON SAW MILL.

When Circular Saws are made perfectly flat on both sides, and the same thickness at the center as at the outer edge or periphery, they are either Right or Left Hand. All Circular Saws below 30 inches are made this way. However, when Saws above 30 inches are "bevel ground," that is, made thicker at the center than at the edge or periphery, they are made flat at the hand or log side, with all the bevel or fullness on the opposite or board side, and consequently are not reversible except by process of rehammering by a competent Saw Maker. They are usually one gauge thicker at the center than at the edge, but this is not invariable.

When large Saws are run at an unusually high speed, it is necessary to hammer or tension them to such an extent that they will dish either to the right or left; this extra tension is necessary because of the centrifugal force; otherwise, when the Saw is in rapid motion the outer edge would be so stretched that it would not cut correctly. Saws thus "dished" when in rapid motion, assume a straight position on both sides and saw correctly.

In order to determine the hand of a Saw, hold it up with the teeth toward you, and by the use of a straight edge the flat side can be determined; this is the log or hand side. Thus a Right Hand Saw will show flat under the straight edge on the Right Hand side and convex or full on the Left Hand Side.

NOTICE.—Orders for Saws not of Standard Gauge or Hole, as described in list, or irregular in any particular, will be accepted only with the distinct understanding that they are subject to delay in making, and are not subject to cancellation under any circumstances. When ordering Special Circular Saws (marked thus #) be Particular to State the following Specifications: Diameter, Number of Teeth, Gauge at Center, Gauge at Rim, Right or Left Hand, Size of Mandrel Hole, Distance from Center to Center of Pin Holes, Highest Speed at which Saw is to Run, Kind of Lumber to be Sawn, State whether the Saw is to be used for Rippling or Cross-Cutting.

Crucible Steel, Patent Ground and Tempered; Solid Teeth; Polished.

DISSTON'S CROSS CUT; Diameter,

inches	6	7	8	10	12	14	16	18	20	22	24	26	28	30
Each	\$1.55	1.85	2.20	3.30	4.15	5.00	6.00	7.50	9.00	11.00	13.00	15.00	17.00	19.00

#DISSTON'S CROSS CUT: All other sizes; See list below. \$.....

DISSTON'S RIP; Diameter, inches

	6	8	10	12	14	16
Each	\$1.55	2.20	3.30	4.15	5.00	6.00

#DISSTON'S RIP: All other sizes; See list below. \$.....

#ATKINS' CROSS CUT: All sizes; See list below. \$.....

#ATKINS' RIP: All sizes; See list below. \$.....

#CURTIS' CROSS CUT: All sizes; See list below. \$.....

#CURTIS' RIP: All sizes; See list below. \$.....

Diameter, Inches.	Thickness, Gauge.	Size of Hole, Inches.	Price, Each.	Extra for setting and sharpening Rip Saws.	Extra for setting and sharpening Cross-cut Saws.	Extra for each additional gauge heavier.	Shipping Weight, each about	Diameter, Inches.	Thickness, Gauge.	Size of Hole, Inches.	Price, each.	Extra for setting and sharpening Rip Saws.	Extra for setting and sharpening Cross-cut Saws.	Extra for each additional gauge heavier.	Shipping Weight, each about
4	19	3/8	\$ 1.10	\$ 0.25	\$ 0.35	\$ 0.03	3 oz.	30	10	1 1/8	\$19.00	\$ 1.30	\$ 1.95	\$ 0.90	36 lbs.
5	19	3/8	1.30	.28	.40	.04	4 1/2 "	32	10	1 1/8	22.00	1.40	2.05	1.00	52 "
6	18	3/8	1.55	.30	.45	.05	5 1/2 "	34	9	1 3/8	25.00	1.60	2.35	1.20	61 "
7	18	3/8	1.85	.33	.50	.06	6 1/2 "	36	9	1 7/8	28.00	1.70	2.55	1.40	66 "
8	18	3/8	2.20	.35	.55	.08	8 "	38	9	1 7/8	31.00	1.85	2.75	1.75	70 "
9	17	3/8	2.75	.40	.60	.10	12 "	40	9	2	36.00	2.00	2.95	2.00	74 "
10	16	1	3.30	.45	.65	.12	1 1/2 lbs.	42	8	2	42.00	....	3.15	2.50	90 "
11	16	1	3.80	.48	.70	.14	1 1/2 "	44	8	2	50.00	....	3.35	3.00	97 "
12	15	1	4.15	.50	.75	.17	2 "	46	8	2	60.00	....	3.60	3.50	104 "
14	15	1 1/8	5.00	.60	.85	.21	3 "	48	8	2	70.00	....	3.80	4.00	112 "
16	14	1 1/8	6.00	.65	.95	.25	10 "	50	7	2	80.00	....	4.10	4.50	119 "
18	13	1 1/8	7.50	.70	1.05	.30	11 1/2 "	52	7	2	90.00	....	4.40	5.00	123 "
20	13	1 1/8	9.00	.80	1.15	.35	14 1/2 "	54	7	2	100.00	....	4.70	6.00	151 "
22	12	1 1/8	11.00	.90	1.30	.45	17 "	56	7	2	115.00	....	5.00	7.00	167 "
24	11	1 1/8	13.00	1.00	1.45	.55	20 1/2 "	58	7	2	130.00	....	5.30	8.00	180 "
26	11	1 3/8	15.00	1.10	1.60	.65	24 "	60	6	2	145.00	....	5.60	9.00	189 "
28	10	1 3/8	17.00	1.20	1.75	.80	31 "								

4 to 14 inch wrapped in paper. 16 to 60 inch cleated to a board.

NOTE.—Saws 40 inches and over are filed and Set or Swaged, ready for use, without extra charge.

No extra charge for Saws one gauge thicker than List.

Saws 42 inches and under, beveled one gauge without extra charge.

Saws 44 inches and over, beveled two gauges without extra charge.

Saws 45 inches and larger, if made thinner than 10 gauge, are not warranted, and 10% added for each gauge thinner than 10 gauge.

-270-

TRADE MARK:
E. C. SIMMONS' **KEEN KUTTER**,
REGISTERED.

CROSS CUT SAWS.

Without Handles.

If Handles are Wanted, Invariably Specify Separately for Them.

KEEN KUTTER*.

Highest Grade Crucible Steel, EXTRA POLISHED AND ETCHED; Ground Gradually Thinner from Teeth to Back, the Lines of Taper Curving Parallel to the Cutting Edge (see Cut), making a Thin Center Back (Lessening Friction), and Stiff Ends (Preventing Buckling); TEETH EXTRA FILED AND CAREFULLY SET, READY FOR USE; Papered and Stripped.

Showing Curve Grinding on **KEEN KUTTER** Saws.

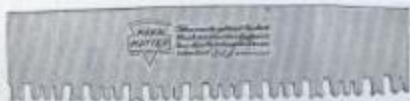
Made by the World's Best Saw Makers
who put into them the Very Best Material
and Workmanship.

Tuttle Tooth, Wide Blade.**No. K100—KEEN KUTTER* 14x18 Gauge.**

Length, feet	5	5½	6	6½	7
Width at Center, inches	7	7½	7¾	7¾	7¾
Weight each net about,					
lbs.	5	7	8	9	10
Each	\$3.00	3.30	3.60	3.96	4.20

No. K110—KEEN KUTTER* 14x19 Gauge.

Length, feet	5	5½	6	6½	7
Width at Center, inches	6¾	7¼	7½	7¾	8
Weight each net about,					
lbs.	5	7	8	9	10
Each	\$3.50	3.55	3.85	4.20	4.50

**Tri-Cut Tooth (Dexter Pattern), Wide Blade.****No. K107—KEEN KUTTER* 14x18 Gauge.**

Length, feet	5½	6	6½	7
Width at Center,				
inches	7	7½	8	8
Weight each net				
about, lbs.	7	8	9	10
Each	\$4.10	4.50	4.90	5.25

No. K112—KEEN KUTTER* 14x19 Gauge.

Length, feet	5½	6	6½	7	7½
Width at Center, inches	6½	7	7¼	7¾	7¾
Weight each net about,					
lbs.	7	8	9	10	12
Each	\$4.35	4.75	5.15	5.50	5.90

Each Saw Wrapped in Paper; Teeth Protected by Wood Strip.

For Shipment, One to Six Wide Blade Saws as Ordered, are Wired to a Board Weighing about 7 lbs.

Plain or Peg Tooth, Wide Blade.**No. K106—KEEN KUTTER* 14x16 Gauge.**

Length, feet	4½	5	5½	6
Width at Center, inches	6¼	6¾	7	7¼
Weight each net about, lbs.	4	5	6	7
Each	\$2.60	2.90	3.20	3.50

**Lance Tooth, Perforated, Wide Blade.****No. K108—KEEN KUTTER* 14x18 Gauge.**

Length, feet	5½	6	6½	7
Width at Center, inches	6¼	6½	6¾	7
Weight each net about, lbs.	6½	7	8	9
Each	\$4.25	4.50	5.00	5.25

No. K109—KEEN KUTTER* 14x19 Gauge.

Length, feet	5½	6	6½	7
Width at Center, inches	6¼	6½	7	7¼
Weight each net about, lbs.	6	7	8	9
Each	\$4.50	4.75	5.25	5.50

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CROSS CUT SAWS.

Without Handles.

If Handles are Wanted, Invariably Specify Separately for Them.

KEEN KUTTER*.

Highest Grade Crucible Steel; Thin Back; Teeth Extra Filed and Carefully Set, Ready for use.

No. K200—KEEN KUTTER*; Extra Polished and Etched; Champion Tooth, Narrow Blade; 14 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches.....	3¾	3¾	3¾	3¾
Weight each net about, lbs....	3½	4	4½	5
Each	\$2.00	2.20	2.40	2.60

No. K202—KEEN KUTTER*; Extra Polished and Etched; Diamond Tooth; Narrow Blade; 14 Gauge.

Length, feet	5	5½	6	6½
Width at Center, inches.....	2¾	2¾	3¼	3¼
Weight each net about, lbs....	3½	4	4½	5
Each	\$2.20	2.40	2.60	2.80

For Shipment, One to Six Wide Blade, or One to Twelve Narrow Blade Saws as Ordered, are Wired to a Board Weighing about 7 lbs.

ONE MAN CROSS CUT SAWS.

With Supplementary Handle.

KEEN KUTTER Cross Cut Saws are made by the World's Best Saw Makers who put into them the Very Best Material and Workmanship.



KEEN KUTTER*.

Highest GRADE CRUCIBLE STEEL, EXTRA POLISHED AND ETCHED, Thin Back, Carefully Ground; Teeth Extra Filed and Set ready for use; Regular (or Butt) Handle, Selected Beechwood, Plain Sides, with Varnished Edges; Supplementary Handle, Varnished Beechwood; Polished Ferrule.

No. K300—KEEN KUTTER*; Champion Tooth.

Length, feet	2½	3	3½	4	4½	5
Weight each net about, lbs.	2½	3	4	5	6	7
Each	\$2.00	2.10	2.45	2.80	3.15	3.50

No. K304—KEEN KUTTER*; Lance Tooth; Perforated.

Length, feet	3	3½	4	4½	5
Weight each net about, lbs.	4	4½	5	6	6½
Each	\$2.55	3.00	3.40	3.85	4.25

Three in a Paper Package; Thirty-six in a Wood Box.



"THE RECOLLECTION OF QUALITY REMAINS LONG AFTER THE PRICE IS FORGOTTEN" - E.C. SIMMONS
TRADE MARK REGISTERED.



TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

HAND, RIP AND PANEL SAWS.

KEEN KUTTER*

HIGHEST GRADE CRUCIBLE SPRING STEEL, Extra Polished and Fancy Etched Blade; Carved and Var-
nished Applewood Handle; Fastened with Special Nickel Plated Screws; Taper-Ground Thin Back Blade;
Teeth Bevel-Filed by Hand and Accurately Set.

The Most Perfect Hand Saw for Car-
penter's Use ever offered to the Trade.



The Tempering of
this Saw is so Uni-
form and Perfect
that the Blade may
be Bent into a Cir-
cle, yet will spring
back Perfectly
Straight.

No. 88—KEEN KUTTER*, HAND; Sway Back, with Four Screws.

Length of Cutting Edge, inches	26	28
Greatest Width of Blade, inches	7 1/4	7 3/4
Width of Blade at Point, inches	2 1/2	2 3/4
Points to the inch	6, 7, 8, 9, 10, 11, 12	5, 6, 7
Weight per dozen about, lbs.	24	27
Per dozen	\$21.00	24.00

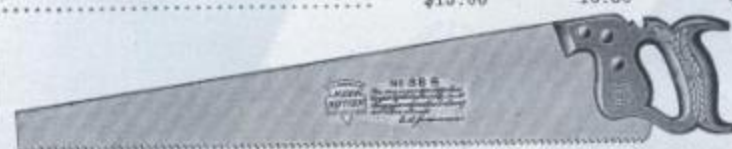
No. 88R—KEEN KUTTER*, RIP; Graduated Teeth, Sway Back, with Four Screws.

Length of Cutting Edge, in.	22	26	28
Greatest Width of Blade, in.	6 1/4	7 1/4	7 3/4
Width of Blade at Point, in.	2 1/4	2 3/4	2 3/4
Points to the inch	6, 7	4 1/2, 5, 5 1/2, 6	4 1/2, 5, 5 1/2, 6
Weight per doz. about, lbs.	20	24	27
Per dozen	\$18.50	21.00	24.00

No. 88—KEEN KUTTER*, PANEL; Sway Back, with Three Screws.

Length of Cutting Edge, inches	18	20	22	24
Greatest Width of Blade, inches	5 1/4	5 3/4	6 1/4	6 3/4
Width of Blade at Point, inches	2 1/4	2 3/4	2 3/4	2 3/4
Points to the inch	8, 9, 10, 11, 12	8, 9, 10, 11, 12	8, 9, 10, 11, 12	8, 9, 10, 11, 12
Weight per dozen about, lbs.	14	16	20	22
Per dozen	\$15.00	16.50	18.50	20.00

Bevel Hand Filed
Teeth.



Taper Ground
Thin Back Blade,
Lessens Friction
and prevents Bind-
ing.

No. 88/S—KEEN KUTTER*, HAND; Narrow, Straight Back, with Four Screws.

Length of Cutting Edge, inches	26
Greatest Width of Blade, inches	5 1/2
Width of Blade at Point, inches	1 1/2
Points to the inch	7, 8, 9, 10
Weight per dozen about, lbs.	20
Per dozen	\$21.00

Highest Grade,
Extra Refined
Crucible
Spring Steel.



Perfect Finish on
Blade and Extra
Carved Large
Handle. Screws
Set Well Apart.

No. 812—KEEN KUTTER*, HAND; Straight Back, with Four Screws.

Length of Cutting Edge, inches	26
Greatest Width of Blade, inches	7 1/4
Width of Blade at Point, inches	2 1/2
Points to the inch	6, 7, 8, 9, 10, 11, 12
Weight per dozen about, lbs.	26
Per dozen	\$28.00

No. 812—KEEN KUTTER*, RIP; Graduated Teeth; Straight Back, with Four Screws.

Length of Cutting Edge, inches	28
Greatest Width of Blade, inches	7 1/4
Width of Blade at Point, inches	2 1/2
Points to the inch	4 1/2, 5, 5 1/2, 6
Weight per dozen about, lbs.	28
Per dozen	\$32.00

No. 812—KEEN KUTTER*, PANEL; Straight Back, with Three Screws.

Length of Cutting Edge, inches	18	20	22	24
Greatest Width of Blade, inches	5 1/4	5 3/4	6 1/4	6 3/4
Width of Blade at Point, inches	2 1/4	2 3/4	2 3/4	2 3/4
Points to the inch	9, 10, 11, 12	9, 10, 11, 12	9, 10, 11, 12	9, 10, 11, 12
Weight per dozen about, lbs.	14	16	20	22
Per dozen	\$20.00	22.00	24.00	26.00

One-third Dozen in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

HAND, RIP AND PANEL SAWS.



Taper Ground,
Thin Back Blade.



Teeth Bevel Filed
by Hand and Ac-
curately Set.

KEEN KUTTER*

HIGHEST GRADE CRUCIBLE SPRING STEEL; Extra Polished and Fancy Etched Blade; Carved and Var-
nished Applewood Handle, Fastened with Special Nickel Plated Screws.

No. 816—KEEN KUTTER*, HAND; Straight Back, with
Four Screws.

Length of Cutting Edge, inches..	26	28
Greatest Width of Blade, inches..	7 $\frac{1}{2}$	7 $\frac{3}{4}$
Width of Blade at Point, inches..	2 $\frac{3}{4}$	2 $\frac{5}{8}$
Points to the inch.....	6, 7, 8, 9, 10, 11, 12	5, 6, 7, 8, 9
Weight per dozen about, lbs.....	24	26
Per dozen	\$23.00	26.00

No. 816R—KEEN KUTTER*, RIP; Graduated
Teeth; Straight Back, with
Four Screws.

Length of Cutting Edge, inches.....	28
Greatest Width of Blade, inches.....	7 $\frac{1}{2}$
Width of Blade at Point, inches.....	2 $\frac{3}{4}$
Points to the inch.....	4 $\frac{1}{2}$, 5, 5 $\frac{1}{2}$, 6
Weight per dozen about, lbs.....	26
Per dozen	\$26.00

No. 816—KEEN KUTTER*, PANEL; Straight Back, with Three Screws.

Length of Cutting Edge, inches.....	18	20	22	24
Greatest Width of Blade, inches.....	5 $\frac{1}{4}$	5 $\frac{1}{2}$	6 $\frac{1}{4}$	6 $\frac{3}{4}$
Width of Blade at Point, inches.....	2 $\frac{1}{4}$	2 $\frac{3}{4}$	2 $\frac{5}{8}$	2 $\frac{5}{16}$
Points to the inch.....	9, 10, 11, 12	9, 10, 11, 12	9, 10, 11, 12	9, 10, 11, 12
Weight per dozen about, lbs.....	14	16	18	22
Per dozen	\$17.00	18.50	20.50	22.00



No. 999—FAST MAIL*, HAND.

Skew Back, with Four Screws.

Length of Cutting Edge, inches.....	26
Greatest Width of Blade, inches.....	6 $\frac{1}{4}$
Width of Blade at Point, inches.....	2 $\frac{3}{4}$
Points to the inch.....	6, 7, 8, 9, 10
Weight per dozen about, lbs.....	24
Per dozen	\$15.00

No. 999—FAST MAIL*, RIP.

Skew Back, with Four Screws.

Length of Cutting Edge, inches.....	28
Greatest Width of Blade, inches.....	7 $\frac{1}{4}$
Width of Blade at Point, inches.....	2 $\frac{3}{4}$
Points to the inch.....	4 $\frac{1}{2}$, 5, 5 $\frac{1}{2}$, 6
Weight per dozen about, lbs.....	28
Per dozen	\$17.00

No. 999—FAST MAIL*, PANEL; Skew Back, with Three Screws.

Length of Cutting Edge, inches.....	18	20	22
Greatest Width of Blade, inches.....	6	6 $\frac{1}{4}$	6 $\frac{3}{4}$
Width of Blade at Point, inches.....	2	2	2 $\frac{3}{4}$
Points to the inch.....	8, 9, 10, 11	8, 9, 10, 11	8, 9, 10, 11
Weight per dozen about, lbs.....	13	18	20
Per dozen	\$9.00	11.00	13.00

One-third Dozen in a Cardboard Box.



'THE RECOLLECTION OF QUALITY REMAINS LONG AFTER THE PRICE IS FORGOTTEN'—E.C. SIMMONS
TRADE MARK REGISTERED.

TRADE MARKS:
E. C. SIMMONS' KEEN KUTTER;
"SWIFT,"
REGISTERED.

HAND AND PANEL SAWS.



SWIFT*.

POLISHED CAST STEEL BLADE; Plain Beechwood Handle, Varnished Edges, with Three Steel Screws.

No. 1600—SWIFT*, HAND; Straight Back.

Length of Cutting Edge, inches.....	26
Greatest Width of Blade, inches.....	6
Width of Blade at Point, inches.....	2 3/4
Points to the inch.....	6, 7, 8, 9
Weight per dozen about, lbs.....	22
Per dozen.....	\$7.00

No. 1600—SWIFT*, PANEL; Straight Back.

Length of Cutting Edge, inches.....	16	18	20	22	24
Greatest Width of Blade, inches.....	4 1/4	4 3/4	5	5 1/4	5 3/4
Width of Blade at Point, inches.....	2	2 1/4	2 1/2	2 3/4	2 3/4
Points to the inch, Assorted.....	7 to 10	7 to 10	7 to 10	7 to 10	7 to 10
Weight per dozen about, lbs.....	11	13	15	18	22
Per dozen.....	\$4.00	4.50	5.00	5.50	6.00

One-half Dozen in a Cardboard Box.

BACK SAWS.

TEETH
CAREFULLY
SET AND
FILED



No. 44—KEEN KUTTER*.

Highest Grade Crucible Steel, Polished Blade; Teeth Set and Filed; Blued Steel Back; Apple Wood Handle with Varnished Edges; Three Nickel Plated Screws.

Length, inches.....	19	12	14	16
Extreme Width, inches....	3 1/4	3 3/4	4 1/4	4 3/4
Weight per doz. about, lbs..	14	16	20	26
Per dozen.....	\$13.00	15.00	17.00	19.00



No. 97—KEEN KUTTER*.

Adjustable and Reversible Combined Panel and Back Saw.

Highest Grade Crucible Steel, Polished Blade; Teeth Set and Filed; Polished Slotted Steel Back; Carved and Varnished Apple Wood Handle; Nickel Plated Screw and Adjustment Lever.

Length, inches.....	12	14	16
Width of Blade, inches.....	3 1/4	3 3/4	4 1/4
Weight per dozen about, lbs.....	18	22	26
Per dozen.....	\$20.00	22.00	24.00

Can be used for either Cross Cut or Ripping Purposes, being Toothed fine on one edge and coarse on the other. Blade can be adjusted to any depth so that it can also be used for making Mitre Cuts to good advantage.

MITRE BOX SAWS.



No. 44M—KEEN KUTTER*.

Highest Grade Crucible Steel, Polished Blade; Teeth Set and Filed; Blued Steel Back; Apple Wood Handle with Varnished Edges; Three Nickel Plated Screws.

Length, inches.....	22	24	26	28
Width under Back, inches....	4	4	4	5
Weight per dozen about, lbs...	34	38	42	51
Per dozen.....	\$26.00	28.00	30.00	36.00

NOTE—The Above Lengths are the Full Length of the Blade. The peculiar shape of Butt or Heel in these Saws makes the Toothed Edge about 2 inches shorter than the Full Length of the Blade.

CABINET SAWS.

Coarse Teeth for Soft Wood and Quick Cuts,
Fine Teeth for Cabinet Work.



KEEN KUTTER*.

Highest Grade Crucible Spring Steel Blade, Full Polished and Etched; Adjustable to Different Angles; Blade has Coarse Teeth on one Side and Fine on the other; All Teeth Set and Filed; Hole in End to hang up if desired; Carved and Varnished Apple Wood Handle; Nickel Plated Screw and Wing Nut for tightening.

No. 91—Length of Blade 12 inches; Width 3 1/4 inches; Weight per dozen about 12 lbs....\$12.00

One-third Dozen in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

COMPASS SAWS.



No. 93—KEEN KUTTER*.

Highest Grade Crucible Spring Steel, Polished Blade, Thin Back; Apple Wood Handle with Varnished Edges; Two Nickel Plated Screws.

Length of Blade, inches.....	12	14	16
Weight per dozen about, lbs.....	6	6½	7
Per dozen	\$4.25	4.50	4.75

One-half Dozen in a Cardboard Box.



KEEN KUTTER*

INTERCHANGEABLE.

Highest Grade Crucible Spring Steel, Polished and Etched Blade, Thin Back; Carved and Varnished Apple Wood Handle; Nickel Plated Screw and Wing Nut.

No. 95—KEEN KUTTER* Length of Blade 12 inches;	Per Dozen
Weight per dozen about 6 lbs.....	\$8.00
One-half Dozen in a Cardboard Box.	

No. 95B—Extra Blades, Polished; For No. 95 Com-	
pass Saws; Length 12 inches; Weight per	
dozen about 2 lbs.....	3.00
Packed Loose.	

INTERCHANGEABLE NESTS OF SAWS.

Quick adjustment by a turn
of a Tightening Lever.



No. 96.

KEEN KUTTER*

Finest Material and Handles.

Highest Grade Crucible Spring Steel, Polished and Etched Blade, Thin Back; Carved and Varnished Apple Wood Handle; Nickel Plated Screw and Tightening Lever.

No. 96—KEEN KUTTER* Including: 1 Handle with	Per Doz. Sets
Screws; 1 Keyhole Blade 10 inches Long;	
1 Compass Blade 14 inches Long; 1 Pruning	
Blade 18 inches Long; Weight per dozen Sets	
about 9 lbs.....	\$20.00
One-half Dozen Sets in a Cardboard Box.	

No. 96K—Extra Keyhole Blades; 10 inches Long; For Nos. 96 and 960 Saws; Weight per doz. about 1½ lbs..	Per Dozen
No. 96C—Extra Compass Blades; 14 inches Long; For Nos. 96 and 960 Saws; Weight per doz. about 2 lbs..	\$2.25
No. 96P—Extra Pruning Blades; 18 inches Long; For No. 96 Saws; Weight per dozen about 2½ lbs.....	3.25
	5.25

Packed Loose.

KEYHOLE SAWS.



Iron Pad Keyhole Saws.

KEEN KUTTER*

HIGHEST GRADE CRUCIBLE SPRING STEEL, POLISHED BLADE; Japanned Malleable Iron Handle. 4¼ inches Long, 1½ inches Wide; BLADE IS REVERSIBLE and Butt End forms a Screw Driver Blade; Round Flat Head, Knurled Nickel Plated Thumb Screw.

No. KP—KEEN KUTTER* Length of Blade 7 inches; Weight per dozen about 2½ lbs.	Per Dozen
No. KB—Extra Blades, Polished; FOR No. KP SAWS; Weight per dozen about ½ lb.	\$3.00
No. KH—Extra Handles or Pads, Japanned; FOR No. KP SAWS; Weight per dozen about 2 lbs.	1.40
	.60

One Dozen in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

STAIR BUILDERS' SAWS.

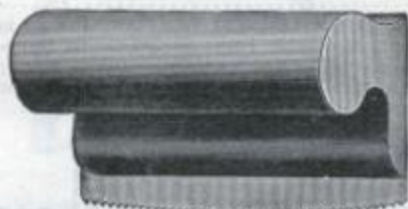


KEEN KUTTER*

Per Dozen

No. KK6—KEEN KUTTER*; Applewood Body, Belted Finish, with Varnished Edges, Shaped into Two Handles, 4½ inch Grip Handle and 3 inch Guide Handle; Highest Grade Crucible Steel Blade, 6 inches Long, Held in Place by Two Brass Screws; Teeth Set and Filed; Blade Adjustable to Project from ¼ to 1 inch; Length over all 11½ inches; Weight per dozen about 9 lbs. \$7.50
One-half Dozen in a Cardboard Box.

VENEER SAWS.



Per Dozen

**No. 1—With 4½ inch Crucible Steel Blade, Tempered; Ash Handle 4½ inches Long; Weight per dozen about 2 lbs. \$3.00
One Dozen in a Cardboard Box.**

BUTCHER SAW BLADES.



No. K—KEEN KUTTER*; HIGHEST GRADE CRUCIBLE SPRING STEEL, Blued, with Punched Ends; ¾ inch Wide; 13 Teeth to the inch; Extra Tempered, Filed and Set, Ready for Use.
Length, inches: 16 18 20 22 24 26
Wgt. dozen about, lbs.: 1 1½ 1¾ 1¾ 1¾ 1¾
Per dozen: \$6.00 6.25 6.50 6.75 7.00 7.25
One Dozen in a Cardboard Box.

SAW PUNCHES.

Nickel Plated Malleable Iron Frame; Tempered Crucible Steel Punch and Die, Operated by Screw and Lever; Length 5½ in.; Slot ¾ in. Deep.



GOODELL.

Per Dozen

No. 200—GOODELL; Weight per dozen about 6 lbs. \$8.00
One-twelfth Dozen in a Cardboard Box.

NOTE—Few Butcher Saw Blades are Punched, Ready For Use, and one of these No. 200 Punches is indispensable; They are Small but Powerful.

COIL SAW BLADES.



KEEN KUTTER*

No. F—KEEN KUTTER*; Highest Grade; Blued; 11 Teeth to the inch.
Width, inches: 5/8 3/4
Weight per coil about, lbs.: 1½ 1¾
Per coil: \$4.75 5.00
One Coil in a Cardboard Box.

CONTINUOUS 25 FOOT LENGTH OF CRUCIBLE SPRING STEEL BLADE. Tempered, Filed and Set, Ready for Use, but Not Punched; Put up in Special Cardboard Container, with Full Directions for Use.

HACK SAW BLADES.



Highest Grade Crucible Aluminum Steel, Hardened, Natural Finish; Teeth Set and Sharpened.

No. KR—KEEN KUTTER*; MEDIUM TOOTHED, 16 Teeth to the inch; For General Metal Cutting.

Length, inches: 8 9 10 12 14 16
Width, inches: ½ ½ ½ ½ ½ ½
Per dozen: \$1.25 1.35 1.50 1.80 2.25 2.75

No. KF—KEEN KUTTER*; FINE TOOTHED, 24 Teeth to the inch; For Sheet Metal or Tubing.

Length, inches: 8 9 10 12
Width, inches: ½ ½ ½ ½
Per dozen: \$1.25 1.35 1.50 1.80

No. KFF—KEEN KUTTER*; EXTRA FINE TOOTHED, 32 Teeth to the inch; For Light Sheet Metal or Tubing.

Length, inches: 8 9 10 12
Width, inches: ½ ½ ½ ½
Per dozen: \$1.25 1.35 1.50 1.80

One Dozen in a Package; Six Dozen in a Cardboard Box; Weight per Box about 2¼ lbs.

For Use in Power Machines.

Highest Grade Crucible Aluminum Steel, Tempered Throughout; Milled Teeth; Natural Finish; Teeth Set and Sharpened; for General Metal Cutting.

No. KP—KEEN KUTTER*; 21 Gauge; 15 Teeth to the inch; ¾ inch Wide.

Length, inches: 12 14 17
Center to Center of Hole, inches: 12 13½ 16½
Weight per dozen about, lbs.: 1 1¼ 1½
Per dozen: \$1.35 1.65 2.20

No. KPP—KEEN KUTTER*; 18 Gauge; 10 Teeth to the inch; 1 inch Wide.

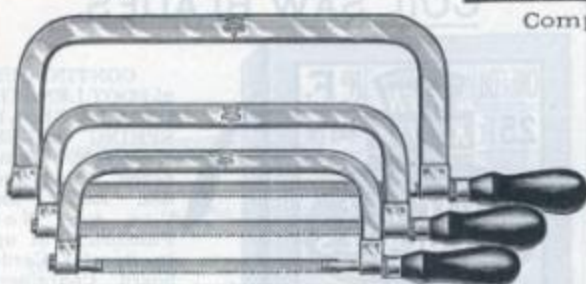
Length, inches: 17
Center to Center of Hole, inches: 16½
Weight per dozen about, lbs.: 2¾
Per dozen: \$2.50
One Dozen in a Cardboard Box.

TRADE MARK
B. C. SIMMONS' KEEN KUTTER
REGISTERED

HACK SAWS.

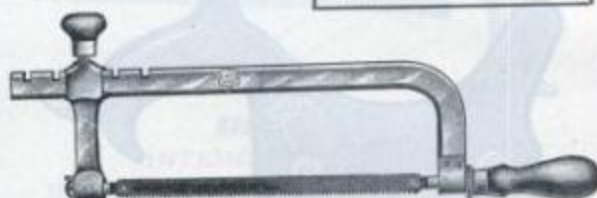
Complete.

A High Grade Tool for
Machinists' or Railroad
use.



No. 108 Series.

KEEN KUTTER*



No. 1812.

FULL NICKEL PLATED FRAMES; Polished Rosewood Handle, complete with One KEEN KUTTER Highest Grade Crucible Aluminum Steel Blade; Blade is Tightened by turning Handle, which is fitted with a Hard Brass Screw Bushing; Lugs on the Blade Pins permit the Blades to be faced up or down, or to either side, as desired.

- Per Dozen
- No. 108—KEEN KUTTER*, EXTRA HEAVY; FOR 8 INCH BLADES; Not Adjustable; Frame is made of $\frac{3}{4} \times \frac{1}{4}$ inch Steel; Depth from Inside of Back to Cutting Edge $3\frac{1}{2}$ inches; Length of Handle $4\frac{1}{2}$ inches; Length over all $15\frac{1}{2}$ inches; Weight per dozen about 13 $\frac{1}{2}$ lbs. \$20.00
- No. 110—KEEN KUTTER*, EXTRA HEAVY; FOR 10 INCH BLADES; Not Adjustable; Frame is made of $\frac{3}{4} \times \frac{1}{4}$ inch Steel; Depth from Inside of Back to Cutting Edge $3\frac{3}{4}$ inches; Length of Handle $4\frac{1}{2}$ inches; Length over all $17\frac{1}{2}$ inches; Weight per dozen about 16 $\frac{1}{2}$ lbs. 30.00
- No. 112—KEEN KUTTER*, EXTRA HEAVY; FOR 12 INCH BLADES; Not Adjustable; Frame is made of $1 \times \frac{1}{4}$ inch Steel; Depth from Inside of Back to Cutting Edge $5\frac{1}{2}$ inches; Length of Handle $4\frac{1}{2}$ inches; Length over all 20 inches; Weight per dozen about 24 lbs. 40.00
- No. 1812—KEEN KUTTER*, EXTRA HEAVY; ADJUSTABLE FOR 8, 9, 10, 11 OR 12 INCH BLADES; Frame is made of $\frac{3}{4} \times \frac{1}{4}$ inch Steel, with Notched Back for Adjustment; Malleable Iron; Nicked and Burnished Sliding Front Piece, fastened by Rosewood Grip Screw Handle; Supplied with One 10 inch Blade; Depth from Inside of Back to Cutting Edge $3\frac{3}{4}$ inches; Length of Handle $4\frac{1}{2}$ inches; Length over all (extended for 12 inch Blade) $19\frac{1}{2}$ inches; Weight per dozen about 25 lbs. 60.00



Strength
and
Lightness
Combined.



KEEN KUTTER*

FULL NICKEL PLATED FRAME, Polished Rosewood Handle, complete with One KEEN KUTTER Highest Grade Crucible Aluminum Steel 8 inch Blade; Blade is tightened by turning Handle, which is fitted with a hard Brass Screw Bushing; Lugs on the Blade Pins permit the Blades to be faced up or down, or to either side, as desired.

- Per Dozen
- No. 188—KEEN KUTTER*; MEDIUM WEIGHT; NOT ADJUSTABLE; FOR 8 INCH BLADES; Frame is made of $\frac{3}{4} \times \frac{3}{16}$ inch Steel; Depth from Inside of Back to Cutting Edge 2 $\frac{1}{2}$ inches; Length of Handle $4\frac{1}{2}$ inches; Length over all 15 inches; Weight per dozen about 11 lbs. \$15.00
- No. 188A—KEEN KUTTER*; MEDIUM WEIGHT; ADJUSTABLE; FOR 8, 9, 10, 11 or 12 INCH BLADES; Frame is made of $\frac{3}{4} \times \frac{3}{16}$ inch Steel, with Steel Sheath, into which the sections of the Frame are held by Tempered Steel Springs; Dimensions same as No. 188; Extreme Length, extended, for 12 inch Blade, 20 inches; Weight per dozen about 13 lbs. \$25.00

One-twelfth Dozen in a Cardboard Box.

METAL CUTTING SAWS.



KEEN KUTTER*

HIGHEST GRADE CRUCIBLE SPRING STEEL BLADE. Full Polished and Etched; Extra Fine Hard Tempered Teeth, Carefully Filed, but not Set; Carved and Varnished Applewood Handle; Polished Screw and Wing Nut for Tightening.

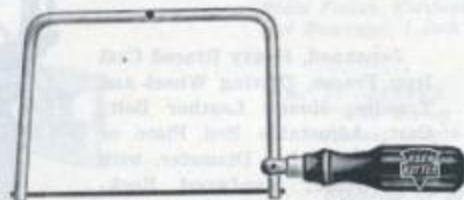
	18	20	24
Length of Cut, inches.....	15	15	15
Teeth to the inch	12	12 $\frac{1}{2}$	13 $\frac{1}{2}$
Weight per dozen about, lbs.	\$24.00	26.00	30.00
Per dozen			

One-third Dozen in a Cardboard Box.

NOTE: KEEN KUTTER* Metal Cutting Saws will readily cut through light Metal, Nails, etc. Especially suitable for wrecking and remodeling Frame Buildings, etc. In Wood, they make a Smooth Cut, adapted for Close Fitting and Finishing Work.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

COPING SAWS.



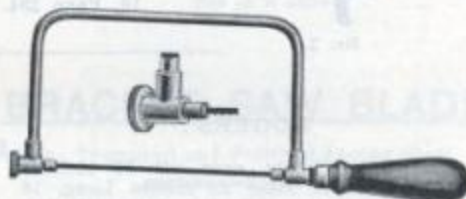
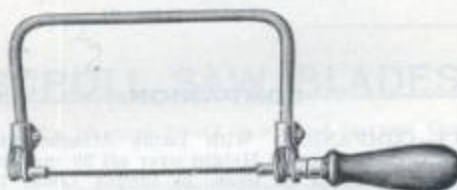
Nickel Plated Steel Frames, Notched at Both Ends so that Blades can be Faced Up or Down or to Either Side as Desired.

No. K6—KEEN KUTTER®; FOR 6 INCH BLADES; Complete with 12 Steel Blades; Black Rubberoid Finish Hardwood Handle; Nickel Plated Steel Tang Riveted through Handle, Nickel Plated Brass Ferrule; Length of Handle 4 inches; Depth under Back 4 inches; Length over all 19 1/4 inches; Weight per dozen about 5 1/2 lbs. \$7.50

One-twelfth Dozen in a Cardboard Box.

No. KB6—KEEN KUTTER® Extra Blades; 6 inch; For No. K6 Coping Saws; Weight per gross about 1/2 lb. \$2.75

One-twelfth Gross in a Package; One Gross in a Cardboard Box.



Nickel Plated Steel Frame; Polished Hardwood Handle 3 1/2 inches Long; With Six 6 inch Steel Blades; Blades may be faced in any desired direction without removing from the work. Length over all 12 inches; Depth under Back 4 inches.

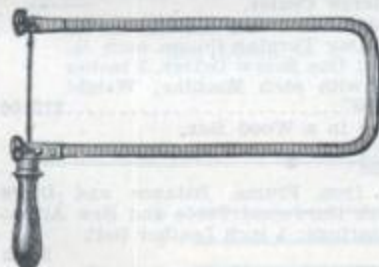
No. 12—JONES'; CABLE; Tubular Frame, with Cord running through, connecting both ends of Blade, making same Adjustable by simply turning the Handle; Weight per dozen about 7 lbs. \$15.00

One-twelfth Dozen in a Cardboard Box.

No. 300—STANDARD; Ratchet; Solid Wire Frame, with Ratchet Nut at Outer End and Ratchet on Handle, for Adjusting Blade; Weight per dozen about 6 lbs. \$9.00

One-sixth Dozen in a Cardboard Box.

SCROLL SAWS.



Nickel Plated Spring Steel Frame; Thumb Screws for Fastening Blades.



No. 2—BRACKET; NOT ADJUSTABLE; With 3 3/4 inch Brad Awl and 12 Steel Blades, 5 inches Long; Depth of Frame 11 1/2 inches; Polished Rosewood Handle 4 inches Long; Three Printed Sheets of Full Size Designs or Patterns also Tracing Paper, included with each Saw; Weight per dozen about 13 lbs. \$15.00

For Extra Blades, see Griffin's Bracket Saw Blades, Nos. 1 to 10, Page 294.

One-twelfth Dozen in a Cardboard Box.

No. J—JEWELERS' ADJUSTABLE; WITHOUT BLADES; Will accommodate Blades from 4 to 7 1/2 inches Long; Polished Cocobolo Handle 4 inches Long; Knurled Face Lock Nut; Depth under Back 2 1/4 inches; Length over all, when fully extended, 12 1/2 inches; Weight per dozen about 5 lbs. \$9.00

One-quarter Dozen in a Cardboard Box.

No. JB—Extra Blades for No. J Jewelers' Saws; Tempered Spring Steel, Blued Finish, 4 3/4 inches Long; Weight per gross about 3 ozs. \$2.50

One-twelfth Gross in a Package.

SCROLL SAWS.



No. 1.

Japanned, Heavy Braced Cast Iron Frame, Driving Wheel and Treadle; Round Leather Belt; Cast, Adjustable Bed Plate or Rest, 7½ inches Diameter, with Saw Guide; Hardwood Rocking Arms, 20¼ inches Long, taking 5 inch Blades, with Wing Screws and Eccentric Lever for Tightening Blades; Automatic Saw-Dust Blower on Upper Arm; Complete with One Dozen 5 inch Blades, 4¾ inch Wrench, Belt Couplings, and Set of Full Size Designs.

For Extra Blades, See Griffin's Bracket Saw Blades, Nos. 1 to 10, Page 294.



No. C1.

ROGERS'.

No. 1—ROGERS'. Height over all 37 inches; Measurement at Base 23 inches Long, 16 inches Wide; Driving Wheel 12 inches Diameter; Steel Shaft with Balance Wheel 5¼ inches Diameter; Belt Wheel 12 inches Diameter; and Wing Screw to Hold Drill Points; One Drill Point, Each ⅜, ½, and ⅝ inch, included with Each Saw; Weight each about 43 lbs.....\$3.50

One in a Wood Box.



No. 45.

COMPANION.

No. C1—COMPANION. With Lathe Attachment; Angular Frame; Height over all 39 inches; Measurements at Base, 25 inches Long, 15 inches Wide; Driving Wheel 13 inches Diameter; with Two Grooves to give a Change of Speed; Steel Shaft with Emery Wheel ⅜ inch Flat Face, 4 inches Diameter; Wing Screw to hold Drill Points; Two Speed Cone Pulleys, 3 inches Diameter; Swing of Lathe 5 inches; Bed 24 inches Long; Distance between Centers 14 inches; One Double Adjustable Tool Rest, 11½ inches Long; and One Single Tool Rest, 4 inches Long; Tail Stock has Screw Feed Center, and can be secured at any point by Clamp; Head Stock has one Spur and One Screw Center.

One Drill Point, Each, ⅜, ⅝, ¾, 1, 1½, 2, and 2½ inches; One Turning Gouge, each ½, ¾, and 1 inch; One Screw Driver, 5 inches Long, included with each Machine; Weight each about 76 lbs.....\$12.00

One in a Wood Box.

Painted; Cast Iron Frame, Balance and Drive Wheels; Plain Finish Hardwood Table and Saw Arms; Steel Arbors and Bearings; 1 inch Leather Belt.

No. 45—BARNES' TREADLE (Factory No. 7); Height over all 44 inches; Length of Table 34 inches; Width 20 inches; Swing around Table, under Arm, 34 inches; Treadle Board, Length 34 inches; Diameter of Balance Wheel 9 inches; Arms, Length 31 inches; Complete with 12 7-inch Tempered and Polished Steel Blades; Assorted Widths as follows: 4 each ⅜, ⅝, ¾ inch; Plain Finish Hardwood Treadle Board; Weight each about 95 lbs....\$15.00

One in a Wood Case.

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***SCROLL SAWS.**

No. 51.

Painted; Cast Iron Frame, Balance, and Drive Wheels;
Plain Finish Hardwood Table and Saw Arms; Steel Arbors
and Bearings; 1 inch Leather Belt.

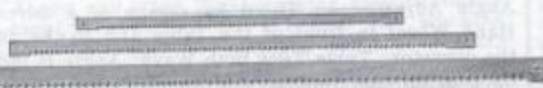
Each

±No. 51—BARNES' VELOCIPEDE (Factory No. 2).
With Boring Attachment; Height over all 48
inches; Length of Table 34 inches; Width 20
inches; Swing Around Table, under Arm, 24
inches; Diameter of Balance Wheel 9 inches;
Diameter of Drive Wheel 21 inches; Saw Arms
31 inches Long; Cranks 5 inches Long; Seat 15
inches Wide; Boring Attachment Belt $\frac{3}{8}$ inch.
Round Leather; Boring Attachment can be used
with Bits any size up to $\frac{1}{4}$ inch; Complete with
12-7 inch Tempered and Polished Steel Blades,
Assorted Widths as follows: 4 each $\frac{1}{16}$, $\frac{3}{16}$,
and $\frac{1}{4}$ inch; Painted Cast Iron Seat, Cranks,
Pedals and Boring Attachment Arm; Weight
each about 130 lbs. \$20.00

±No. 53—BARNES' VELOCIPEDE (Factory No. 2);
Without Boring Attachment; Otherwise same
as No. 51; Weight each about 130 lbs. 18.00
One in a Case.

SCROLL SAW BLADES.

For Barnes' Scroll Saws and Barnes' Combined Machines; Tempered and Polished Spring Steel.



BARNES'.
Scroll Saw Blades.

Per Dozen

$\frac{1}{8}$ inch Wide; 7 inches Long.....	\$0.65
$\frac{3}{16}$ inch Wide; 7 inches Long.....	.65
$\frac{1}{4}$ inch Wide; 7 inches Long.....	.65

Weight per Dozen about 2 ozs.
One Dozen in a Package.

BRACKET SAW BLADES.

No. 10B.

No. 8B.

No. 6B.

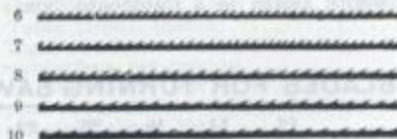
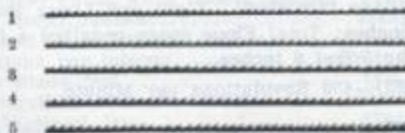
Cuts Actual Size.

BARNES'.
Bracket Saw Blades.

Per Dozen

No. 6B—7 inches Long.....	\$0.25
No. 8B—7 inches Long.....	.25
No. 10B—7 inches Long.....	.25

Weight per Dozen about $\frac{1}{2}$ oz.
Twelve Dozen in a Package.

BRACKET SAW BLADES.

GRIFFIN'S.

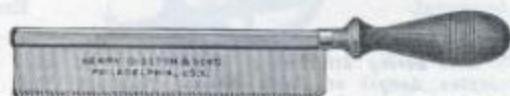
Tempered Spring Steel, Natural Finish; 5 inches Long.

Nos.	1	2	3	4	5	6	7	8	9	10
Per gross	\$1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.20	1.30	1.40

One Gross in a Package; Weight per Gross about $\frac{1}{4}$ lb.



DOVE TAIL SAWS.



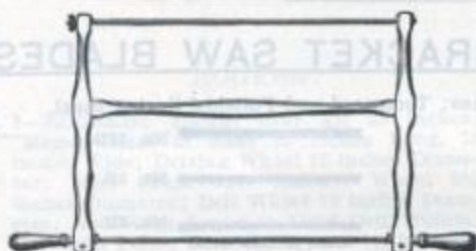
Extra Quality Spring Steel, with Polished Steel Back; Polished Beechwood Handle; Width of Blade $1\frac{1}{2}$ inches.

No. 19.

Length of Blade, inches	6	8	10	12
Weight per dozen about, lbs.	9 $\frac{1}{4}$	11 $\frac{1}{4}$	13 $\frac{1}{4}$	16
Per dozen	\$7.25	7.75	8.75	9.50

One-third Dozen in a Cardboard Box.

TURNING SAWS.



Birchwood Frames, with Ebonized Handles; Tempered Steel Blades; There is an Index on each Handle to tell the Operator just how far to turn it; Friction is regulated by Screws; Each Frame Complete, with One Blade.

No. 50.

Length of Blade, inches	12	14	18
Weight per dozen about, lbs.	15	18	19 $\frac{1}{2}$
Per dozen	\$11.00	11.50	12.00
Length of Blade, inches	20	22	24
Weight per dozen about, lbs.	20 $\frac{1}{4}$	21	24
Per dozen	\$12.50	13.00	13.50

One-twelfth Dozen in a Cardboard Box.

EXTRA BLADES FOR TURNING SAWS.

Size, inches	12	14	18	20	22	24
Per dozen	\$1.45	1.60	2.00	2.25	2.50	2.80

Packed Loose.

BAND SAWS.



Heavy Base and Arm; Ribbed Table on Arms for Angle Adjustment; Tilted by means of a Screw and Hand Wheel in front of the Table and to the right of the operator; Table Tilts Both Ways; Angle is indicated on Dial on the front of the Machine. Cast iron Band Wheels with Rubber Bands Vulcanized to the Wheels; Tight and Loose Pulleys Accurately Balanced; Tight Pulley is Keyed to Shaft; Loose Pulley Bushed with Bronze and Equipped with Oil Cups; Can be Adjusted for Different Length Blades by means of a Hand Wheel; Roller Guides above and below Table.

BASE—46 inches Long and 23 inches Wide; Height 7 feet $1\frac{1}{2}$ inches.

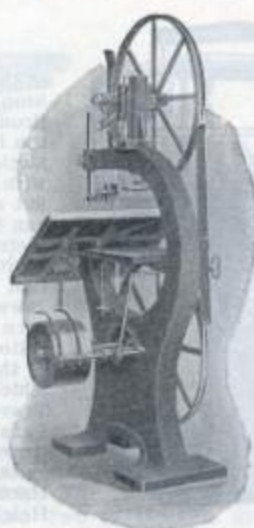
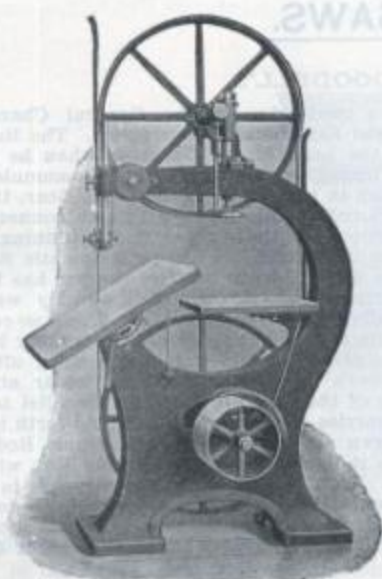
TABLE—40 inches Long and 36 inches Wide; Height 40 inches from Floor; Bracket under Table $11 \times 8\frac{3}{4}$ inches; Tilts 45 Degrees one way and 5 Degrees the other; Auxiliary Table 21×22 inches.

WHEELS—Diameter 38 inches; Carry Blades up to 2 inches Wide and from 18 to 20 feet Long; (20 foot Blade furnished); Tight and Loose Pulleys $12 \times 4\frac{1}{2}$ inches; Total Floor space required 4 feet 6 inches by 5 feet 6 inches.

SPEED—450 Revolutions per Minute.

No. 16—As described above; Weight each, crated, about 3200 lbs. Each
\$450.00
One in a Crate.

BAND SAWS.



For all Regular Work in Factories, Planing Mills, Pattern Shops, and other Wood-working Establishments, this is usually considered the Standard Size Machine. It has Ample Strength and Capacity for any ordinary work. For completeness in detail, elegance of design, and Durability, the 36-inch Crescent Band-Saw will stand comparison with any in the market. The Frame is Cast in One Piece, Cored out Hollow Throughout. The Upper Shaft revolves in a Bearing $1\frac{1}{2}$ inches in Diameter, 12 inches Long. The Belt-shifter Handle is on Front Side of Machine. An Oil Chamber with self-oiling arrangement is provided for Loose Pulley. Table Tilts to any Angle up to 45 Degrees; Has a Quick-acting Locking Device and an Accurate Scale to show the Angle. The Machine has a Spring Tension for the Saw and Counter-balanced Hexagon Steel Guide Bar. Each Machine is furnished with One Anti-friction Roller Saw guide above Table, one Plain Guide Below Table, One Brazing Tong, One Brazing Clamp, and One Saw Blade $\frac{3}{4}$ inch Wide.

No.	36
Size of Wheels, inches.....	36x2
Distance clear from saw to frame, inches....	36
Height clear under guide, when raised, inches....	17
Size of Table (iron), inches.....	28x32
Size of Tight and Loose Pulleys, inches.....	12x4
Speed, revolutions per minute.....	400 to 450
Length of Saw Blade, feet.....	18½
Floor Space required, over all, inches.....	39x57
Shipping weight about, lbs.....	1200
Each.....	\$130.00

This is a Good Size Machine, where the work to be done is not of extremely large dimensions, or where the amount of work would not justify the purchase of a more expensive Machine. In Construction, Workmanship and Design the Machine is the equal of the 36 inch Size; and, like it, the Frame is Cast in One Piece, Cored out Hollow Throughout. The Upper Shaft Revolves in a Bearing $1\frac{1}{2}$ inches Diameter, 10½ inches Long. The Belt Shifter Handle is on Front Side of Machine. An Oil Chamber with Self-oiling Arrangement is provided for Loose Pulley. Table Tilts to any Angle up to 45 Degrees; Has a Quick-acting Locking Device and an Accurate Scale to show the Angle. The Machine has a Spring Tension for the Saw. The Guide Bar is of Hexagon Steel; is not counterbalanced, as it is not Heavy enough to require it. Each Machine is furnished with One Anti-friction Roller Saw Guide above Table, One Plain Guide Below Table, One Brazing Tong, One Brazing Clamp, and One Saw Blade $\frac{1}{2}$ inch Wide.

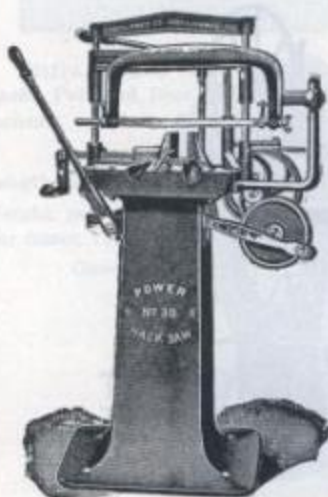
No.	32
Size of Wheels, inches.....	32x1½
Distance clear from saw to frame, inches....	32
Height clear under guide, when raised, inches....	13
Size of Table (iron), inches.....	24x28
Size of Tight and Loose Pulleys, inches.....	12x3½
Speed, revolutions per minute.....	400 to 450
Length of Saw Blade, feet.....	16½
Floor Space required, over all, inches.....	35x48
Shipping weight about, lbs.....	900
Each.....	\$105.00

One in a Crate.



POWER HACK SAWS.

GOODELL'S.



This Illustration conveys a good idea of the General Characteristics of this Machine. It is Compact and Economizes Floor Space. The Raising and Stop Levers are Convenient to the hand of the Operator when he stands in Front of the Machine. It has a Geared Drive. The Power is Communicated from the Pulleys to a Pinion Gear which in turn engages the Drive Gear, the Sliding Motion to Saw Frame being produced by the use of a Pitman connecting Gear with Frame. This not only produces a Perfectly Smooth Running Machine, but also requires but little power to operate. It has an Automatic Stop which can be set to stop the saw at any desired depth or after the bar has been completely cut off. The Stop or Starting Lever is connected directly with a Belt Shifter on the Tight and Loose Pulleys of the Machine. The Vise is so constructed that it is Perfectly Square with the Saw and the Bed of it extending beyond the Jaws avoids the possibility of sawing into the end of the work after it has been cut off, and will take in work $4\frac{1}{2} \times 1\frac{1}{2}$ inches. Particular attention is called to the fact that the Blade of the Saw always Runs Parallel to the Bed of the Vise. The Frame which carries the Saw runs back and forth in a Guide, which in Turn Slides up and down on the Perpendicular Guide Rod, and the Traveling Motion is conveyed to it by the Horizontal Guide Rod which Runs Parallel to the Blade of the Saw. Tight and Loose Pulley 6 inches in Diameter Geared 3 to 1, Machine should run 45 to 50 Strokes per minute to get best results. Pulley should run 150 Revolutions per Minute. One 12 inch Goodell Hack Saw Blade is furnished with each Machine. Extreme Height 43 inches; Height to Bed of Vise 28 inches.

No. 30—As Described Above; Weight each about 140 lbs. Each \$30.00

One in a Crate.



STAR.

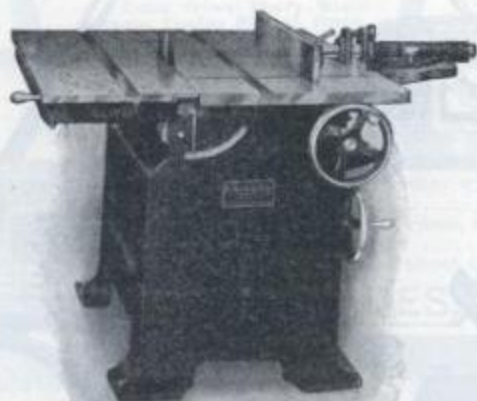
No. 8—STAR, Painted, Cast Iron Frame; Designed for Cutting Iron and Steel; it adapts itself to all kinds of work and cuts all shapes and sizes up to $4\frac{1}{2}$ inches in Diameter. It is Self-feeding, Requiring no attention while making a Cut, and Stops Automatically when the work is completed. It is arranged for Blades either 10, 11 or 12 inches in Length and can be adjusted to fit all; Six 12 inch Blades are furnished with each Machine. The Speed recommended is 45 Strokes per Minute. Size of Pulley $13\frac{1}{2} \times 2\frac{1}{2}$ inches; Height over all 4 feet; Length $2\frac{1}{2}$ feet; Weight each, crated for shipment, about 200 lbs. \$25.00

One in a Crate.

MT



UNIVERSAL SAW BENCH.



Modern in Construction; Superior in handling work in great variety; The Metal is carefully distributed resulting in the entire elimination of Vibration; The Table is divided into Two Sections, a Sliding Section of Suitable Width and a Stationary Section having Extension to facilitate the use of the Guide or Fence over the Entire Width of the Table; a Hardwood Strip is secured underneath the outside edge of Table Top to facilitate the use of Hand Screws when desired. The whole Top may be Tilted and operated at Any Angle between the Square (90 Degrees) and the Miter (45 Degrees) by simply turning the lower Hand Wheel which operates a Carefully Adjusted Worm Wheel, Arm and Lever, and is securely held in position without either tightening or loosening any Bolts or Nuts. A Dial which is easily read while working the Tilting Device will indicate the Exact Degree of Pitch attained. Equipped with an Idler Jack with Pulleys 6x6 inches. Two Universal Gauges for light work. Countershaft very Substantial, fitted with Two Hangers having Strong Journal Boxes; The Loose Pulley has a Bronze Bushing and never runs dry; The Unique Belt Shifting Device may be operated by means of a Lever and the workman does not have to leave his position at the Saw to use it quickly. Furnished with a 16 inch Rip Saw, a 16 inch Cut-off Saw, Ripping Gauge, Two Miter Gauges and One Cut-off Gauge, Countershaft, Hangers and Pulleys.

BASE—40 inches Long and 36 inches Wide; Height to Table 32 inches.

TOP—36x44 inches; Height from Floor 36 inches; Sliding Section 16 inches Wide and 44 inches Long; Stationary Section 20 inches Wide and 44 inches Long; Extension to Stationary Section 12 inches Wide; Tilts to Angle of 45 Degrees. Throat in Table can be opened to 2 inches.

SAW ARBORS— $1\frac{3}{16}$ inch in Diameter; where Saws are applied, 1 inch in Diameter; Yoke has Side Bearings, $6\frac{1}{2}$ inches Diameter, 2 inches Wide. Bearings, 5 and 4 inches Long, $1\frac{3}{16}$ inch Diameter. Pulleys, $4\frac{1}{2}$ inches Diameter, $5\frac{1}{2}$ inch Face. Speed of Arbors, 2770 Revolutions per Minute.

COUNTERSHAFT—Length 42 inches; Diameter, $1\frac{1}{2}$ inches; Hangers 14 inch Drop. Bearings 6 inches Long, $1\frac{1}{2}$ inches diameter. Tight and Loose Pulleys, 10 inches Diameter, 6 inch Face. Driving Pulley 20 inches Diameter, $5\frac{1}{2}$ inch Face. Speed, 625 Revolutions per Minute. Floor Space required, including Countershaft on floor, 88x48 inches.

HORSE POWER—Five.

CAPACITY—Will Rip Stock 26 inches Wide; when using a 16 inch Saw will Rip $4\frac{1}{2}$ inches Thick. Will Cut off 36 inches Wide up to $1\frac{1}{2}$ inches Thick; By using a Dado Head Grooves may be cut to $4\frac{1}{2}$ inches Wide. See page for Dado Heads.

No. 60—As Described Above; Weight each, crated, about 1900 lbs. Each

One in a Crate.

WOOD TRIMMERS.

FOX UNIVERSAL.

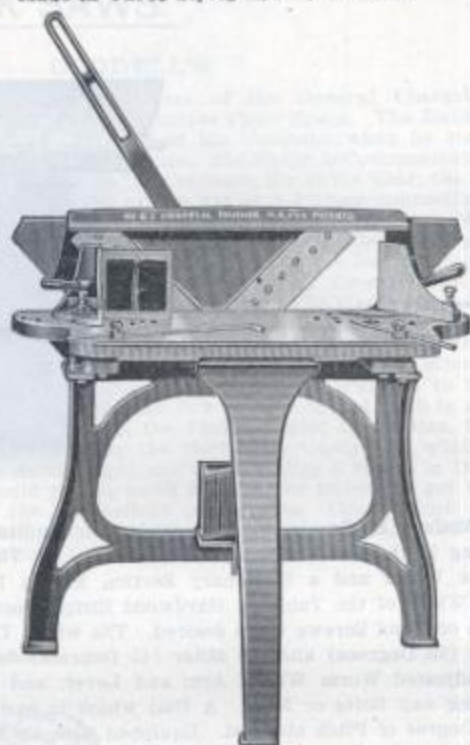
Painted Cast Iron Frames; Steel Blades.

Wherever it is desired to Accurately True up the end of a piece of Wood at any angle, there is nothing to equal one of these Trimmers. A Single Stroke of the Knife produces a surface which for Accuracy and Smoothness cannot be duplicated with a Block Plane and Bevel Protractor. Made in Three Styles and Seven Sizes.



No. 6F.

THE STYLE F TRIMMERS illustrated are made in Two Sizes; they are the Largest and most Complete Trimmers manufactured. They cover the widest range of Angles and have absolutely everything in the way of up-to-date features and conveniences which can be applied to Trimmer Construction. One of these should be used in every Pattern Shop, with a sufficient number of Small Sizes so that each workman will have immediate and Convenient access to Trimmers for all work.



No. 6E.

THE STYLE E TRIMMERS illustrated are made in Two Sizes. They furnish a Medium Capacity, Medium Complete Machine at a moderate Price and are very popular.



No. 5A.

THE STYLE A TRIMMERS illustrated are made in Three Sizes, exactly similar in everything except capacity. They are desirable for use on each individual workman's bench, thus supplementing the Large, Full Universal, General Shop machine. They are also convenient for carrying from place to place.

Nos.	4A	5A	6A	4E	6E	6F	8F
Height of Cut, inches.....	4	4½	6	4	6	8	8
Length of Cut, inches.....	8	8	12½	9½	12½	19	24½
Size of Bed, inches.....	7½x17½	9½x20	11½x27½	13x29½	18x39½	18x35	24x40
Weight each about, lbs.....	31	50	118	200	422	455	700
Shipping weight about, lbs.....	45	65	155	230	480	555	825
Each.....	\$45.00	50.00	90.00	130.00	180.00	260.00	300.00

One in a Crate.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

WOOD SAWS.



No. K.

A High Class Saw. For
Temper, Finish and Cut-
ting Qualities Cannot be
Excelled.

Extra Select Heavy Maple
Frame, Double Riveted, Brace,
with 26 inch Long Arm; 23 inch
Giant Pattern Steel Stretcher
Rod with Heavy Japanned Buckle.
Highest Grade Crucible Steel 30
inch Blued Blade.

KEEN KUTTER*



No. BE.

Per Dozen

- No. K—KEEN KUTTER* EXPERT; Carved Walnut Stained and Varnished Frame; with No. 95 KEEN KUTTER Expert
Peg Tooth Blade; Weight per dozen about 55 lbs. \$18.00
- No. BE—KEEN KUTTER BLUE BRAND*; Plain, Blue Painted and Varnished Frame, with No. 94 KEEN KUTTER Expert
Champion Tooth Blade; Weight per dozen about 55 lbs. 18.00
- One-half Dozen in a Box; Weight per Dozen about 55 lbs.

WOOD SAW BLADES.



No. 89. Common Tooth.



No. 90. Lightning Tooth.

For
Temper,
Finish
and
Cutting
Qualities
cannot be
Excelled.

KEEN KUTTER*



No. 94. Champion Tooth.



No. 95. Peg Tooth.

Highest Grade Crucible Spring Steel, Extra Thin Back; Patent Ground and Tempered; Extra Set and
Filed; Length 30 inches.

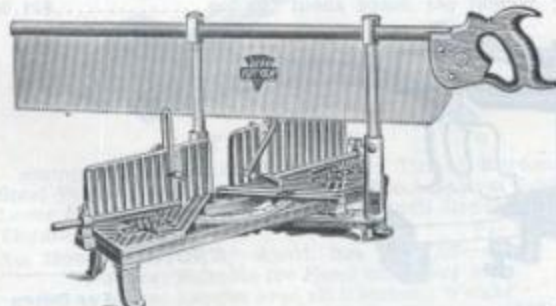
- | | Per Dozen | | Per Dozen |
|---|-----------|---|-----------|
| No. 89—KEEN KUTTER*; Polished; COMMON TOOTH;
Bow Belly; Assorted 4½ to 5½ Points;
Width at Center 2¼ inches; Weight per dozen
about 6¼ lbs. | \$7.00 | No. 98—KEEN KUTTER BLUE BRAND* Blued; PEG
TOOTH; Bow Belly; Extra Deep Cut;
Width at Center 2¼ inches; Weight per dozen
about 6¼ lbs. | \$8.00 |
| No. 90—KEEN KUTTER*; Polished; LIGHTNING
TOOTH; Straight Breast; Width at Center
2¼ inches; Weight per dozen about 6¼ lbs. | 7.00 | No. 94—KEEN KUTTER* EXPERT; Blued; CHAM-
PION TOOTH; Straight Breast; Width at
Center 2¼ inches; Weight per dozen about
6¼ lbs. | 10.00 |
| No. 86—KEEN KUTTER*; Polished; CHAMPION
TOOTH; Straight Breast; Width at Center
2¼ inches; Weight per dozen about 6¼ lbs. | 8.00 | | |

One Dozen in a Package.

USE E. C. SIMMONS' CARPENTERS' SPECIAL SLIM TAPER FILE for Filing all except PEG TOOTH
BLADES; (No. 98), USE 5 INCH CANT FILE.

MITER BOXES.

KEEN KUTTER*



KEEN KUTTER*, Complete with Saw.

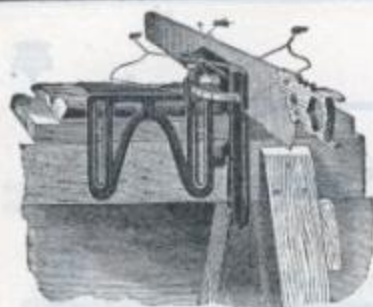
Cast Iron, Nickel Finish; Ribbed Back and Bottom;
Ground Surface; Saw Guides with Automatic Support by
which Saw is supported above work; Has Graduated Arc
in Front, Marked in Degrees, Angles and Sides; Furnished
with a Device that will Lock at any Degree or Angle;
Has Notches to Lock at Positive Angles commonly used;
To Extend Post to take in Larger Work, loosen the Hexa-
gon Nut on the Front Bar; Provided with Two Top
Clamps for holding Work in place; Also Two End Guides
which can be used for holding Work in place or as Length
Gauges.

This Box will take any Standard Saw such as KEEN
KUTTER or Disston.

Each

- No. K528—KEEN KUTTER*; Complete with Miter Box Saw No. 44MK, 28 inch; Size of Saw 5x28 inches; Capacity at
Right Angles 10¼ inches; Capacity at Miter 7 inches; Extreme Width of Base 6¼ inches; Length
over all 29 inches; Height of Back 3½ inches; Width of Bottom 4¾ inches; Legs 2½ inches Long;
Weight each, with Saw, about 26 lbs. \$20.00

One in a Wood Box.



MITRE BOXES.

SEAVEY'S.

Cast Iron Frame, Riveted together, Painted Black; Thumb Screws and Graduated Arc, Nickel Plated. Any Hand Saw can be used. Box can be used on top of the wood or attached to a Bench or Board. In placing Saw between the Plates keep the Teeth below the Guides. Can be folded up so as to conveniently be carried in Tool Box or Coat Pocket. Angle desired to be cut can easily be adjusted on the Graduated Arc on the Side of Guide and is held in place by a Lug drawn into the Indentations on Bottom of Arc by Thumb Screw.

Each

No. 159—SEAVEY; WITHOUT SAW; Height over all 8 inches; Width over all 8 inches; Weight each about 2 lbs. \$2.50
One in a Wood Box, Four Dozen in a Case.

STANLEY'S.

Cast Iron Single Piece Frame, With Malleable Iron Legs; Painted Red.

Each

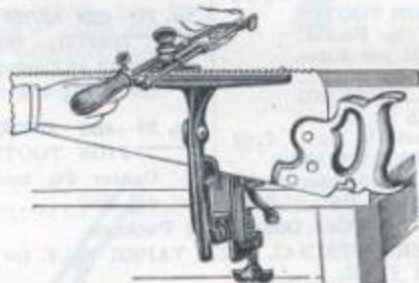
No. 50½—STANLEY'S Adjustable, Without Saw; Takes Back or Panel Saw 20 inches Long; Extreme Width of Base 12 inches; Length over all 18½ inches; Weight each about 20 lbs. \$6.50

NOTE—The Swivel is provided with an Index Pin which engages holes in the Frame at the commonly used angles, but can be made stationary at any other angle desired by tightening the Machine Screw in front of the Swivel against the Frame.

One in a Wood Box.

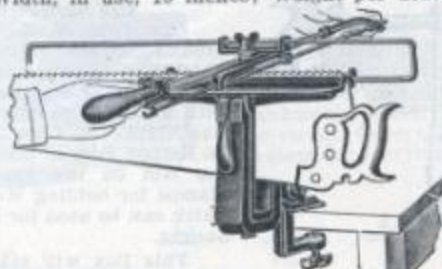
SAW FILERS AND CLAMPS.

Japanned Clamp; With Pivoted Outer Jaw, and Cam Lever to Tighten Same; Malleable Iron Adjustable File Attachments and Slide; Polished Steel Wire Guide; Complete with One 6 inch Slim Taper File, with Hardwood Handle; Clamps to Bench.



Per Dozen

No. 3/SF—STEARNS; With No. 3 Pattern 9½ inch Clamp; Plain Faced Jaws, Slide 11½ inches Long; File 6 inches Long, with 4½ inch Handle; Will File 12 inches without Changing position of Saw; Height over all 12½ inches; Width, in use, 15 inches; Weight per dozen about 108 lbs. \$24.00



Per Dozen

No. 3D—DISSTON'S; With Special Heavy 12½ inch Clamp; Plain Faced Jaws, Slide 16½ inches Long; Will File 13½ inches without changing position of Saw; Height over all 13 inches; Width in use 14 inches; Weight per dozen about 240 lbs. \$30.00

One-twelfth Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER;
REGISTERED.

SAW SETS.

KEEN KUTTER*

Malleable Iron, Nickel Plated; Blued Steel Screws, Spring and Sliding Gauge; Highest Grade Crucible Hardened Steel Plunger and Anvil; Loose Lever Handle at Bottom.

Finest Nickel Plated
Finish; Best
Steel Setting
Parts.



No. 195—KEEN KUTTER*: Dial Pattern, with Revolving Anvil; Anvil can be set by the Dial on Front to a suitable bevel for setting Blades of from 4 to 16 points to the inch; Suitable for Hand and other Fine Tooth Saws; Length over all 7 inches; Weight per dozen about 8 lbs. \$15.00

Per Dozen

No. K3—KEEN KUTTER*: Regular Pattern; Suitable for Single Tooth Cross-Cut and Small Circular Saws; Sliding Anvil regulated by Set Screw; Length over all 9 inches; Weight per dozen about 17 lbs. \$15.00

Per Dozen

No. K4—KEEN KUTTER*: Regular Pattern; Suitable for Champion or Wide Tooth Cross-Cut Saws; Sliding Anvil regulated by Set Screw; Length over all 9 inches; Weight per dozen about 17 lbs. 18.00



KEEN KUTTER*

Highest Grade Forged Steel Body, Nickel Plated; Flush Knuckle Lap Joint with Steel Screw and Spring; Sliding Malleable Iron Head, with Blued Steel Milled Edge Set Screw and Gauge Screw, with Lock Nut; Carefully Machined Anvil and Tapering Plunger; Carefully Shaped and Rounded Handles, Loose Handle at Bottom, Projecting Hand Brace on Top Handle.

Per Dozen

No. K100—KEEN KUTTER*: Suitable for all Sizes of Teeth from Finest Back Saws to Medium Cross-Cut Saws; Length over all 8½ inches; Weight per dozen about 12 lbs. \$22.00



TAINTOR'S.

Stamped Steel Handles and Head; Tinned Hardened Steel Plunger and Anvil; Coppered Steel Spring; Loose Lever Handle at Bottom; Revolving Anvil Regulated by Thumb Screw.

Per Dozen

No. 1900—TAINTOR'S; Anvil has 10 Different Pitches; Suitable for Hand and other Fine Tooth Saws; Length over all 6 inches; Weight per dozen about 7 lbs. \$18.00

One-half Dozen in a Cardboard Box.



HOTCHKISS' Hammer Pattern.

Cast Iron, Japanned; For Screwing into Bench; Hardened Steel Anvil and Plunger; Two Brass Adjustable Depth Gauges, Regulated by Set Screws; Set Screw for Gauging Angle of Set.

Per Dozen

No. 6—HOTCHKISS; Extreme Width 2¼ inches; Height over all 4¼ inches; Weight per dozen about 11 lbs. \$9.00



AIKEN'S, Hammer Pattern.

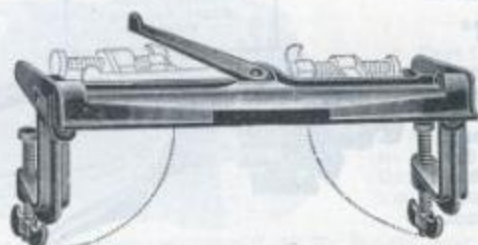
Full Polished; Cast Steel Hammer; Converted Steel Seat; Set Screw for Gauging Angle of Set.

Per Dozen

No. 2A—AIKEN'S PATTERN; Extreme Width 1½ inches; Height over all 3 inches; Weight per dozen about 6½ lbs. \$7.00

One Dozen in a Cardboard Box.

SAW CLAMPS.



STANDARD.

Cast Iron, Japanned; Overhanging Pattern, with Two Hinged Clamps (Open 2 inches), which Fold Compactly for Carrying; Rubber-Faced Jaws, actuated by Cam Lever.

No. 200—STANDARD; FOLDING; With 11 inch Jaws; Length over all 12 1/4 inches; Width 3 1/2 inches; Depth (Open), 5 1/2 inches; Weight per dozen about 56 lbs. \$15.00

One-twelfth Dozen in a Cardboard Box.



STANDARD.

Cast Iron, Japanned; Overhanging Pattern, with Cam Lever to Tighten Jaws.

No. 100—STANDARD; With 11 inch Plain Jaws, with Screw Holes for Fastening to Bench; Length over all 13 inches; Width 3 1/4 inches; Weight per dozen about 36 lbs. \$7.50

One-quarter Dozen in a Cardboard Box.



Clamp Open.



Clamp Folded for Carrying.

STANDARD.

Malleable Iron Body, Lever and Cast Jaws, Japanned; Folding Pattern, with Cam Lever for Tightening Jaws; Folding Steel Wire Sharpened Hooks for Fastening to Bench, and with One Screw Hole on Body for same purpose.

No. 300—STANDARD; FOLDING; With 13 1/2 inch PLAIN JAWS; Height of Body 7 inches; Thickness through Body 3/4 inch; Weight per dozen about 42 lbs. \$12.00

One-twelfth Dozen in a Cardboard Box.



No. 1W.

STANDARD.



No. 3W.

Cast Iron, Japanned; WENTWORTH Pattern; Upright; With Rubber Faced Jaws; Pivoted Outer Jaw with Spring Cam Lever to Tighten Same.

No. 1W—TO SCREW TO BENCH, with 10 1/2 inch Jaws; Height 9 1/2 inches; Width 5 1/4 inches; With Four Screw Holes; Weight per dozen about 60 lbs. \$9.50

No. 3W—TO CLAMP TO BENCH, with 9 1/2 inch Jaws; Height Adjustable by Side Thumb Nut from 8 1/4 to 9 1/2 inches; Width 5 1/4 inches; Clamp with 2 inch Opening; Weight per dozen about 72 lbs. 12.00

Packed Loose.



No. 0.

STANDARD.

Cast Iron, Japanned; Upright Pattern, with Pivoted Outer Jaw, and Cam Lever to Tighten Same.



No. 3.

No. 0—TO SCREW TO BENCH, with 9 inch Plain Jaws; Height 8 1/4 inches; Width 4 inches; With Four Screw Holes; Weight per dozen about 38 lbs. \$6.00

No. 3—TO CLAMP TO BENCH, with 9 inch Plain Jaws; Height Adjustable by Side Lever Screw from 8 to 9 1/2 inches; Width 4 1/2 inches; Clamp with 1 1/4 inch opening; Weight per dozen about 54 lbs. 8.00

STANDARD.

Cast Iron, Japanned; Ball and Socket Pattern; Adjustable to many different positions, and securely locked by Lever Clamp; Pivoted Outer Jaw, with Thumb Nut to Tighten same.

No. 20—Ball and Socket; To Clamp to Bench; with 9 1/4 inch Plain Jaws; Height 15 inches; Width 6 1/4 inches; Clamp with 2 1/4 inch Opening; Weight per dozen about 114 lbs. \$10.50

Packed Loose.



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BENCH HOOKS.

Cast Iron Box and Screw Adjustment, Natural Finish; Top Plate and Edges, Polished; Cast Iron Head, Toothed on one Side for Holding Rough Work; Square Spindle, Polished; Adjustable and Reversible; Fastened to Bench by Four Screws.

MORRILL'S.

No. 1—MORRILL'S PATTERN; Screw Adjustment; Head $1\frac{1}{2} \times 1\frac{1}{2}$ inches; Extreme Height 4 inches; Top Plate $1\frac{1}{2} \times 3\frac{1}{2}$ inches; Weight per dozen about 12 lbs. \$10.00

One-half Dozen in a Cardboard Box.



Cast Iron Box, Ribbed, with Lever Cam, Painted Red; Steel Head, Toothed on One Side for Holding Rough Work; Round Spindle, Polished; Adjustable and Reversible; Fastened to Bench by Four Screws.

STEARNS'.

No. 8/1—STEARNS' Lever Adjustment; Head $1\frac{1}{2} \times 2$ inches; Extreme Height 6 inches; Top Plate $2\frac{1}{2} \times 2\frac{1}{2}$ inches; Weight per dozen about 17 lbs. \$9.00

One-half Dozen in a Cardboard Box.

QUILT FRAME CLAMPS.

No. B.

Cast Iron Frame and Screw; Japanned.

No. A—Opens $2\frac{1}{4}$ inches; PLAIN SCREW; Weight per dozen about 3 lbs. \$1.00
 No. B—Opens $2\frac{1}{4}$ inches; SWIVEL HEAD ON SCREW; Weight per dozen about $4\frac{1}{4}$ lbs. 1.75
 No. C—Opens 3 inches; SWIVEL HEAD ON SCREW; Weight per dozen about 4 $\frac{1}{2}$ lbs. 2.25
 Nos. A and B Two Dozen; No. C One Dozen in a Cardboard Box.

CARRIAGE MAKERS' CLAMPS.

Plain Finish Malleable Iron Frame and Screw; Cut Threads; Swivel Head on End of Screw.

Nos.	$2\frac{1}{2}$ P	4P	6P	8P	10P
Opens, inches	$2\frac{1}{2}$	4	6	8	10
Wgt. per doz. about, lbs.	10	17	30	45	48
Per dozen	\$2.60	4.25	6.50	9.00	11.00

Nos. $2\frac{1}{2}$ P, 4P and 6P, One-half Dozen; Nos. 8P and 10P, One-quarter Dozen in a Cardboard Box.

**COLT'S PATTERN.**

Eccentric; Japanned; Malleable Iron Bar; Loose Self-Locking Rear Jaw, with Swivel Head.

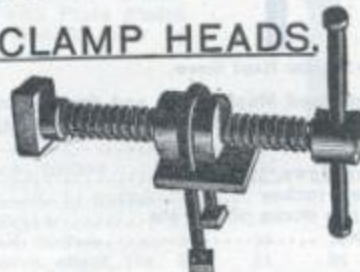
Nos.	0E	1E	2E	3E	4E
Opens, inches	$2\frac{1}{4}$	4	6	8	12
Weight per dozen about, lbs.	$5\frac{1}{2}$	$5\frac{1}{2}$	20	28	31
Per dozen	\$3.60	4.80	6.60	8.40	10.20

**STEARNS' PATTERN.**

Adjustable; Malleable Iron, Plain Finish; Movable Self-Locking Jaw, with Swivel Head on End of Malleable Iron Screw.

Nos.	3	4
Opens, inches	7	9
Weight per dozen about, lbs.	30	40
Per dozen	\$9.00	10.50

One-half Dozen in a Cardboard Box.

CLAMP HEADS.

Per Dozen

No. H—Wrought Iron Head, Plain Finish; Screw, Clamp and Handle; Diameter of Screw, 1 inch; Cut, Double Thread; Weight per dozen about 72 lbs. \$13.50
 One Dozen in a Wood Box.



BENCH HOOKS.



MAPLE.

For Odd Sawing and Chiseling. Keeps the Bench from being marred.

No. 15—Size 8x12 inches; Size of Cleats 1x1½ inches; Weight per dozen about 23 lbs. Per Dozen \$4.00

BENCH STOPS.



Per Dozen Pairs

No. 2—German Pattern; Designed for Carvers and Cabinet Makers; Made of Tool Steel, Painted; Heads Tempered; ¾ inch Square Body, including Spring; 8½ inches Long over all; 7½ inches Long under Head; Weight per dozen pairs about 37 lbs. \$13.00
One-half Dozen Pairs in a Cardboard Box.

ADJUSTABLE HAND SCREWS.

JORGENSEN'S PATENT.



As Regular Hand Screw.



Positions for Beveled Work.



One Jaw Overlapping Other.

Seasoned Maple Jaws and Steel Spindles; Jaws Adjustable to any Angle and Position; Spindles have Right and Left Hand Threads insuring Rapid Adjustment; Spindles Work in Steel Sockets.

No.	J0	J1	J2	J3	J4	J5
Length of Jaws, inches	8	10	12	14	16	18
Jaws open, inches	4	6	8	10	12	14
Weight per dozen about, lbs.	25	32	50	63	85	95
Per dozen	\$6.60	7.80	8.70	9.60	11.40	13.20

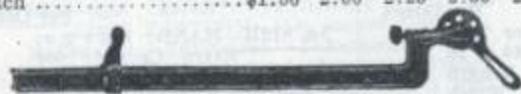
Packed Loose.

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CLAMPS.

STEEL BAR; JAPANNED; CARPENTERS';
Wrought Iron Screw, Malleable Iron
Slides, Screw Guide and Crank.

Nos.	2/SB	3/SB	4/SB	5/SB	6/SB
Opens, feet.....	2½	3	4	5	6
Wgt. per doz. about, lbs..	100	115	130	145	160
Each	\$1.50	2.00	2.25	2.50	2.75



COLT'S PATTERN ECCENTRIC; CABINET
MAKERS'; Japanned, Malleable Iron.

Nos.	1C	2C	3C
Opens, feet.....	2	3	4
Weight per dozen about, lbs.....	47	60	72
Per dozen.....	\$14.40	18.00	21.60



MOUNTED DOOR. Per Dozen

No. 10—Opens 4 feet; Wrought Iron Japanned
Mountings; Plain Wrought Iron Screw;
Well Seasoned Oak Bar, Natural Color;
Weight per dozen about 162 lbs.....\$22.50

DOOR CLAMP IRONS. Per Dozen

No. 5—EXTRA IRONS for Mounted Door Clamps
No. 10; Wrought Iron, Japanned; Plain
Wrought Iron Screw; Weight per dozen about
96 lbs.\$14.00

Packed Loose.

BENCH SCREWS.

No. 2WC.



No. 2½WS.

WOOD, COMMON V-THREAD.

Length of Handle Bar 15 inches; Length over all 23 inches.

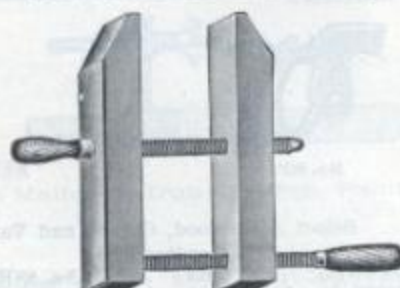
Nos.	2WC	2½WC	3½WC
Diameter, inches	2	2½	3½
Weight per dozen about, lbs.....	54	56	60
Per dozen	\$9.00	9.50	10.00

WOOD, SQUARE THREAD.

Length of Handle Bar 15 inches; Length over all 23 inches.

No.	2½WS
Diameter, inches	2½
Weight per dozen about, lbs.....	60
Per dozen	\$14.00

Two Dozen in a Case.

HAND SCREWS.**CARPENTERS'.**

All Wood; Beechwood Jaws; Well Seasoned Hickory
Screws, Natural Finish.

Nos.	814	813	812	811
Diam. of Screw, in.	¾	¾	¾	¾
Length of Screw, in.	8	10	12	14
Length of Jaw, in...	7	8	10	12
Size of Jaws, in....	1½x1½	1½x1½	1½x1½	1½x1½
Jaws Open, in.....	3	4½	5½	7½
Wgt. per doz., lbs...	13	15	20	33
Per dozen	\$9.50	12.00	14.50	17.00

Nos.	809	807	805	802
Diam. of Screw, in.	¾	1	1½	1½
Length of Screw, in.	16	18	20	24
Length of Jaw, in...	14	16	18	20
Size of Jaws, in....	2x2	2½x2½	2½x2½	2½x2½
Jaws Open, in.....	8½	9½	10½	13½
Wgt. per doz., lbs...	45	70	100	120
Per dozen	\$20.00	23.50	27.00	32.00

Nos. 814, 813, 812 and 811, Packed Two Dozen; Nos. 809,
807, 805 and 802, Packed One Dozen in a Wood Box.

**WROUGHT IRON.**

Japanned; Double
Thread, with Plain Finish
Hickory Handle; Bar 12
inches Long.

Diameter Screw, inches.....	1	1½	1¾	1½
Length from inside of Collar to End of Screw.....	13	13	14	16
Length over all, inches.....	16	16	17	20
Weight per dozen about, lbs.	68	81	94	148
Per dozen	\$6.75	7.50	9.00	12.00

1, 1½ and 1¾, One Dozen in a Wood Box; 1½, One-half Dozen in a Wood Box.

TRADE MARKS:
E. C. SIMMONS' KEEN KUTTER;
REGISTERED.

SAW HANDLES.



No. 88P.



No. 88H.



No. 812H.

KEEN KUTTER*

Select Applewood, Carved and Varnished; BORED READY FOR USE, Without Screws.

No. 88P—PANEL; for KEEN KUTTER No. 88, 18, 20 and 22 inch Panel Saws; Length over all $6\frac{1}{4}$ inches; Width $4\frac{1}{2}$ inches; Weight per dozen about 4 lbs. \$6.00

No. 88H—HAND; for KEEN KUTTER No. 88, 26 inch Hand Saws; Length over all $7\frac{1}{4}$ inches; Width 5 inches; Weight per dozen about $5\frac{1}{2}$ lbs. \$7.50

No. 88R—RIP; for KEEN KUTTER No. 88, 28 inch Rip Saws; Length over all $7\frac{1}{4}$ inches; Width $5\frac{1}{4}$ inches; Weight per dozen about 5 lbs. 7.00

No. 812H—HAND; Large; Extra Carved; for KEEN KUTTER No. 812 and KEEN KUTTER Blue Brand No. 98, 26 inch Hand Saws and 28 inch Rip Saws; Length over all 8 inches; Width $5\frac{1}{2}$ inches; Weight per dozen about 6 lbs. \$7.50

Handsomely Carved
and Finely Polished.

SAW SCREWS.



Brass; Regular Pattern.

No. 1—PLAIN HEAD; SMALL SIZE; Suitable for Panel Saws; Diameter of Head $\frac{7}{16}$ inch; Length $\frac{1}{2}$ inch. \$0.40



Brass; Regular Pattern.

No. 2—PLAIN HEAD; LARGE SIZE; Suitable for Hand or Rip Saws; Diameter of Head $\frac{1}{2}$ inch; Length 1 inch. \$0.50
One Dozen in a Cardboard Box.



Brass; Regular Pattern.

No. 4—EMBOSSED HEAD; LARGE SIZE; Suitable for Hand or Rip Saws; Diameter of Head 1 inch; Length $1\frac{1}{16}$ inch. \$0.75



No. 10.



No. 20.

Brass; Centennial Pattern. Per Dozen

No. 10—PLAIN HEAD; SMALL SIZE; Suitable for Panel Saws; Diameter of Head $\frac{1}{2}$ inch; Length $1\frac{1}{16}$ inch. \$0.50

No. 20—PLAIN HEAD; LARGE SIZE; Suitable for Hand or Rip Saws; Diameter of Head $\frac{1}{2}$ inch; Length $\frac{1}{2}$ inch.60
One Dozen in a Cardboard Box.



No. 30.



No. 40.

Brass; Centennial Pattern. Per Dozen

No. 30—EMBOSSED HEAD; SMALL SIZE; Suitable for Panel Saws; Diameter of Head $1\frac{1}{16}$ inch; Length $\frac{1}{2}$ inch. \$0.75

No. 40—EMBOSSED HEAD; LARGE SIZE; Suitable for Hand or Rip Saws; Diameter of Head $1\frac{1}{16}$ inch; Length $1\frac{1}{16}$ inch.85
Per Dozen Boxes

No. 1A—ASSORTMENT; Consisting of $\frac{1}{4}$ dozen No. 10 and $\frac{1}{4}$ dozen No. 30. \$2.25
No. 2A—ASSORTMENT; Consisting of $\frac{1}{4}$ dozen No. 20 and $\frac{1}{4}$ dozen No. 40. 2.75

One Assortment (4 Screws) in an Individual Cardboard Box; Two Dozen Boxes (96 Screws) in a Cardboard Carton.



REGULAR.

Per Dozen

No. B—REGULAR (or Butt) Handle; Selected Beechwood, Plain Sides, Varnished Edges, not Bored and without Screws; $8\frac{1}{2}$ inches Long, $5\frac{1}{2}$ inches Wide; Hand Hole $3\frac{3}{4} \times 1\frac{1}{4}$ inches; Weight per dozen about 7 lbs. \$6.00
12 Dozen in a Case.

ONE MAN SAW HANDLES.



SUPPLEMENTARY.

Per Dozen

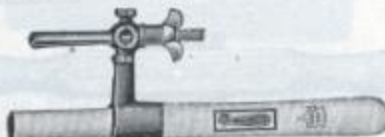
No. A—SUPPLEMENTARY (or Point) Handle; Varnished Beechwood; $5\frac{1}{4}$ inches Long, $1\frac{1}{16}$ inches in Diameter; $1\frac{1}{2}$ inch Polished Ferrule; Malleable Stretcher Pin 3 inches Long, with Rivet and Hook; Weight per dozen about 4 lbs. \$3.00
Packed Loose.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER:
REGISTERED.

CROSS CUT SAW HANDLES.



Sectional View of No. 1400.



KEEN KUTTER®

Select Scored Beechwood Grips, Belted Finish, with Malleable Iron Castings, Painted Red.
Per Pair

No. 1400—KEEN KUTTER®; THROUGH BOLTED LOOP PATTERN; 15½ inches Long, 1¼ inches in Diameter; Japanned, Heavy, Notched Bell Ferrule 2½ inches Long; Tinned Malleable Loop 5 inches Long, with 4 inch Slot, Screwed to Steel Bolt, which extends clear through Wood Grip; Weight per pair about 2 lbs. \$0.75

50 Pairs in a Case.

No. 900—KEEN KUTTER®; W. M. & C. PATTERN; 13½ inches Long, 1¼ inches in Diameter; 1¼ inch Ferrule; 3½ inch Arm; Tinned Steel Loop 6½ inches Long, with 3¼ inch Slot; Blade can be faced in Four Different Directions; Weight per pair about 2½ lbs. \$0.60

Handsomely Scored; Can be held Firmly. Metal Parts Heavy Malleable Iron.



No. 800.

KEEN KUTTER®



No. 1100.

Select Scored Beechwood Grips, Belted Finish, with Malleable Iron Castings, Painted Red.
Per Pair

No. 800—KEEN KUTTER®; LOOP PATTERN; 12 inches Long, 1½ inches in Diameter; Japanned, Heavy Bell Ferrule and Revolving Washer 2¼ inches Long; Tinned Loop 8½ inches Long, with 4½ inch Slot; Weight per pair about 2 lbs. \$0.50

50 Pairs in a Case.

No. 1100—KEEN KUTTER®; CLIMAX; REVERSIBLE PATTERN; 15½ inches Long, 1¼ inches in Diameter; 3 inch Japanned Sheaths; Tinned Screw Clasp and Thumb Nut; Weight per pair about 2 lbs. \$0.45

PLANE HANDLES.

KEEN KUTTER®



FOR KEEN KUTTER® PLANES.

No. KH3—Varnished Rosewood; To fit KEEN KUTTER Iron Planes Nos. KK3, KK3C, KK4, KK4C and KK10½; Weight per dozen about 2 lbs. \$4.20

No. KH5—Varnished Rosewood; To fit KEEN KUTTER Iron Planes Nos. KK4½, KK4½C, KK5, KK5C, KK5½, KK5½C, KK6, KK6C, KK7, KK7C, KK8, KK8C and KK10; Weight per dozen about 2 lbs. 4.20

No. KH26—Varnished Beechwood; To fit all numbers of KEEN KUTTER Wood Bottom Planes; Weight per dozen about 1½ lbs. 2.40

One Dozen in a Cardboard Box.

TURNING TOOL HANDLES



Applewood, Polished Finish; Brass Ferrule; Length over all 9 to 10 inches.

Nos.	1	2	3	4	5
Size of Ferrule, inches..	½	9/16	¾	11/16	¾
Per dozen	\$1.15	1.20	1.40	1.50	1.60
Nos.	6	7	8	9	10
Size of Ferrule, inches..	13/16	¾	15/16	1	11/16
Per dozen	\$1.85	2.10	2.40	2.70	2.75

Packed Loose; Weight per Dozen about 3½ lbs.

AUGER HANDLES.

PECK'S ADJUSTABLE.

Per Dozen

- No. 18—Polished Maplewood; Wrought Iron Clamps and Bolts; Wing Thumb Nuts; Length 18 inches; Weight per dozen about 12 lbs. \$6.00

One-half Dozen in a Package.



IVES'.

Per Set of Two

- No. 2—Polished Hickory Handle; Polished Steel Center Chuck and Clamp; In sets of Two Sizes; Small, 15 inches Long; Large, 18 inches Long; Weight per set about 2 lbs. \$1.50

One Set in a Package.



ROGER'S ADJUSTABLE.

Per Dozen

- No. 3—Japanned Cast Iron Center Frame and Clamp, adjusted by Cast Iron Wing Nut; Polished Hardwood Handles, 1 1/4 inches Thick at End; Steel Ferrules; Shanks of Frame extend into Handles and are secured by Steel Rivet, which passes through Ferrule and Shank; Length of Handles 6 inches; Length over all 16 inches; Width over all at Frame 2 3/4 inches; Weight per dozen about 15 lbs. \$4.50

One-quarter Dozen in a Cardboard Box.



COMMON.

Per Dozen

- No. 1—Plain Finish Hickory; Assorted Lengths 13 to 16 inches; Weight per dozen about 6 1/2 lbs. \$0.75

Two Dozen in a Bundle.

SCREW DRIVER HANDLES.

Per Dozen

- No. 3—Plain Finish Beechwood; Brass Ferrule; Assorted Sizes; To Fit Screw Drivers 4, 5, 6, 8 and 10 inches; Weight per dozen about 2 lbs. \$1.50

One Dozen in a Cardboard Box.

WOOD CARVERS' TOOL HANDLES.

Per Dozen

- No. C—Plain Finish Hardwood; Brass Ferrule; 6 Assorted Medium Sizes 4 1/2 to 6 inches Long; Weight per dozen about 1 lb. \$1.00

Six Dozen in a Cardboard Box.

FILE HANDLES.

Plain Finish Soft Wood; Polished Steel Ferrule.

Per Dozen

- No. 16—ASSORTED MEDIUM SIZES \$0.50
No. 17—ASSORTED LARGE SIZES65

No. 16, 4 Dozen; No. 17, 3 Dozen, in a Cardboard Box.
Weight per Dozen about 1 1/4 lbs.



Per Dozen

- No. 118—Japanned Iron Handle and Clamp; Steel Set Screw Adjustable to hold any size Small Shank Tool; Length 5 inches; Weight per dozen about 4 lbs. \$3.00

One Dozen in a Cardboard Box.

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HANDLES.



SOCKET FIRMER CHISEL. Per Dozen

- No. 15—Plain Finish Hickory; LEATHER CAP-
PED; Assorted Regular Sizes, $5\frac{1}{4}$ to $6\frac{1}{2}$
Inches \$1.80
No. 150—ASSORTED LARGE SIZES, $5\frac{1}{2}$ to $6\frac{1}{2}$
Inches; Otherwise same as No. 15..... \$1.80



TANG BUTT CHISEL. Per Dozen

- No. 45—Plain Finish Hickory; LEATHER CAP-
PED; Brass Ferrule; Assorted Regular
Sizes, $4\frac{1}{4}$ to $4\frac{1}{2}$ inches..... \$2.50
Weight per Dozen about 2 lbs.



SOCKET FRAMING CHISEL.

- No. 166—Plain Finish Hickory; Heavy IRON FER-
RULE at Top; Assorted Regular Sizes, 6
to 7 inches; Weight per dozen about 3 lbs.... \$0.70



SOCKET FIRMER CHISEL.

- No. 167—Plain Finish Hickory; Assorted Large
Sizes, 6 to $7\frac{1}{4}$ inches; Weight per dozen
about 3 lbs..... \$0.50

One Dozen in a Cardboard Box.



COMMON BRAD AWL.

- No. 12—Plain Finish Hardwood; Brass Ferrule;
Assorted Sizes; Weight per dozen about
 $1\frac{1}{4}$ lbs. \$0.75

Three Dozen in a Cardboard Box.



PATENT SEWING AWL.

- No. 6 $\frac{1}{2}$ —Plain Finish Applewood; Steel Jaws and
Clamping Nut; Complete with Wrench;
Assorted Sizes; Weight per dozen about 1 lb. \$1.50

One Dozen in a Cardboard Box.



TANG FIRMER CHISEL. Per Dozen

- No. 35—Plain Finish Hickory; LEATHER CAP-
PED; Brass Ferrule; Assorted Regular
Sizes, $5\frac{1}{2}$ to $7\frac{1}{2}$ inches..... \$2.40



SOCKET FRAMING CHISEL. Per Dozen

- No. 25—Plain Finish Hickory; LEATHER CAP-
PED; Assorted Regular Sizes, $5\frac{1}{4}$ to $6\frac{1}{2}$
Inches \$1.80



SOCKET FIRMER CHISEL.

- No. 168—Plain Finish Hickory; IRON FERRULE
at Top; Assorted Large Sizes, 6 to 7
Inches; Weight per dozen about 3 lbs..... \$0.75



TANG FIRMER CHISEL.

- No. 162—Plain Finish Hickory; Brass Ferrule;
Assorted Regular Sizes, 6 to $7\frac{1}{4}$ inches;
Weight per dozen about 3 lbs..... \$0.75



COMMON SEWING AWL.

- No. 10—Plain Finish Hardwood; Brass Ferrule;
Assorted Sizes; Weight per dozen about $\frac{3}{4}$
lbs. \$0.60



PATENT PEG AWL, LEATHER TOP.

- No. 6—Plain Finish Hickory; LEATHER
CAPPED; Steel Jaws and Clamping Nut;
Complete with Wrench; Weight per dozen
about 2 lbs..... \$1.50

TRADE MARK:
"KLINCHER"
REGISTERED.

LIQUID **KLINCHER*** GLUE.

For Wood, Leather, Glass, Iron, Stone, Paper and Cloth.



KLINCHER*.

In Screw Top Tin Cans, for Mechanics' use.

	Per Dozen
$\frac{1}{2}$ Pt.—Weight per dozen	
about 10 lbs.....	\$3.25
1 Pt.—Weight per dozen	
about 20 lbs.....	5.40
1 Qt.—Weight per dozen	
about 40 lbs.....	9.50
$\frac{1}{2}$ Gal.—Weight per dozen	
about 76 lbs.....	18.50
1 Gal.—Weight per dozen	
about 144 lbs.....	36.00
$\frac{1}{2}$ Pinta, Two Dozen; Pinta and Quarts, One Dozen; $\frac{1}{2}$ and 1 Gallon, One-half Dozen in a Case.	



KLINCHER*.

In Bottles, for Family use, with Brush.

	Per Dozen
1 Oz.—Weight per dozen	
about 3 lbs.....	\$1.07
2 Oz.—Weight per dozen	
about 6 lbs.....	1.65
One Dozen Bottles in a Cardboard Box; 1 oz., Twelve Dozen; 2 oz., Six Dozen in a Case.	



KLINCHER*.

In Screw Top Tin Cans, with Brush, for Family use.

	Per Dozen
$\frac{1}{2}$ GHI—Weight per dozen	
about 4 lbs.....	\$1.65
1 GHI—Weight per dozen	
about 8 lbs.....	2.20
One Dozen in a Cardboard Box; Three Dozen in a Case.	



KLINCHER*.

	Per Case
Assorted Case: Contents: Two Dozen 1 oz. Bottles, One Dozen $\frac{1}{2}$ Gill Cans; One Display Stand 8 inches High, 7 inches Long, 6 inches Wide, and Advertising Cards.....	\$3.75
Weight per Case about 12 lbs.	

HIDE AND BONE GLUE.

	Per Pound
Common; DARK SLATE COLOR	\$
Carpenters'; OLIVE DRAB COLOR	\$
No. C—Cabinet; DARK YELLOW COLOR	\$

Packed Loose.

STEEL WOOL.



A Mass of Fine Fibre of Steel, resembling Curled Hair; Does not Scratch, but will Cut as Smoothly as the Finest Abrasive Material; Best for Rubbing off Varnish, Shellac, etc., and various uses where Sandpaper, Pumice Stone and Rubbing Materials are used; Being Soft and Pliable, it adapts itself to the Shape of Carvings, Mouldings, etc., going into places where Sandpaper does not get in.

	Per Gross
No. 1—EQUALS SANDPAPER No. 0; Weight per gross about 62 lbs.	\$18.00
No. 3—EQUALS SANDPAPER Nos. 1 $\frac{1}{2}$ and 2; Weight per gross about 66 lbs.	18.00
3 ozs. in a Cardboard Tube, Size of Tube 7 inches Long, $\frac{3}{16}$ inch Diameter; One Dozen Tubes in a Box, Twelve Boxes in a Case.	

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TRADE MARK:
E. C. SIMMONS' **KEEN KUTTER**,
REGISTERED.

**FLINT PAPER.****KEEN KUTTER***

In Reams.

In Rolls.

Lists Adopted by the Manufacturers, April 10, 1906.

Highest Grade Fibre Paper with Highest Grade Glue and Sifted Quartz
Coating, Carefully Gauged, Seasoned and Tested.

KEEN KUTTER* FLINT PAPER, IN REAMS of 20 Quires (480 Sheets), 1/4 Ream

in a Package; Sheets, 9x11 inches.

Assorted

Nos.	KF00	KF0	KF1/4	KF1	KF1 1/2	KF2	KF2 1/4	KF3	KFA
Reams in a bundle.....	5	5	5	4	3	3	2	2	3
Weight per ream about, lbs.....	15	17	22	23	33	37	43	58	34
Per ream	\$6.25	6.25	6.25	6.75	7.25	7.75	8.25	9.50	7.25

KEEN KUTTER* FLINT PAPER, IN ROLLS, 50 yards Long, 24 inches Wide.

KF2 1/4

Nos.	
Weight per roll about, lbs.....	40
Per roll	9.25

EMERY PAPER.

With Highest Grade Glue and Best Imported Emery Coating, Carefully Gauged,
Seasoned and Tested.

KEEN KUTTER* EMERY PAPER, IN REAMS of 20 Quires (480 Sheets), one Quire in a Package;

1/4 Ream in a Bundle; Sheets, 9x11 inches.

Assorted

Nos.	KE00	KE0	KE1/4	KE1	KE1 1/2	KE2	KEA
Reams in a bundle.....	5	5	5	4	3	3	3
Weight per ream about, lbs.....	16	24	28	28	35	38	25
Per ream	\$9.25	9.25	9.25	11.00	11.50	12.25	11.50

EMERY CLOTH.

With Highest Grade Glue and Best Imported Emery Coating, Carefully Gauged,
Seasoned and Tested.

KEEN KUTTER* EMERY CLOTH, IN REAMS of 20 Quires (480 Sheets), one Quire in a Package; 1/4 Ream in a Bundle;
Sheets, 9x11 inches.

(Crocus)

Nos.	KCC	KC00	KC0	KC1/4	KC1	KC1 1/2	KC2
Reams in a bundle.....	2 1/2	2 1/2	2 1/2	2 1/2	2	2	2
Weight per ream about, lbs.....	23	33	33	40	44	47	51
Per ream	\$26.50	26.50	26.50	26.50	28.50	29.75	30.75

-318K-

TRADE MARK:
H. C. SIMMONS' KEEN KUTTER
REGISTERED.

WRAPPING PAPER IN ROLLS.



Diameter of Rolls about 9 inches.

KEEN KUTTER* WATER MARKED.

A New Idea and the most novel Wrapping Paper on the Market; Made of 100% Sulphite Pulp, which gives to it strength not contained in Standard Sulphite Paper, 40 lbs. basis KEEN KUTTER being equal in Strength to 80 lbs. Standard Sulphite; Comparing the Wrapping Surface brings the Price of KEEN KUTTER to about the Same.

Nos.	KK9	KK12	KK15	KK18	KK20	KK24	KK30	KK36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	17	22	29	34	38	46	57	68
Per pound	\$0.10	.10	.10	.10	.10	.10	.10	.10

Fibre Papers are made of Wood Pulp, the Quality being established by culling same. The first run Fibre being the longest, makes the Best Grade of Paper.

Printing on Roll Paper Free (with Our Advertisement). See Page 318B to 318J for Information.

No. 1—STERLING, EXPRESS, SODA BLEACHED, in Rolls; Basis 150 lbs. to Ream of 40x48 inches.

	9	12	15	18	20	24	30	36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	23	30	33	42	47	54	70	72
Per pound	\$0.07	.07	.07	.07	.07	.07	.07	.07

No. 2—REGAL, EXPRESS, SULPHITE BLEACHED, Drab Color, in Rolls; Basis 180 lbs. to Ream of 40x48 inches.

	9	12	15	18	20	24	30	36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	21	24	35	40	46	55	60	60
Per pound	\$0.06	.06	.06	.06	.06	.06	.06	.06

No. 7—STERLING, LIGHT MANILA, SULPHITE BLEACHED, in Rolls; Basis 40 lbs. to Ream of 24x36 inches.

	9	12	15	18	20	24	30	36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	19	24	34	40	45	55	58	70
Per pound	\$0.07	.07	.07	.07	.07	.07	.07	.07

No. 4P—STERLING, PINK, EXPRESS, SULPHITE BLEACHED, in Rolls only; Basis 40 lbs. to Ream of 24x36 inches.

	9	12	15	18	20	24	30	36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	22	26	32	40	45	55	58	70
Per pound	\$0.08	.08	.08	.08	.08	.08	.08	.08

No. 4R—STERLING, OX BLOOD, EXPRESS, SULPHITE BLEACHED, in Rolls only; Basis 70 lbs. to Ream of 24x36 inches.

	9	12	15	18	20	24	30	36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	20	30	36	43	48	50	56	72
Per pound	\$0.09	.09	.09	.09	.09	.09	.09	.09

No. 40R—STERLING, OX BLOOD, EXPRESS, SULPHITE BLEACHED, in Rolls; Basis 40 lbs. to Ream of 24x36 inches.

	9	12	15	18	20	24	30	36
Width, inches	9	12	15	18	20	24	30	36
Weight per Roll about, lbs.	22	26	37	43	47	57	60	74
Per pound	\$0.09	.09	.09	.09	.09	.09	.09	.09

SOLD ONLY IN FULL ROLLS.

WRAPPING PAPER IN BUNDLES.



No. 2—REGAL, EXPRESS, SULPHITE BLEACHED, DRAB COLOR, in Bundles of One Ream; Basis 180 lbs. to Ream of 40x48 inches.

Size, inches	22x32	26x36	40x48
Weight per Ream about, lbs.	56	78	180
Per pound	\$0.06	.06	.06

One Ream in a Bundle; Sold Only in Full Bundles.

-319-

ROLL PAPER HOLDERS AND CUTTERS.



KEEN KUTTER*

Cast Iron Mountings, Fastened with Screws to Counter; Sharpened Steel Blade; Bases are made with KEEN KUTTER Design; Hardwood Top, Natural Finish, Varnished, with Colored Transfer of the KEEN KUTTER Trade Mark in the Center; Cuts show various Widths and Methods of combining and do not represent any one number; Numbers refer to one Width only; Any Combination desired can be made, as feet of Brackets are Detachable from Uprights and the latter can then be Attached by Screws to the Top Wooden Bar and then any number can be placed one above the other.

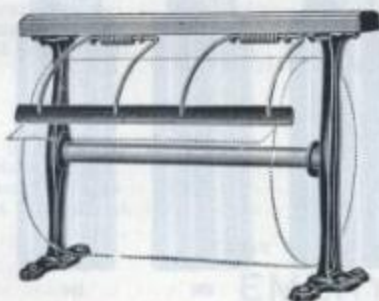
Metal Parts Nickel Plated and Highly

	Polished.	Each
No. KKN 8—Holds 1 Roll only, 6 inch.....		\$2.50
No. KKN 9—Holds 1 Roll only, 9 inch.....		2.65
No. KKN 12—Holds 1 Roll only, 12 inch.....		2.75
No. KKN 15—Holds 1 Roll only, 15 inch.....		2.90
No. KKN 18—Holds 1 Roll only, 18 inch.....		3.00
No. KKN 20—Holds 1 Roll only, 20 inch.....		3.25
No. KKN 24—Holds 1 Roll only, 24 inch.....		3.50
No. KKN 30—Holds 1 Roll only, 30 inch.....		3.75

Metal Parts Japanned.

	Each
No. KKJ 8—Holds 1 Roll only, 6 inch.....	\$2.00
No. KKJ 9—Holds 1 Roll only, 9 inch.....	2.15
No. KKJ 12—Holds 1 Roll only 12 inch.....	2.25
No. KKJ 15—Holds 1 Roll only 15 inch.....	2.40
No. KKJ 18—Holds 1 Roll only, 18 inch.....	2.50
No. KKJ 20—Holds 1 Roll only, 20 inch.....	2.75
No. KKJ 24—Holds 1 Roll only, 24 inch.....	3.00
No. KKJ 30—Holds 1 Roll only, 30 inch.....	3.25

Weight Each about 10 lbs.



Japanned Cast Iron Mounting to be Screwed on Counter; Varnished Hardwood Top; Steel Knife; Tension Regulated by Steel Springs.

Cuts show various widths and methods of combining, and do not represent any one number. Numbers refer to one width only. Any combination desired can be made, as brackets are interchangeable.



	Each
No. 8—Holds 1 Roll only, 6 inch.....	\$1.75
No. 9—Holds 1 Roll only, 9 inch.....	1.90
No. 12—Holds 1 Roll only, 12 inch.....	2.00
No. 15—Holds 1 Roll only, 15 inch.....	2.15

	Each
No. 18—Holds 1 Roll only, 18 inch.....	\$2.30
No. 20—Holds 1 Roll only, 20 inch.....	2.50
No. 24—Holds 1 Roll only, 24 inch.....	2.75
No. 30—Holds 1 Roll only, 30 inch.....	3.00

Weight each about 8 lbs.

PRICES DO NOT INCLUDE PAPER. Packed One in a Case.



EMERY.



GRAIN EMERY Comprises Nos. 16 to 150 Grades.

GRAIN EMERY in 10 lb. Tin Cans; Size of Can 6 inches Deep, 6 inches High, 3 3/4 inches Wide.

Nos.	16C	20C	30C	36C	40C
Grain	16	20	30	36	40
Per pound	\$0.20	.20	.20	.20	.20

GRAIN EMERY, in Kegs, 150 to 300 lbs. each.

Nos.	16K	20K	30K	36K	40K
Grain	16	20	30	36	40
Per pound	\$0.15	.15	.15	.15	.15

FLOUR EMERY Comprises Nos. CF, F and FF Grades.

FLOUR EMERY in 10 lb. Tin Cans; Size of Can 6 inches Deep, 6 inches High, 3 3/4 inches Wide.

Nos.	CFC	FC	FFC
Grade	CF	F	FF
Per pound	\$0.15	.15	.15

FLOUR EMERY, in Kegs, 150 to 300 lbs. each.

Nos.	CFK	FK	FFK
Grade	CF	F	FF
Per pound	\$0.10	.10	.10



Nos. 54 60 70 80 90 100 120 150

GRAIN EMERY, in 10 lb. Tin Cans; Size of Can 6 inches Deep, 6 inches High, 3 3/4 inches Wide.

Nos.	54C	60C	70C	80C	90C	100C	120C	150C
Grain	54	60	70	80	90	100	120	150
Per pound	\$0.20	.20	.20	.20	.20	.20	.20	.20

GRAIN EMERY, in Kegs, 150 to 300 lbs. each.

Nos.	54K	60K	70K	80K	90K	100K	120K	150K
Grain	54	60	70	80	90	100	120	150
Per pound	\$0.15	.15	.15	.15	.15	.15	.15	.15

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ALUNDUM GRINDING WHEELS.



Round Face.



Beveled Face.



Flat Face.

NORTON CO.'S
For General Use.

FLAT FACE.

Nos.	50	51	52	54	53	55	56	60 1/4	60 1/2	60 3/4	57	61	58	62
Grain of Alundum.....	80	60	80	60	60	46	46	60	46	60	60	46	60	46
Diameter, inches.....	4	4	6	6	6	6	6	6	6	6	8	8	8	8
Thickness, inches.....	1/4	1/2	3/4	1/4	1/2	1/2	3/4	3/4	1	1	1 1/2	1/2	3/4	3/4
Weight each about, lbs.....	1/2	3/4	1	1	1 1/2	1 1/2	1 1/2	2	2 1/2	2 1/2	2	2	3 1/4	3 1/4
Each.....	\$0.75	1.10	1.40	1.40	1.75	1.75	2.40	2.40	3.05	3.05	2.60	2.60	3.60	3.60
Nos.	62 1/2	59	63	63 1/2	63 1/4	60	64	65	65 1/2	66	66 1/2	66 1/4	66 3/4	64 1/2
Grain of Alundum.....	36	46	36	46	30	60	46	46	30	46	36	30	46	46
Diameter, inches.....	8	8	8	8	8	10	10	10	10	10	10	10	10	10
Thickness, inches.....	3/4	1	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1	1	1 1/2	1 1/2	2
Weight each about, lbs.....	3 1/4	4	4	6 1/2	6 1/2	3 1/2	3 1/2	5 1/2	5 1/2	6 1/2	6 1/2	10	10	14 1/4
Each.....	\$3.60	4.60	4.60	6.60	6.60	3.65	3.65	5.00	5.00	6.35	6.35	9.05	9.05	11.75
Nos.	64 1/4	67	68	69	72	70	73	71	74	75	77	76	78	79
Grain of Alundum.....	30	46	46	46	30	46	30	36	20	30	20	30	20	20
Diameter, inches.....	10	12	12	12	12	12	12	12	12	14	14	14	16	16
Thickness, inches.....	2	1 1/2	1 1/2	1	1	1 1/2	1 1/2	2	2	1 1/2	2	2	2	2 1/2
Weight each about, lbs.....	14 1/4	4 1/2	7	10 1/2	10 1/2	15	15	18 1/4	18 1/4	20	24	27 1/2	36	46 1/2
Each.....	\$11.75	4.00	6.00	7.40	7.40	10.70	10.70	14.00	14.00	15.95	19.45	19.45	25.00	30.80

BEVELED FACE.

Nos.	84	85	86	87	88	90	91	95	94	98	99	107	102	108
Grain of Alundum.....	80	60	80	60	60	46	46	60	46	36	46	36	46	36
Diameter, inches.....	4	4	6	6	6	6	8	8	10	10	10	12	12	12
Thickness, inches.....	1/4	1/2	3/4	1/4	1/2	1/2	3/4	3/4	1	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Weight each about, lbs.....	1/2	3/4	1	1 1/2	1 1/2	1 1/2	2	2	3 1/2	3 1/2	5 1/2	4 1/2	7	7
Each.....	\$0.75	1.10	1.40	1.75	1.40	2.40	2.60	2.60	3.65	3.65	5.00	4.00	6.00	6.00

ROUND FACE.

Nos.	109	110	111	112	113	114	115	117	118	119	120
Grain of Alundum.....	60	46	60	46	46	46	46	60	46	46	46
Diameter, inches.....	8	8	10	10	10	10	10	12	12	12	12
Thickness, inches.....	1 1/4	1 1/2	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	1 1/2
Weight each about, lbs.....	13 1/4	2	13 1/4	2 1/2	2 1/2	3 1/2	5 1/2	2 1/2	4 1/2	5 1/2	7
Each.....	\$2.10	2.60	3.00	3.35	3.65	4.35	5.00	3.60	4.00	5.00	6.00

Can Furnish any Size Hole Required. Packed Loose.

EMERY WHEEL DRESSERS.



HUNTINGTON PATTERN.

No. HP—Japanned Malleable Iron Handle, Shank and Head; Tempered Tool Steel Cutters; Heavy Screw Axle; Two Sets of Cutters; Diameter of Cutters 1 1/4 inches; Length over all 11 1/2 inches; Weight each about 1 1/4 lbs.	Each
One in a Cardboard Box.	\$4.00
Extra Cutters for No. HP Emery Wheel Dresser; Weight per Set about 2 ounces.	Per Set \$1.00
Packed Loose.	

TRADE MARKS:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

OIL STONES.

**KEEN KUTTER*; MOUNTED.**

Mounted in Solid Mahogany, Lock Corner, Boxes. Varnished; Highest Grade Lily White Washita Grit Stone; Free from all Imperfections.

Per Dozen
No. KM6—KEEN KUTTER*; SIZE OF STONE 6x1 1/2 INCHES; Weight per dozen about 13 lbs. \$11.50
No. KMS—KEEN KUTTER*; SIZE OF STONE 8x1 1/2 INCHES; Wgt. per doz. about 19 1/2 lbs. \$14.00
Six Dozen in a Case.



No. KBS.

KEEN KUTTER*.

Highest Grade Lily White Washita Grit; Free from all Imperfections.

Per Dozen
No. KB/S—KEEN KUTTER*; Round Edge Beveled Slips; About 3 1/2 inches Long, 2 inches Wide; Extra Select; Wgt. per doz. about 3 lbs. \$3.60
One-quarter Dozen in a Cardboard Carton; Thirty-three and One-third Dozen in a Case.

Per Dozen
No. KPP—KEEN KUTTER*; Pen Knife Pieces; 4x1 x 1/2 inch; Weight per dozen about 1 1/2 lbs. \$2.40
One Dozen in a Cardboard Carton; Twelve Dozen in a Case.

**KEEN KUTTER*; UNMOUNTED.**

Highest Grade Lily White Washita Grit; Free from all Imperfections.

Per Dozen
No. KG—KEEN KUTTER*; SIZE 6x2x1 INCH; Wrapped in Paper; Wgt. per doz. about 12 lbs. \$9.00
No. KS—KEEN KUTTER*; SIZE 8x2x1 INCH; Wrapped in Paper; Wgt. per doz. about 15 lbs. \$12.00
One-twelfth Dozen in a Cardboard Carton; Six Dozen in a Case.

**KEEN KUTTER* AXE STONES.**

Highest Grade Lily White Washita Grit; Free from all Imperfections.

Per Dozen
No. KA3—KEEN KUTTER*; 3x2x5/8 inches; Weight per dozen about 4 lbs. \$2.40
One-third Dozen in a Cardboard Carton; Twenty-five Dozen in a Case.

HOW TO USE OIL STONES.

A good Oil Stone may easily be ruined by improper usage or lack of care. A Stone must be carefully selected to conform to the work on which it is to be used. A mechanic who expects a single Stone to grind down his dull, nicked edge tools and, at the same time, to impart a keen edge on his fine tools, using any kind of oil that happens to be handy, will never keep a good Oil Stone.

Oil Stones are often complained of by users, saying that they will not cut, when, as a matter of fact, they are completely coated or varnished over with dried dirt, oil and steel dust in such a manner that the tool could not possibly come in contact with the grit, or "teeth", of the Stone.

A Stone should always be kept clean and moist. Any dryness or exposure to the air hardens it. This is why we put up KEEN KUTTER and CHIPAWAY Stones in individual boxes. The surface of an Oil Stone should be kept as level and smooth as possible, and this can easily be done by the user being careful to use each part of the Stone in turn in his work. The best oil for use with Oil Stones is a light, easy running oil like S. H. Co.'s Triplex Oil, which does not have a tendency to gum or harden.

MT



INDIA OIL STONES.



Gouge Slips.

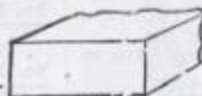
Special Slips with Concave and Convex Surfaces; The large Variety of Curves along its edges makes it Especially Suitable for Sharpening all Styles of Gouges or other round or Hollow Nosed Tools; The Smaller End is useful for Polishing out Hollow Die work, and the Larger Flat End can be used for Sharpening Straight Bevel Edge Tools.

No. 21 —Length 6 inches; Weight per dozen about 4½ lbs.	Per Dozen \$ 9.00
One-twelfth Dozen in a Cardboard Box.	
No. 21½ —Length 9 inches; Weight per dozen about 11 lbs.	12.00
One-sixth Dozen in a Cardboard Box.	



Medium Grit and Fine Grit.

No. 22 —Size 4½x2½x½x5/16 inches; Weight per dozen about 4½ lbs.	Per Dozen \$6.00
No. 22½ —Size 6x2½x½x¾ inches; Weight per dozen about 7½ lbs.	7.20
One-half Dozen in a Cardboard Box.	



Medium Grit and Fine Grit.

No. 24 —Size 4½x1½x¾ inches; Weight per dozen about 4½ lbs.	Per Dozen \$4.80
One-twelfth Dozen in a Cardboard Box.	

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OIL STONES.

WATER OR OIL.



MOUNTED.

	Per Dozen
No. M1½—INDIA; Medium Grit; SIZE OF STONE 7x2x1 INCH; Weight per dozen about 20 lbs.	\$12.00
No. M2—INDIA; Medium Grit; SIZE OF STONE 6x1½x¾ INCH; Weight per dozen about 12 lbs.	9.00

One in a Polished Hardwood Box.



UNMOUNTED.

	Per Dozen
No. UC1½—INDIA; COMBINATION STONES; Medium on One Side, Fine on the Other; SIZE 7x2x1 INCH; Weight per dozen about 15 lbs.	\$12.00
No. UC2—INDIA; COMBINATION STONES; Medium on One Side, Fine on the Other; SIZE 6x1½x¾ INCH; Weight per dozen about 7 lbs.	7.20

One-twelfth Dozen in a Cardboard Box.

NOTE.—These Stones are of an entirely different nature from emery goods and are adapted to the sharpening of all kinds of Tools and for use on all kinds of work for which the Arkansas, Washita and other Natural Stones of like nature are used.

They are superior to Natural Stones, as they cut faster, last longer and keep a better surface; also because of the entire absence of all faults common in the Natural Stone formation, i. e., sand seams, hard and soft spots, pebbles and fractures, proof of which is seen upon an examination of the Stone under a strong glass.

EMERY STONES.



CARPENTERS' COMBINATION OIL STONES.

	Per Dozen
No. E01—SIZE 8x2x1 INCH; One side Coarse, the other Fine; Wgt. per doz. about 18 lbs.	\$10.00
No. E1—SIZE 7x2x1 INCH; One side Coarse, the other Fine; Weight per dozen about 15 lbs.	9.00
No. E2—SIZE 6x2x¾ INCH; One side Coarse, the other Fine; Wgt. per dozen about 10½ lbs.	7.00

One-twelfth Dozen in a Cardboard Box.



SOLID EMERY AXE.

Per Dozen

No. 12—120 GRADE; Coarse, for Ordinary Edge Tools; Size 3x2x¾ inch; Weight per dozen about 5 lbs.	5.00
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One Dozen in a Cardboard Box.



UNMOUNTED.

	Per Dozen
No. UM0—INDIA; Medium Grit; SIZE 8x2x1 INCH; Weight per dozen about 18 lbs.	\$12.00
No. UM1½—INDIA; Medium Grit; SIZE 7x2x1 INCH; Weight per dozen about 15 lbs.	9.00
No. UM2—INDIA; Medium Grit; SIZE 6x1½x¾ INCH; Weight per dozen about 8 lbs.	6.00
No. UM3—INDIA; Medium Grit; SIZE 4x1x¾ INCH; Weight per dozen about 2½ lbs.	3.60

One-twelfth Dozen in a Cardboard Box.



INDIA SLIPS, ROUND EDGE.

	Per Dozen
No. 14—INDIA; Medium Grit; Round Edge Slips; SIZE 4½x1½x¾ INCH; Weight per dozen about 2 lbs.	\$4.20

One-twelfth Dozen in a Cardboard Box.



SOLID EMERY OIL.

	Per Dozen
No. 13—4F GRADE; Finest Emery Flour, for Finest Edge Tools; Size 6x2x¾ inch; Weight per dozen about 9 lbs.	\$10.00
No. E14—120 GRADE; Coarse, for Ordinary Edge Tools; Size 6x2x¾ inch; Weight per dozen about 10 lbs.	10.00

No. 16—120 GRADE; Coarse, for Ordinary Edge Tools; Size 8x2x1¼ inches; Weight per dozen about 18½ lbs.	12.00
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One-half Dozen in a Cardboard Box.



SOLID EMERY SLIPS.

Per Dozen

No. 4—120 GRADE; Coarse, for Ordinary Edge Tools; Size 4½x1½x¾ inch; Weight per dozen about 3 lbs.	3.00
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One Dozen in a Cardboard Box.

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TRADE MARK:
"RUN EASY,"
REGISTERED.**GRINDSTONE FIXTURES.**Heavy
Strong
and
Carefully
Finished.**RUN EASY.**

Extra Heavy; Japanned Cast Iron; Double Roller Bearings; Shaft carefully Threaded; Length of Hand Crank, 9 inches; Length of Lever Crank, 3 inches; Diameter of Axle, 1 1/4 inches; Bearing Cap, 7 1/2 inches Long by 3 inches High; Diameter of Washers, 4 1/4 inches.

Nos.	115	117
Length of Axle, inches.....	15	17
Weight per dozen about, lbs.....	120	132
Per dozen	\$8.00	9.60

One-half Dozen in a Case.

**STANDARD.**

No. 1—STANDARD, Japanned Cast Iron; Double Roller Bearings; Threaded Shaft; Average Length of Hand Crank, 9 inches; Average Length of Lever Crank, 3 inches; Bearing Cap, 6 1/2 inches Long by 3 1/2 inches High; Diameter of Washers, 3 1/4 inches.

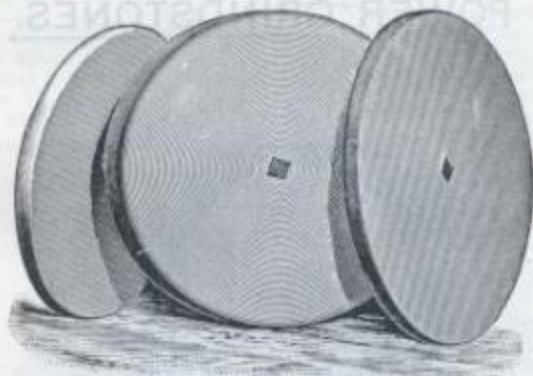
Length of Axle, inches.....	15	17	19
Diameter of Axle, inches.....	1 1/4	1	1 1/4
Wgt. per doz. about, lbs.....	80	85	96
Per dozen	\$6.00	7.00	8.00

GRINDSTONE CRANKS.

No. 1/C—Japanned Cast Iron; Wood Grips; Length 9 inches; Fits No. 1 Grindstone Fixtures; Weight per dozen about 6 lbs....	Per Dozen \$2.50
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GRINDSTONE AXLES.

No. 1A—Japanned Cast Iron; Fits No. 1, 15 and 17 inch Grindstone Fixtures.		
Length, inches	15	17
Per dozen	\$5.00	5.00
Weight per Dozen about 28 lbs.		

GRINDSTONES.

Berea Medium Grit, Unmounted, without Fittings, with Square Hole cut in center for Shaft.

Weight each assorted, lbs.....	20 to 25	25 to 30	30 to 40	40 to 50	50 to 60	60 to 70
Thickness, inches	1 1/2 to 2	1 1/2 to 2	1 1/2 to 2 1/4	1 1/2 to 2 1/4	1 1/2 to 2 1/4	2 to 2 1/2
Diameter, inches	14	15	17	19	21	22
Per ton	\$60.00	60.00	60.00	50.00	50.00	50.00
Weight each assorted, lbs.....	70 to 80	80 to 90	90 to 100	100 to 110	110 to 120	120 to 130
Thickness, inches	2 to 2 1/2	2 to 3	2 to 3	2 to 3	2 to 3	2 to 3
Diameter, inches	22 1/2	22 1/2	23	23 1/2	25	26 1/2
Per ton	\$50.00	50.00	50.00	50.00	50.00	50.00

Packed Loose.

NOTE.—All the above Stones are sold by actual weight (or "cut weight"), which is the exact scale weight as the Stones come from the lathe. This weight is always cut into the Stone. Stones weighing 200 lbs. and over (not carried in stock), are sold by estimated weight, called "measurement weight."

-330- MOUNTED GRINDSTONES.

TRADE MARK: E. C. SIMMONS' KEEN KUTTER, REGISTERED

KEEN KUTTER*

Selected Berea Grit Stone, Mounted on Extra Braced and Bolted Tubular Steel Frame; Braced Securely with Heavy Material; All Rods and Bolts are Threaded; Painted Orange and Black; Weight of Stone 45 to 55 lbs.; Diameter 19 to 21 inches; Thickness 1 1/2 to 2 1/2 inches; Frame 34 inches Long, 16 inches Wide on Floor; Height of Frame from Floor to Axle 28 inches; Frame Tubing Front Legs 1 1/2 inch Diameter, with 3/4 inch Rod Running Across Front Legs to give Strength to Frame, and prevent Legs from Sinking into Ground; Rear Legs 1 1/2 inch Diameter; Flat Steel Braces and Treadle 1 x 1/2 inches; Flat Steel Treadle Rod 3/4 inch; Japanned Malleable Iron Fixtures and Bearing Cap; Heavy Japanned Malleable Iron Water Guard 8 1/2 inches High, 3 3/4 inches Wide; Steel Saddle 10 x 10 1/2 inches; Steel Drip Cup and Holder; Steel Axle 9 inches Long; Grated Steel Treadle Pad 4 x 3 1/2 inches.



Showing Stone Complete, Set up.



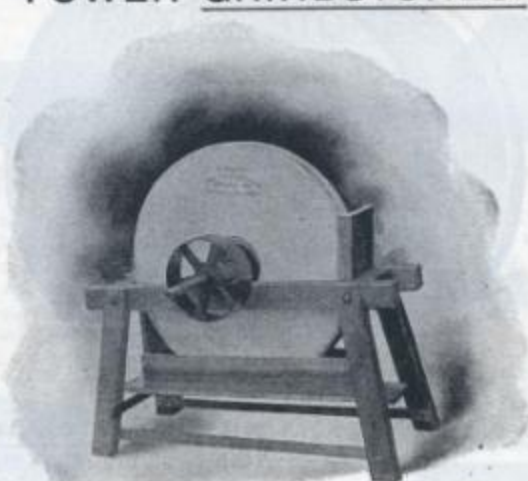
Showing Stone Crated for Shipment. Each

No. KB—KEEN KUTTER*: Tubular Frame, with Steel Ball Bearings on both Shaft and Pitman; Weight each, Crated for Shipment, about 100 lbs. \$7.00
One in a Crate, Knocked Down.

EXTRAS FOR KEEN KUTTER* GRINDSTONES.

No. KBC—EXTRA CRANKS, with Set Screw, for No. KB; 4 1/2 inches Long; Weight each about 10 ozs.	Each \$0.25
No. KBS—EXTRA SHAFTS or Axles, with Nut, for No. KB; 9 inches Long; Weight each about 1 1/2 lbs.	.75
No. KBN—EXTRA NUTS for Shaft; Weight each about 3 1/2 ozs.	.12
	Per Set of 2
No. KBB—EXTRA AXLE BEARINGS, with Balls, for No. KB; Weight per set about 1 lb.	\$0.70
	Each
No. KBBS—EXTRA BUSHED STONES ONLY, for No. KB; 1 1/2 to 2 1/2 inches Thick; Average Diameter 19 inches; Average Weight each about 50 lbs.	\$2.50
	Packed Loose.

POWER GRINDSTONES.



HERCULES.

Wooden Frames for Power Use.

These Frames are strongly made of Seasoned Oak, braced securely in every direction and firmly Bolted together.

Fitted with Patent Detachable Fixture which enables us to ship Stone and Frame separate and have the Stone run true when the Shaft is replaced, without any returning of the Stone.

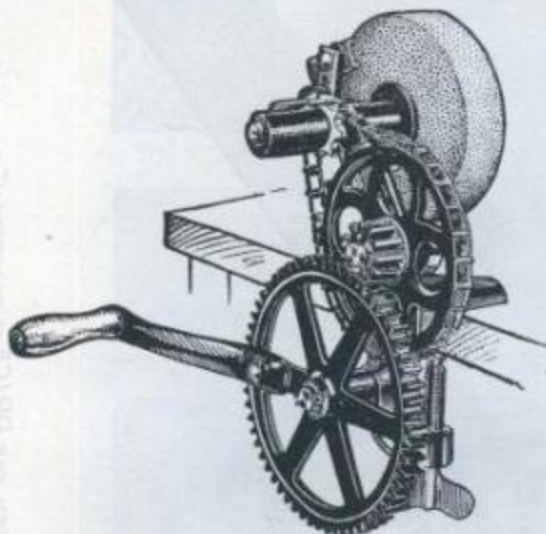
No. 5—STONE 24 INCHES IN DIAMETER; 3 INCHES THICK; Without Pulley	Each \$30.00
No. 6—STONE 30 INCHES IN DIAMETER; 4 INCHES THICK; Without Pulley	36.00
Packed Loose, Knocked Down; Weight Each about 100 lbs.	

MT



TOOL GRINDERS.

Japanned Iron Frame and Gear Wheels; Steel Axle; Adjustable Sprocket Chain; Equipped with Clamp Device that will take a Grip up to 2 inches; So arranged that any Wheel can be used in place of regular equipment.



GODFREY.

For Repairmen, Blacksmiths, Carpenters, Mechanics and Farmers.

No. G—Double Adjustable Tool Rest; Detachable Crank; Equipped with one $5\frac{1}{2} \times 1\frac{1}{4}$ inch Corundum Wheel and one $4 \times 1\frac{1}{2} \times \frac{1}{2}$ inch Fine Finishing Stone; Sprocket Wheel 6 inches in Diameter; Large Gear Wheel 5 inches in Diameter; Small Gear Wheel $1\frac{1}{2}$ inches in Diameter; Weight per dozen about 132 lbs. \$48.00
One-twelfth Dozen in a Wood Box.



MONARCH.

For Family and Mechanics' Use.

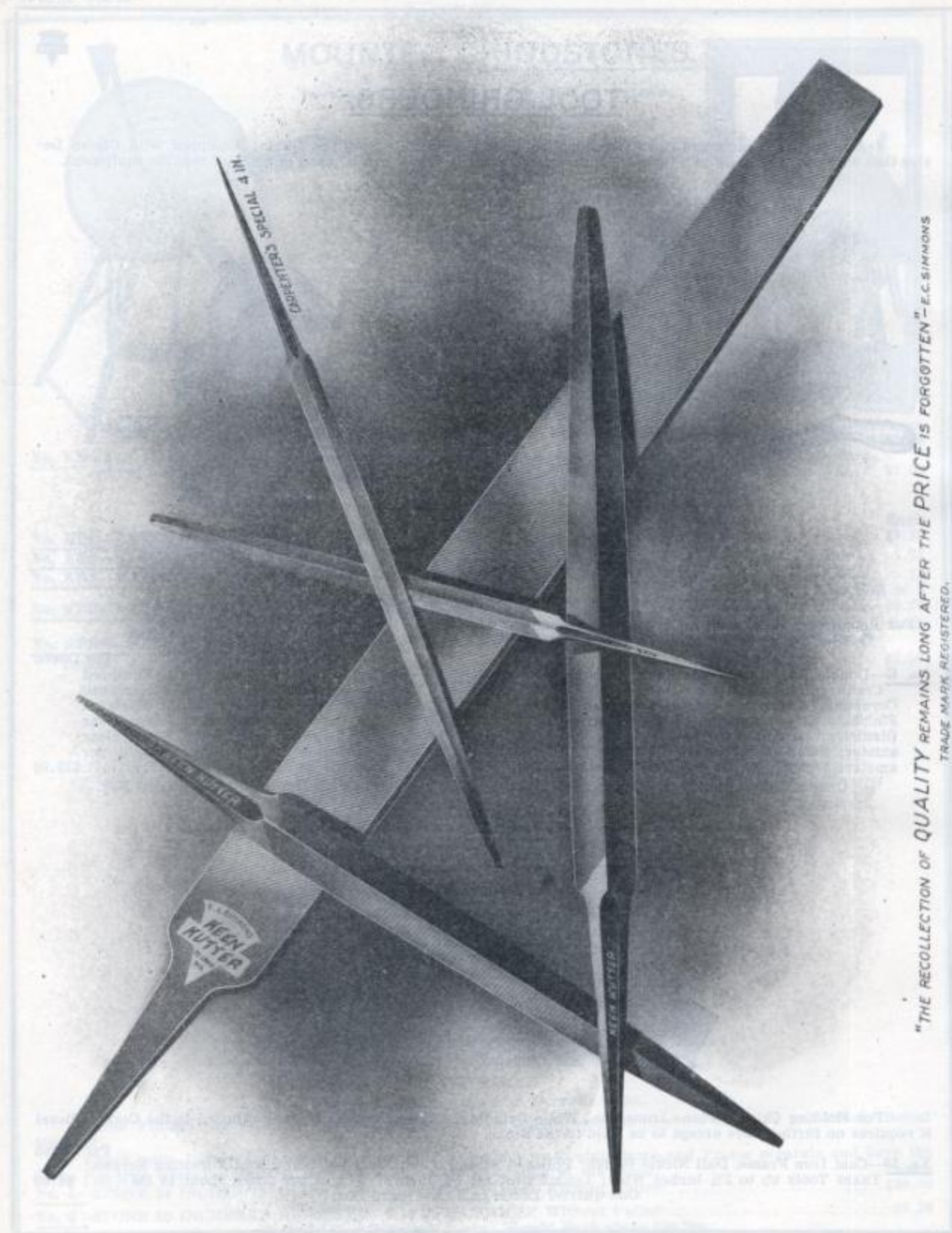
No. M—Single Adjustable Tool Rest; Equipped with one 4×1 inch Corundum Wheel and one $4 \times 1 \times \frac{1}{2}$ inch Fine Finishing Stone; Sprocket Wheel $4\frac{1}{2}$ inches in Diameter; Large Gear Wheel $3\frac{1}{2}$ inches in Diameter; Small Gear Wheel $1\frac{1}{2}$ inches in Diameter; Weight per dozen about 60 lbs. \$30.00
One-twelfth Dozen in a Cardboard Box.

CHISEL GRINDERS.



For Holding Chisels, Plane Irons, etc., While Grinding. When the Tool is once adjusted to the Correct Bevel it requires no further care except to be Held to the Stone.

No. 50—Cast Iron Frame, Dull Nickel Finish; Polished Steel Roller; Steel Set Screw and Adjusting Screws; Takes Tools up to $2\frac{3}{4}$ inches Wide; Length over all $7\frac{3}{4}$ inches; Weight per dozen about 18 lbs. \$9.00
One-quarter Dozen in a Cardboard Box.



"THE RECOLLECTION OF QUALITY REMAINS LONG AFTER THE PRICE IS FORGOTTEN" - E.C. SINMONS
TRADE MARK REGISTERED

See Following Pages for Description and Prices.



GENERAL DESCRIPTION OF FILES AND RASPS.



Rasp Coarse.



Rasp Bastard.



Rasp Second Cut.



Rasp Smooth.



Double Cut Coarse.



Double Cut Bastard.



Dbl. Cut Second Cut.



Double Cut Smooth.



Single Cut Coarse.



Single Cut Bastard.



Sin. Cut Second Cut.



Single Cut Smooth.

Files and Rasps have Three Distinguishing Features.

FIRST—THEIR LENGTH—Which is always measured exclusive of their Tang.

SECOND—THEIR KIND, OR NAME—Which has reference to the shape or style.

THIRD—THEIR CUT—Which has reference not only to the character, but also to the relative degrees of coarseness of the Teeth.

THE LENGTH—Of a File is the distance between its Heel or part of the File where the Tang begins and the point or end opposite. The Tang or portion of the File prepared for the reception of the Handle is never included in the Length. In general, the Lengths of Files bear no fixed proportion to either their Width or Thickness, even though they be of the same kind.

THE KIND—By Kind we mean the varied shapes or styles of Files which are distinguished by certain technical names, as, for instance, FLAT, MILL, HALF-ROUND, etc. The Kinds are divided, from the form of their Cross Sections into Three Geometrical Classes, namely, Quadrangular Sections, Circular Sections and Triangular Sections; Odd and Irregular Forms are collected under Miscellaneous Sections. These Sections are in turn sub-divided according to their general contour or outline, into Taper and Blunt.

TAPER—Designates a File, the Point of which is more or less reduced in size, both in Width and Thickness by a gradually narrowing Section extending from One-half to Two-thirds the Length of the File, from the Point; Custom has also established it as a short name for the Three Square Hand Saw File.

BLUNT—Designates a File that preserves its Sectional Shape throughout, from Point to Tang.

THE CUT of Files is divided, with reference to the character of the Teeth, into Single Cut, Double Cut and Rasp Cut, and with reference to the Coarseness of the Teeth into Rough, Coarse, Bastard, Second Cut, Smooth and Dead Smooth. Regarding the latter we may say very briefly that the Coarse and Bastard Cuts are used upon the coarser, heavier classes of work, while the Second Cut and Smooth are used for the finer grades and for finishing the work started by the Coarse and Bastard. The Rough and Dead Smooth are seldom called for, but correspond to the above use.

THE SINGLE CUT FILE—Is one in which a Single, Unbroken Course of Chisel Cuts is made across its Surface, arranged parallel to each other, but with a horizontal obliquity to the Central Line.

THE DOUBLE CUT FILE—Has Two Courses of Chisel Cuts crossing each other, the Second Course, with rare exceptions, being finer than the first.

RASP CUT—Differs from Single or Double Cut in the respect that the Teeth are disconnected from each other, each Tooth being made by a single pointed tool, called a punch.

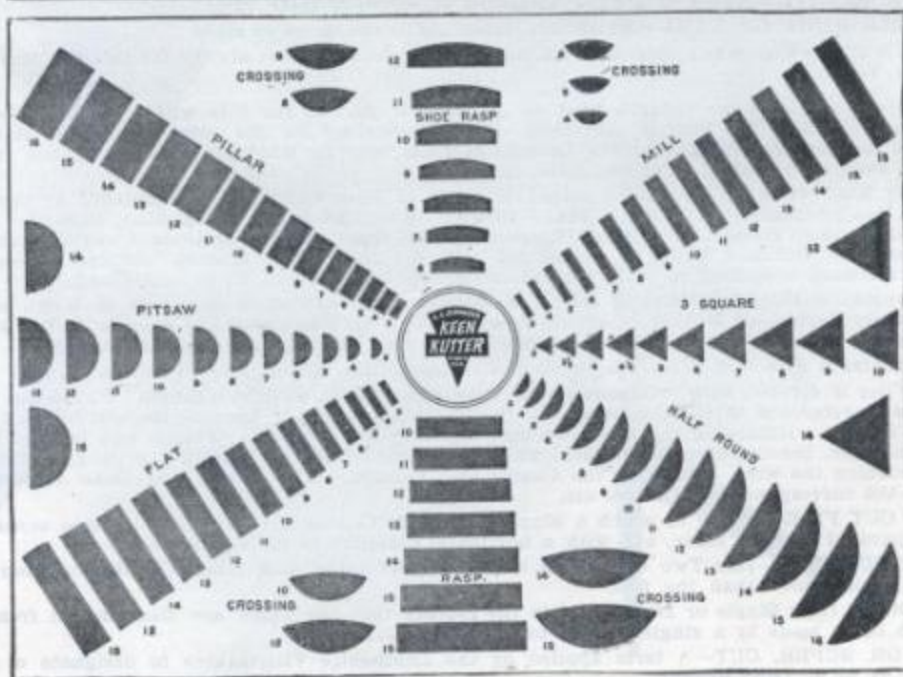
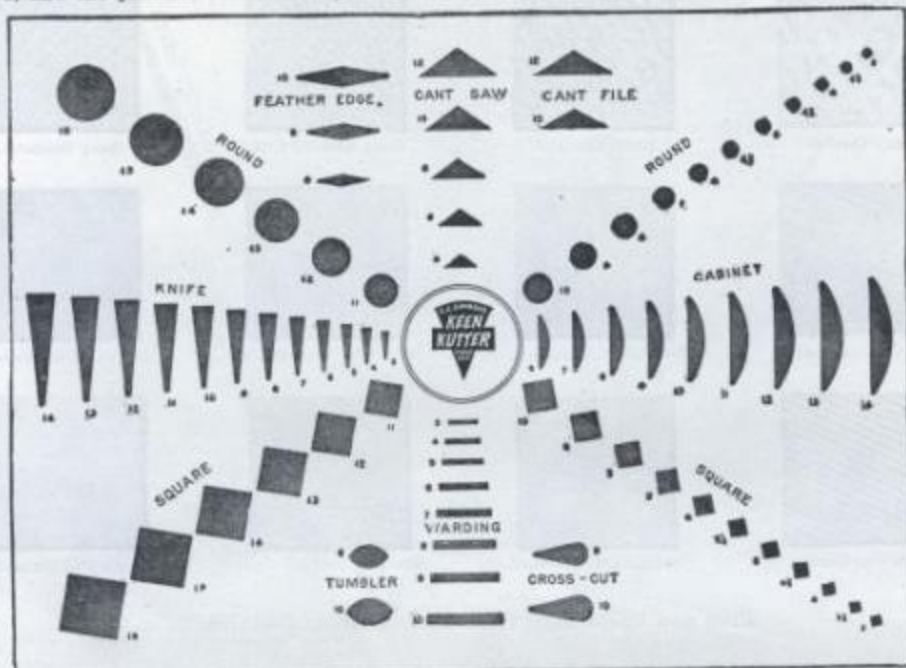
SUPERFINE, OR SUPER, CUT—A term applied by the Lancashire File-makers to designate a grade of Cut designated by us as Dead Smooth.



GENERAL DESCRIPTION OF FILES AND RASPS.—Continued.

SAFE EDGE, OR SIDE—Terms used to denote that a File has one or more of its Edges or Sides Smooth or Uncut, that it may be presented to the work without injury to that portion which does not require to be Filed.

RE-CUT OR RE-CUTTING—The Working Over of Old or Worn Out Files by the Several Processes of Annealing, Grinding out of the Old Teeth, Re-Cutting, Hardening, etc., and thus again preparing them for use. This Action is sometimes Repeated Two and even Three Times, but the economy of Re-Cutting at all is very much questioned, and the practice is done away with in most of the best appointed shops of the present day.



Showing Sectional View of Different Styles of Files.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

FILES.



KEEN KUTTER Files for Uniformity of Pattern, Perfection in Selection, Toughness in Temper and Satisfaction in Using have no equal.

KEEN KUTTER*

Forged from Highest Grade Crucible Steel; Natural Gas Tempered, which gives the Metal a peculiar Hardening and Toughness; Cut in the Latest Improved Machines; Carefully Tested and Selected.

E. C. Simmons' KEEN KUTTER* Carpenters' Special Slim Taper.

Especially designed for Filing Panel, Hack, Butchers', Scroll and other fine tooth Saws, having a special thin edge and fine cuts.

Inches	3	3½	4	4½	5	5½	6	7	8
Weight per dozen about, lbs.....	¾	¾	¾	¾	¾	¾	¾	1	1½
Per dozen	\$2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50



Regular Taper Saw, Single Cut.

Especially Designed for Filing Hand Saws.

Inches	2½	3	3½	4	4½	5	5½	6	7	8	10
Weight per dozen about, lbs.....	¾	¾	¾	¾	1	1¼	1¼	2	3	4¼	7
KEEN KUTTER*, per dozen.....	\$2.10	2.10	2.10	2.20	2.40	2.60	3.00	3.40	4.30	5.40	8.10



Slim Taper Saw, Single Cut.

Especially Designed for Filing Hand Saws.

Inches	3	3½	4	4½	5	5½	6	7	8	10
Weight per dozen about, lbs.....	¾	¾	¾	¾	¾	¾	1¼	2	3½	5½
KEEN KUTTER*, per dozen.....	\$2.10	2.10	2.20	2.30	2.50	2.90	3.10	3.80	4.50	6.40



Stub's Pattern Saw, Double Cut to Point.

They are preferred by some in filing the fine-toothed hand and hack saws, also the metal workers' back saws, which are considerably harder than those used upon wood.

Inches	3	3½	4	4½	5	6
Weight per dozen about, lbs.....	¾	¾	¾	¾	¾	¾
KEEN KUTTER*, per dozen.....	\$2.50	2.50	2.90	3.10	3.50	4.70



Reversible Taper Saw, Handled, Single Cut.

Especially Designed for Filing Hand Saws.

Inches, Full Length.....	7	8	9	10
Size as Regular Tapers.....	3½	4	4½	5
Weight per dozen about, lbs.....	1	1½	2	2½
KEEN KUTTER*, per dozen.....	\$3.50	3.90	4.40	4.90

One Dozen in a Wood Box.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER
REGISTERED

FILES.



Special Blunt, Single Cut.

Made Especially for Filing Very Hard Tempered Saws and are used in the Blunt Style universally.

Inches	4	4½	5	5½	6
Weight per dozen about, lbs.	½	¾	¾	¾	1
KEEN KUTTER*, per dozen	\$2.20	2.30	2.50	2.90	3.10



Mill Bastard.

Used principally for sharpening Mill Saws; also Mowing Machine knives and plows; in machine shops for lathe work, draw-filing, and, to some extent, finishing the several compositions of brass and bronze.

Inches	3	4	5	6	7	8	9	10	11	12	13	14	16
Weight per dozen about, lbs.	¾	1	1 1/4	1 1/2	2	4	4 1/2	6	8	12	14	15	22
KEEN KUTTER*, per dozen	\$3.00	3.00	3.20	3.50	3.90	4.30	4.90	5.60	6.70	7.50	9.40	10.70	14.70



Mill Bastard, One Round Edge.

Inches	6	8	10	12
Weight per dozen about, lbs.	1 1/2	4	6	12
KEEN KUTTER*, per dozen	\$3.90	4.50	6.30	8.40



Mill Bastard, Two Round Edges.

Inches	6	8	10	12
Weight per dozen about, lbs.	1 1/2	4	6	12
KEEN KUTTER*, per dozen	\$4.40	5.40	7.00	9.40



Mill Second Cut.

Inches	6	8	10	12	14	16
Weight per dozen about, lbs.	1 1/2	3	6	12	15	22
KEEN KUTTER*, per dozen	\$4.00	4.90	6.40	8.60	12.20	16.80



Flat Bastard.

Not confined to any specific kind of work, but employed by Mechanics generally, for a great variety of purposes.

Inches	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18
Weight per dozen about, lbs.	¾	1	1 1/4	1 1/2	2	3	4	6	7 1/4	10	13	16	19	24	39
KEEN KUTTER*, per dozen	\$3.70	3.70	3.90	4.30	4.80	5.30	6.30	7.00	8.60	9.70	11.80	13.30	16.00	17.80	23.90

3 to 8 inch, One Dozen; 9 inch and over, One-half Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

FILES.



Flat Smooth.

Inches	3	4	6	8	10	12	14	16
Weight per dozen about, lbs.....	3/4	1 1/2	1 3/4	2 3/4	7	12	18	27
KEEN KUTTER*, per dozen	\$4.70	4.70	5.30	6.60	8.70	12.10	16.70	22.30



Flat Second Cut.

Inches	6	8	10	12	14	16
Weight per dozen about, lbs.....	1 3/4	3 1/2	7	12	14	28
KEEN KUTTER*, per dozen	\$4.80	6.10	8.10	11.00	15.30	20.10



Hand Bastard, One Safe Edge.

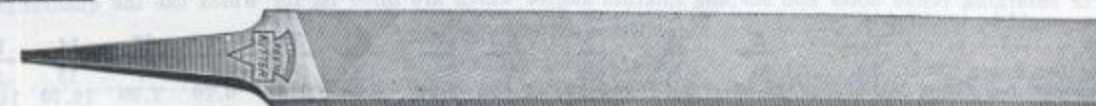
This File is preferred amongst Machinists and Engineers for finishing flat surfaces, and owing to its shape and its having one safe edge, is particularly useful where the flat file would not answer.

Inches	8	10	12	14	16
Weight per dozen about, lbs.....	5	10	15	22	36
KEEN KUTTER*, per dozen	\$5.40	7.50	10.70	15.00	20.10



Hand Second Cut, One Safe Edge.

Inches	8	10	12
Weight per dozen about, lbs.....	5	9	15
KEEN KUTTER*, per dozen	\$6.30	8.70	12.30



Hand Smooth, One Safe Edge.

Inches	8	10	12	14
Weight per dozen about, lbs.....	5	9	15	23
KEEN KUTTER*, per dozen	\$6.70	9.40	13.50	18.20



Half Round Bastard.

Has a wide use in the Machine Shop.

Inches	3	4	5	6	7	8	9	10	11	12	14	16
Weight per dozen about, lbs.....	3/4	1 1/2	1	1 1/2	2 1/4	4	5	6	9	12	17	25
KEEN KUTTER*, per dozen	\$4.80	4.80	5.40	6.10	7.00	7.50	8.50	9.10	10.70	11.80	15.50	20.60

3 to 8 inch, One Dozen; 9 inch and over, One-half Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

FILES.



Half Round Smooth.

Has a Wide Use in the Machine Shop.

Inches	4	6	8	10	12	14	16
Weight per dozen about, lbs.	1 1/4	1 3/4	4	6	11	17	25
KEEN KUTTER*, per dozen	\$6.10	7.10	8.90	10.70	13.90	18.30	24.20



Half Round Second Cut.

Inches	6	8	10	12	14	16
Weight per dozen about, lbs.	1 1/4	4	6	12	17	25
KEEN KUTTER*, per dozen	\$6.70	8.30	10.10	13.00	17.00	22.50



Half Round Cabinet.

Used by Cabinet Makers and other Wood Workers generally.

Inches	10	12	14
Weight per dozen about, lbs.	5	9	14
KEEN KUTTER*, per dozen	\$13.70	18.70	24.80



Square Bastard.

Used in almost all branches of mechanical industry, principally for enlarging apertures of a square or rectangular shape.

Inches	4	6	8	10	12	14	16	18
Weight per dozen about, lbs.	3 1/2	1	2 1/4	4	9	16	27	36
KEEN KUTTER*, per dozen	\$3.80	4.60	5.50	7.40	10.20	13.90	18.70	25.10



Round Bastard.

For enlarging round holes and shaping internal angles which are filled in, for which use the quadrangular section would be unsuitable.

Inches	3	4	5	6	7	8	10	11	12	14	16
Weight per dozen about, lbs.	3/4	1 1/4	1 1/2	3/4	1 1/2	1 3/4	3 1/4	6	7	13	21
KEEN KUTTER*, per dozen	\$3.00	3.00	3.20	3.50	3.90	4.30	5.60	6.70	7.50	10.70	14.70

3 to 8 inch, One Dozen; 10 inch and over, One-half Dozen in a Wood Box.



Pit Saw.

For filing the teeth of what are known as pit and frame saws.

Inches	6	8
Weight per dozen about, lbs.	1 1/4	3 1/4
KEEN KUTTER*, per dozen	\$6.10	7.50



Cant Saw.

Used principally in filing Cross Cut Saws having M shaped teeth.

Inches	5	6	8	16
Weight per dozen about, lbs.	1	1 1/4	3	5
KEEN KUTTER*, per dozen	\$4.70	5.40	6.40	8.70

One Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

FILES.



Cant Safe Back.

KEEN KUTTER*, 6 inch, Suitable for Filing No. 120 Acme Saws Per Dozen \$5.40
Weight per Dozen about 1½ lbs.



Great American Cross Cut Saw.

Especially Designed for Filing Cross Cut Saws.

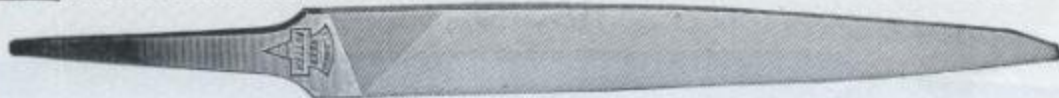
Inches	7	8	10
Weight per dozen about, lbs.....	3	4	6½
<u>KEEN KUTTER*</u> , per dozen	\$7.00	7.50	9.10



Band Saw Blunt Slim.

Especially Designed for Filing Band Saws.

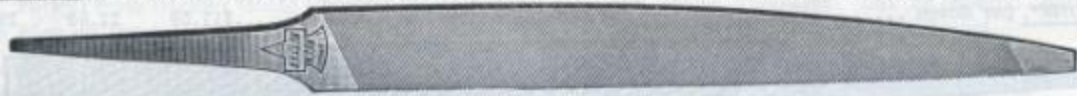
Inches	5	6	8
Weight per dozen about, lbs.....	1	1¼	3
<u>KEEN KUTTER*</u> , per dozen	\$3.20	3.90	5.30



Knife Bastard.

Resemble somewhat when finished the blade of a knife; in limited quantities are in pretty general use in work for which their shape adapts them.

Inches	4	5	6
Weight per dozen about, lbs.....	¾	1	1¼
<u>KEEN KUTTER*</u> , per dozen	\$5.40	6.10	6.90



Gin Saw, One Safe Edge.

Used for filing cotton gin saws.

Inches	3½	4
Weight per dozen about, lbs.....	½	¾
<u>KEEN KUTTER*</u> , per dozen	\$4.80	4.80



Warding, Bastard Cut.

Considerably used by Jewelers and Machinists; but more especially by Locksmiths, in filing the ward notches in keys.

Inches	3	4	5	6
Weight per dozen about, lbs.....	¾	1½	1½	1
<u>KEEN KUTTER*</u> , per dozen	\$4.00	4.00	4.50	4.90

One Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

FILES.



Warding, Second Cut.

KEEN KUTTER Warding Files are made extra thin and strong, and especially adapted for their work.

Inches	3	4	5	6
Weight per dozen about, lbs.....	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	1
KEEN KUTTER*, per dozen	\$4.80	4.80	5.30	5.90



Half Round Wood Files.

Used by Wood Workers generally and occasionally upon the coarser kinds of brass work.

Inches	10	12
Weight per dozen about, lbs.....	6	10
KEEN KUTTER*, per dozen	\$9.10	11.80

One Dozen in a Wood Box.

RASPS.



Half Round Cabinet Rasps.

Used by Cabinet Makers and other Wood Workers generally.

Inches	10	12	14
Weight per dozen about, lbs.....	6	10	14
KEEN KUTTER*, per dozen	\$17.50	22.80	29.60



Half Round Wood Rasps.

Used principally by Wheelwrights and Carriage Builders and to some extent by Plumbers and Marbleworkers.

Inches	10	12	14
Weight per dozen about, lbs.....	8	10	18
KEEN KUTTER*, per dozen	\$13.70	18.70	24.80



Flat Wood Rasps.

For Wheelwrights and Carriage Makers.

Inches	10	12	14
Weight per dozen about, lbs.....	8	12	17
KEEN KUTTER*, per dozen	\$12.80	17.50	23.20

One-half Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' **KEEN KUTTER**,
REGISTERED.

RASPS.



Half Round Shoe Rasp.

Used by Shoemakers generally.

KEEN KUTTER *, 8 inch	Per Dozen	Nicholson's , 8 inch	Per Dozen
	\$10.10		\$10.10



Used by Shoemakers generally.

KEEN KUTTER * Flat Shoe Rasps, with Two Safe Edges, 8 inch; Weight per dozen about 5 lbs.	Per Dozen
One-half Dozen in a Wood Box.	\$10.10



KEEN KUTTER* Plain Horse Rasps.

Used by Horseshoers.

Forged from Highest Grade Crucible Steel; Natural Gas and Brine Tempered; Cut by Special Machines; Teeth have an Irregularity which gives Great Cutting Capacity and Long Life; Selected and Tested.

Inches	10	12	14	15	16
Weight per dozen about, lbs.	10	16	22	24	29
Per dozen	\$9.40	12.80	17.80	20.90	24.40



KEEN KUTTER* Plain Slim, Extra Light Horse Rasps.

Length, inches	16	18
Width, inches	1 1/2	1 1/2
Thickness, inches	5/16	5/16
Weight per dozen about, lbs.	25	30 1/2
Per dozen	\$10.00	12.00

NOTE.—All Horse Rasps made regular, one side all Rasp, reverse side all File.

One-half Dozen in a Wood Box.



FILES.

NICHOLSON'S.

Forged from Tool Steel, Tempered, Tested and Selected.

 Square Bastard, Blunt.

Inches	4	5	6	8	10	12	14	16	18	20
Weight per dozen about, lbs.	$\frac{5}{16}$	$\frac{9}{16}$	1	$2\frac{1}{8}$	$4\frac{1}{8}$	$10\frac{1}{8}$	19	$29\frac{1}{8}$	$44\frac{1}{8}$	75
Per dozen	\$4.10	4.60	5.10	6.60	9.10	12.50	16.90	22.50	29.70	39.36

 Round Bastard, Blunt.

Inches	4	5	6	8	10	12	14	16	18	20
Weight per dozen about, lbs.	$\frac{5}{16}$	$\frac{9}{16}$	$1\frac{5}{16}$	$2\frac{3}{8}$	$3\frac{15}{16}$	$5\frac{5}{16}$	$14\frac{7}{8}$	$23\frac{1}{2}$	$35\frac{1}{4}$	54
Per dozen	\$3.20	3.50	3.90	4.90	6.70	9.40	13.10	18.20	24.60	32.88

 Three Square, Bastard.

Inches	4	5	6	7	8	9	10	12	14	16	18
Weight per dozen about, lbs.	$\frac{3}{4}$	$1\frac{1}{4}$	$2\frac{1}{8}$	$2\frac{15}{16}$	$4\frac{5}{16}$	$6\frac{1}{8}$	$7\frac{7}{8}$	13	20	$27\frac{3}{16}$	$38\frac{5}{8}$
Per dozen	\$4.80	5.40	6.10	7.00	7.50	8.50	9.10	11.80	15.50	20.60	27.50

 Crossing Bastard.

Inches	4	5	6	8	10	12	14	16
Weight per dozen about, lbs.	$\frac{5}{8}$	1	$1\frac{7}{16}$	$4\frac{1}{8}$	$8\frac{3}{16}$	$13\frac{1}{4}$	$20\frac{1}{8}$	$30\frac{1}{8}$
Per dozen	\$6.10	7.00	7.50	9.10	11.80	15.50	20.60	27.50

 Tumbler Bastard.

Inches	4	5	6	8	10
Weight per dozen about, lbs.	$\frac{5}{8}$	1	$1\frac{1}{2}$	$2\frac{1}{16}$	$4\frac{1}{8}$
Per dozen	\$6.10	7.00	7.50	9.10	11.80

 Feather Edge Bastard.

Inches	4	5	6	8	10	12
Weight per dozen about, lbs.	$\frac{3}{4}$	$1\frac{3}{16}$	$1\frac{1}{4}$	$3\frac{3}{8}$	$6\frac{11}{16}$	$11\frac{1}{8}$
Per dozen	\$6.10	7.00	7.50	9.10	11.80	15.50

Square, Round, Three Square, Tumbler, Feather Edge Bastard, 4 to 10 inch, One Dozen; 12 inch and over, One-half Dozen in a Cardboard Box.

Crossing Bastard, 4 to 8 inch, One Dozen; 10 inch and over, One-half Dozen in a Cardboard Box.

FILES.

NICHOLSON'S "XF" Swiss Pattern.

Forged from Tool Steel, Tempered, Tested and Selected. The term "XF" signifies Extra Fine. In general, it applies to that class of Files used by Jewelers, Watch and Tool Makers and for similar Fine Work, in which the best Material and Superior Workmanship are required. The cut is designated by numbers ranging from No. 00, the Coarsest, to No. 8, the Finest.

No. 0 Cut.
Hand.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$2.80	3.00	3.15	4.15	4.35	4.80	6.40	7.00	9.55	12.30

Cut Nos. 3-4.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$2.90	3.15	3.30	4.25	4.50	5.00	6.60	7.20	9.90	12.60

Cut No. 5.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$3.00	3.20	3.40	4.40	4.70	5.20	6.80	7.60	10.50	13.60

Cut No. 6.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$3.15	3.25	3.55	4.60	5.00	5.40	7.20	8.00	11.10	14.00

Cut No. 7.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$3.30	3.55	3.75	4.80	5.20	5.80	7.60	8.40	11.50	14.70

Cut No. 8.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$3.45	3.75	3.95	5.00	5.40	6.20	8.00	9.15	12.30	15.50

No. 0 Cut.
Equalling.

All Cuts.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.50	2.80	3.20	4.20	4.55	4.90	6.10	6.90	10.00

3 to 6 inch, One Dozen; 7 inch and over, One-half Dozen in a Cardboard Box.

No. 0 Cut.
Warding.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.55	2.80	3.15	4.05	4.20	4.80	6.10	6.80	9.00

Cut Nos. 3-4.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.60	2.90	3.30	4.20	4.40	5.00	6.40	7.20	9.60

Cut Nos. 5-6.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.70	3.00	3.45	4.35	4.60	5.20	6.80	7.60	10.00

Cut Nos. 7-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.15	3.60	4.55	4.80	5.40	7.20	8.00	10.40

One Dozen in a Cardboard Box.



FILES.

NICHOLSON'S "XF" Swiss Pattern.

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No. 0 Cut.

Pillar.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.60	2.75	2.95	3.85	4.00	4.30	5.50	6.50	8.70

Cut Nos. 3-4.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.65	2.80	3.00	3.90	4.15	4.40	5.70	6.70	8.90

Cut Nos. 5-6.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.70	2.90	3.10	4.00	4.25	4.55	6.00	6.90	9.30

Cut Nos. 7-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.00	3.20	4.15	4.45	4.75	6.15	7.10	9.70



No. 0 Cut.

Pillar, Narrow.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.60	2.75	2.95	3.85	4.00	4.30	5.50	6.50	8.70

Cut Nos. 3-4.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.65	2.80	3.00	3.90	4.15	4.40	5.70	6.70	8.90

Cut Nos. 5-6.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.70	2.90	3.10	4.00	4.25	4.55	6.00	6.90	9.30

Cut Nos. 7-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.00	3.20	4.15	4.45	4.75	6.15	7.10	9.70

3 to 6 inch One Dozen; 7 inch and over, One-half Dozen in a Cardboard Box.

MT



FILES.

NICHOLSON'S "XF" Swiss Pattern.

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No. 4 Cut.

Barrette.Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.25	3.70	4.60	5.25	6.20	7.95	9.15	12.30

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.85	3.35	3.75	4.75	5.40	6.35	8.15	9.35	12.50

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.95	3.40	3.85	4.95	5.60	6.55	8.35	9.55	12.80



No. 0 Cut.

Crochet.Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.20	3.50	4.40	4.60	5.40	7.20	8.35	11.60

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$3.00	3.40	3.70	4.70	4.95	5.70	7.60	8.75	12.00

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$3.20	3.60	3.90	5.00	5.25	6.00	8.00	9.15	12.45

Slitting.

All Cuts.

Inches	3	3½	4	4½	5	6
Per dozen	\$3.15	3.50	4.00	5.20	5.70	6.80

3 to 6 inch, One Dozen; 7 inch and over, Half Dozen in a Cardboard Box.

FILES.

NICHOLSON'S "XF" Swiss Pattern.

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No. 0 Cut.

Knife.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.90	3.30	3.60	4.60	4.90	5.40	7.20	8.80	10.30

Cut Nos. 3-4.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$3.00	3.35	3.70	4.75	5.10	5.80	7.60	9.20	10.70

Cut Nos. 5-6.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$3.05	3.45	3.80	4.95	5.30	6.20	8.00	9.60	11.10

Cut Nos. 7-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$3.15	3.55	3.90	5.15	5.50	6.60	8.40	10.00	11.50

3 to 8 inch, One Dozen; 10 inch, One-half Dozen in a Cardboard Box.



No. 0 Cut.

Crossing.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.25	3.70	4.70	5.00	5.60	7.40	8.50	11.50

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.85	3.30	3.80	4.95	5.40	6.10	8.10	9.25	14.30

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.95	3.40	4.00	5.20	5.80	6.55	8.75	10.10	16.90



No. 0 Cut.

Half Round.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$2.90	3.05	3.20	4.10	4.35	5.00	6.80	7.80	10.70	12.90

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$3.00	3.15	3.70	4.65	4.95	5.60	7.60	8.75	13.80	16.90

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10	12
Per dozen	\$3.15	3.60	4.20	5.10	5.30	6.15	8.20	9.55	16.20	19.30

3 to 6 inch, One Dozen; 7 inch and Over, One-half Dozen in a Cardboard Box.

FILES.

MT



NICHOLSON'S "XF" Swiss Pattern.

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No. 0 Cut.

Square Slim.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.25	2.50	2.80	3.70	3.85	4.40	5.65	6.40	7.20

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.25	2.50	2.95	3.75	3.95	4.55	5.85	6.80	8.00

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.25	2.50	3.05	3.90	4.05	4.70	6.00	7.20	8.80

No. 0 Cut.

Round Slim.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.05	2.25	2.50	3.25	3.35	3.70	4.85	5.65	7.60

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.05	2.25	2.60	3.35	3.50	3.90	5.25	6.00	8.35

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.05	2.25	2.65	3.50	3.70	4.10	5.65	6.40	9.55

One Dozen in a Cardboard Box.

No. 0 Cut.

Three Square Slim.

Cut Nos. 00-2.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.80	3.05	3.30	4.15	4.35	5.00	6.60	7.80	9.15

Cut Nos. 3-5.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$2.95	3.15	3.40	4.25	4.45	5.10	6.90	8.15	9.55

Cut Nos. 6-8.

Inches	3	3½	4	4½	5	6	7	8	10
Per dozen	\$3.05	3.30	3.50	4.40	4.60	5.25	7.20	8.55	9.90

3 to 6 inch, One Dozen; 7 inch and over, One-half Dozen in a Cardboard Box.

FILES.

NICHOLSON'S "XF" Swiss Pattern.

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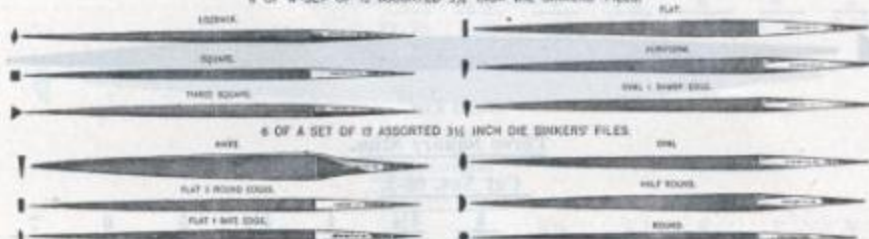
SET OF 12 INCH ROUND HANDLE NEEDLE FILES



Needle Files in Sets of 12 Different Shapes or Assorted.

Inches	4	4 1/4	5 1/2	6 3/4
Per set of 12	\$1.90	1.90	2.10	2.25

8 OF A SET OF 12 ASSORTED 3/16 INCH DIE SINKERS' FILES.



Die Sinkers in Sets of 12.

Inches	3 1/2
Per set of 12 assorted shapes	\$2.80

One Set in a Cardboard Box.

MT



FILES.

NICHOLSON'S "XF" Swiss Pattern.

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Screw Head, Plain.

Screw Head, Tanged.

SCREW HEAD FILES.

Plain or Without Tang.

With Tang.

Inches	3	Inches	3
Per dozen	\$2.70	Per dozen	\$3.00

BROACH FILES		STEEL WIRE GAUGE		FROM 40 TO 65	
SECTION	GAUGE	SECTION	GAUGE	SECTION	GAUGE
1	40	1	30	1	40
2	42	2	32	2	42
3	44	3	34	3	44
4	46	4	36	4	46
5	48	5	38	5	48
6	50	6	40	6	50
7	52	7	42	7	52
8	54	8	44	8	54
9	56	9	46	9	56
10	58	10	48	10	58
11	60	11	50	11	60
12	62	12	52	12	62
13	64	13	54	13	64
14	66	14	56	14	66
15	68	15	58	15	68
16	70	16	60	16	70
17	72	17	62	17	72
18	74	18	64	18	74
19	76	19	66	19	76
20	78	20	68	20	78
21	80	21	70	21	80
22	82	22	72	22	82
23	84	23	74	23	84
24	86	24	76	24	86
25	88	25	78	25	88
26	90	26	80	26	90

Broach Files.

Twist Drill and Steel Wire Gauge	40 to 65
Per dozen (all cuts)	\$1.65

Ratchet File.

Inches	3
Per dozen	\$2.70



Square Handle Needle or Escapement Files.

Inches	3 1/4
Per dozen (12 assorted shapes)	\$2.35

Left Hand Pivot.

Right Hand Pivot.

Burnisher.

PIVOT FILES OR BURNISHERS.

Pivot or Burnisher with Tang.

Pivot or Burnisher with Handle.

Double End Pivot.

Inches	2 1/4	Inches	2 1/4	Inches	2 1/4
Per dozen	\$3.50	Per dozen	\$4.80	Per dozen	\$7.00

One Dozen in a Cardboard Box.

AUGER BIT FILES.

Made especially for Sharpening Auger Bits.

Per Dozen

- No. M**—Forged from Tool Steel, Tempered and Polished; One End Cut on Edges; Reverse End Cut on Sides only; Length $6\frac{1}{4}$ inches; Length of Cutting Ends $1\frac{1}{2}$ inches; Width $\frac{1}{4}$ inch, Tapered to Point; Weight per dozen about $\frac{3}{4}$ lb. \$2.50

One Dozen in a Cardboard Box.

HORSE TOOTH FILES.

STANDARD.

Per Dozen

- No. 1**—Polished Malleable Iron Frame and Shank; Stained Hardwood Handle; Polished Steel Ferrule; Shank extends entirely through Handle and Riveted with Washer at End; File Forged from Tool Steel, Tempered; Double File Cut on one Side, Rasp Cut on Reverse Side; Length of File $3\frac{1}{4}$ inches; Width 1 inch; Length over all 19 inches; File can be Reversed in Frame and is secured with Two Flush-Head Steel Set Screws in Back; Weight per dozen about 14 lbs. \$29.00

One-fourth Dozen in a Cardboard Box.

EXTRA FILES.

Per Dozen

- No. 1E**—EXTRA FILES, to fit No. 1 Horse Tooth Files; Weight per dozen about $1\frac{1}{4}$ lbs. \$7.00

One Dozen in a Cardboard Box.

SIDE FILES.

Per Dozen

- No. SF**—Forged from Tool Steel; Single Cut on Both Sides; Length $4\frac{1}{2}$ inches; Width at Ends $1\frac{1}{4}$ and $1\frac{1}{8}$ inches; Tapered to fit No. F Side File Frames; Weight per dozen about 4 lbs. \$4.80

One Dozen in a Cardboard Box.

SIDE FILE FRAMES.

Per Dozen

- No. F**—DISSTON'S, Japanned Cast Iron Frame; Japanned Malleable Iron Set Screws and Jamb Nuts; Width at Face $3\frac{1}{2}$ inches; Width in Center 2 inches; Length of Frame over all $9\frac{1}{4}$ inches; Weight per dozen about 20 lbs. \$9.00

One-twelfth Dozen in a Cardboard Box.

The Side File is used for the purpose of regulating Saw Teeth after they have been set. It is impossible to set a Saw so that some of the teeth will not extend or be bent over a little more than others, and thus make rough lumber. By the use of this instrument all the teeth are made even. The File may be so adjusted by means of the set screws in the Frame as to conform to any width of set desired. The jamb-nuts are for the purpose of securing the set-screws in the desired position.

FILE CLEANERS.

Per Dozen

- No. 1**—Hardwood Back and Handle, Varnished; Hardened Steel Wire Brush on One Side only, attached to Leather Face; Length of Face $4\frac{1}{4}$ inches; Width $1\frac{1}{2}$ inches; Length of Wires $\frac{1}{4}$ inch; Length over all 10 inches; Steel Scraper 4 inches Long, $\frac{1}{4}$ inch Wide at Point, accompanies each Cleaner; Weight per dozen about 4 lbs. \$2.75



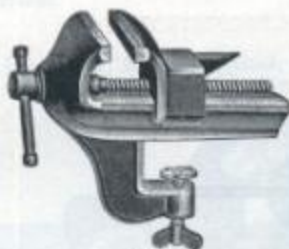
Per Dozen

- No. 3**—Hardwood Frame and Handle, Varnished; Hardened Steel Wire Brush on One Side, attached to Leather Face; Black Bristle Brush on Reverse Side, inserted in Frame; Length of Faces $4\frac{1}{4}$ inches; Width $1\frac{1}{4}$ inches; Length of Wires $\frac{1}{4}$ inch; Length of Bristles $\frac{5}{8}$ inch; Length over all 10 inches; Steel Scraper 4 inches Long, $\frac{1}{4}$ inch Wide at Point, accompanies each Cleaner; Weight per dozen about 5 lbs. \$4.80

One-half Dozen in a Cardboard Box.

-346- **VICES.**

BONNEY'S.



No. 4B.

No. 1B—With Plain Clamp Screw, Plain Jaws;
WIDTH OF JAWS 1½ INCHES; Jaws
Open 2½ inches; Length Closed 4½ inches;
Weight per dozen about 17 lbs. \$3.75

No. 2B—With Plain Clamp Screw, Plain Jaws;
WIDTH OF JAWS 2 INCHES; Jaws Open
2½ inches; Length, Closed, 5½ inches;
Weight per dozen about 35 lbs. 6.50

With Anvil; Clamp to
Bench; Cast Iron, Jap-
anned, with Polished Slide,
Edges, Jaws and Anvil
Face; Polished Steel Screw
and Sliding Lever Handle.



No. 3B.

Per Dozen

No. 3B—WITH BUTTON End Clamp Screw;
WIDTH OF JAWS 2¼ INCHES; Jaws
Open 3¼ inches; Length, Closed, 6 inches;
With Patent Swivel Jaw Attachment;
Weight per dozen about 36 lbs. \$12.00

No. 4B—WITH LARGE BUTTON End, Clamp
Screw, Plain Jaws; WIDTH OF JAWS 2¼
INCHES; Jaws Open 3¼ inches; Length,
Closed, 6¼ inches; Weight per dozen about
50 lbs. 16.50

Packed Loose.

Per Set

No. BNS—BONNEY VISES, as described above, in Sets,
Mounted on Stand 16¼ inches High, 10 inches
Wide, 18 inches Long; Stand has Japanned Cast Iron
Sides or Leg Pieces, Cast Iron Top Plate and Two
Hardwood Cross Pieces or Shelves; Set consists of:
3 only No. 1B, 4 only No. 2B, 2 only No. 3B, 2 only
4B and 1 only No. 7B; Weight per set complete about
42 lbs. \$12.00

No. 7B Vises are the same size and description as No.
4B, except with Steel Faced Jaws and Swivel Jaw Attachment.
One Set in a Wood Box.



No. BNS.

HAND VISES.



No. 140.

STANDARD.

Black Enameled Mal-
leable Iron Hinged
Jaws; Checkered Face;
Polished Head; Adjust-
ed by Steel Bolt, with
Wing Nut, Steel Spring
between Jaws.



No. 144.

No. 144—WITHOUT HANDLE.

Length, inches.....	3½	4
Width of Jaws, inches.....	1½	1¾
Weight per dozen about, lbs.....	3	3
Per dozen.....	\$6.00	6.50

No. 144—WITH 4¼ INCH BLACK ENAMELED HARD- WOOD HANDLE.

Length, inches.....	3½	4
Width of Jaws, inches.....	1½	1¾
Weight per dozen about, lbs.....	6	6
Per dozen.....	\$8.00	8.50

One-half Dozen in a Cardboard Box.



ALFORD'S.

Forged Steel Nickel Plated Head, Jaws, Double Act-
ing Reverse Threaded Screw, and Cross-Bar; Hollow
Polished Cocobolo Handle 4¼ inches Long, with Screw
Head; Containing two Awns, two Chisels, one Reamer
and one Screw Driver Bit, all Polished Steel 1¼ inches
Long; also one Washer Cutter Head, with Adjustable
Steel Points; Handle is Interchangeable with a Nickel
Plated Steel Bit Shank, both Screwing into Head at Bot-
tom or either side as desired.

Per Dozen

No. 1—WITH TOOLS; 1¼ inch Checkered and
Hardened Jaws; Length over all 7 inches;
Weight per dozen about 12 lbs. \$42.00



HAND VISES.



LOWELL PATTERN.

- No. 50**—Soft Steel, with Hardened Jaws; Japanned Finish. Octagon Handle; Hole through Handle for Holding Wire; Holds $\frac{3}{16}$ inch and Smaller; Length over all $5\frac{1}{2}$ inches; Weight per dozen about $6\frac{1}{4}$ lbs. \$18.00
- Per Dozen
- One-twelfth Dozen in a Cardboard Box.

PIN VISES.



- No. 5**— $4\frac{1}{4}$ inches Long; Steel, with Hardened Jaws; Ebony Fluted Handle; Blued Finish Chucks; Holds $\frac{3}{16}$ inch and Smaller; Weight per dozen about $\frac{1}{2}$ lb. \$6.00
- Per Dozen
- One-half Dozen in a Cardboard Box.



- No. 40**— $4\frac{1}{2}$ inches Long; Steel, with Hardened Jaws; Polished; Holds Drills $\frac{3}{16}$ inch and Smaller; Holds Taps $\frac{1}{4}$ inch and Smaller; Octagon Handle, may be Clamped in Vise; Cross Hole in Handle into which a Pin may be inserted, making a "T" Handle Tap Wrench; Weight per dozen about $4\frac{1}{4}$ lbs. \$15.00
- Per Dozen
- One-twelfth Dozen in a Cardboard Box.



Made of Steel, Nickel Plated throughout; Jaws Drop Forged; Jaws Open $\frac{1}{4}$ inch; Hole through Handle Lengthwise, allowing Wire to pass through.

- No. 3**— $3\frac{1}{2}$ INCHES LONG; Weight per dozen about $\frac{3}{4}$ lbs. \$12.00
- No. 4**— $4\frac{1}{2}$ INCHES LONG; Weight per dozen about $1\frac{1}{2}$ lbs. 15.00
- Per Dozen
- One-half Dozen in a Cardboard Box.

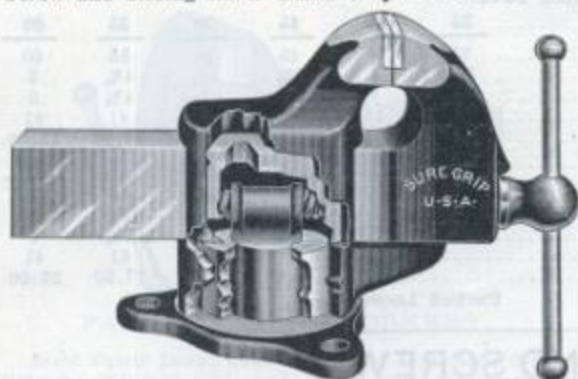
TRADE MARK:
"SURE GRIP,"
REGISTERED.

-346A-

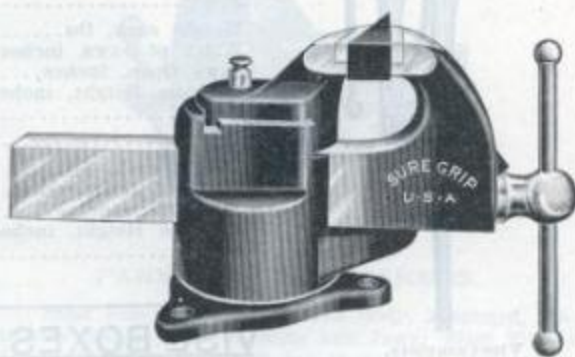
VISES.

SURE GRIP®.

Cast Iron Body, Extra Finished; Dull Black Lacquer, with Extra Polished Slide and Jaws; Polished Steel Screw and Sliding Lever Handle; Jaws are faced with 1x $\frac{1}{2}$ inch Best Tool Steel and are Checkered.



No. SG4.



No. SG30.

Machinists', Automatic Swivel Base.

Body of Vise Rotates on Milled Iron Column, forming part of Base Plate, and the Rotation is Stopped Automatically when the work is Fastened in the Jaws. This Tightening is accomplished by the Friction of a Malleable Iron Nut Tightened against the Base Column by the Action of the Main Screw, Automatically, when the Jaws are Tightened up. There are no Extra Screw Levers or Pins to break or wear out. A Mechanic will do 20 per cent more work on account of this Automatic Swivel Lock, as the entire Adjustment is by means of the Lever Handle in Front. The Lines of Construction of Sure Grip Vises are Graceful and Strong, not a pound of Material is wasted.

With Parallel Jaws.

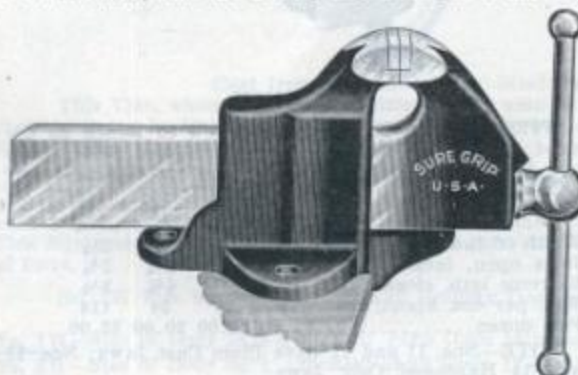
Nos.	SG1	SG2	SG3	SG4	SG5	SG6	SG7	SG8	SG9
Width of Jaw, inches	1 $\frac{1}{2}$	2 $\frac{1}{2}$	3	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5 $\frac{1}{4}$	6	7
Jaws Open, inches	2	2 $\frac{1}{2}$	4	5	6	8	9	11	12
Extreme Length, Closed, in.	6 $\frac{7}{8}$	10 $\frac{1}{2}$	12	15	17 $\frac{1}{2}$	20 $\frac{3}{4}$	24 $\frac{1}{2}$	27 $\frac{1}{2}$	30 $\frac{1}{2}$
Weight each about, lbs.	3	6	20	33	56	75	120	140	220
Each	\$6.00	7.50	9.50	11.00	13.50	16.50	24.00	36.00	45.00

With Self-Adjusting Rear Jaw, may be Made Stationary by Inserting a Pin.

Nos.	SG20	SG21	SG22	SG23	SG24	SG25
Width of Jaw, inches	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$	5 $\frac{1}{4}$	6	7
Jaws Open, inches	5	6	8	9	11	12
Extreme Length, Closed, inches	15 $\frac{1}{4}$	17 $\frac{1}{2}$	21 $\frac{1}{2}$	25 $\frac{1}{2}$	27 $\frac{1}{2}$	30
Weight each about, lbs.	44	66	85	135	156	238
Each	\$13.00	16.00	19.50	28.00	36.00	54.00

Machinists', Stationary Base, Parallel Jaws.

Body of Vise and Base are in One Piece, without the Swivel Action described on Nos. SG1 and SG20 series. The Material, also the Beauty and Strength of the design, are the same as on the Swivel Bottom Styles.



No. SG61.

Nos.	SG61	SG62	SG63
Width of Jaws, inches	3 $\frac{1}{2}$	4	4 $\frac{1}{2}$
Jaws Open, inches	5	6 $\frac{1}{2}$	7 $\frac{1}{2}$
Extreme Length, Closed, inches	14 $\frac{1}{4}$	19 $\frac{1}{2}$	20
Weight each about, lbs.	26	38	55
Each	\$6.50	8.50	10.00

Nos.	SG64	SG65	SG66	SG67
Width of Jaws, in.	5 $\frac{1}{4}$	6	7	8
Jaws Open, in.	8 $\frac{1}{2}$	11	12	12 $\frac{1}{2}$
Ex. Length, Closed, in.	23 $\frac{1}{4}$	24 $\frac{3}{4}$	28 $\frac{1}{2}$	31 $\frac{1}{2}$
Weight each about, lbs.	80	127	185	230
Each	\$15.50	25.00	30.00	45.00

One in a Wood Box, except Sizes Marked (X)

Packed Loose.

-350-

VICES.**SOLID BOX; BLACKSMITHS'.**

Forged Steel Body, Jaws and Hinge Plate; Japanned Finish; Malleable Iron Bench Plate; Malleable Box, Japanned; Polished Steel Screw and Sliding Lever Handle; Steel Spring between Jaws.

Nos.	35	40	45	50	55	60
Weight each, lbs.	35	40	45	50	55	60
Width of Jaws, inches	3 3/4	4	4 1/4	4 1/2	4 3/4	5
Jaws Open, inches	3 3/4	4	4 1/4	4 1/2	4 3/4	5
Extreme Height, inches	40	41	41	41	41	41
Each	\$10.00	10.50	11.00	11.50	12.00	13.00
Nos.	65	70	75	80	100	
Weight each, lbs.	65	70	75	80	100	
Width of Jaws, inches	5	5 1/4	5 1/2	5 3/4	6	
Jaws Open, inches	5	5 1/4	5 1/2	5 3/4	6	
Extreme Height, inches	41	41	41	41	41	
Each	\$14.00	15.00	16.00	17.50	22.00	

Packed Loose.



Vise Complete.

VICE BOXES AND SCREWS.

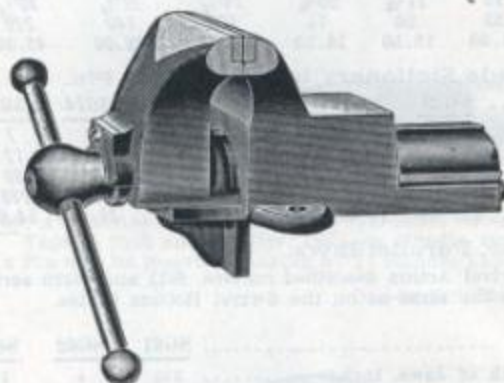
Extra Malleable Boxes, with Steel Screw and Sliding Lever handle for Solid Box Vises.

Nos.	1	1 1/2	2	3	4
To Fit Vises, Nos.	25 & 40	45 to 55	60 to 75	80 to 95	100 to 125
Length over all, inches	11 1/2	12 1/2	13 1/2	14 1/2	15 1/2
Weight each about, lbs.	10	12	14	16	18
Each	\$3.50	4.00	4.00	4.50	7.00

Packed Loose.



Showing Extra Box and Screw.

VICES.**FARMERS' OVAL SLIDE.**

To Screw to Bench; Cast Iron, Japanned Finish, with Polished Steel Faced Jaws, Polished Steel Screw and Sliding Lever Handle.

Nos.	F30	F31	F33	F34
Width of Jaws, inches	2 1/2	3	3 1/2	4
Jaws open, inches	3 3/4	4	4	4
Extreme length, closed, inches	11 1/2	13	15	16
Weight each about, lbs.	8 1/2	13	22	28
Each	\$2.50	3.00	4.75	6.50

Packed Loose.

**PHOENIX.**

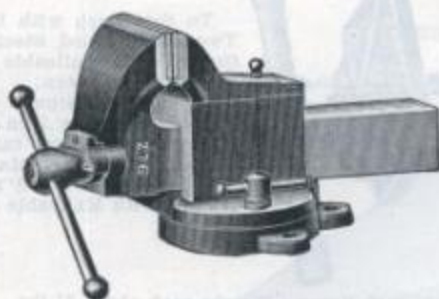
WITH ANVIL; To Clamp or Screw to Bench as desired; Cast Iron, Japanned, with Polished Slide, Jaws and Anvil Face; Polished Steel Screw and Sliding Lever Handle.

Nos.	11	12	13	14
Width of Jaws, inches	1 1/2	1 3/4	2	2 1/2
Jaws open, inches	1 3/4	2	2 1/4	2 3/4
Extreme lgth. closed, in.	4 1/2	5 1/4	6 1/4	8 1/4
Wgt. per doz. about, lbs.	18	30	54	114
Per dozen	\$7.00	13.00	20.00	32.00

NOTE—Nos. 11 and 12 have Plain Cast Jaws; Nos. 13 and 14 Hardened Cast Jaws;

One Dozen in a Bundle.

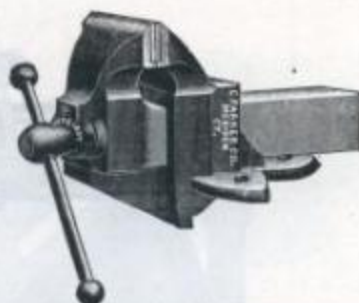
232IV MT VICES.



PARKERS' WOODWORKERS'.

Steel Faced Jaws; Cast Iron Body, Japanned; Swivel Bottom; Polished Slide and Jaws; Steel Sliding Lever Handle; Self-adjusting Back Jaws for Holding Irregular Shaped Articles.

Nos.	276	277
Width of Jaws, inches	4	4½
Jaws Open, inches	7½	9½
Weight each about, lbs.	40	65
Each	\$9.50	13.00



PARKERS' COACHMAKERS.

Steel Faced Jaws; Cast Iron Body, Japanned, Stationary Base; Polished Slide and Jaws; Steel Sliding Lever Handle; Designed for the use of Carpenters, Cabinet Makers, Pattern Makers and Woodworkers generally.

No.	40½
Width of Jaws, inches	4½
Jaws Open, inches	9½
Weight each about, lbs.	57
Each	\$10.25

Packed Loose.

EMMERT UNIVERSAL WOODWORKERS' AND PATTERN MAKERS' VISE.



Cast Iron, Japanned Body, Steel Faced Jaws, Polished Steel Sliding Bar.

This Vise, when in Natural Position on the side of the Bench, is Flush with the Top of the Bench. In this position it can be Unlocked and Changed into a Variety of Positions, always presenting the work in an attitude to the workman that he can Operate with Comfort.

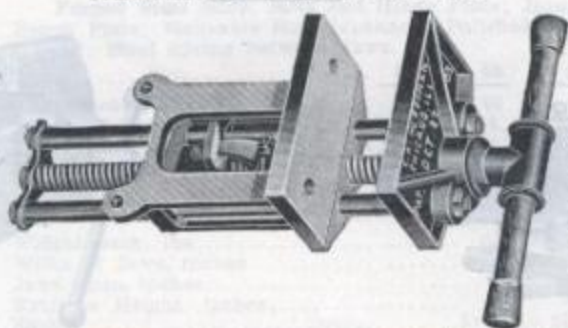
No. 1W Vise has 7 Different Pairs of Jaws, any pair of which may be Instantly Adjusted to the position required by the Operator. One Pair of these Jaws is 18 inches Wide, Three Pairs each 7 inches Wide, Two Pairs each 1 inch Wide, and the other 3 inches Wide, Steel Faced and Slightly Roughened for Holding Metal Work. This Equipment enables the Operator to adapt this Vise to grasp any kind of work without regard to Irregularity of form.

No. 2W Vise has One Pair Less of Holding Dogs so arranged that they may be Secreted when not in use.

No. 1W—Size of Body 7x18½ inches; Jaws Open 14 inches; Weight each about 100 lbs.	Each \$15.00
No. 2W—Size of Body 5x14 inches; Jaws Open 12 inches; Weight each about 70 lbs.	12.50
One in a Crate.	

-350A- **VICES.**

WOOD WORKERS'
 HERRIMAN RAPID ACTING.



To Set Flush with Bench:
 Two Cold Rolled Steel Slide
 Guides, with Malleable Screw
 working between; Patent
 Self-adjusting Bronze Clutch
 Nut; Finest Gray Iron Parallel
 Jaws with Faces carefully
 Planed; Other Parts Malleable
 Iron; Polished Wood Sliding
 Handle with Malleable Cap at
 one end.

Each

No. H7—Jaws 7 inches Wide, 4 inches Deep and Open 9 inches; $1\frac{1}{4}$ inch Screw; Weight each about 27 lbs. \$7.00

No. H10—Jaws 10 inches Wide, 4 inches Deep, and Open 12 inches; $1\frac{1}{4}$ inch Screw; Weight each about 47 lbs. 9.00

Packed Loose.

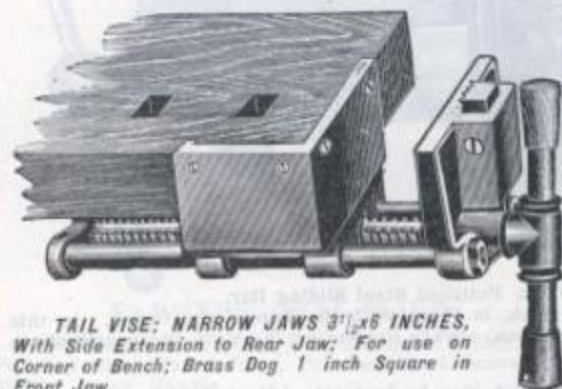
TOLES' RAPID ACTING.



To Set Flush with Bench: Two
 Polished Parallel Steel Slide Bars with
 Polished Steel Slotted Screw working
 between; Patent Self-adjusting Bronze
 Clutch Nut; Japanned Malleable Parallel
 Jaws, Rear Piece and Handle
 Socket; Polished Hickory Sliding Handle
 with Malleable Cap at one end; Jaws
 have Carefully Planed Faces.

REGULAR: WIDE JAWS 4x10 INCHES.

Nos.	±20/12	±20/14	±20/16	±20/18	±20/20	±20/22	±20/24
Jaws Open, inches.....	12	14	16	18	20	22	24
Weight each about, lbs.....	38	37	38	39	40	41	42
Each.....	\$8.50	7.00	7.50	8.00	8.50	9.00	9.50



TAIL VISE: NARROW JAWS 3"x6 INCHES,
 With Side Extension to Rear Jaw; For use on
 Corner of Bench; Brass Dog 1 inch Square in
 Front Jaw.

Nos.	±35/6	±35/8	±35/10	±35/12
Jaws Open, inches.....	6	8	10	12
Weight each about, lbs.....	30	31	32	33
Each.....	\$6.00	6.50	7.00	7.50



REGULAR: WIDE JAWS 4x10 INCHES. With
 Brass Bench Stop 1 inch Square in Back Jaw;
 and Brass Dog 1 inch Square in Front Jaw.

No.	±40/12	±40/14	±40/16	±40/18
Jaws, Open, inches.	12	14	16	18
Weight each about, lbs	39	40	41	42
Each	\$7.50	8.00	8.50	9.00
Nos.	±40/20	±40/22	±40/24	
Jaws Open, inches.	20	22	24	
Weight each about, lbs	43	44	45	
Each	\$9.50	10.00	10.50	

About Six in a Barrel.

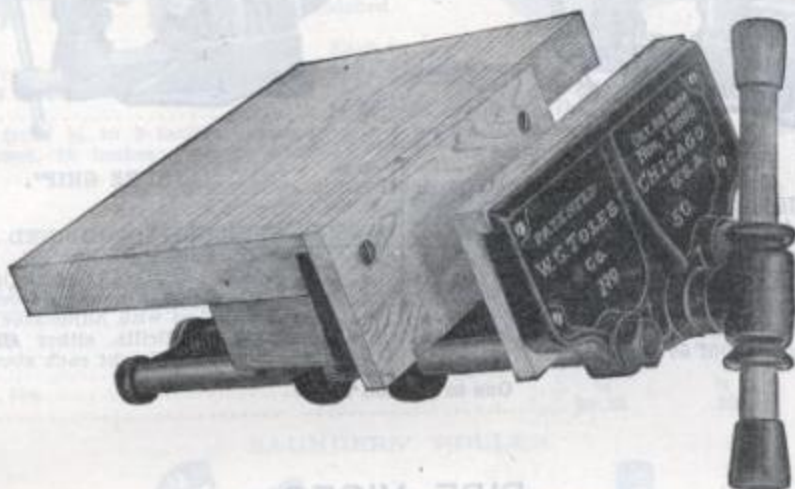
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COMBINED ANVILS AND VISES. VISES.

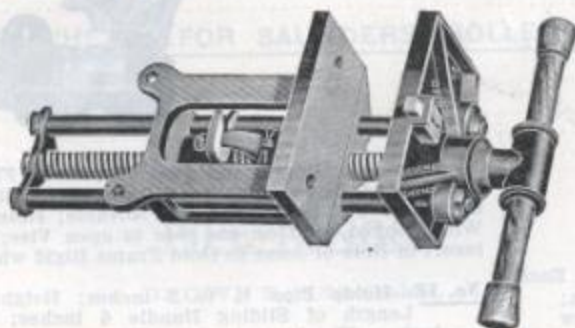
TOLES RAPID ACTING.

Steel Guides, Cast Iron Jaws and Frame; Bronze Nut; $1\frac{1}{4}$ inch Screw.



No. T50—Jaws 10 inches Wide and Open 12 inches; Depth of Jaws $4\frac{1}{2}$ inches; Weight each about 37 lbs.... Each \$7.00
Packed Loose.

WOOD WORKERS'. HERRIMAN RAPID ACTING.



No. H17—Jaws 10 inches Wide, 4 inches Deep, and Open 12 inches; $1\frac{1}{4}$ inch Screw; Front Jaw Fitted with a Dog; Weight each about $48\frac{1}{2}$ lbs. Each \$10.00
No. H11—Jaws 7 inches Wide, 4 inches Deep and Open 9 inches; $1\frac{1}{4}$ inch Screw; Front Jaw Fitted with a Dog; Weight each about $28\frac{1}{2}$ lbs. 8.00

Packed Loose.

TRADE MARK:
"SURE GRIP"
REGISTERED.

MT



COMBINED ANVILS AND VISES.



SURE GRIP®.

Each

- No. SG—SURE GRIP®; COMBINED ANVIL AND VISE**, with 4 inch Steel Faced Adjustable Jaws; Opens 12 inches; Double Pipe Holding Attachments, Holding Pipe from $\frac{1}{4}$ to 2 inches; Solid Screw Box; Face of Anvil $8\frac{1}{2} \times 3$ inches; Length over all, Closed $16\frac{1}{2}$ inches, Open 22 inches; Height 7 inches; Painted Red; Weight each about 50 lbs..... \$6.00



SURE GRIP®.

Each

- No. SGD—SURE GRIP®; COMBINED ANVIL AND VISE**; Same as No. SG, except with **DRILL ATTACHMENT**, which is Easily Removed when not in use. Independent Screw Feed; Drill Rest with Adjustable Step; Takes Square Shank Drills, either **KEEN KUTTER** or Morse No. 109. Weight each about 60 lbs.... \$8.00

One in a Wood Box.

PIPE VISES.



Each

- No. 5C—With Steel Link Chain**; Polished Steel Screw and Cast Iron Adjusting Handle at Bottom; Chain Fits in Groove on Side of Frame, Adjusting to the different size Pipe; Holds Pipe $\frac{1}{4}$ to $2\frac{1}{2}$ inches; Height over all 7 inches; Length of Adjusting Handle 6 inches; Size of Base $7\frac{1}{2} \times 5\frac{1}{2}$ inches; Weight each about 11 lbs..... \$10.00

Packed Loose.



Each

Cast Iron Frame and Base, Japanned Finish; Polished Steel Sliding Handle and Screw; Hardened Jaws with Milled Teeth; Two Lower Jaws Stationary and One Upper Jaw Movable; Holes in Base to Screw to Bench. With Hinged Joint on one side to open Vise; Cast Iron Latch and Pin to insert in Hole of Joint to Hold Frame Rigid when closed.

- No. 1E—Holds Pipe $\frac{1}{4}$ to 2 inches**; Height over all 9 inches; Length of Sliding Handle 6 inches; Size of Base $4\frac{1}{4} \times 5\frac{1}{2}$ inches; Weight each about 5 lbs..... \$8.00
- No. 3E—Holds Pipe $\frac{1}{4}$ to $2\frac{1}{2}$ inches**; Height over all 13 inches; Length of Sliding Handle 8 inches; Size of Base $5\frac{1}{2} \times 6\frac{1}{2}$ inches; Weight each about 11 lbs..... 10.00
- No. 4E—Holds Pipe $\frac{1}{4}$ to $3\frac{1}{2}$ inches**; Height over all 14 inches; Length of Sliding Handle 9 inches; Size of Base $5\frac{1}{4} \times 8$ inches; Weight each about $15\frac{1}{2}$ lbs..... 14.00
- No. 12—Holds Pipe $\frac{1}{2}$ to $4\frac{1}{2}$ inches**; Height over all 16 inches; Length of Sliding Handle $11\frac{1}{2}$ inches; Size of Base $6\frac{1}{2} \times 9$ inches; Weight each about 22 lbs..... 20.00

Packed Loose.

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PIPE CUTTERS.

BARNES' PATTERN, THREE WHEEL.



Polished Malleable Iron
Shank and Frame; Japan-
ned Cast Iron Handle;
Cutters Forged from Best
Jessop Tool Steel, Temper-
ed and Oil Finished.



	Each
No. B1—Cuts Pipe from $\frac{1}{8}$ to 1 inch; Length over all, closed, 13 inches; Weight each about 3 lbs.	\$4.50
No. B2—Cuts Pipe from $\frac{1}{8}$ to 2 inches; Length over all, closed, 16 inches; Weight each about 5 lbs.	6.00

	Each
No. B3—Cuts Pipe from $\frac{1}{8}$ to 3 inches; Length over all, closed, 21 inches; Weight each about 8 $\frac{1}{2}$ lbs.	\$10.00
No. B4—Cuts Pipe from $2\frac{1}{2}$ to 4 inches; Length over all, closed, 25 inches; Weight each about 14 lbs.	20.00
No. B5—Cuts Pipe from 4 to 6 inches; Length over all, closed, 30 inches; Weight, each, about 22 lbs.	30.00

EXTRA CUTTER WHEELS FOR BARNES' PATTERN PIPE CUTTERS.

Nos.	B1	B2	B3	B4
Diameter, inches	1	$1\frac{1}{16}$	$1\frac{1}{16}$	$1\frac{1}{8}$
Weight each about, lbs.	$\frac{1}{8}$	$\frac{3}{8}$	$\frac{1}{4}$	$\frac{3}{4}$
Each	\$0.25	.30	.40	.50

SAUNDERS' ROLLER.



Japanned Malleable Iron Shank and Frame; Japanned Cast Iron Handle; One Cutter and two Rollers Forged from Tool Steel, Tempered.

No.	S/1	S/2	S/3
Cuts Pipe, inches	$\frac{1}{8}$ to 1	1 to 2	2 to 3
Length over all, inches	16	20 $\frac{1}{2}$	26 $\frac{1}{2}$
Weight each about, lbs.	3 $\frac{1}{2}$	6 $\frac{1}{4}$	12
Each	\$3.00	4.50	11.00

EXTRA CUTTER WHEELS FOR SAUNDERS' ROLLER PIPE CUTTERS.

No.	S/1	S/2	S/3
Diameter, inches	$1\frac{1}{16}$	$1\frac{5}{16}$	$1\frac{1}{8}$
Weight each, ounces	$\frac{3}{4}$	$1\frac{1}{8}$	4
Each	\$0.24	.32	.60

Packed Loose.

PIPE TONGS.

BROWN'S, Adjustable.

Forged Tool Steel, Natural Finish; Tempered Jaws; Adjusted by Heavy Wrought Steel Thumb Screws.



Nos.	1	$1\frac{1}{2}$	2	3	4
For Pipe, Size, inches	$\frac{1}{8}$ to $\frac{1}{4}$	$\frac{1}{4}$ to 1	$\frac{1}{2}$ to $1\frac{1}{4}$	1 to 2	$1\frac{1}{2}$ to 3
Length over all, inches	13 $\frac{1}{2}$	17	20	25	37
Weight each about, lbs.	2 $\frac{1}{2}$	4	6	10	21
Each	\$1.30	1.65	2.00	3.00	6.00

Packed Loose.



CHAIN PIPE WRENCHES.



YANKEE.

Drop Forged from One Piece Steel, Natural Finish; Flat Link Steel Chain; Milled Teeth on Both Sides of Head.

Size.	Capacity, Size Pipe.	Length Over all.	Length, Flat Link Chain.	Average Break- ing Strain, Flat Link Chain.	Weight each about,	Each.
No. 1Y	1/4 to 1 1/2 in.	20 in.	15 in.	6700 lbs.	5 lbs.	\$ 3.50
No. 2Y	1/4 to 2 1/2 in.	27 in.	20 in.	9800 lbs.	8 lbs.	5.00
No. 3Y	3/4 to 4 in.	37 in.	28 in.	12500 lbs.	16 lbs.	7.00
No. 3 1/2 Y	1 to 6 in.	44 in.	37 in.	14300 lbs.	21 lbs.	9.00
No. 4Y	1 1/2 to 8 in.	50 in.	45 in.	15700 lbs.	28 lbs.	11.00
No. 5Y	2 to 14 in.	64 in.	54 1/2 in.	21800 lbs.	45 lbs.	18.00

±EXTRA FLAT LINK CHAIN FOR YANKEE PIPE WRENCHES.

±Nos	1YC	2YC	3YC	3 1/2 YC	4YC	5YC
Weight each about, lbs	1	1 1/2	3 1/2	4 1/2	8 1/2	14
Each	\$1.00	2.00	3.00	3.50	4.00	6.00

Packed Loose.

TRADE MARK:
"KEEN KUTTER BLACK JACK,"
AND
"NEVERSLIP,"
REGISTERED

WRENCHES.



Forged from Extra Quality Tool Steel; Hardened and Polished Jaws; SHANK EXTENDS THROUGH TO END OF HANDLE; Varnished Beechwood Grips riveted to Handle with Two Heavy Iron Rivets; Steel Adjusting Screw.

No. B—KEEN KUTTER BLACK JACK*, Solid Handle, Black.

Length, inches	6	8	10	12	15	18	21
Jaws, Open, inches	1	1½	1¾	2¼	2½	3¼	3¾
Weight per dozen about, lbs.	9	16	27	39	57	75	102
Per dozen	\$9.00	10.00	12.00	14.00	24.00	30.00	36.00

6 to 12 inches, ½ Dozen; 15 and 18 inches, ⅓ Dozen; 21 inches, ¼ Dozen in a Wood Box.



Extra Finish; Wrought Iron Jaws and Adjusting Screw; Polished Malleable Iron Ferrule; SHANK EXTENDS THROUGH TO END OF HANDLE; Screwed to Cap at end; Plain Hardwood Grip.

No. NS—NEVER SLIP*, Black.

Length, inches	6	8	10	12	15
Jaws, Open, inches	1½	1¾	2	2¼	2½
Weight per dozen about, lbs.	9	16	27	39	57
Per dozen	\$10.00	12.00	14.00	17.00	24.00

One-half Dozen in a Package.



ACME.

No. A—Acme.

Cast Steel, Polished Head and Jaws; Wrought Iron Shank; Japanned Finish Twisted Handles; Shank and Handle One Piece extending through Head.

Length, inches	6	8	10	12	15
Jaws Open, inches	1½	1¾	1¾	2¾	4
Weight per dozen about, lbs.	9	14	22	32	52
Per dozen	\$10.00	12.00	14.00	17.00	24.00

6 to 12 inches, One-half Dozen in a Wood Box; 15 inches, One-half Dozen in a Package.



ADJUSTABLE "S".

NEVER SLIP*, Wescott Pattern, Polished and Hardened Cast Steel Jaws; Japanned Finish Handle; Knurled Adjusting Screw; Sliding Jaw works on Grooved Surface in Hollow Part of Head.

No. WP—NEVER SLIP*.

Length, inches	6	8	10	12	14
Extreme Width of Opening, inches	¾	1	1½	1¾	2
Weight per dozen about, lbs.	5½	13	23	37	61
Per dozen	\$7.20	9.00	12.00	15.00	21.00

One-half Dozen in a Wood Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER;
SURE GRIP, AND
"DUCK BILL,"
REGISTERED.

WRENCHES.



KEEN KUTTER* BOLT WRENCHES.

Forged from Tool Steel; Tempered and Hardened Jaws and Thread Cutters. Per Dozen
No. 23—KEEN KUTTER*: COMBINATION BOLT WRENCH AND THREAD CUTTER; Length over all 5 5/8 inches;
Straw Finish; Will Hold Round Iron 1/4 to 3/8 inches; Size of Thread Cutters 1/2, 5/8 and 7/16 inches;
Weight per dozen about 5 lbs. \$5.00
One Dozen in a Cardboard Box.



KEEN KUTTER* SURE GRIP.

Forged from Special Crucible Steel; Oil Tempered; Milled Teeth.

Per Dozen
No. 15—LENGTH 4 INCHES; NATURAL FINISH;
Holds Pipe 1/2 inch and Smaller; Openings
in Handle suitable to hold Nuts, Sizes 1/4, 5/16
and 3/8 inch; Screw Driver End 5/16 inch Wide
at Point; Weight per dozen about 1 1/2 lbs. \$4.00

LENGTH 5 1/2 INCHES; Holds Pipe 3/8 inch and
Smaller; Openings in Handle suitable to hold Nuts,
Sizes 1/4, 5/16, 3/8 and 1/2 inch. Per Dozen

No. 20—NATURAL FINISH..... \$4.00
No. 30—NICKEL PLATED..... 5.00

Weight per Dozen about 3 3/4 lbs.

One Dozen in a Cardboard Box.



KEEN KUTTER* SURE GRIP.

Forged from Special Crucible Steel, Tempered in Oil; Milled Teeth.

Natural Finish; Raised Surface; Polished.

Per Dozen
No. 40—LENGTH 5 1/2 INCHES; Holds Pipe 3/8
inch and Smaller; Openings in Handle suit-
able to hold Nuts, Sizes 1/4, 5/16, 3/8 and 1/2
inch; Weight per dozen about 4 lbs. \$5.00
One Dozen in a Cardboard Box.

No. 50—LENGTH 7 INCHES; Holds Pipe 1/2 to 3/4
inch; Openings in Handle suitable to hold
Nuts, Sizes 5/16, 3/8, 1/2 and 5/8 inch; Weight
per dozen about 9 lbs. 10.00
One-half Dozen in a Cardboard Box.



KEEN KUTTER* SURE GRIP.

Forged from Special Crucible Steel, Tempered in Oil;
Milled Teeth.

Per Dozen
No. 80—LENGTH 10 INCHES; NATURAL FIN-
ISH; Raised Surface Polished; Holds Pipe
3/4 inch and Smaller; Weight per dozen about
16 lbs. \$18.00
One-half Dozen in a Cardboard Box.



Natural Finish; Raised Surface; Polished.

Per Dozen
No. 60—LENGTH 9 INCHES; Holds Pipe 1/2 to 3/4
inch; Weight per dozen about 12 lbs. \$12.00
No. 70—LENGTH 16 INCHES; Holds Pipe 1/2 to
1 1/4 inches; Weight per dozen about 39 lbs. 24.00
One-half Dozen in a Cardboard Box.



DUCK BILL*.

Forged from Extra Quality Tool Steel, Oil Tempered;
Natural Finish Knurled Body; Raised Surface of Jaws
and Edges Nickel Plated; Milled Teeth on One Jaw of
each End.

Per Dozen
No. JR—LENGTH 5 INCHES; Holds Nuts or Pipe
1/4 to 3/8 inch; Weight per dozen about 6 lbs. \$5.00
No. SR—LENGTH 7 INCHES; Holds Nuts or Pipe
1/4 to 1 1/4 inches; Weight per dozen about
12 lbs. 6.75

WRENCHES.



ESSEX*.
BICYCLE.

No. E5 1/2—NICKEL PLATED; Extra Quality Cast Steel; Case Hardened Jaws; Length 5 1/2 inches; Jaws open 1 7/16 inch; Weight per dozen about 3 1/2 lbs. \$10.00
One Dozen in a Cardboard Box.



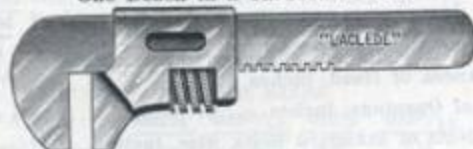
ESSEX*.
BICYCLE.

No. E9—PLAIN BLACK FINISH; Cast Steel; Case Hardened Jaws; Length 9 1/2 inches; Jaws Open 2 1/2 inches; Weight per dozen about 16 lbs. \$12.00
One-half Dozen in a Wood Box.



QUEEN.
BICYCLE.

No. 98—FROSTED FINISH; Cast Steel; Length 5 1/2 inches; Jaws Open 1 3/8 inches; Weight per dozen about 4 1/2 lbs. \$6.00
One Dozen in a Cardboard Box.



LACLEDE*.
BICYCLE.

No. 1—NICKEL PLATED; Extra Quality Cast Steel; Case Hardened Jaws; Length 5 inches; Jaws Open 1 1/2 inches; Weight per dozen about 4 1/2 lbs. \$8.00
One Dozen in a Cardboard Box.



BAXTER'S, Adjustable, Bright.
BICYCLE.

No. BA.

	4	6	8
Length, Closed, inches.....	3 1/2	1 1/2	1 3/4
Jaws Open, inches.....	7 1/2	10	17
Weight per dozen about, lbs.....	\$6.00	9.00	12.00
Per dozen.....			

One-half Dozen in a Package.



Double End; Drop Forged from Tool Steel; Natural Finish; Milled Openings.

Nos. 341 to 367.
MACHINE.

Nos.	341	343	344	348
Extreme Length, inches.....	4	4	4	5
Thickness of Head, inches.....	3/8	3/8	3/8	5/16
Size of Openings, inches.....	1/4 and 3/8	5/16 and 7/16	3/8 and 7/16	1/2 and 9/16
Fits Set Screw, size, inches.....	1/4 and 3/8	5/16 and 7/16	3/8 and 7/16	1/2 and 9/16
Fits Square Head Cap Screws, size, inches.....			3/8 and 5/16	1/2 and 9/16
Fits Hexagon Head Cap Screws, size, inches.....			5/16 and 3/4	5/16 and 3/4
Weight per dozen about, lbs.....	1 1/4	1 1/4	1 1/4	4
Per dozen.....	\$1.08	1.08	1.08	1.44
Nos.	354	363	367	
Extreme Length, inches.....	6	7	9	
Thickness of Head, inches.....	3/8	3/8	3/8	
Size of Openings, inches.....	3/8 and 1	3/8 and 1	1 1/8 and 1 1/4	
Fits Set Screw, size, inches.....	3/8 and 1	3/8 and 1	1 1/8 and 1 1/4	
Fits Square Head Cap Screws, size, inches.....	1/2 and 3/4	1/2 and 3/4	3/4 and 1	
Fits Hexagon Head Cap Screws, size, inches.....	7/16 and 1/2	3/4 and 1	3/4 and 1	
Weight per dozen about, lbs.....	7	18	21	
Per dozen.....	\$1.92	2.52	4.08	

Packed Loose.

-362A-

WRENCHES.



Nos. 500/S to 504/S.

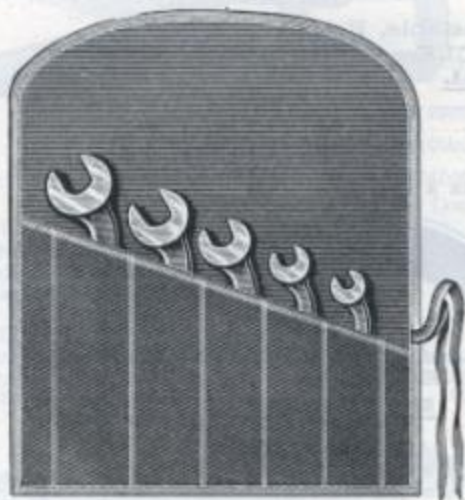
GENERAL PURPOSE.

Double End; Drop Forged from Tool Steel; Natural Finish Body, Case Hardened; Bright Heads with Milled Openings.

Nos.	500/S	501/S	502/S	503/S	504/S
Extreme Length, inches	6 $\frac{1}{4}$	7 $\frac{1}{8}$	8 $\frac{1}{4}$	9 $\frac{3}{4}$	10 $\frac{3}{8}$
Thickness of Head, inches	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Size of Openings, inches	$\frac{3}{8}$ and $\frac{1}{2}$	$\frac{1}{2}$ and $\frac{5}{8}$	$\frac{5}{8}$ and $\frac{3}{4}$	$\frac{3}{4}$ and $\frac{7}{8}$	$\frac{7}{8}$ and 1
Fits Nuts of Standard Bolts, Size, inches	$\frac{3}{16}$ and $\frac{1}{4}$	$\frac{1}{4}$ and $\frac{5}{16}$	$\frac{5}{16}$ and $\frac{3}{8}$	$\frac{3}{8}$ and $\frac{7}{16}$	$\frac{7}{16}$ and $\frac{1}{2}$
Weight per dozen about, lbs.	1 $\frac{3}{4}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	8 $\frac{1}{2}$	12
Per dozen	\$2.40	3.00	3.96	5.04	6.12

Double End; Drop Forged from Tool Steel; Natural Finish Body and Heads; Milled Openings.

Nos.	500U	501U	502U	503U	504U
Extreme Length, inches	6 $\frac{1}{4}$	7 $\frac{1}{8}$	8 $\frac{1}{4}$	9 $\frac{3}{4}$	10 $\frac{3}{8}$
Thickness of Head, inches	$\frac{7}{32}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Size of Openings, inches	$\frac{3}{8}$ and $\frac{1}{2}$	$\frac{1}{2}$ and $\frac{5}{8}$	$\frac{5}{8}$ and $\frac{3}{4}$	$\frac{3}{4}$ and $\frac{7}{8}$	$\frac{7}{8}$ and 1
Fits Nuts of Standard Bolts, Size, inches	$\frac{3}{16}$ and $\frac{1}{4}$	$\frac{1}{4}$ and $\frac{5}{16}$	$\frac{5}{16}$ and $\frac{3}{8}$	$\frac{3}{8}$ and $\frac{7}{16}$	$\frac{7}{16}$ and $\frac{1}{2}$
Weight per dozen about, lbs.	1 $\frac{3}{4}$	3 $\frac{1}{2}$	5 $\frac{1}{2}$	8 $\frac{1}{2}$	12
Per dozen	\$1.56	2.04	2.64	3.36	4.08



Showing Roll Open.



Showing Roll Closed.

GENERAL PURPOSE, IN ROLLS.

Dimensions of Rolls, 11 inches Long, 3 $\frac{1}{2}$ inches Diameter.

No.	Description	Per Roll
No. 500/S/4	Black Duck Roll, with Red Binding; Complete with 5 Wrenches, One Each Nos. 500/S, 501/S, 502/S, 503/S and 504/S	\$2.50
No. 500U/4	Black Drill Roll; Complete with 5 Wrenches, One Each Nos. 500U, 501U, 502U, 503U and 504U	1.50

Weight of Roll with Tools about 2 $\frac{3}{4}$ lbs.

Packed Loose.

WRENCHES.



ELGIN (1905 PATTERN). Per Dozen

No. AE—ADJUSTABLE; LENGTH 7 INCHES; Cast Steel, Full Nickel Plated; Hardened Jaws, with Milled Teeth; Jaws can be Closed by Adjusting Screw or by pressing on Upper Jaw; Lower Jaw and Handle One Piece, Reinforced at Jaws by Heavy Steel Plate, Screwed to Body; Hole in Handle for Threading Attachment; Holds Pipe, all sizes, up to 1/2 inch, and Nuts up to 1 1/2 inch; Particularly adapted for use in corners and cramped places; Weight per dozen about 7 1/2 lbs. \$12.00
One Dozen in a Cardboard Box.



LIGHTING NUT.

Cast Steel.

For Bit Brace Use, for Square and Hexagon Nuts.

Per Set

No. 602—Set of Five Wrenches; For Nuts 1/4, 5/16, 3/8, 7/16 and 1/2 inch; Weight per set about 2 lbs. \$1.50
One Set in a Cardboard Box.

Straight Sizes.

Nos.	602 1/4	602 5/16	602 3/8	602 7/16	602 1/2
Length, inches	4 1/2	4 3/4	4 3/4	5 1/4	5 1/2
For Nuts, inches	1/4	5/16	3/8	7/16	1/2
Wgt. doz. abt., lbs.	3	3	4 1/2	6	7 1/2
Per dozen	\$3.00	3.00	3.00	3.00	3.00

Nos. 602 1/4, 602 5/16 and 602 3/8, One-half Dozen, Nos. 602 7/16 and 602 1/2 One-third Dozen in a Cardboard Box.



BRACE.

Polished Steel for Square and Hexagon Nuts.

No. 100.

Size of Opening, inches	3/8	7/16	1/2	9/16	5/8	11/16	3/4	7/8	1	1 1/8	1 1/4
Length over all, inches	3 1/2	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	3 3/4	4	4 1/2	4 3/4	4 3/4
Weight per dozen about, lbs.	2 1/2	2 1/2	3	3 1/2	4	6 1/4	5 1/4	6 1/4	8	8 1/4	11
Per dozen	\$1.75	2.00	2.00	2.50	2.50	3.00	3.00	3.50	4.00	5.00	6.00

One-fourth Dozen in a Cardboard Box.



KEEN KUTTER* PIPE.

(Stillson Pattern.)

Jaws and Handle Drop Forged Tool Steel; Jaws Double Reinforced, with Polished Edges, Tempered and Drawn and can be Re-sharpened with a File, always insuring a Bite; Polished Head; Nickel Plated Frame fastened to Handle with a Steel Pin; Steel Knurled Adjusting Nut; Nos. K6 and K8 have Single Springs; Nos. K10 to K24 have Double Spring. All have Steel Handles with Oval Grip which fits the hand.

Nos.	K 6	K 8	K 10	K 14	K 18	K 24
Length, inches	6	8	10	14	18	24
Adjustable for Pipe, inches	1/4 to 1/2	1/2 to 3/4	3/4 to 1	1 1/4 to 1 1/2	1 1/2 to 2	1 1/2 to 2 1/2
Weight per dozen about, lbs.	4 1/2	7 1/2	16 1/2	36	57	90
Per dozen	\$24.00	24.00	27.00	36.00	48.00	72.00

Nos. K6, K8, K10 and K14, One-half Dozen in a Cardboard Box; Nos. K18 and K24, one-half Dozen in a Wood Box.

WRENCHES.



Showing Wood Handle.



Showing Iron Handle.

Drop Forged Tool Steel; Polished Shank, Frame and Hardened Jaws; Frame fastened to Jaw by Movable Steel Pin; Jaw adjusted by Steel Nut; Shank extends through Ferrule and Handle, and screws in Cap at end; 6 to 14 inch have Ebony Finish Hardwood Handle; 18 to 48 inch have Steel Handle; 6 to 14 inch have Single Spring; 18 to 48 inch have Double Spring; Polished Steel Ferrule and Cap.

Length, open, inches.....	6	8	10	14	18	24	36	48
Adjustable for Pipe, inches.....	$\frac{1}{8}$ to $\frac{1}{2}$	$\frac{1}{4}$ to $\frac{3}{4}$	$\frac{1}{2}$ to 1	$\frac{3}{4}$ to $1\frac{1}{2}$	$\frac{1}{2}$ to 2	$\frac{3}{4}$ to $2\frac{1}{2}$	$\frac{1}{2}$ to $3\frac{1}{2}$	1 to 5
Weight each about, lbs.....	$\frac{1}{4}$	$\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$4\frac{1}{2}$	$7\frac{1}{2}$	15	24
Each	\$2.00	2.00	2.25	3.00	4.00	6.00	12.00	18.00

6 to 24 inch, Six in a Wood Case; 36 and 48 inch, Packed Loose.

EXTRA JAWS, for STILLSON'S PIPE WRENCHES.



Inches	6	8	10	14	18	24	36	48
Weight each about, lbs...	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{3}{4}$
Each	\$0.75	.75	.80	1.00	1.33	2.10	4.75	7.25

EXTRA NUTS, for STILLSON'S PIPE WRENCHES.



Inches	6	8	10	14	18	24	36	48
Weight each about, lbs...	$\frac{1}{32}$	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	2
Each	\$0.11	.11	.14	.17	.22	.35	.55	.95

EXTRA FRAMES, for STILLSON'S PIPE WRENCHES.



Length, open, inches.....	6	8	10	14	18	24	36	48
Weight each about, lbs.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$4\frac{1}{2}$	$6\frac{3}{4}$
Each	\$0.35	.35	.40	.50	.55	.80	1.30	1.50

Packed Loose.



No. 45.



No. 43.

BEMIS & CALL'S COMBINATION.

Forged from Tool Steel; Polished Shank, Nut and Hardened Jaws; Extra Steel Grip, with Teeth on one end of Jaw for Pipe; Shank extends through Ferrule and Handle and screwed to Cap at end; Polished Ferrule and Cap; Polished Hardwood Handle.

No. 45—Bright, with Long Nut.

Inches	10	12	15	18
Adjustable to Pipe, in. $\frac{1}{2}$ to 1	$\frac{1}{2}$ to $1\frac{1}{4}$	$\frac{1}{2}$ to 2	$\frac{1}{2}$ to 3	$\frac{1}{2}$ to 3
Wgt. doz. about, lbs...	26	38	54	84
Per dozen.....	\$25.25	28.50	40.50	72.00

10 to 15 inch, One-half Dozen in a Wood Box; 18 inch, One-sixth Dozen in a Package.

No. 43—Bright, with Short Nut.

Inches	10	12	15	18
Adjustable to Pipe, in. $\frac{1}{2}$ to 1	$\frac{1}{2}$ to $1\frac{1}{4}$	$\frac{1}{2}$ to 2	$\frac{1}{2}$ to 3	$\frac{1}{2}$ to 3
Wgt. doz. about, lbs...	24	36	50	81
Per dozen.....	\$23.00	26.00	37.00	66.00

EXTRA DOGS OR GRIPS, NEW STYLE, WITH PIN, for B. & C. COMBINATION WRENCHES.

Inches	10	12	15
Weight each about, lbs.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$
Each	\$0.25	.30	.35

Packed Loose.

EXTRA DOGS OR GRIPS, OLD STYLE, WITH SCREW, for B. & C. COMBINATION WRENCHES.

Inches	10	12	15
Weight each about, lbs.....	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{1}{2}$
Each	\$0.25	.30	.35

When ordering Extra Dogs for B. & C. Combination Wrenches invariably specify what kind are wanted, viz.: "Old Style" with Screws; or "New Style," with Pins.

SOCKET WRENCHES.

SINGLE HEAD, Tool Steel.



With or Without Handle.

For Square Nuts, Cap-Screws and Set-Screws.

UNFINISHED: Natural Finish.
SEMI-FINISHED: Edges Ground and Case-hardened all over.
FINISHED: Polished all over, Case-hardened and Lacquered.

Hexagon End of Shank is designed for use in Combination with another Wrench or with Pin Handle.
Unless otherwise Specified, Wrenches with Pin Handles will be sent.

Number	SQUARE OPENINGS					Extreme Length, Inches	Diam. of Head Inches	Diam. of Shank, Inches	Hex. End Same Size as U. S. Nut; Size Bolt, Inches	Size of Pin-Handle		Weight, each	Unfinished, each		Semi-finished, Each		Finished, Each	
	For U. S. Standard Nut; Size Bolt, Inches	For Cap Screw; Diam.-Screw, Inches	For Set Screw; Size, Inches	Short Diam. Broached Opening, Inches	Diameter, Inches					Length, Inches	Without Pin-Handle or Hole		With Pin- Handle and Hole	Without Pin-Handle or Hole	With Pin- Handle and Hole	Without Pin-Handle or Hole	With Pin- Handle and Hole	
320A			1/8	1/8	35/8	11/32	7/32	1/8	1/8	3	1 oz.	\$.18	\$.26	\$.27	\$.35	\$.36	\$.44	
321C			3/16	13/64	4	1/2	1/4	3/16	3/16	4	1 1/2 "	.20	.30	.30	.40	.40	.50	
321B			1/4	17/64	4	1/2	1/4	3/16	3/16	4	1 1/2 "	.20	.30	.30	.40	.40	.50	
322D			5/16	21/64	4 1/2	5/8	3/4	1/4	7/32	4 1/2	3 "	.22	.33	.33	.44	.44	.55	
323B		1/4	3/8	25/64	4 3/8	11/16	3/8	5/16	9/32	4 3/8	3 "	.24	.37	.36	.49	.48	.61	
324C		5/16	7/16	29/64	5 1/4	7/8	7/16	3/8	5/16	5 1/4	5 1/2 "	.29	.43	.44	.58	.58	.72	
325D	1/4	3/8	1/2	33/64	6 1/8	1	1/2	7/16	11/32	6 1/8	7 "	.32	.47	.48	.63	.64	.79	
325E		7/16	9/16	37/64	6 1/2	1 1/8	9/16	1/2	13/32	6 1/2	10 "	.36	.53	.54	.71	.72	.89	
326D	5/16			39/64	6 3/4	1 1/8	9/16	1/2	13/32	6 3/4	10 "	.36	.53	.54	.71	.72	.89	
326E		1/2	5/8	41/64	7	1 1/4	5/8	1/2	13/32	7	13 "	.40	.57	.60	.77	.80	.97	
326F	3/8	9/16		45/64	7	1 1/4	5/8	1/2	13/32	7	14 "	.40	.57	.60	.77	.80	.97	
327C		5/8	3/4	49/64	7 3/8	1 3/8	5/8	9/16	7/16	7 3/8	15 "	.46	.64	.69	.87	.92	1.10	
327D	7/16			51/64	7 7/8	1 1/2	11/16	5/8	1/2	7 7/8	1 1/4 lbs	.52	.72	.78	.98	1.04	1.24	
328C	1/2	3/4	7/8	57/64	8 1/4	1 3/8	3/4	5/8	1/2	8 1/4	1 1/2 "	.60	.80	.90	1.10	1.20	1.40	
329B	9/16			63/64	8 5/8	1 3/4	13/16	3/4	9/16	8 5/8	2 "	.70	.95	1.05	1.30	1.40	1.65	
329C			1	1 1/16	9 1/8	1 7/8	7/8	3/4	5/8	9 1/8	2 1/4 "	.80	1.10	1.20	1.50	1.60	1.90	
329D	5/8			1 1/8	9 1/2	2	13/16	7/8	11/16	9 1/2	2 1/4 "	.90	1.25	1.35	1.70	1.80	2.15	
330D		7/8	1 1/8	1 1/2	9 3/2	2	13/16	7/8	11/16	9 3/2	3 "	.90	1.25	1.35	1.70	1.80	2.15	
330E	3/4	1	1 1/4	1 1/2	10 1/8	2 1/4	1 1/16	1	3/4	10 1/8	4 "	1.15	1.55	1.72	2.12	2.30	2.70	
331C		1 1/8		1 13/16	10 7/8	2 1/2	1 1/8	1 1/8	13/16	10 7/8	5 "	1.30	1.75	1.95	2.40	2.60	3.05	
331D	7/8			1 15/16	10 1/2	2 1/2	1 1/8	1 1/8	13/16	10 1/2	5 "	1.30	1.75	1.95	2.40	2.60	3.05	
332B		1 1/4		1 17/16	10 5/8	2 1/2	1 1/8	1 1/8	13/16	10 5/8	5 "	1.30	1.75	1.95	2.40	2.60	3.05	
332C	1	1 3/8		1 19/16	11 1/8	2 3/4	1 3/16	1 1/8	13/16	11 1/8	6 "	1.60	2.05	2.40	2.85	3.20	3.65	
333C	1 1/8			1 21/16	11 3/8	3	1 1/4	1 1/4	7/8	11 3/8	7 1/4 "	2.10	2.60	3.15	3.65	4.20	4.70	
333D	1 1/4			2 1/16	12 1/2	3 5/16	1 3/8	1 3/8	1	12 1/2	9 "	2.80	3.45	4.20	4.85	5.60	6.25	

Packed Loose.

SOCKET WRENCHES.

SINGLE HEAD, Tool Steel.



With or Without Handle.

For Hexagon Nuts and Cap-Screws.

UNFINISHED: Natural Finish.

SEMI-FINISHED: Edges Ground and Case-hardened all over.

FINISHED: Polished all over, Case-hardened and Lacquered.

Hexagon End of Shank is designed for use in Combination with another Wrench or with Pin Handle.

Unless otherwise Specified, Wrenches with Pin Handles will be sent.

Number	HEXAGON OPENINGS				Extreme Length, inches	Diam. of Head, inches	Diam. of Shank, inches	Hex. End same size as U. S. Nut, inches	Size of Pin-Handle		Weight, each	Unfinished, Each		Semi-finished, Each		Finished, Each	
	For U. S. Standard Nut, Size, inches	For Cap Screw, Diam. Screw, inches	Short Diam. Bore, inches	Opening, inches					Diameter, inches	Length, inches		Without Pin-Handle or Hole	With Pin-Handle and Hole	Without Pin-Handle or Hole	With Pin-Handle and Hole	Without Pin-Handle or Hole	With Pin-Handle and Hole
321A	1/8			3/16	4	1/2	1/4	3/16	3/16	4	1 1/2 oz.	\$.20	\$.30	\$.30	\$.40	\$.40	\$.50
322A		3/16			4 1/2	5/8	3/8	1/4	7/16	4 1/2	3 "	.22	.33	.33	.44	.44	.55
322B					4 7/8	1 1/8	5/8	3/16	9/16	4 7/8	3 "	.24	.37	.36	.49	.48	.61
322C		1/4			4 3/4	1 1/8	3/8	3/16	9/16	4 3/4	3 "	.24	.37	.36	.49	.48	.61
323A	1/4	5/16			5 1/4	1 1/4	3/8	3/16	9/16	5 1/4	3 1/2 "	.26	.39	.39	.52	.52	.65
324A		3/8			5 3/4	1 3/8	7/16	3/16	5 3/4	5 3/4	3 1/2 "	.29	.43	.44	.58	.58	.72
324B		5/16			5 3/4	1 3/8	7/16	3/16	5 3/4	5 3/4	3 1/2 "	.29	.43	.44	.58	.58	.72
325A		7/16			6 1/8	1	1 1/2	3/16	11/16	6 1/8	7 "	.32	.47	.48	.63	.64	.79
325B		3/8			6 1/2	1 1/8	3/8	1/2	11/16	6 1/2	10 "	.36	.53	.54	.71	.72	.89
325C		1/2			6 1/2	1 1/8	3/8	1/2	11/16	6 1/2	10 "	.36	.53	.54	.71	.72	.89
326A		7/16			7	1 1/4	3/8	1/2	11/16	7	13 "	.40	.57	.60	.77	.80	.97
326B		9/16			7	1 1/4	3/8	1/2	11/16	7	14 "	.40	.57	.60	.77	.80	.97
326C	1/2	5/8			7 3/8	1 3/8	3/8	9/16	1 1/8	7 3/8	15 "	.46	.64	.69	.87	.92	1.10
327A	9/16				7 1/8	1 3/8	11/16	3/8	1 1/2	7 1/8	1 1/4 lbs.	.52	.72	.78	.98	1.04	1.24
327B		3/4			7 7/8	1 1/2	11/16	3/8	1 1/2	7 7/8	1 1/4 "	.52	.72	.78	.98	1.04	1.24
328A	5/8				8 1/4	1 5/8	3/4	5/8	1 1/2	8 1/4	1 1/2 "	.60	.80	.90	1.10	1.20	1.40
328B		7/8			8 3/8	1 3/4	11/16	3/4	9/16	8 3/8	2 "	.70	.95	1.05	1.30	1.40	1.65
329A	3/4	1			9 1/8	1 7/8	7/8	3/4	1 1/2	9 1/8	2 1/4 "	.80	1.10	1.20	1.50	1.60	1.90
330A		1 1/8			9 3/8	2	1 5/8	7/8	1 1/2	9 3/8	3 "	.90	1.25	1.35	1.70	1.80	2.15
330B		7/8			10	2 1/8	1	7/8	1 3/4	10	3 "	1.00	1.35	1.50	1.85	2.00	2.35
330C		1 1/4			10	2 1/8	1	7/8	1 3/4	10	3 "	1.00	1.35	1.50	1.85	2.00	2.35
331A	1				10 5/8	2 1/4	1 1/8	1	2 1/4	10 5/8	4 "	1.15	1.55	1.72	2.12	2.30	2.70
331B	1 1/8				10 7/8	2 3/8	1 1/8	1 1/8	2 3/8	10 7/8	5 "	1.30	1.75	1.95	2.40	2.60	3.05
332A	1 1/4				11 3/8	2 3/4	1 3/8	1 3/8	2 3/8	11 3/8	6 "	1.60	2.05	2.40	2.85	3.20	3.65
333A	1 3/8				11 7/8	3	1 1/4	1 1/4	2 7/8	11 7/8	7 1/4 "	2.10	2.60	3.15	3.65	4.20	4.70
333B	1 1/2				12 1/2	3 3/16	1 3/8	1 3/8	1	12 1/2	9 "	2.80	3.45	4.20	4.85	5.60	6.25

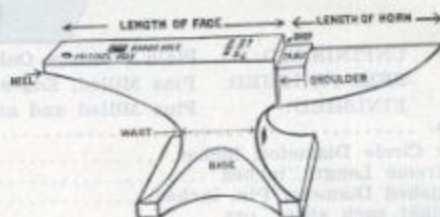
Packed Loose.

TRADE MARK:
"BLACK JACK,"
REGISTERED.

MT



BLACKSMITH'S ANVILS.



BLACK JACK*.

SOLID WROUGHT IRON BODY AND HORN, Japanned Finish, with Hardened and Tempered Crucible Tool Steel Face Welded on; Flat Ground and Polished; Square Hardy Hole near the Heel.

Nos.	10	20	30	40	50
Dimensions of Face, inches	2x6	2½x7	2½x8	2½x9	3x9½
Height over all, inches	4¼	5½	6	6½	7½
Length over all, inches	9½	11	13	15	16
Size of Hardy Hole, inches	½	¾	¾	¾	¾
Weight each, lbs.	9 to 12	18 to 22	28 to 32	38 to 42	48 to 52
Per lb.	\$0.45	.32	.28	.22	.19
Nos.	60	70	75	80	85
Dimensions of Face, inches	3¼x10	3¾x11	3¾x11	3¾x12	3¾x13½
Height over all, inches	8	8¼	9	9	9
Length over all, inches	17	18½	18½	20½	22½
Size of Hardy Hole, inches	¾	¾	7/16	¾	¾
Weight each, lbs.	58 to 62	68 to 72	75 to 79	80 to 83	84 to 87
Per lb.	\$0.17	.16	.16	.15	.15
Nos.	90	100	110	120	125
Dimensions of Face, inches	3¾x13½	3¾x13½	3¾x15	3¾x15	3¾x15
Height over all, inches	10	10	10	10¾	10¾
Length over all, inches	22½	22½	25	25	25
Size of Hardy Hole, inches	¾	¾	¾	¾	¾
Weight each, lbs.	88 to 95	96 to 106	107 to 116	117 to 123	124 to 128
Per lb.	\$0.15	.15	.15	.15	.15
Nos.	130	140	150	160	175
Dimensions of Face, inches	4x16½	4x16½	4x16½	4¼x17	4¼x17
Height over all, inches	10¾	11	11¼	11¼	11¼
Length over all, inches	27	27	27	28	28
Size of Hardy Hole, inches	¾	¾	¾	1	1
Weight each, lbs.	129 to 136	137 to 145	146 to 156	157 to 166	167 to 180
Per lb.	\$0.15	.15	.15	.15	.15
Nos.	200	225	250	300	400
Dimensions of Face, inches	4½x18	4½x20	4½x20	5x21	6x23
Height over all, inches	11¾	12	12½	13	14¾
Length over all, inches	29½	32½	32½	34	37½
Size of Hardy Hole, inches	1½	1½	1½	1½	1½
Weight each, lbs.	190 to 210	211 to 225	226 to 250	251 to 300	301 to 400
Per lb.	\$0.15	.15	.15	.15	.15

Packed Loose; Face and Horn Burlapped.

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BLACKSMITHS' TOOLS.



HOT CHISELS.



No. A—Polished Rounding Bit; Round Shoulder.

Width of Bit, inches...	± 1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$\pm 1\frac{3}{4}$	± 2
Weight each, lbs.	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{4}$	5
Length over all, inches.	$5\frac{1}{4}$	$6\frac{1}{4}$	7	7	$8\frac{1}{2}$	9	9
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40

Solid Forged Steel, Oil Finished, with Hardened Bit and Face. Oval Eye.

COLD CHISELS.



No. B—Polished Rounding Bit.

Width of Bit, inches...	± 1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$\pm 1\frac{3}{4}$	± 2
Weight each, lbs.	$1\frac{1}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$4\frac{1}{4}$	$5\frac{1}{2}$
Length over all, inches.	$5\frac{1}{2}$	$5\frac{1}{2}$	$6\frac{1}{4}$	$6\frac{1}{4}$	$7\frac{1}{4}$	$8\frac{1}{2}$	$8\frac{1}{2}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40

PUNCHES.

Solid Forged Steel, Oil Finished, with Hardened Point; Oval Eye.



No. RP.

No. RP—Round; Polished Point.

Diameter of Point, inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\pm \frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\pm \frac{3}{4}$	$\pm \frac{7}{8}$	± 1
Length over all about, inches	8	8	8	8	8	8	8	8	8
Weight each about, lbs.	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{2}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40

No. SP—Square; Polished Point.

Size of Point, inches (Square)	$\pm \frac{1}{4}$	$\pm \frac{5}{16}$	$\pm \frac{3}{8}$	$\pm \frac{7}{16}$	$\pm \frac{1}{2}$	$\pm \frac{5}{8}$	$\pm \frac{3}{4}$	$\pm \frac{7}{8}$	± 1
Length over all, about, inches	8	8	8	8	8	8	8	8	8
Weight each about, lbs.	1	1	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{4}$	$3\frac{1}{2}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40

TOP SWAGES.

Solid Forged Steel, Oil Finished, with Hardened Face; Round Shoulder, Oval Eye.

No. TS—Top Pattern; Average Length, $5\frac{1}{2}$ to 6 inches.

Size, inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\pm \frac{7}{16}$	$\frac{1}{2}$	$\pm \frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Weight each about, lbs.	2	2	2	2	2	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	3	3	$3\frac{1}{2}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
Size, inches	$\pm \frac{1}{2}$	$1\frac{1}{8}$	$\pm \frac{5}{8}$	$\pm \frac{1}{2}$	$\pm \frac{1}{2}$	2	$\pm \frac{2}{4}$	$\pm \frac{2}{4}$	$\pm \frac{2}{4}$	± 3	$\pm \frac{3}{2}$	± 4
Weight each about, lbs.	$3\frac{3}{4}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	5	8	$6\frac{1}{2}$	7	$7\frac{1}{2}$	$7\frac{1}{2}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40



No. TS.

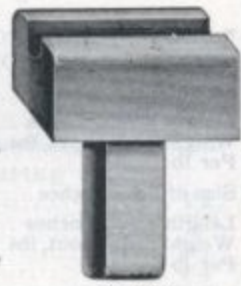
BOTTOM SWAGES.

Solid Forged Steel, Oil Finished, with Hardened Face, Square Shoulder, Square Shank for 1 inch Hole in Anvil.

No. BS—Bottom Pattern; Average Length, 4 to $4\frac{1}{2}$ inches.

Size, inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\pm \frac{7}{16}$	$\frac{1}{2}$	$\pm \frac{5}{8}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Weight each about, lbs.	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{3}{4}$	2	2	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$	$2\frac{3}{4}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40
Size, inches	$\pm \frac{1}{2}$	$1\frac{1}{8}$	$\pm \frac{5}{8}$	$\pm \frac{1}{2}$	$\pm \frac{1}{2}$	2	$\pm \frac{2}{4}$	$\pm \frac{2}{4}$	$\pm \frac{2}{4}$	± 3	$\pm \frac{3}{2}$	± 4
Weight each about, lbs.	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{3}{4}$	4	4	$4\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{4}$	$6\frac{1}{2}$	7	$7\frac{1}{2}$	$7\frac{1}{2}$
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

Packed Loose.



No. BS.

PIN SPANNERS.

Tool Steel.



UNFINISHED: Plain Forgings Only.

SEMI-FINISHED: Pins Milled, Edges Ground and are Case-hardened all over.

FINISHED: Pins Milled and are Polished and Case-hardened all over.

Nos.	204	205	206	207	208	209	210
For Circle Diameter, inches	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2
Extreme Length, inches	4	4 1/2	5	5 1/2	6	6 1/2	7
Finished Diameter Pin, inches	3/16	13/64	7/32	15/64	3/4	17/64	9/32
Weight each about, ozs.	1	1 1/2	2	2 1/2	3	4	4 1/2
Unfinished, each	\$0.18	.19	.20	.21	.22	.23	.24
Semi-finished, each	.27	.29	.30	.31	.33	.35	.36
Finished, each	.36	.38	.40	.42	.44	.46	.48

Nos.	211	212	213	214	215	216	218	220
For Circle Diameter, inches	2 3/4	3	3 1/4	3 1/2	3 3/4	4	5	6
Extreme Length, inches	7 1/2	8	8 1/2	9	9 1/2	10	12	14
Finished Diameter Pin, inches	19/64	5/16	21/64	11/32	23/64	3/4	7/16	1/2
Weight each about, ozs.	6	7 1/2	8	9	10 1/2	12	22	28
Unfinished, each	\$0.26	.28	.30	.32	.34	.36	.48	.65
Semi-finished, each	.39	.42	.45	.48	.51	.54	.72	.98
Finished, each	.52	.56	.60	.64	.68	.72	.96	1.30

FACE SPANNERS.

Tool Steel.



UNFINISHED: Pins Milled Only.

SEMI-FINISHED: Pins Milled, Edges Ground and Case-hardened all over.

FINISHED: Pins Milled, and are Polished and Case-hardened and Lacquered.

Nos.	418	420	422	424	426	428	430
Distance, Center to Center of Pins, inches	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2
Diameter of Pins, Milled, inches	3/16	7/32	7/32	7/32	3/4	3/4	9/32
Length of Pins, inches	3/16	7/32	7/32	7/32	3/4	3/4	9/32
Span of Jaws in Clear, inches	11/16	29/32	1 1/2	1 3/4	1 5/8	1 3/4	2 3/32
Length over all, from Center of Pins, inches	4 1/2	5	5 1/2	6	6 1/2	7	7 1/2
Thickness, inches	3/16	5/16	3/16	7/32	7/32	7/32	3/4
Weight each about, ozs.	2	3	4	5	6	7	9
Unfinished, each	\$0.15	.17	.19	.22	.25	.29	.33
Semi-finished, each	.22	.26	.28	.33	.38	.43	.50
Finished, each	.30	.34	.38	.44	.50	.58	.66

Nos.	432	434	436	438	440	442
Distance, Center to Center of Pins, inches	2 3/4	3	3 1/4	3 1/2	3 3/4	4
Diameter of Pins, Milled, inches	9/32	5/16	5/16	5/16	3/4	3/4
Length of Pins, inches	9/32	5/16	5/16	5/16	3/4	3/4
Span of Jaws in Clear, inches	2 1/32	2 19/32	2 13/16	3 1/32	3 3/4	3 7/16
Length over all, from Center of Pins, inches	8	8 1/2	9 1/4	9 3/4	10 3/4	11
Thickness, inches	3/4	3/4	3/4	3/4	3/4	3/4
Weight each about, ozs.	10	11	12	13	16	19
Unfinished, each	\$0.38	.43	.49	.55	.62	.70
Semi-finished, each	.57	.64	.74	.82	.93	1.05
Finished, each	.76	.86	.98	1.10	1.24	1.40

Packed Loose.



BLACKSMITHS' TOOLS.

±CENTER PUNCHES.



±COUNTER SINKS.



Solid Forged Steel, Oil Finished, with Hardened Points; Oval Eye.

POLISHED SHARP TAPERING POINT.

No.	±CP
Weight each about, lbs.	2
Length over all, inches	6 1/2
Per lb.	\$0.40

POLISHED ROUNDING TAPER POINT.

No.	±CS
Weight each about, lbs.	2
Length over all, inches	5 3/4
Per lb.	\$0.40

±HEADING TOOLS.



Solid Forged Steel, Oil Finished, with Hardened Head.

±No. HT—ROUND HANDLE; POLISHED CYLINDRICAL HEAD, WITH HOLE.

Diameter of Hole, inches	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Length over all about, inches	12 1/2	12 1/2	12 1/2	12 1/2	12 1/2	13 1/2	13 1/2	13 1/2	14 1/2	14 1/2
Weight each about, lbs.	2 3/4	2 7/8	3	3 1/4	3 1/2	4	4 1/4	4 1/2	4 3/4	5
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

FLATTERS.



±SET HAMMERS.



Solid Forged Steel, Oil Finished, with Hardened Face; Oval Eye.

No. SF—SQUARE POLISHED EXTENSION FACE, ROUNDING SHOULDER.

Size of Face, inches	<u>2</u>	<u>±2¹/₄</u>	<u>±2¹/₂</u>	<u>±2³/₄</u>	<u>3</u>
Length about, inches	5	5	5	5 ¹ / ₂	5 ⁵ / ₈
Weight each about, lbs.	2 ¹ / ₂	3	3 ¹ / ₂	4 ¹ / ₄	5
Per lb.	\$0.40	.40	.40	.40	.40
Size of Face, inches	<u>±3¹/₄</u>	<u>3¹/₂</u>	<u>±3³/₄</u>	<u>±4</u>	
Length about, inches	5 ¹ / ₂	5 ⁵ / ₈	5 ⁷ / ₈	6 ¹ / ₄	
Weight each about, lbs.	6	6 ¹ / ₂	7	8	
Per lb.	\$0.40	.40	.40	.40	

±No. SH—SQUARE POLISHED FACE AND HEAD.

Size of Face, inches	1	1 1/8	1 1/4	1 3/8	1 1/2	1 3/4	2
Length about, inches	5 1/2	5 1/2	5 1/2	5 1/2	5 3/4	6	6
Wgt. each about, lbs.	1 1/2	1 1/2	2	2 1/2	3	4	5
Per lb.	\$0.40	.40	.40	.40	.40	.40	.40

Packed Loose.

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BLACKSMITHS' TOOLS.

FULLERS.



No. TF.

Solid Forged Steel, Oil Finished; Hardened Polished Bit.

FULLERS.



No. BF.

No. TF—TOP PATTERN; Round Shoulder, Oval Eye.

Length of Bit, inches.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$
Length over all, inches.....	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Weight each about, lbs....	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Per lb.....	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

No. BF—BOTTOM PATTERN; Square Shoulder; Square Shank, for 1 inch Hole in Anvil.

Length of Bit, inches.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{5}{8}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$
Length over all, inches.....	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Weight each about, lbs....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Per lb.....	\$0.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40	.40

HARDIES.



Solid Forged Steel, Oil Finished, Hardened Bit or Face.

PLOW ANVILS.



No. H—Rounding Shoulder; Polished Bit; Square Shank.

Size of Shank, inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Length of Bit, inches	$1\frac{1}{2}$	$1\frac{5}{8}$	$1\frac{3}{4}$	$1\frac{7}{8}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$
Length over all, inches	4	4	4	4	4	4	4
Wgt. each about, lbs	$\frac{1}{2}$	$\frac{3}{4}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	$3\frac{1}{2}$
Per lb.....	\$0.40	.40	.40	.40	.40	.40	.40

Polished Round Head; Rounding Face and Shoulder; Round Tapering Shank.

No.....	PA
Face Diameter about, inches.....	3
Length over all, inches.....	$5\frac{3}{4}$
Weight each about, lbs.....	$4\frac{1}{2}$
Per pound.....	\$0.30

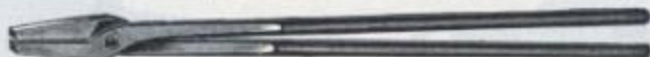
Packed Loose.



BLACKSMITHS' TOOLS.

Solid Wrought Steel; Drop Forged; Oil Finished.

REGULAR TONGS.



REGULAR, WITH STRAIGHT LIPS.

Nos.	8/18	8/20	8/22	8/24
Length, inches	18	20	22	24
Weight per dozen about, lbs.	31	34	36	39
Per dozen	\$5.50	6.00	6.50	7.50

BOLT TONGS.



BOLT, WITH BOWED LIPS, HOLLOWED ENDS.

Nos.	±B4	±B5	±B6	±B8	B10	±B12	±B14	±B16	±B18	±B20
For Holding Round Iron, in.	1/4	5/16	3/8	7/8	1	1 1/4	1 1/2	1 3/4	2	2 1/4
Length, inches	18	18	20	20	22	22	24	24	24	24
Weight per dozen about, lbs.	31	31	34	34	36	36	39	39	39	39
Per dozen	\$5.00	5.00	6.00	6.00	7.00	7.00	7.50	7.50	7.50	7.50

±GAD TONGS.



BOWED LIPS, STRAIGHT ENDS.

Nos.	±G18	±G20	±G22	±G24
Length, inches	18	20	22	24
Weight per dozen about, lbs.	24	27	36	40 1/2
Per Dozen	\$5.00	6.00	7.00	7.50

±PICK-UP TONGS.



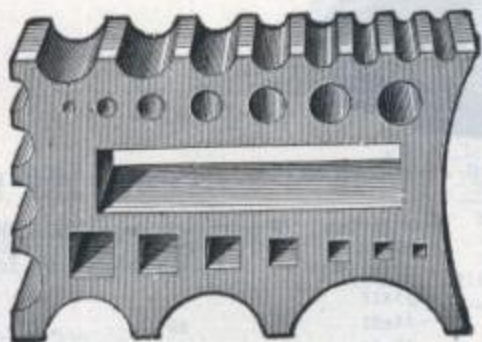
DOUBLE BOWED POINTED LIPS.

±No. P22—Length 22 inches; Weight per dozen about 34 1/2 lbs. Per Dozen \$7.00

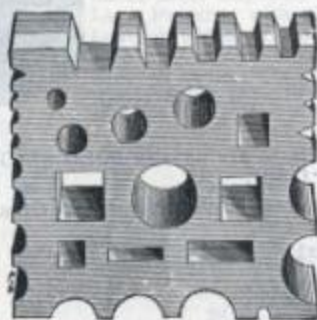
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***SWAGE BLOCKS.**



No. 1.



No. 2.

***STANDARD.**

Solid Cast Iron, Plain Finish, with Various Shaped Serrations on Edges, and with Various Shaped Perforations as shown.

Per Pound
 ±No. 1—19½ inches Long, 14 inches Wide, 4 inches Thick; Weight each about 153 lbs. \$0.08

Per Pound
 ±No. 2—15 inches Long, 15 inches Wide, 4 inches Thick; Weight each about 145 lbs. \$0.08

***SWAGE BARS.**



***STANDARD.**

Solid Forged High Carbon Steel, Polished and Oiled Finish; Octagon, Tapering Pattern; Hardened and Tempered.

Each
 ±No. 14/SB—14 inches Long, 2 inches Diameter at Large End, 1 inch Diameter at Small End; Weight each about 7¾ lbs. \$9.00

±No. 12/SB—12 inches Long, 1¾ inches Diameter at Large End, ¾ inches Diameter at Small End; Weight each about 5⅞ lbs. 6.30

±No. 10/SB—10 inches Long, 1½ inches Diameter at Large End, ½ inch Diameter at Small End; Weight each about 2¾ lbs. 4.20

Packed Loose.

SURFACE PLATES.

STANDARD; Cast Iron.



These Plates are usually SOLD SINGLY, NOT IN PAIRS, AS SHOWN IN CUT. Prices are for Single Plates with Box and Cover.

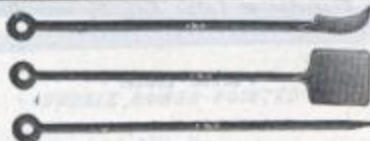
No.	Size, inches.	Weight each about, lbs.	Each.	No.	Size, inches.	Weight each about, lbs.	Each.
<u>1</u>	3½ x 4	3	\$ 5.00	<u>20</u>	12x24	100	\$ 70.00
<u>2</u>	3½ x 12	10	10.00	<u>21</u>	14x14	50	44.00
<u>3</u>	4 x 15	20	14.50	<u>22</u>	14x18	65	58.00
<u>4</u>	4½ x 6	5	6.50	<u>23</u>	14x21	95	70.00
<u>5</u>	5 x 16	25	19.00	<u>24</u>	15x30	160	108.00
<u>6</u>	6 x 6	10	8.50	<u>25</u>	16x16	65	58.00
<u>7</u>	6 x 12	20	17.00	<u>26</u>	16x48	380	198.00
<u>8</u>	6 x 26	50	34.00	<u>27</u>	18x18	80	74.00
<u>9</u>	6 x 50	120	74.00	<u>28</u>	18x24	130	100.00
<u>10</u>	6½ x 18	30	30.00	<u>29</u>	18x36	230	132.00
<u>11</u>	7 x 7½	10	12.50	<u>30</u>	20x30	215	144.00
<u>12</u>	7 x 10	15	16.00	<u>31</u>	22x80	1070	478.00
<u>13</u>	8 x 12	20	22.00	<u>32</u>	24x24	200	136.00
<u>14</u>	9 x 9	20	18.00	<u>33</u>	24x36	300	208.00
<u>15</u>	9 x 14	30	28.00	<u>34</u>	24x48	445	280.00
<u>16</u>	10 x 15	35	34.00	<u>35</u>	24x60	670	364.00
<u>17</u>	10 x 30	100	72.00	<u>36</u>	30x36	430	262.00
<u>18</u>	12 x 12	30	32.00	<u>37</u>	36x68	1025	600.00
<u>19</u>	12 x 18	55	50.00				

One in a Wood Box.

DOWEL PLATES.

No. 78—Cast Steel; Natural Finish; 6½ x 1½ x ¾ inches; For ¼, 5/16, ¾, 7/16 and ½ inch Dowels; Weight per dozen about 10½ lbs. Per Dozen \$3.50

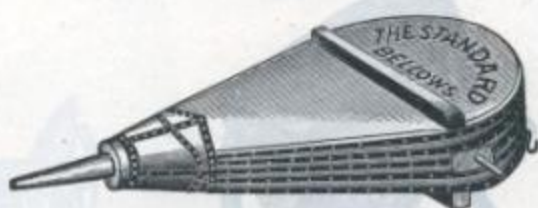
One-half Dozen in a Cardboard Box.

BLACKSMITHS' FIRE SETS.

High Grade Open Hearth Steel, Natural Finish.

No. 2750—Shovel, Poker and Scraper; SHOVEL 2 feet 4 inches Long, over all; Blade 4½ inches Wide; ½ inch Shank; POKER 2 feet 3 inches Long, over all; ½ inch Shank; SCRAPER 2 feet 5 inches Long, over all; Blade 4½ inches Wide; ½ inch Shank; Weight per set about 5 lbs. Per Set \$2.00

Packed Loose.

BELLOWS.**STANDARD,
BLACKSMITHS'.**

Hardwood Outside Boards, Cross Cleated, Painted Red; Japanned Sheet Steel Cap and Funnel; Five Leaf Pattern, with Cowhide Split Leather Sides or Folds; Trimmed with $\frac{1}{2}$ inch Wood Mouldings, Secured with Chemically Coated Nails; Steel Side Pivots and Rear Hook.

No. B—Regular Length.

Width, inches	24	26	28	30	32	34	36	38	40
Length, inches	46	49	52	55	58	61	64	67	70
Thickness Closed, inches	5	5	5	5	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$
Weight each about, lbs.	35	42	48	54	75	78	83	85	97
Each	\$10.00	11.00	12.00	13.00	14.00	16.00	18.00	20.00	23.00

No. A—Extra Length.

Width, inches	36	38	40
Length, inches	73	76	80
Thickness Closed, inches	5 $\frac{1}{4}$	5 $\frac{1}{4}$	5 $\frac{1}{4}$
Weight each about, lbs.	95	110	115
Each	\$21.00	24.00	28.00

**STANDARD, MOULDERS'.**

Made of Kiln-Dried Lumber, Covered with Heavy Sheepskin Leather; Galvanized Iron Nozzle firmly fastened to end of Bellows.

No.	MS	M10	M12	M14	M16
Size, inches	8	10	12	14	16
Wgt. doz. about, lbs.	25	35	50	65	80
Per dozen	\$16.00	20.00	26.00	32.00	36.00

**STANDARD, HAND.**

Single Fold; Hardwood Outside Boards, Painted Red; With Handle Extensions and Leather Loop for Fastening; Japanned Sheet Steel Cap and Funnel; Rough Leather Sides or Folds; Faced with Plain Leather Strips and Studded with Tacks; $1\frac{1}{2}$ inch Hole in Bottom, with Leather Valve Flap.

No. H—HAND.

Width, inches	8	10	12
Length, inches	17 $\frac{1}{4}$	19	20 $\frac{1}{4}$
Thickness, Closed, inches	2	2	2
Weight per dozen about, lbs.	18	26	36
Per dozen	\$10.50	12.00	15.00

Packed Loose.

BORAX.

No. B—PURE CRUSHED BORAX, for Welding
Purposes; in Burlap Sacks Containing about 100 lbs each.....\$ 0.30
Sold in Bulk as Desired.

WELDING COMPOUND.**CHERRY HEAT WELDING COMPOUND.**

Coarse Granulated Mixture, for Steel, Iron or Malleable Iron.

Nos.	CH25	CH50	CH100
In Wood Boxes Containing, lbs.	25	50	100
Per lb.	\$0.25	.25	.25

CLIMAX WELDING COMPOUND.

A Granulated Mixture, for all Grades of Steel.

Nos.	C25	C50	C100
In Wood Boxes Containing, lbs.	25	50	100
Per lb.	\$0.20	.20	.20

Sold Only in Full Boxes.



FOOT BELLOWS.



Made of Kiln-Dried Maple, Covered with Selected Sheepskin Leather; Pure Rubber Disks. Six Feet Rubber Tubing Included.

- No. 10**—WITH ONE DISK; Suitable for Ordinary Blow-pipe Works; Sufficient Pressure to produce a Small Blue Pointed Jet or Reducing Flame; Weight each about 10 lbs. \$5.50 Each
- No. 10A**—WITH TWO DISKS; Suitable for Larger Blow-pipes or Small Melting Furnaces; Weight each about 14 lbs. 7.00
- No. 10B**—WITH THREE DISKS; Suitable for the Largest Blow-pipe and Melting Furnaces; Will Furnish a Blast capable of Burning 60 feet of Gas or more in a furnace or upwards of 100 feet per hour in a Blow-pipe; Weight each about 22 lbs. 9.50

Packed Loose.

TABLE OF SIZES AND CAPACITY OF FOOT-BLOWERS.

No.	Size of Boards, inches.	Diam. of Air Reservoir, inches.	Pressure of Blast per inch, lbs.	Cubic feet of Air per hour.
10	7 $\frac{1}{2}$ x 9	7 $\frac{1}{4}$	1	190
10A	10 x 11	9	1 $\frac{1}{2}$	330
10B	11 $\frac{1}{2}$ x 13 $\frac{1}{4}$	11	1 $\frac{3}{4}$	625

TUYERE IRONS.

DUCK'S NEST.



Cast Iron; Natural Finish Head and Neck; Entire Iron Bolted Together.

Per Dozen

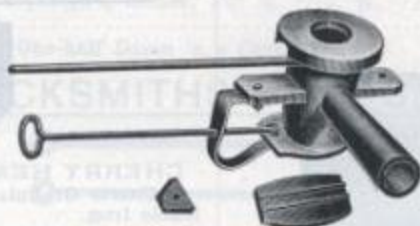
- No. 5**—LIGHT WEIGHT; ROUND FLAT HEAD 7 $\frac{1}{4}$ inches Diameter; Diameter of Hole 3 $\frac{1}{4}$ inches; Length over all 13 $\frac{1}{2}$ inches; Weight per dozen about 108 lbs. \$8.50



Cast Iron; Japanned Finish Head and Neck.

Per Dozen

- No. 6**—DUCK'S NEST; HEAVY WEIGHT; ROUND FLAT HEAD 7 $\frac{1}{4}$ inches Diameter; Made in Two Pieces, Bolted together; Diameter of Hole 4 inches; Length over all 14 inches; Weight per dozen about 204 lbs. \$18.00



BALL VALVE.

Cast Iron, Japanned; Extra Heavy, with Tapering Funnel; Revolving Triangular Ball Valve to Regulate the Flow of Air.

Per Dozen

- No. N**—NORTON; ONE PIECE CYLINDRICAL BODY; Round Top Plate 6 $\frac{1}{2}$ inches Diameter; With 2 $\frac{1}{4}$ inch Round Opening; Funnel 7 $\frac{1}{2}$ inches Long, with 2 $\frac{1}{4}$ inch Inlet; 3 $\frac{1}{2}$ inch Bottom Opening, with Sliding Cover and Spring Steel Guide, with 23 inch Steel Rods to work Valve and Cover; Length over all (except Rods) 12 $\frac{1}{2}$ inches; Height 8 $\frac{1}{2}$ inches; Weight per dozen about 336 lbs. \$28.00

Packed Loose.

-371-
FORGES.

PORTABLE.



Pressed Sheet Steel Bowl and Wind-Guard; Three Legs; Complete with Blower and Running Gear.

Each

- No. 7—BUFFALO BENCH; Hand Gear Wheel Action; Concave Bent 13 inch Legs; Spread at Base 18 inches; Height over all 21 inches, to Top of Bowl 15 inches; Bowl 15 inches Diameter; Large Gear Wheel 12 inches in Diameter; Fan 6 inches in Diameter; Painted Black; Weight each about 40 lbs.....\$16.00**



Each

- No. 100—LANCASTER RIVETERS' OR CONTRACTORS'; Lever Action; Tubular Steel Braced Legs; Spread at Base 28 inches; Height over all 43 inches, to Top of Bowl 31 inches; Bowl 21 inches Diameter; Large Belt Wheel 15 inches Diameter; Fan 9 inches Diameter; Painted Red; Weight each about 80 lbs.\$24.00**



Each

- No. 5—RIVETERS' OR CONTRACTORS', WITH WIND-GUARD; Height over all 43 inches; Weight each about 65 lbs.....\$24.00**

BUFFALO.

Heavy Pressed Sheet Steel Bowl and Hood or Guard; Four Tubular Steel Braced Legs; Spread at Base 20x20 inches; Complete with Blower and Lever Action Running Gear; Bent Hardwood Lever; Height to Top of Bowl 33 inches; Bowl 18 inches Diameter; Large Gear Wheel 12 inches Diameter; Fan 6 inches Diameter; Painted Black.



Each

- No. 4—TOOLMAKERS', WITH HALF OPEN HOOD; Height over all 52 1/4 inches; Weight each about 70 lbs.....\$27.00**



BUFFALO.

Heavy Pressed Sheet Steel Bowl and Hood or Guard; Four Tubular Steel Spread Legs; Complete with Blower and Running Gear; Painted Black.



Each

- No. 6—BLACKSMITHS', LEVER ACTION, WITH HALF OPEN HOOD; Bent Hardwood Lever; Height over all 60 inches, to Top of Bowl 32 inches; Bowl 28x40 inches; Large Gear Wheel 20 inches Diameter; Fan 10 inches Diameter; Spread of Legs at Base 41x28 inches; Weight each about 255 lbs.....\$50.00**

Each

- No. 625—CONTRACTORS', CRANK ACTION, WITH WIND-GUARD; Enclosed Double Gearing, Counter-balanced Crank; Height over all 45 inches, to Top of Bowl 35 inches; Bowl 18 inches Diameter, 5 inches Deep; Fan 10 inches in Diameter; Spread of Legs at Base 17x31 inches; Weight each about 125 lbs.\$35.00**

One in a Crate.

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FORGES.

PORTABLE.



±BUFFALO.

Heavy Pressed Sheet Steel Bowl and Hood, or Guard; Four Tubular Steel Legs, Spread at Base 20x27 inches; Complete with Blower and Lever Action Running Gear; Bent Hardwood Lever; Height to Top of Bowl 31 inches; Bowl 27x21 inches; Large Gear and Belt Wheels 16 inches in Diameter; Fan 10 inches in Diameter; Painted Black.

±No. 3—CONTRACTORS', WITH WIND GUARD and
Four Cast Iron Lift Handles; Height over all 44
inches; Weight each about 140 lbs. \$38.00

±No. 1—MACHINISTS', WITH HALF OPEN HOOD.
Height over all 54 inches; Weight each about
145 lbs. \$40.00

STANDARD.

For Farmers and Contractors.



Pressed Sheet Steel Bowl and Hood, or Guard; Four Tubular Steel Braced Legs, 20x20 inch Spread at Base; Complete with Blower and Lever Action Running Gear; Bent Hardwood Lever; Large Belt Wheel 14 inches Diameter; Painted Red.



No. 150—STANDARD, WITH WIND-GUARD;
Height over all 42 inches, to Top of Bowl
30 inches; Diameter of Bowl 18 inches; Fan 7
inches; Weight each about 81 lbs. \$16.80

No. 151—STANDARD, WITH HALF-HOOD;
Height over all 49 inches, to Top of Bowl
30 inches; Diameter of Bowl 18 inches; Fan
7 inches; Weight each about 100 lbs. \$19.00

One in a Crate.

-373- **BLOWERS.**



STANDARD.

Plain Bearing; Three Tubular Steel Bent Legs, 25 inch Spread at Base; Crank Movement, with 14 inch Counter-balanced Crank; Dust Proof Closed Cast Gear Casing, which also serves as an Oil Well; Adjustable Cast Iron Fan Casing; Complete with 18 lb. Ball Valve Teyere Iron; Entire Blower painted Black.

Double Gear; Cast Gear Wheels and Steel Shaft; Plain Bushings; Height over all, adjustable from 45 to 49½ inches; Gear Casing 11 inches High; Fan 12 inches Diameter.

No. 01—STANDARD; Weight each, complete, Each
about 115 lbs. \$21.00

BUFFALO.

Ball Bearing; Three Tubular Steel Bent Legs, 25 inch Spread at Base; Crank Movement, with 15 inch Counter-balanced Crank; Height Adjustable; Dust Proof Closed Cast Gear Casing, which also serves as an Oil Well; Standard Adjustable Cast Iron Scroll Fan Casing; Complete with 25 lb. Ball Valve Teyere Iron.

No. 100—PAINTED RED, SPIRAL GEAR; Deep Cut Brass Wheels and Steel Shafts; Brass Bushings; Height over all, Adjustable, from 42 to 46 inches; Gear Casings 7 inches High; Fan 10 inches Diameter; Weight each, Complete, about 115 lbs. \$35.00

No. 200—PAINTED BLACK, TRIPLE GEAR; Deep Cut Cast Gear Wheels and Steel Shafts; Plain Bushings; Height over all, Adjustable, from 43½ to 47½ inches; Gear Casing 13 inches High; Fan 9¾ inches Diameter; Weight each, Complete, about 95 lbs. 35.00

One in a Crate.



No. 100.



No. 200.

BOLT CLIPPERS.



Tempered Oil Finish; Detachable Cast Steel Cutting Jaws; Japanned Cast Iron Compound Lever Handles with Socket Joints; Rubber Bumpers between Handles.

"EASY."

Nos.	1E	2E
Length, inches	24	30
Cut Bolts up to, inches	¾	1½
Weight per pair about, lbs.	4¼	7½
Per pair	\$5.00	7.00

±Extra Jaws for "Easy" Bolt Clippers.

Nos.	±1E	±2E
Per pair	\$1.85	2.35

Packed Loose.

"NEW EASY."

Nos.	1NE	2NE	3NE
Length, inches	24½	30	36
Cut Bolts up to, inches	¾	1½	¾
Weight per pair about, lbs.	5¼	8¾	11½
Per pair	\$5.00	7.00	9.00

±Extra Jaws for "New Easy" Bolt Clippers.

Nos.	±1NE	±2NE	±3NE
Per pair	\$1.85	2.35	3.00

TIRE MEASURING WHEELS.



No. 606—GREEN RIVER; Forged Steel Wheel, Natural Finish; Polished Steel Index Hand; Japanned Malleable Iron Handle and Fork; Steel Screw Axle; Wheel 24 inches in Circumference, Graduated in inches and 8ths; Weight per dozen about 15 lbs. \$18.00
One-quarter Dozen in a Cardboard Box.

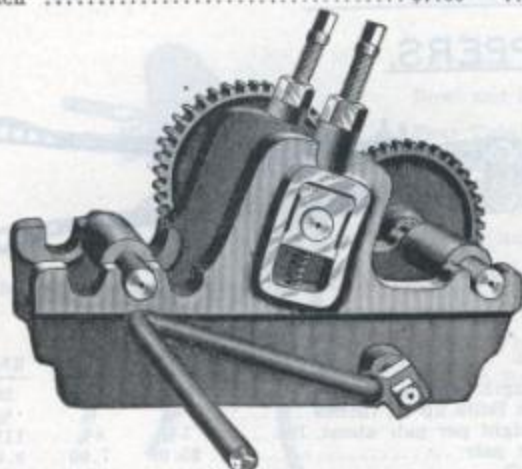
TIRE BENDERS.

Japanned Cast Iron Frame and Gear Wheels; Wrought Iron Crank; Turned Steel Rollers and Axles; Will Bend Tires to a Circle of 30 inches or Larger.



GEARED.

Nos.	2	2 1/4
Will Bend Tires up to, inches.....	3 1/4	4 1/2
Length of Crank, inches.....	15	15
Diameter of Drive Wheel, inches.....	10 1/2	10 3/4
Length over all, inches.....	22 1/2	26
Width over all, inches.....	11	14
Height over all, inches.....	12	12
Weight each about, lbs.....	80	112
Each.....	\$7.00	7.75



DOUBLE GEARED.

No. 3—Length of Crank 17 inches; Will Bend 5 inch Tires or Smaller; Diameter of Large Drive Wheel 10 inches; Length over all 24 1/2 inches; Width over all 17 inches; Weight each about 154 lbs. \$10.50
Packed Loose.

TIRE SHRINKERS.



MOLE'S PATTERN.

Painted Cast Iron Frame and Bed; Plain Hardwood Handle.

Nos.	101	102	103
For Tires up to, inches.....	1 1/2 x 2	1 1/2 x 3	1 1/2 x 4
Length of Bed, inches.....	29	30	32
Length of Handle, inches.....	58	59	60
Height over all, inches.....	30	33	36
Length over all, inches.....	38	40	44
Weight each about, lbs.....	120	180	265
Each.....	\$16.00	21.00	25.00



STODDARD'S UPRIGHT.

Drab Painted Cast Iron Frame, Jaws and Handle.

No.	1	2	3	4	5
For Tires up to.....	1 1/2 x 2 inches; Length of Handle 13 inches; Height over all 16 1/2 inches; Weight each about 100 lbs.	1 1/2 x 4 inches; Length of Handle 14 inches; Height over all 20 inches; Weight each about 225 lbs.	With 2 Sets of Loose Jaws; For Tires up to 1 1/2 x 4 inches; Can be Adjusted for Large and Small Circles, and also for Upsetting Axles up to 1 1/2 inches Thick; Length of Handle 15 1/2 inches; Height over all 20 1/2 inches; Weight each about 275 lbs.	For Tires 1 x 6 inches; Length of Handle 15 1/2 inches; Height over all 21 1/2 inches; Weight each about 400 lbs.	With 2 Sets of Loose Jaws; For Tires up to 2 x 6 inches; Can be Adjusted for Large and Small Circles, and also for Upsetting Axles up to 2 inches Thick; Length of Handle 18 inches; Height over all 24 inches; Weight each about 450 lbs.
Each.....	\$14.00	22.50	26.00	36.00	45.00
				Packed Loose.	

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KING'S BLACKSMITH'S STOCKS AND DIES.

Finest Tool Steel.



No. 15 SET—3 Sets of Adjustable Dies; 5 Taper
Taps; Stock 33 1/4 inches Long \$10.00

CUTTING SIZES.					
Inches.....	1/2	5/8	3/4	7/8	1 1/4 R. H.
Threads to Inch.....	12	12	10	10	8

No. 21 SET—3 Sets of Adjustable Dies; 4 Taper
Taps; Stock 26 1/2 inches Long \$6.00

CUTTING SIZES.					
Inches.....	5/8	3/4	1	R. H.	1 L. H.
Threads to Inch.....	12	12	9		9

No. 23 SET—3 Sets of Adjustable Dies; 3 Taper
Taps; Stock 27 inches Long \$5.00

CUTTING SIZES.					
Inches.....	1/2	5/8	1	R. H.	
Threads to Inch.....	14	10	9		

No. 34 SET—3 Sets of Adjustable Dies; 3 Taper
Taps; Stock 22 inches Long \$4.50

CUTTING SIZES.					
Inches.....	1/2	5/8	3/4	R. H.	
Threads to Inch.....	16	12	10		

No. 34A SET—3 Sets of Adjustable Dies; 3 Taper
Taps; Stock 22 inches Long \$4.50

CUTTING SIZES.					
Inches.....	1/2	5/8	3/4	R. H.	
Threads to Inch.....	14	12	10		

No. 35 SET—2 Sets of Adjustable Dies; 2 Taper
Taps; Stock 22 inches Long \$4.00

CUTTING SIZES.					
Inches.....	1/2	5/8	3/4	R. H.	
Threads to Inch.....	14	10			

No. 37 SET—3 Sets of Adjustable Dies; 6 Taper
Taps; Stock 19 inches Long \$4.25

CUTTING SIZES.					
Inches.....	1/4	5/16	3/8	7/8	1 1/2 R. H.
Threads to Inch.....	20	20	18	18	14

No. 37A SET—3 Sets of Adjustable Dies; 6 Taper
Taps; Stock 18 inches Long \$4.25

CUTTING SIZES.					
Inches.....	1/4	5/16	3/8	7/8	1 1/2 R. H.
Threads to Inch.....	16	16	14	14	12

No. 37B SET—3 Sets of Adjustable Dies; 6 Taper
Taps; Stock 19 inches Long \$4.25

CUTTING SIZES.					
Inches.....	1/4	5/16	3/8	7/8	1 1/2 R. H.
Threads to Inch.....	18	18	16	16	14

No. 41 SET—3 Sets of Adjustable Dies; 6 Taper
Taps; Stock 15 inches Long \$3.25

CUTTING SIZES.					
Inches.....	3/16	1/4	5/16	3/8	7/8 R. H.
Threads to Inch.....	20	20	20	20	16

No. 41A SET—3 Sets of Adjustable Dies; 6 Taper
Taps; Stock 14 1/2 inches Long \$3.25

CUTTING SIZES.					
Inches.....	1/4	5/16	3/8	7/8	1 1/2 R. H.
Threads to Inch.....	18	18	16	16	14

No. 41B SET—3 Sets of Adjustable Dies; 6 Taper
Taps; Stock 15 inches Long \$3.25

CUTTING SIZES.					
Inches.....	3/16	1/4	5/16	3/8	7/8 R. H.
Threads to Inch.....	20	20	18	18	16

No. 43 SET—3 Sets of Adjustable Dies; 4 Taper
Taps; Stock 15 inches Long \$3.00

CUTTING SIZES.					
Inches.....	1/4	5/16	3/8	7/8	R. H.
Threads to Inch.....	20	20	16	16	

No. 53 SET—4 Sets of Adjustable Dies; 4 Taper
Taps; Stock 11 inches Long \$2.75

CUTTING SIZES.					
Inches.....	1/2	3/8	1/4	5/16	R. H.
Threads to Inch.....	20	24	20	16	

No. 55 SET—3 Sets of Adjustable Dies; 4 Taper
Taps; Stock 11 inches Long \$2.50

CUTTING SIZES.					
Inches.....	1/2	3/8	1/4	5/16	R. H.
Threads to Inch.....	20	20	24	18	



No. 19 SET—3 Pairs of Adjustable Dies; 6 Taper
Taps; Stock 25 inches Long \$9.00

CUTTING SIZES.					
Inches.....	1/2	5/8	3/4	7/8	1 R. H.
Threads to Inch.....	14	12	14	12	9

No. 27 SET—3 Pairs of Adjustable Dies; 6 Taper
Taps; Stock 21 inches Long \$6.50

CUTTING SIZES.					
Inches.....	7/16	1/2	5/16	11/16	3/4 R. H.
Threads to Inch.....	16	16	12	10	12

No. 45 SET—3 Pairs of Adjustable Dies; 6 Taper
Taps; Stock 18 inches Long \$5.50

CUTTING SIZES.					
Inches.....	3/16	1/8	1/2	5/8	1 1/2 L. H.
Threads to Inch.....	16	16	12	12	12

No. 60 SET—4 Pairs of Adjustable Dies; 6 Taper
Taps; Stock 21 inches Long \$6.50

CUTTING SIZES.					
Inches.....	1/4	5/16	3/8	1/2	5/8 R. H.
Threads to Inch.....	18	18	14	14	12

All with V Threads; One Set in a Package; For Extra Taps for above, see Page 376.

TABLE OF WEIGHTS.

Nos.....	15	21	27	34	41A	41B	41	45	53	55	60	60A	60B	60
Weight per Set about, lbs.....	15	21	27	34	41A	41B	41	45	53	55	60	60A	60B	60
Nos.....	15	21	27	34	41A	41B	41	45	53	55	60	60A	60B	60
Weight per Set about, lbs.....	15	21	27	34	41A	41B	41	45	53	55	60	60A	60B	60

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BLACKSMITHS' TAPS.



Taper.



Plug.

RIGHT HAND.

Finest Tool Steel; Actual Size V Thread.

Taper.

Size, inches	1/8	3/16	1/4	5/16	3/8	7/16
Threads to inch	32	24, 26	16, 18, 20, 22, 24	14, 16, 18, 20, 22	12, 14, 16, 18, 20	12, 14, 16
No. in Package	6	6	6	6	6	6
Each	\$0.30	.30	.30	.30	.35	.40
Size, inches	1/2	9/16	5/8	3/4	7/8	1
Threads to inch	10, 12, 14, 16	12	10, 11, 12, 14	10, 12	9	8, 9
No. in Package	6	6	6	6	4	2
Each	\$0.40	.50	.50	.65	.90	1.25

Plug.

Size, inches	1/8	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	1
Threads to inch	32	24	20	18	16	14	12, 14	11	10	8
No. in Package	6	6	6	6	6	6	6	6	6	2
Each	\$0.30	.30	.30	.30	.35	.40	.40	.50	.65	1.25

Weight Each about, 1/4 inch, 1/2 oz.; 5/16 inch, 2 ozs.; 1 inch, 14 ozs.

For Stocks and Dies, See Page 375.

MACHINE OR SOLID BOLT DIES.

RIGHT HAND.

Finest Tool Steel; Actual Size V Thread.



Size, inches	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
Threads to inch	20	18	16	14	12	11	10	9	8
Size of Square, inches	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2	2 1/2
Thickness, inches	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2
Each	\$1.80	1.80	1.80	1.80	1.80	2.00	2.25	2.40	2.70

Weight Each about, 1/4 inch, 1 lb.; 1/2 inch, 1 1/4 lb.; 1 inch, 1 1/2 lbs.

PUMP PLATES.



Japanned Cast Steel Frame and Handles; Tool Steel Dies and Set Screws.

No. 12—15 INCHES LONG; 2 Pairs of Adjustable Dies; without Taps; Cutting; Weight each about 1 1/4 lbs.

Size, inches 3/4 7/16 } Each
Threads to inch 14 12 } \$3.00

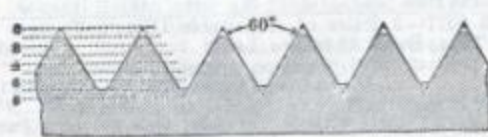
No. 13—18 INCHES LONG; 3 Pairs of Adjustable Dies; without Taps; Cutting; Weight each about 2 1/2 lbs.

Size, inches 3/4 7/16 1/2 } Each
Threads to inch 14 12 12 } \$3.50All with V Threads.
Packed Loose.

V Thread or Standard.



U. S. or Franklin Institute Standard.



Cut showing Pitch of Taps and Dies.

Cut showing Pitch of Taps and Dies.

Table Showing the Standard Number of Threads for the Respective Sizes of Taps.

Size, inches	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/4	1 1/2	1 3/4	2
Threads to inch	20	18	16	14	12	11	10	9	8	7	6	5 1/2	5

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MACHINISTS' SCREW PLATES.



No. 00A.

No. 00M SET, CARD'S—Stock 6 inches Long; 4 Plug Taps, and 4 Pairs of Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to inch	1/16	1/8	3/16	
64	56	48	40	32	\$2.50

No. 00A SET, CARD'S—Stock 6 inches Long; 4 Plug Taps, and 3 Pairs of Adjustable Dies.

CUTTING MACHINE SCREWS.					Per Set
Screw Gauge	Threads to inch	4	6	8	
36	32	32	24	24	\$2.50

Weight per Set about, Nos. 00M and 00A, 1/2 lb.; No. 0M, 3/4 lb.; No. 1 1/2, 1 lb.



No. 1 1/2C.

No. 0M SET, CARD'S—Stock 7 1/2 inches Long; 4 Plug Taps, and 4 Pairs of Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to inch	1/4	1/2	3/4	
56	40	24	20	20	\$3.00

No. 1 1/2C SET, CARD'S—Stock 9 inches Long; 4 Plug Taps, and 4 Pairs of Adjustable Dies.

CUTTING MACHINE SCREWS.					Per Set
Screw Gauge	Threads to inch	6	8	10	
32	30	24	20	20	\$3.25



No. 2 1/2C.

No. 3DC SET, CARD'S—Stock 14 inches Long; 6 Taper Taps, 6 Pairs of Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to in.	1/4	3/8	1/2	
20	18	16	14	12	\$9.60

No. 2 1/2C SET, CARD'S—Stock 11 1/2 inches Long; 5 Taper Taps, and 5 Pairs of Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to inch	1/4	3/8	1/2	
20	18	16	14	12	\$7.50

Weight per Set about, No. 2 1/2A, 2 lbs.; No. 2 1/2C, 2 1/2 lbs.; No. 8A, 26 lbs.

No. 8A SET, CARD'S—Stock 30 inches Long; 4 Taper Taps, and 4 Pairs of Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to inch	1/4	3/8	1/2	
10	9	8	7	7	\$16.50

No. 3DC, 4 lbs.

Card's Diamond; With Smith's Round Adjustable Dies 1 1/16 inch in Diameter.

No. 21 SET, CARD'S—Stock 14 inches Long; 6 Taper Taps, and 6 Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to in.	1/4	3/8	1/2	
24	20	18	16	12	\$9.60

No. 23C SET, CARD'S—Stock 14 inches Long; 4 Taper Taps, and 6 Adjustable Dies.

CUTTING SIZES.					Per Set
Inches	Threads to inch	1/4	3/8	1/2	
20	18	16	12	12	\$7.00

Weight per Set about 4 lbs.

(For Price of Extra Dies see Page 378.)

(For Price of Extra Taps [Machinists' Hand Taper.] see Page 386.)



SCREW PLATES.



BICYCLE.

Round Adjustable Dies for making tight or loose fits; with Tap Wrench.

No. 1BC SET, CARD'S—Stock 5 inches Long; 6 Plug Taps, and 6 Dies, corresponding in Sizes with Bicycle Spokes.

Inches	1/4	3/8	1/2
Threads to inch	40	42	54
Screw Gauge	6	3	3
Threads to inch	38	48	56

Weight per Set about 1/2 lb.

No. 2BC SET, CARD'S—Stock 5 inches Long; 6 Plug Taps, and 6 Dies, corresponding in Sizes with Bicycle Spokes.

Inches	3/32	7/64	9/64
Threads to inch	56	56	40
Screw Gauge	1 1/2	1	2
Threads to inch	56	64	48

Weight per Set about 3/4 lb.

No. 3BC SET, CARD'S—Stock 5 inches Long; 14 Plug Taps, and 14 Dies, corresponding in Sizes with Bicycle Spokes.

Inches	3/32	7/64	9/64	5/16
Threads to inch	52	54	56	56
Inches	1/4	3/8	1/2	5/8
Threads to inch	40	42	40	36
Screw Gauge	1	1 1/2	2	3
Threads to inch	64	56	48	48
Screw Gauge	3	4	6	8
Threads to inch	56	42	38	36

Weight per Set about 1 1/4 lbs.

CARD'S.

Finest Tool Steel; In Sets Complete; One Set in a Hardwood Case.



BICYCLE.

No. 2 1/2 P SET, CARD'S—Stock 11 1/2 inches Long; 10 Pairs Adjustable Dies, 1 Tap Wrench Die, and 8 Bicycle Taper Taps 6 inches Long.

CUTTING SIZES.

Inches	1/4	3/8	1/2	5/8
Threads to inch	20, 22, 24	26, 28, 30	20, 22, 24	26, 28, 30
Inches	1/2	3/4	1	1 1/4
Threads to inch	20, 22, 24	20, 22, 24	26, 28, 30	26, 28, 30
Inches	1 1/2	1 3/4	2	2 1/4
Threads to inch	20	24	20	24

Right Hand Left Hand

Weight per Set about 6 lbs.

CARD'S BICYCLE TAPER TAPS.



Size, inches	5/16	3/8	7/16
Threads to inch	24, 28	24	24
Each	.50	.55	.60
Size, inches	1/2	9/16	5/8
Threads to inch	20, 24, 28, 32	20, 24, 28, 32	20, 24, 28, 32
Each	\$0.70	.80	.90

The Diameter given is that of the Largest Part of the Taps. Average Weight each about 1/4 lb. All V Threads.

CARD'S TAP WRENCHES.

Finest Tool Steel.



No. 0—5 INCHES LONG, Fitting Taps, 1/16 to 3/8 in.	Each \$1.00
No. 1—7 1/2 INCHES LONG, Fitting Taps, 1/4 to 1/2 in.	1.50
No. 2—12 INCHES LONG, Fitting Taps, 1/4 to 3/4 in.	2.00
No. 3—14 INCHES LONG, Fitting Taps, 1/2 to 1 in.	3.00
No. 4—19 INCHES LONG, Fitting Taps, 3/4 to 1 1/2 in.	4.00

Weight Each about, No. 0, 1/4 lb.; No. 1, 1/2 lb.; No. 2, 1 lb.; No. 3, 2 lbs.; No. 4, 4 lbs.

SMITH'S ROUND ADJUSTABLE DIES.

Finest Tool Steel.



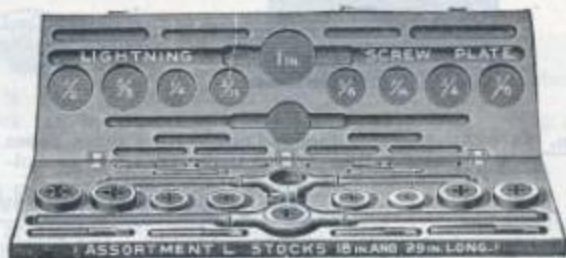
Can be adjusted for exact or over size, by Screw in Side; V Threads.

13/16 inch DIAMETER.		Nos.		4	8	12
Cutting Size, Screw Gauge				36	32	24
Threads to inch				\$0.40	.40	.40
Each						
1 1/8 inch DIAMETER.		Nos.		4	8	12
Cutting Size, inches	1/8	9/64	5/32	3/16	1/4	5/16
Threads to inch	40	40	32	24	20	18
Each	\$0.40	.40	.40	.40	.40	.40
1 1/4 inch DIAMETER.		Nos.		4	8	12
Cutting Size, inches				3/16	1/4	5/16
Threads to inch				24	20	18
Each				\$1.00	1.00	1.00

Packed Loose; Weight Each about 1/4 lb.

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LIGHTNING SCREW PLATES.



For Bolts.

Finest Tool Steel; in Sets Complete; One Set in a Hardwood Case.

No. K7 SET—With 1 Stock each 18 and 23 inches Long; 7 Sizes Taps, Dies and Collets.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	} \$16.00
Threads to inch..	20 18 16 14 12 11 10	

Weight per Set about 20 lbs.

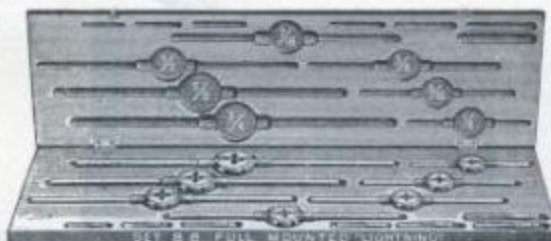
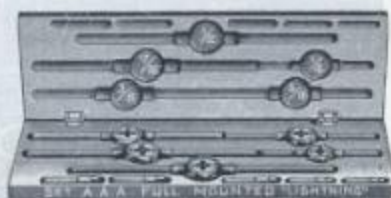
Extra Stocks only, for No. K7 Set; Weight each
about $2\frac{1}{2}$ lbs..... \$2.00

No. L9 SET—With 1 Stock each 18 and 29 inches Long; 9 Sizes Taps, Dies and Collets.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	} \$25.25
Threads to inch..	20 18 16 14 12	
Inches	$\frac{5}{8}$ $\frac{3}{4}$ 1	}
Threads to inch..	11 10 9 8	

Weight per Set about 28 lbs.

Extra Stocks only, for No. L9 Set; Weight each
about 3 lbs..... \$2.00

Diameter of Collets in these Sets, $\frac{7}{16}$ inch and under, $2\frac{1}{16}$ inches; $\frac{1}{2}$ inch and over, $2\frac{3}{16}$ inches.

For Bolts.

Finest Tool Steel; in Sets Complete; One Set in a Hardwood Case.

Full Mounted, with Suitable Stock for Each Size Die.

No. AAA SET—With 5 Stocks; 5 Sizes Taper Taps and Dies.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	} \$11.00
Threads to inch..	20 18 16 14 12	

Weight per Set about 13 lbs.

No. BB SET—With 7 Stocks; 7 Sizes Taper Taps and Dies.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$	} \$16.00
Threads to inch..	20 18 16 14 12 11 10	

Weight per Set about 23 lbs.

No. CCC SET—With 9 Stocks; 9 Sizes Taper Taps and Dies.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	} \$26.50
Threads to inch..	20 18 16 14 12	
Inches	$\frac{5}{8}$ $\frac{3}{4}$ 1	}
Threads to inch..	11 10 9 8	

Weight per Set about 37 lbs.

For Prices of Extra Taps and Dies for Lightning Screw Plates, see Page 382.

LIGHTNING SCREW PLATES.



Finest Tool Steel; In Sets Complete; One Set in a Hardwood Case.



No. AA SET—Stock 18 inches Long, with 6 Sizes Taper Taps, and 6 Dies and Collets; Diameter of Collets $2\frac{3}{16}$ inches.

		CUTTING SIZES.		Per Set
Inches	$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$			\$11.75
Threads to inch	24 20 18 16 14 12			

Weight per Set about 12 lbs.

Each

Extra Stocks only for No. AA Set; Weight each
about 2 lbs. \$2.00

No. B SET—Stock 23 inches Long, with 7 Sizes Taper Taps, and 7 Dies and Collets; Diameter of Collets $2\frac{3}{4}$ inches.

		CUTTING SIZES.		Per Set
Inches	$\frac{3}{16}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$			\$16.75
Threads to in.	20 18 16 14 12 11 10			

Weight per Set about 20 lbs.

Each

Extra Stocks only for No. B Set; Weight each
about 3 lbs. \$2.00



Finest Tool Steel; In Sets Complete; One Set in a Hardwood Box.

No. C9 SET—Stock 29 inches Long; With 9 Sizes Taper Taps, Dies and Collets.

		CUTTING SIZES.								Per Set
Inches	$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ 1									\$23.25
Threads to inch	20 18 16 14 12 11 10 9 8									

Diameter of Collets $2\frac{3}{4}$ inches.

Weight per Set about 28 lbs.

Each

Extra Stocks only for No. C9 Set; Weight each about $3\frac{1}{4}$ lbs. \$2.00
For Prices of Extra Taps and Dies, for Lightning Screw Plates, see Page 252. Lightning Taps and Dies are $1\frac{1}{32}$ Over Size; V-Thread.



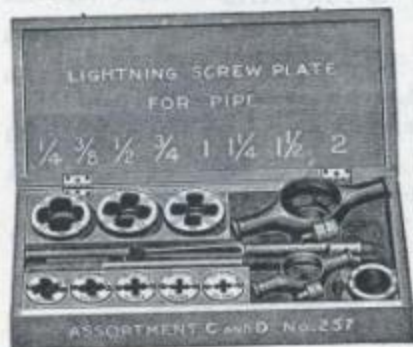
For Pipe.



Standard Thread; Finest Tool Steel; In Sets Complete; One Set in a Hardwood Case.

No. C5 SET—Stock 35 inches Long; 5 Sizes Dies, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1 inch; Weight per set about 18 lbs. \$12.00

No. D3 SET—Stock 53 inches Long; 3 Sizes Dies, $1\frac{1}{4}$, $1\frac{1}{2}$, 2 inches; Weight per set about 35 lbs. \$20.00



Finest Tool Steel.

For Pipe.

Standard Thread.

Per Set

No. 257 SET—C5 and D3 Combined WITH 8 SIZES Dies, and Guides $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2 inches. C5-Stock, 35 inches Long; No. D3-Stock, 53 inches Long; Weight per set about 45 lbs. \$32.00

Complete in a Hardwood Case.

LIGHTNING DIES AND STOCKS.

Pump Makers'.



No. 900—DOUBLE STOCK; Complete with one Die each $\frac{3}{8}$ inch, 14 Threads to inch, and $\frac{7}{16}$ inch, 12 Threads to inch; Dies $\frac{1}{32}$ Over Size; V-Thread; Stock 14 $\frac{1}{2}$ inches Long; Weight each about 2 lbs. \$3.00
Packed Loose.

ADJUSTABLE TAP WRENCHES.



NEW PATENT LIGHTNING.

The Stocks are Drop Forged; The Jaws of Tool Steel, Closely Fitted; The Handles of Best Bicycle Tubing, Knurled. A Quick Adjustment of the Jaw is given by Turning One Handle.

Nos.	Length.	Weight each about, lbs.	For Hand Taps.	Each
951	7 in.	$\frac{1}{2}$	$\frac{1}{4}$ in. and smaller.	\$1.35
952	10 $\frac{1}{2}$ in.	1	$\frac{7}{16}$ in. to $\frac{1}{2}$ in., inclusive.	2.15
953	16 in.	2	$\frac{1}{4}$ in. to $\frac{3}{8}$ in., inclusive.	2.75
954	21 in.	3	$\frac{3}{8}$ in. to 1 in., inclusive.	3.50
955	26 in.	4	$\frac{1}{2}$ in. to 1 $\frac{1}{4}$ in., inclusive.	4.75

Packed Loose.



No. 1.



No. 3.

Made of Soft Steel, with Hardened Jaws; Polished.

Per Dozen

No. 1—Holds Taps $\frac{1}{16}$ to $\frac{1}{4}$ inch; Holds Drills $\frac{1}{16}$ to $\frac{3}{16}$ inch; Length of Handle 4 inches; Length over all 3 inches; Weight per dozen about 3 lbs. \$10.00
No. 3—Holds Taps $\frac{3}{16}$ to $\frac{1}{2}$ inch; Adjustable Handle 8 inches Long when Extended, 5 $\frac{1}{4}$ inches when Closed; Length over all 3 $\frac{1}{2}$ inches; Weight per dozen about 8 $\frac{1}{2}$ lbs. 30.00
One-twelfth Dozen in a Cardboard Box.

PLUG TAPS FOR BRASS.



Right or Left Hand, V-Thread.

Tool Steel, Polished.

Diameter, inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$
Number of Threads per inch	27	27	27
Weight each about, ozs.	8	10	11
Each	\$0.45	.50	.55

Packed Loose.

LIGHTNING TAPS.

For Lightning Plates; Finest Tool Steel.



Taper Tap.

Plug Tap.

Bottoming Tap.

Plate and Hand Taps; Taper, Plug and Bottoming.											
Size, inches	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Threads to inch	24	20	18, 18	14, 16	12, 14, 16	12, 13, 14	12	10, 11, 12	10	9	8
Each	\$0.35	.45	.50	.55	.60	.70	.80	.90	1.20	1.60	2.00



Machine Nut Tap.

Size, inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Threads to inch	18, 20	16, 18	14, 16	12, 14, 16	12, 13, 14	12	10, 11, 12	10	9	8
Each	\$0.60	.70	.80	.90	1.00	1.15	1.30	1.60	2.10	2.80

LIGHTNING DIES FOR LIGHTNING PLATES.

Finest Tool Steel.



Plate Dies, Without Collets.

Size, inches	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Threads to inch	24	18, 20	16, 18	12, 14, 16	12, 14, 16
Each	\$1.00	1.00	1.00	1.15	1.30
Size, inches	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Threads to inch	12, 13, 14	12	10, 11, 12	10	9
Each	\$1.50	1.60	1.75	2.00	2.50

Plate Dies, with Collets.

Size, inches	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Threads to inch	24	18, 20	16, 18	12, 14, 16	12, 14, 16
Each	\$1.50	1.50	1.50	1.65	1.80
Size, inches	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Threads to inch	12, 13, 14	12	10, 11, 12	10	9
Each	\$2.00	2.10	2.25	2.50	3.00

Taps and Dies $\frac{1}{32}$ Over Size; V Thread.Taps: Weight each, all styles, about, $\frac{1}{4}$ inch, 2 ozs.; $\frac{1}{2}$ inch, 4 ozs.; $\frac{3}{4}$ inch 8 ozs.Dies: Weight each, about, $\frac{3}{16}$ inch, $\frac{1}{4}$ lb.; $\frac{7}{16}$ inch, $\frac{3}{8}$ lb.; 1 inch $\frac{1}{4}$ lb.

DESCRIPTION OF LIGHTNING DIES.

The Taper-Headed Screws BB, regulate the size. Two Binding Screws, not shown in cut, are placed opposite the two shown, AA.

In adjusting the Die, the Binding-Screws, AA, are first slackened, and the size required fixed by moving the Taper-Headed Screws, BB, in or out; after which the Binding Screws, AA, are set very tight, the last thing.

The Collets holding the Dies have Guides for starting Bolts true, BUT WHEN DESIRABLE TO CUT CLOSE UNDER THE HEADS OF BOLTS THE FACE SIDE OF THE DIE IS USED.



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GREEN RIVER SCREW PLATES.



Finest Tool Steel; in Sets Complete; One Set in a Hardwood Case.



No. 05 SET—5 SIZES Taper Taps, Dies and Guides, with Stock and Tap Wrench.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{16}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{5}{16}$ $\frac{3}{4}$	$\frac{1}{4}$
Threads to inch	40 36 32 28 24	\$5.50

Weight per Set about 1 lb.

Stocks 6 inches Long, Diameter of Dies, $\frac{1}{8}$ inch; for Gunsmiths, Model Makers, Amateurs, etc.; Threads Finished in once going over.



No. 014 SET—14 SIZES Taper Taps, Dies and Guides, with 6 inch Stock, Tap Wrench, fitting in Stock, Bit Brace, Die Holder, and Die Holder for Lathe Use.

CUTTING SIZES.		Per Set
Inches	$\frac{3}{64}$ $\frac{1}{16}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	$\frac{1}{4}$
Threads to inch	60 48 44 40 40 36 36 36	\$15.00
Inches	$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$	
Threads to inch	32 32 28 28 24 20 20 20	

Weight per Set about 4 lbs.

✦Extra Parts for Nos. 05, 07 and 014 Sets.

	Each
✦Stocks Only, 6 inch; Weight each about $\frac{1}{4}$ lb.	\$0.75
✦Dies (See List of Sizes Below); Weight each about 2 ozs.	.60
✦Guides; Weight each about 2 ozs.	.15
✦Taps (See List of Sizes Below); Weight each about 1 oz.	.40

Taps and Dies in Stock to Fit Nos. 05, 07 and 014 Sets.

Size, inches	$\frac{3}{64}$ $\frac{1}{16}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	
Threads to inch	60 48 44 40 40 36 36 36	
Size, inches	$\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{1}{2}$ $\frac{5}{8}$ $\frac{3}{4}$ $\frac{7}{8}$	
Threads to inch	32 32 28 28 24 20 20 20	

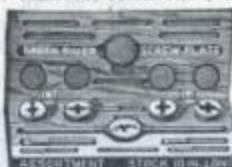
Nos. AL, 01 and 02 Sets are furnished $\frac{1}{32}$ over Size, V Thread; All other Sets on this Page are exact Size, V Thread.

No. 07 SET—7 SIZES Taper Taps, Dies and Guides, with Stock and Tap Wrench.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{16}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$ $\frac{1}{2}$	$\frac{1}{4}$
Threads to inch	44 40 40 36 32 28 24	\$7.00

Weight per Set about $1\frac{1}{2}$ lbs.

Gunsmiths, Model Makers, Amateurs, etc.; Threads Finished in once going over.



No. AL SET—5 SIZES Taps, Dies and Guides, with 10 inch Stock.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{16}$ $\frac{3}{32}$ $\frac{1}{8}$ $\frac{5}{16}$ $\frac{3}{4}$	$\frac{1}{4}$
Threads to inch	34 20 18 16 14	\$8.00

Weight per Set about 1 lb.

✦Extra Parts for No. AL Set.

	Each
✦Extra Dies, $1\frac{1}{16}$ inch Diameter; Weight each about $\frac{1}{2}$ lb.	\$1.00
✦Extra Guides; Weight each about $\frac{1}{2}$ lb.	.20
✦Extra Stocks, 10 inches Long; Weight each about 1 lb.	1.50



For Machine Screws.

No. 01 SET—FOR MACHINE SCREWS, 5 SIZES Taper Taps, Dies and Guides, with 6 inch Stock and Tap Wrench, Fitting in Stock; Diameter of Dies $\frac{3}{8}$ inch.

CUTTING SIZES.		Per Set
Screw Gauge	4 6 8 10 12	
Threads to inch	36 32 32 24 24	\$5.50

Weight per Set about 1 lb.

No. 02 SET—FOR MACHINE SCREWS, 7 SIZES Taper Taps, Dies and Guides, with 6 inch Stock and Tap Wrench (Fitting in Stock); Diameter of Dies, $\frac{3}{8}$ inch.

CUTTING SIZES.		Per Set
Screw Gauge	4 6 8 10 12 14 16	
Threads to inch	36 32 32 24 24 20 18	\$7.00

Weight per Set about $\frac{1}{2}$ lb.

✦Extra Parts for Nos. 01 and 02 Sets.

	Each
✦Extra Stocks; Weight each about $\frac{1}{4}$ lb.	\$0.75
✦Extra Dies; Weight each $\frac{1}{4}$ lb.	.60
✦Extra Guides; Weight each about 2 ozs.	.15
✦Extra Taps; Weight each about 1 oz.	.40

GREEN RIVER SCREW PLATES.

Finest Tool Steel; in Sets Complete; One Set in a Hardwood Case.



No. 1 SET—Stock 10 inches Long; WITH 5 SIZES Taper Taps, Dies and Guides, and Bit-Brace Holder for Dies.

CUTTING SIZES.		Per Set
Inches	$\frac{1}{16}$ $\frac{1}{8}$ $\frac{3}{16}$ $\frac{1}{2}$ $\frac{5}{8}$	} \$8.75
Threads to inch.....	24 20 18 16 14	
(Diameter of Dies, $\frac{1}{16}$ inch.)		
Weight of Set about 6 lbs.		

Each
 ±Extra Stocks only for No. 1 Set; Weight each about 1 lb. \$1.50
 ±Extra Dies only, for No. 1 Set; Weight each about $\frac{1}{4}$ lb. 1.00
 ±Extra Guides only, for No. 1 Set; Weight each about $\frac{1}{4}$ lb. .20

For Extra Taps see Page 386.



No. 2 SET—Stock 23 inches Long; WITH 7 SIZES Taper Taps, Dies and Guides.

CUTTING SIZES.								Per Set
Inches	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	} \$14.25
Threads to inch..	20	18	16	14	12	11	10	
(Diameter of Dies, $\frac{1}{16}$ inches.)								
Weight per Set about 19 lbs.								

Each
 ±Extra Stocks only for No. 2 Set; Weight each about 3 lbs. \$2.00



No. 4 SET—Stock 29 inches Long; WITH 7 SIZES Taper Taps, Dies and Guides.

CUTTING SIZES.								Per Set
Inch	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	} \$20.00
Threads to inch.	16	14	12	11	10	9	8	
(Diameter of Dies, $\frac{1}{16}$ inches.)								
Weight per Set about 23 lbs.								

Each
 ±Extra Stocks only for No. 4 Set; Weight each about $3\frac{1}{2}$ lbs. \$2.00



No. 1 1/2 SET—Stock 22 inches Long; WITH 7 SIZES Taper Taps, Dies and Guides.

CUTTING SIZES.								Per Set
Inches	$\frac{1}{16}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	} \$13.00
Threads to inch..	20	18	16	14	12	11	10	
(Diameter of Dies, $\frac{1}{16}$ inches.)								
Weight per Set about 15 lbs.								

Each
 ±Extra Stocks only for No. 1 1/2 Set; Weight each about $1\frac{1}{2}$ lbs. \$2.00



No. 3 SET—Stock 29 inches Long; WITH 5 SIZES Taper Taps, Dies and Guides.

CUTTING SIZES.						Per Set
Inches.....	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{3}{8}$	1	} \$15.75
Threads to inch.	12	11	10	9	8	
(Diameter of Dies, $\frac{1}{16}$ inches.)						
Weight per Set about 20 lbs.						

Each
 ±Extra Stocks only for No. 3 Set; Weight each about $3\frac{1}{2}$ lbs. \$2.00



No. 5 SET—Stock 29 inches Long; WITH 9 SIZES Taper Taps, Dies and Guides.

CUTTING SIZES.						Per Set
Inches	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{2}$	$\frac{5}{8}$	} \$23.00
Threads to inch.....	20	18	16	14	12	
Inches	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	1	
Threads to inch.....	11	10	9	8	7	
(Diameter of Dies, $\frac{1}{16}$ inches.)						
Weight per Set about 27 lbs.						

Each
 ±Extra Stocks only for No. 5 Set; Weight each about $3\frac{1}{2}$ lbs. \$2.00

Extra Taps and Dies, for Sets Nos. 1 1/2, 2, 3, 4 and 5, for Prices see Page 386.
 All Sets $\frac{1}{16}$ inch over size, V Thread.

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GREEN RIVER SCREW PLATES.

Finest Tool Steel; in Sets Complete; One Set in a Hardwood Case.

**No. 6 SET**—Stock 35 inches Long; WITH 7 SIZES Taper Taps, Dies and Guides.

		CUTTING SIZES.							Per Set
Inches	Threads to inch	1/2	3/8	1/4	3/16	1/8	5/16	3/4	
12	11	10	9	8	8	7			\$26.00
Threads to inch									

(Diameter of Dies, 2 3/4 inches.)

Weight per Set about 29 lbs.

Each

±Extra Stocks only for No. 6 Set; Weight each about

4 1/2 lbs. \$4.00

**No. 8 SET**—Stock 35 inches Long; WITH 11 SIZES Taper Taps, Dies and Guides.

		CUTTING SIZES.							Per Set
Inches	Threads to inch	1/4	3/16	5/16	3/8	1/2	5/8	3/4	
20	18	16	14	12	11				\$34.00
Threads to inch									

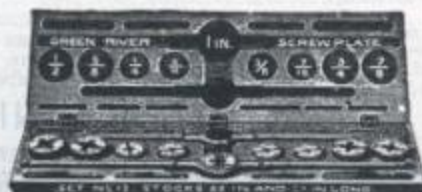
(Diameter of Dies, 2 3/4 inches.)

Weight per Set about 33 lbs.

Each

±Extra Stocks only, for No. 8 Set, Weight each about

4 1/2 lbs. \$4.00

**No. 13 SET**—1 Stock each 22 and 29 inches Long; WITH 9 SIZES Taper Taps, Dies and Guides.

		CUTTING SIZES.					Per Set
Inches	Threads to inch	1/4	3/16	5/16	3/8	1/2	
20	18	16	14	12	11		\$25.00
Threads to inch							

(Diameter of Dies, 1/2 inch and under 2 3/16 inch; 5/8 inch and over 2 3/4 inch.)

Weight per Set about 28 lbs.

Each

±Extra Stocks only, 22 inches, for No. 13 Set, Weight

each about 2 1/2 lbs. \$2.00

±Extra Stocks only, 29 inches, for No. 13 Set, Weight

each about 3 1/2 lbs. 2.00

For Prices of Extra Taps, Dies and Guides, see Page 386.

All Sets 1/32 inch over Size, V Thread.

***GREEN RIVER DIES.**

Finest Tool Steel.

The Cup-Headed Screws on the right holds the halves firmly together, acting as a hinge. The size is regulated by the wedge-shaped (taper head) Screw on the left, the whole being clamped in the Elastic Stock.



Showing Die ready for Clamping to the Elastic Stock.

Showing Mechanism of Die and Guide.

DIES, WITHOUT GUIDES, for all Green River Plates, except Nos. 1 and 1 1/2.

Size, inches	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4
Threads to inch	20	18	16	14	12	11	10	9	8	8	7
Each	\$1.25	1.25	1.50	1.50	1.50	1.75	2.00	2.50	3.00	3.50	4.00

Average Weight each about 1 lb.

IN ORDERING DIES, SPECIFY the Number of Screw Plate they are wanted for.

GREEN RIVER TAPS.

Size, inches	3/16	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
Threads to inch	24	20	18	16	14	12	12	11	10
Each	\$0.35	.45	.50	.55	.60	.70	.80	.90	1.20

Average Weight each about 1/2 lb.

One in a Cardboard Box.

Green River Dies and Taps are 1/32 inch Over Size, V Thread, for Rough Iron.

MACHINISTS' HAND TAPS.

Finest Tool Steel.

**Plug.****Taper.****Bottoming.**

V Shape Thread, Exact Sizes.			Taper Plug or Bottoming.					
Size, inches	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
Length over all, inches	2 1/2	2 3/8	2 1/2	2 3/8	3 1/2	3 1/2	3 1/2	4 1/2
Threads to inch	16, 18, 20	16, 18	14, 16, 18	14, 16	12, 13, 14	12, 14	10, 11, 12	11, 12
Each	\$0.45	.50	.55	.60	.70	.80	.90	1.05
Per Set of 3	1.35	1.50	1.65	1.80	2.10	2.40	2.70	3.15
Size, inches	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
Length over all, inches	4 1/4	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2
Threads to inch	10, 12	10	9, 10	8	8	8	8	8
Each	\$1.20	1.40	1.60	2.00	2.40	2.80	3.20	3.60
Per Set of 3	3.60	4.20	4.80	6.00	7.20	8.40	9.60	10.80

1 each Taper Plug and Bottoming Taps to a Set of (3.)

For Taps 1/32 Over Size, see Lightning Taps and Dies, Page 382.)

**Machine Screw.**

Screw or Wire Gauge, Nos.	4	6	8	10	12	14
Threads to inch	32, 36, 40	30, 32	24, 30, 32	24, 30, 32	20, 24	20, 24
Diameter, inches	7/64	9/64	5/32	3/16	1/8	1/8
Each	\$0.35	.35	.35	.35	.35	.35
Screw or Wire Gauge, Nos.	16	18	20	22	24	26
Threads to inch	16, 18, 20	16, 18	16, 18	16, 18	16, 18	16, 18
Diameter, inches	17/64	9/32	5/16	3/8	1/2	5/8
Each	\$0.38	.38	.45	.45	.45	.45

**Store Bolt.**

Size, inches	3/16	1/4	5/16	3/8
Threads to inch	24	18	18	18
Each	\$0.35	.38	.38	.45

Weight, all Styles, about, 1/4 inch, 2 ozs; 1/2 inch, 4 ozs; 3/4 inch, 8 ozs.
Packed Loose.

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LIGHTNING DIE HOLDERS.

Dies and Taps, for Bit-Brace Use.
PUMP MAKERS'.

No. A—LIGHTNING DIE HOLDER: Polished Cast Steel; Holds all Sizes of No. AD Dies; Length over all $5\frac{1}{2}$ inches. \$0.75
Weight Each about $\frac{1}{4}$ lb.

Each

No. AD—DIES, with Guides; Tool Steel; For No. A Die Holders; Outside Diameter $1\frac{1}{16}$ inches.
Size, inches $\frac{3}{16}$ $\frac{1}{4}$ $\frac{5}{16}$ $\frac{3}{8}$ $\frac{7}{16}$
Threads to inch 24 20 18 16 14
Each \$1.20 1.20 1.20 1.20 1.20
Weight Each about $\frac{1}{4}$ lb.

One in a Cardboard Box.

MACHINISTS'.



Holder and Die.



Tap.

±DIE HOLDERS ONLY.

±**No. B Set—LIGHTNING TAPS, DIES AND DIE HOLDERS** complete; Polished Cast Steel Die Holder; Tool Steel Dies and Taps; Length of Holder $5\frac{1}{2}$ inches; Length of Tap $4\frac{1}{4}$ inches.

Size, inches	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Threads to inch	24	20	18	16	14
Per Set	\$1.90	1.90	1.95	2.25	2.35

One Set in a Cardboard Box; Weight per Set about $1\frac{1}{4}$ lbs.

±**No. BH—LIGHTNING DIE HOLDER:** Polished Cast Steel; For No. B Set; Length $5\frac{1}{2}$ inches; Weight each about 1 lb. \$0.55
One in a Cardboard Box.

Each

EXTRA TAPS.

No. ABT—EXTRA TAPS, for No. A Holders and No. B Set; Tool Steel; Length of Thread $1\frac{1}{4}$ inches; Length over all $4\frac{1}{4}$ inches.

Size, inches	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$
Threads to inch	24	20	18	16	14
Each	\$0.50	.50	.55	.60	.70

Weight Each about 2 ozs.
Packed Loose.

REAMERS.



LIGHTNING TAPER.

Finest Tool Steel.

±**No. 470— $\frac{1}{2}$ in. Round Shank.**

Inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$
Length over all, inches	$5\frac{1}{4}$	$5\frac{3}{4}$	$5\frac{3}{4}$	6	$6\frac{1}{4}$	$6\frac{1}{2}$	$6\frac{3}{4}$	7	$7\frac{1}{4}$	$7\frac{1}{2}$	8
Length of Flute, inches	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{4}$	4
Each	\$0.55	.60	.65	.70	.75	.85	1.00	1.20	1.40	1.60	1.80

Weight Each about, $\frac{1}{4}$ inch, 4 ozs.; $\frac{1}{2}$ inch, 6 ozs.; $\frac{3}{4}$ inch, 8 ozs.; $\frac{1}{2}$ inch, 1 lb.

Packed Loose.



No. 400.



No. 400.

±**No. 460—LIGHTNING TAPER; Square Shank for Bit Brace Use.**

Sizes	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Length over all, in.	5	$5\frac{1}{8}$	$5\frac{5}{8}$	$6\frac{1}{8}$	$6\frac{5}{8}$	$6\frac{3}{4}$	$6\frac{13}{16}$	7	$7\frac{3}{8}$	$7\frac{1}{2}$	$7\frac{3}{4}$	$8\frac{1}{4}$	$8\frac{3}{8}$	$8\frac{5}{8}$	9
Length of Flute, in.	$2\frac{1}{8}$	$2\frac{3}{16}$	$2\frac{5}{16}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{13}{16}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4
Each	\$0.45	.50	.55	.60	.70	.80	.90	1.05	1.20	1.40	1.60	1.80	2.00	2.25	2.60

Weight Each about, $\frac{3}{4}$ inch, 2 ozs.; $\frac{1}{2}$ inch, 8 ozs.; $\frac{3}{4}$ inch, 1 lb.

Per Set

No. 463 SET—Lightning Taper Reamers, 9 SIZES IN HARDWOOD CASE; Sizes, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$ inch. \$7.25

Weight per Set about 4 lbs.

±**No. 400—GREEN RIVER; Solid Spiral Fluted Reamers.**

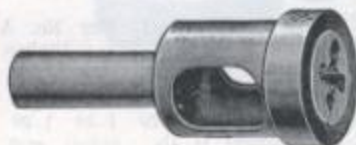
Sizes	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Length over all, inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	$9\frac{1}{2}$	10	$10\frac{1}{2}$
Length of Flute, inches	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3	$3\frac{1}{4}$	$3\frac{1}{2}$	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{3}{4}$	5	$5\frac{1}{2}$
Each	\$1.40	1.50	1.60	1.75	1.90	2.00	2.20	2.40	2.60	2.80	3.10	3.40	3.70	4.00	4.30

Weight Each about, $\frac{1}{4}$ inch, 2 ozs.; $\frac{1}{2}$ inch, 6 ozs.; $\frac{3}{4}$ inch, 1 lb.; $\frac{1}{2}$ inch, 1 lb.; $\frac{3}{4}$ inch, 1 lb.; $\frac{1}{2}$ inch, 1 lb.

Packed Loose.



LATHE DIE HOLDERS.



Tool Steel, Polished.				
Nos.	Holds Dies, inches.	Size of Shank, inches.	Weight Each about, ozs.	Each
S01	5/8	1/2	2	\$0.50
S01 1/4	1 1/16	1/2, 9/16, 11/16	4	.50
S02	1	1/2, 9/16, 11/16	8	.75
S03	1 5/16	11/16, 3/4, 13/16	16	1.50
S04	1 9/16	3/4, 13/16, 1	24	2.75
S05	2 1/4	1 1/16, 1 1/8, 1 1/4	55	4.00

NOTE.—In Ordering these Holders, state SIZE OF SHANK desired.
PRICES ARE FOR HOLDERS ONLY.

Packed Loose.

HART'S DUPLEX DIE STOCKS.



For Threading Pipe.

Japanned Cast Steel Body; Nickel-Plated Cast Steel Adjusting Rims, with Handles; Polished Steel Detachable Arms, Tempered Tool Steel Dies; Standard Threads.

	Wgt. each about, lbs.	Without Cut-Off.	With Cut-Off.
No. 1 —LENGTH 23 INCHES; With Dies for Threading 1/8, 1/4, 3/8, 1/2, 5/8 inch Pipe...	9	Each \$13.00	Each \$16.00
No. 2 —LENGTH 38 INCHES; With Dies for Threading 3/4, 1, 1 1/4 inch Pipe	20	17.00	20.00
No. 3 —LENGTH 45 INCHES; With Dies for Threading 1, 1 1/4, 1 1/2, 2 inch Pipe.....	25	22.00	25.00
No. 3 1/2 —LENGTH 45 INCHES; With Dies for Threading 1 1/2, 2, 2 1/4, 3 inch Pipe.....	25	25.00	28.00
No. 4 —LENGTH 60 INCHES; With Dies for Threading 2 1/2, 3, 3 1/2, 4 inch Pipe.....	40	40.00	45.00
No. 5 —LENGTH 60 INCHES; With Dies for Threading 3 1/2, 4, 4 1/2, 5 inch Pipe.....	55	55.00	60.00

No Wrench, Thumb Screw or Collets; Tool complete in itself; Dies easily sharpened on a Grindstone.
One in a Wood Box.

Nos. 1 to 3 1/2, inclusive, with Two Handles; Nos. 4 and 5 with 4 Handles.

EXTRA DIES FOR HART'S DUPLEX DIE STOCKS.

	Tempered Tool Steel.	Complete Set
No. 1 —COMPLETE SET, Composed of 3 Single Sets of 4 Pieces each, i. e., 1 Set each (1/8), (1/4, 3/8) and (1/2, 5/8); Weight each about 1 1/2 lbs.		\$4.50
No. 2 —COMPLETE SET, Composed of 3 Single Sets of 4 Pieces each, i. e., 1 Set each (3/4, 1), (1 1/4, 1 1/2) and (2, 2 1/4); Weight each about 2 1/2 lbs.		5.25
No. 3 —COMPLETE SET, Composed of 2 Single Sets of 4 Pieces each, i. e., 1 Set each (1, 1 1/4) and (1 1/2, 2); Weight each about 2 lbs.		4.00
No. 3 1/2 —COMPLETE SET, Composed of 3 Single Sets of 4 Pieces each, i. e., 1 Set each (1 1/2, 2), (2, 2 1/4) and (2 1/2, 3); Weight each about 3 lbs.		5.00
No. 4 —COMPLETE SET, Composed of 2 Single Sets of 4 Pieces each, i. e., 1 Set each (2 1/2, 3) and (3 1/2, 4); Weight each about 3 1/2 lbs.		7.00
No. 5 —COMPLETE SET, Composed of 2 Single Sets of 4 Pieces each, i. e., 1 Set each (3 1/2, 4) and (4, 4 1/2); Weight each about 4 1/2 lbs.		8.00

In Ordering always specify whether Right or Left Hand Dies are wanted.
One Set in a Wood Box.

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STANDARD PIPE STOCKS AND DIES.



Japanned Malleable Iron Body, with Nickel Plated Top Plate; Plain Steel Tubular Nickel Plated Detachable Arms; Finest Tool Steel Dies, Standard Threads.

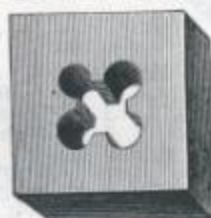
Nos.	0	1	1½	1¾	2
Length, inches	30	36	43	43	51
Fitted with Dies to Cut Pipe, inches	½ to ¾	¾ to 1	¾ to 1¼	1 to 1½	1¼ to 2
Weight each about, lbs.	8	14	17	17	27
Complete, each	\$9.50	15.00	13.50	13.50	20.00

One in a Wood Box.

STANDARD SOLID PIPE DIES.

FOR STANDARD PIPE STOCKS.
Finest Tool Steel.

In Ordering, always specify whether
Right or Left Hand Dies
are wanted.



Right Hand.

Dies for No. 0 Stocks: Size, inches	1/8	1/4	3/8
1/2; 2 inches Square	1.50		
Dies for No. 1 Stocks: Size, inches	1/8	1/4	3/8
1/2; 2 1/2 inches Square	2.00		
Dies for No. 1 1/2 Stocks: Size, inches	1/2	3/4	1
1 1/4, 1 1/2; 3 inches Square	2.50		

Each

Dies for No. 1 1/4 Stocks: Size, inches	1/2	3/4	1
1 1/4, 1 1/2; 3 inches Square	2.50		
Dies for No. 2 Stocks: Size, inches	3/4	1	1 1/4
1 1/2, 2; 4 inches Square	3.50		

Each

Left Hand, for Standard Stocks, same sizes and lists as Right Hand.

Weight each about, 1/4 inch 1/2 lb.; 1/2 inch 1 lb.; 3/4 inch 1 1/2 lbs.; 1 inch 2 lbs.
Packed Loose.

PIPE TAPS.

Finest Tool Steel.



With Either Right or Left Hand Standard Threads.	1/8	1/4	3/8	1/2	3/4
Diameter, inches	1.12	1.25	1.50	1.87	2.50
Each	1	1 1/4	1 1/2	2	2 1/2
Diameter, inches	3.12	3.75	4.62	6.25	10.50
Each					

PIPE REAMERS.



Diameter, inches	1/8	1/4	3/8	1/2	3/4
Each	\$1.12	1.25	1.50	1.87	2.50
Diameter, inches	1	1 1/4	1 1/2	2	2 1/2
Each	\$3.12	3.75	4.62	6.25	10.50

ALWAYS SPECIFY WHETHER RIGHT HAND OR LEFT HAND TAPS ARE WANTED.
Taps and Reamers; Weight each about, 1/2 inch 1/2 lb.; 1 1/2 inch 2 1/2 lbs.; 2 inch 4 lbs.
Packed Loose.

WIRE GAUGES.

Turned from High Grade Tool Steel, Tempered and Tested.



AMERICAN.

No. 732—ROUND, POCKET SIZE; Diameter $2\frac{3}{4}$ inches; Oil Finish; Gauge Numbers, Size, 5 to 36, on One Side and Decimal Equivalents on Reverse Side; Weight each about 1 oz.... \$2.00

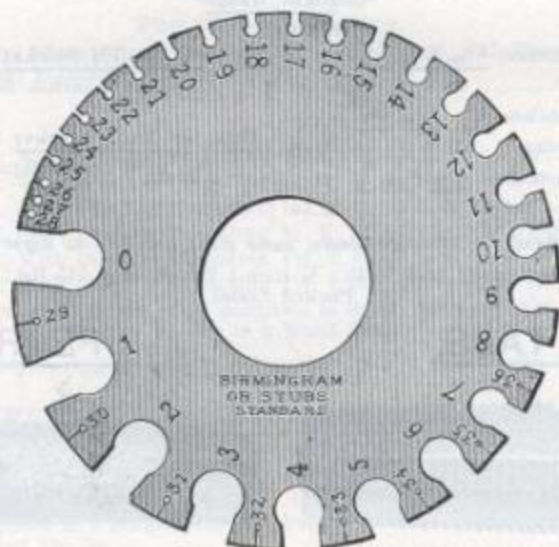
For Sheet Brass and Sheet German Silver.



ENGLISH.

No. 8—ROUND, POCKET SIZE; Diameter $2\frac{3}{4}$ inches; Polished; Gauge Numbers, Size 0 to 36, on One Side; Weight each about 2 oz.... \$2.50

For Iron, Steel and Brass Wire, except Music Wire; All Sheet Metals, except Brass and German Silver; Also used for Machine Screws.



STUBS.

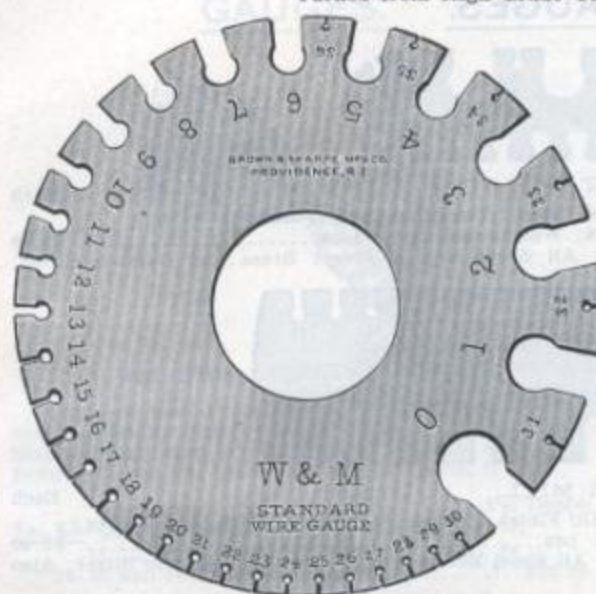
No. 10—ROUND, LARGE SIZE; Diameter 3 inches; Polished; Gauge Numbers, Size 0 to 36, on One Side; Weight each about 2 ozs..... \$3.00

For Iron, Steel and Brass Wire, except Music Wire; All Sheet Metals except Brass and German Silver; Also used for Machine Screws.

Cuts Full Size.

WIRE GAUGES.

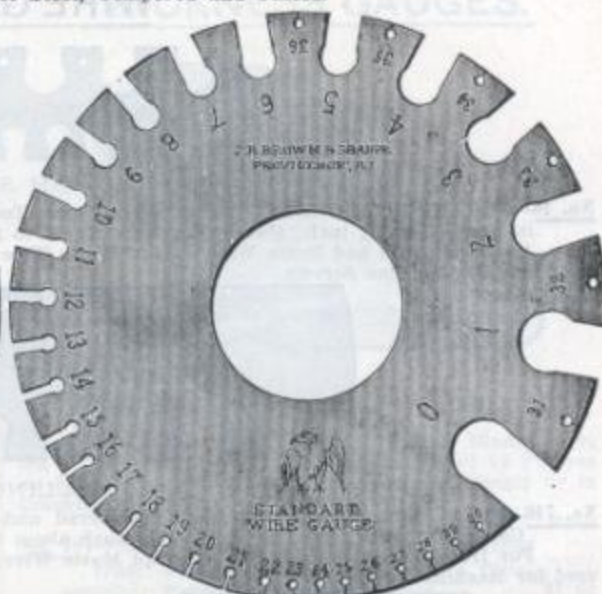
Turned from High Grade Tool Steel, Tempered and Tested.



WASHBURN AND MOEN, STANDARD.

Each
No. 737—ROUND, LARGE SIZE; Diameter $3\frac{1}{4}$ inches; Oil Finish; Gauge Numbers, Size 0 to 36, on One Side; Weight each about 4 ozs.. \$2.50

Sometimes known as the A. S. & W. Co., and is the one by which all Steel and Iron Wire is drawn by the American Steel and Wire Company.



AMERICAN.

Each
No. 730—ROUND, LARGE SIZE; Diameter $3\frac{1}{4}$ inches; Oil Finish; Gauge Numbers, Size 0 to 36, on One Side; Weight each about 4 ozs.. \$2.50

For Sheet Brass and Sheet German Silver.
 Six in a Cardboard Box.

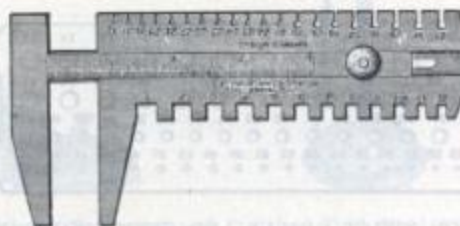
DIFFERENT STANDARDS FOR WIRE GAUGES IN USE IN THE UNITED STATES.

Dimensions of Sizes in Decimal Parts of an Inch.

No. of Wire Gauge.	American or Brown & Sharpe's.	Birmingham or Stokes'.	Dixon's and Old English from Brass Mfr's List.	No. of Wire Gauge.	American or Brown & Sharpe's.	Birmingham or Stokes'.	Dixon's and Old English from Brass Mfr's List.
0000	.46	.454	.454	19	.03539	.042	.04
000	.40964	.425	.425	20	.031961	.035	.035
00	.3648	.38	.380	21	.028462	.032	.0315
0	.32495	.34	.340	22	.025347	.028	.0295
1	.2893	.3	.300	23	.022571	.025	.027
2	.25763	.284	.284	24	.0201	.022	.025
3	.22942	.259	.259	25	.0179	.02	.023
4	.20431	.238	.238	26	.01594	.018	.0205
5	.18194	.22	.220	27	.014195	.016	.01875
6	.16202	.203	.203	28	.012641	.014	.0165
7	.14428	.18	.180	29	.011257	.013	.0155
8	.12849	.165	.165	30	.010025	.012	.01375
9	.11443	.148	.148	31	.008928	.01	.01225
10	.10189	.134	.134	32	.00795	.009	.01125
11	.090742	.12	.120	33	.00708	.008	.01025
12	.080808	.109	.109	34	.006304	.007	.0095
13	.071961	.095	.095	35	.005614	.005	.009
14	.064084	.083	.083	36	.005	.004	.0075
15	.057068	.072	.072	37	.004453		.0065
16	.05082	.063	.063	38	.003965		.00575
17	.045257	.058	.058	39	.003531		.005
18	.040303	.049	.049	40	.003144		.0045

Cuts Full Size.

WIRE GAUGES AND CALIPERS.



For Iron, Steel and Brass Wire, except Music Wire; All Sheet Metals, except Brass and German Silver; Also used for Machine Screws.

Each
No. 728—Milled from Finest Tool Steel, Tempered and Polished; Steel Caliper Clamp; Length of Caliper Jaws $3\frac{1}{4}$ inches; Length over all, Closed, $5\frac{1}{2}$ inches; Width $1\frac{1}{2}$ inches; Weight each about 8 ozs.. \$7.00

Six in a Cardboard Box.



WIRE GAUGES.



ENGLISH STANDARD.

Each

- No. 16**—POCKET SIZE, OBLONG; Milled from Finest Tool Steel, Tempered and Polished; Length 3 3/4 inches; Width 1/2 inch; Gauge Numbers, Size 1 to 26; Weight each about 1 oz. \$2.50
For Iron, Steel and Brass Wire, except Music Wire; All Sheet Metals, except Brass and German Silver; Also used for Machine Screws.



ROLLING MILL.

Each

- No. 746**—Milled from Finest Tool Steel, Tempered and Oil Finish; Length 5 1/4 inches; Width 1 7/16 inches; Gauge Numbers, Size 1 to 32; Weight each about 6 ozs. \$3.00
For Iron, Steel and Brass Wire, except Music Wire; All Sheet Metals, except Brass and German Silver; Also used for Machine Screws.



Cuts
Show
Both
Sides.

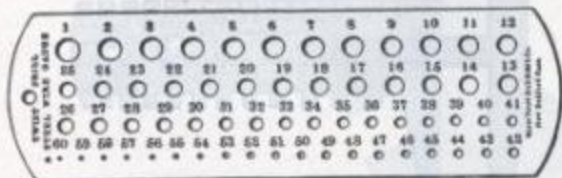


SCREW AND WIRE GAUGES.

Each

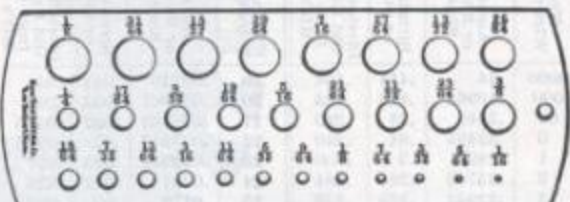
- No. 760**—POCKET; Stamped from Sheet Steel, Full Polished; Graduated in Old Standard Wire Gauge and New Standard Wire Gauge on One Side; Standard Screw Gauge and inches and 32ds on Reverse Side; Length 4 inches; Width 1 1/2 inches; Weight each about 1 oz. \$2.50
No. 760 is a Combination Gauge, including Old and New Standard, also Wood Screw Gauge and Inch Graduation; The Old Standard is used for same purpose as Nos. 8, 9, 10, 746 and 16; New Standard for same use as Nos. 732 and 730.
—Cuts are Half Size.

DRILL GAUGES.



FOR TWIST DRILLS AND STEEL WIRE. Each

- No. 127**—MORSE; OBLONG; Milled from Finest Tool Steel; Full Polished; Length 5 1/4 inches; Width 1 1/2 inches; Gauge Numbers, Sizes 1 to 60; Weight each about 4 ozs. \$1.50



FOR JOBBERS' DRILLS. Each

- No. 127A**—MORSE; OBLONG; Milled from Finest Tool Steel, Full Polished; Length 6 1/4 inches; Width 2 3/4 inches; Gauge Sizes, 1/16 inch to 1/2 inch; Weight each about 4 ozs. \$2.25



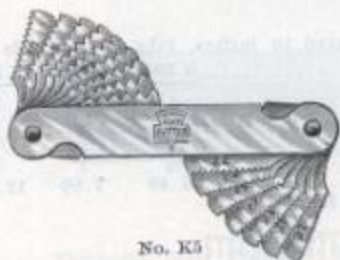
FOR TWIST DRILLS AND STEEL WIRE.

Each

- No. 127B**—MORSE; OBLONG; Milled from Finest Tool Steel, Full Polished; Length 3 inches; Width 1 1/2 inches; Gauge Numbers, Sizes 61 to 80; Weight each about 2 1/2 ozs. \$2.00
Packed Loose.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

GAUGES.



No. K5

KEEN KUTTER®; SCREW PITCH.

Stamped Steel, Polished and Tested; V-Thread; Narrow Leaves for Inside and Outside work; Each Leaf Stamped, showing Pitch; Length, Open, 4 inches; Length, Closed, 2½ inches; Length of Leaves ¾ inch.

Per Dozen

No. K5—22 PITCHES, viz.: 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28, 30, 32, 34, 36, 38 and 40 Threads to the inch.....\$12.00

No. K7—24 PITCHES, viz.: 4, 4½, 5, 5½, 6, 7, 8, 9, 10, 11, 11½, 12, 13, 14, 15, 16, 18, 20, 22, 24, 26, 27, 28 and 30 Threads to the inch.....\$15.00

One-twelfth Dozen in a Cardboard Box;
Weight per Dozen about 1 lb.

THICKNESS GAUGES.



STEEL, NATURAL FINISH.

These Gauges consist of a Set of Steel Blades varying in Thickness, which is Plainly Indicated by Figures on Each Blade. The Blades may be used Singly or in Combination.

Each

No. 781—With 22 Blades, varying in Thickness from .004 to .025 of an inch, by thousandths; Weight each about 1 ounce.....\$1.50

No. 782—With 9 Blades, .0015, .002, .003, .004, .006, .008, .010, .012 and .015 of an inch in Thickness; Weight each about ½ ounce.....1.25

Packed Loose.

SURFACE GAUGES.

Starrett's; Shaped Groove in the End and Bottom adapting it for use on Cylindrical Work.



Cast Steel Base; Case Hardened, Polished and Trued Bottom; Tempered and Polished Tool Steel Arms, Set Screws, Scribes and Base.

STARRETT'S.

Each

No. 56—SMALL SIZE; adapted for light work; Complete with Auxiliary Guide; Base 2½ inches Long, 1½ inches Wide; Length of Spindle 4 inches; Length of Scriber 3½ inches; Weight each about 12 ozs.....\$3.00

STARRETT'S.

Each

No. 57—LARGE SIZE; Base 3½ inches Long, 3½ inches Wide; Length of Spindle 11½ inches; Length of Scriber 9½ inches; Weight each about 4 lbs...\$3.00

BILLINGS'.

Each

No. B—MEDIUM SIZE; Diameter of Base 2½ inches; Length of Spindle 7½ inches; Length of Scriber 7 inches; Weight each about 1 lb.....\$2.75

One in a Cardboard Box.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER,
REGISTERED.

STEEL RULES.

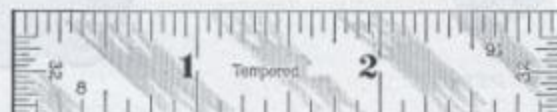


KEEN KUTTER*

Highest Grade Crucible Steel, Polished and Tempered; Graduated in inches, 8ths, 16ths, 32ds and 64ths.

Nos.	K 301	K 306	K 309	K 312
Length, inches	4	6	9	12
Width, inches	$\frac{5}{8}$	$\frac{3}{4}$	1	1
Thickness, inches	$\frac{1}{20}$	$\frac{1}{20}$	$\frac{1}{16}$	$\frac{1}{16}$
Weight per dozen about, lbs.	$\frac{1}{2}$	1	2	$2\frac{1}{2}$
Per dozen	\$5.40	7.80	12.00	15.00

One-half Dozen in a Cardboard Box.



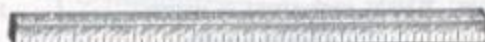
TOOL STEEL, TEMPERED AND POLISHED.

Graduated in 8ths and 16ths on One Side and 32ds and 64ths on the other; Figured so as to assist the user to quickly read the 64ths; Approximately $\frac{3}{64}$ inch Thick.

No. 603—STARRETT'S.

Length, inches	2	3	4	6	9	12	18	24
Approximate Width, inches	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1	$1\frac{1}{8}$	$1\frac{1}{4}$
Weight per dozen about, lbs.	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$1\frac{1}{2}$	$2\frac{1}{4}$	3	6	8
Per dozen	\$3.00	4.20	5.40	7.80	12.00	15.00	24.00	30.00

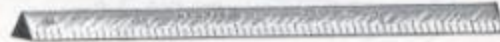
Sizes 2 to 12 inches Long inclusive, One-Half Dozen; 18 and 24 inches Long, One-Twelfth Dozen in a Cardboard Box.



SQUARE.

Steel, Natural Finish; Graduated in 16ths, 32ds, 64ths and 100ths.

Nos.	Length, inches	Width, inches	Weight per doz. about, lbs.	Per Dozen
230	3	$\frac{3}{4}$	$\frac{3}{4}$	\$5.40
232	4	$\frac{3}{4}$	1	7.20
234	6	$7/32$	$1\frac{1}{2}$	10.80



TRIANGULAR.

Steel, Natural Finish; Graduated in 16ths, 64ths and 100ths.

Nos.	Length, inches	Width, inches	Weight per doz. about, lbs.	Per Dozen
240	3	$\frac{1}{4}$	$\frac{1}{2}$	\$6.00
242	4	$9/32$	$\frac{3}{4}$	8.40
244	6	$11/32$	$1\frac{1}{2}$	12.00
246	12	$7/16$	$4\frac{1}{2}$	24.00

Packed Loose.



SHRINKAGE.

Tempered Steel, Natural Finish; Graduated in 8ths, 16ths, 32ds and 64ths.

No.	Shrinkage, per foot, inches	Length, inches	Width, inches	Weight Each about, ozs.	Each
No. 212	$\frac{1}{8}$	$24\frac{1}{4}$	1	5	\$3.50
No. 222	$3/16$	$24\frac{3}{4}$	1	5	3.50
No. 226	$\frac{1}{4}$	$24\frac{1}{2}$	1	5	3.50



CALIPER.

Steel, Natural Finish; 3 inches Long; Slide can be Pulled out to Measure $2\frac{1}{4}$ inches; 1 inch Wide, $\frac{1}{8}$ inch Thick.

No.	Graduated in	Each
No. 360A	8, 12, 14, 16, 20, 24, 28, 32, 48, 50, 64 and 100 Parts of an inch	\$2.00
No. 360C	8, 16, 32 and 64 Parts of an inch	2.00
No. 360D	8, 16, 32, 64 and 100 Parts of an inch	2.00

Packed Loose; Weight Each about 3 ozs.

MT



STEEL RULES.



MACHINE DIVIDED.

Tempered Steel, Polished; 1½ inches Wide; 19 Gauge; 1 Rounded End with Hole.

	Per Dozen
No. 2702—12 inch; Graduated on One Side Only; Bottom Edge, the First 3 inches in 32ds, First Half of 4th inch in 64ths, remainder in 8ths; Top Edge in 16ths; Weight per dozen about 2 lbs.	\$6.00
No. 2704—12 inch; Graduated on One Side Only; Bottom Edge in 16ths; Top Edge in Millimeters; Weight per dozen about 2 lbs.	6.00
No. 2705—12 inch; Graduated on One Side Only; Bottom Edge, First inch in 20ths, Second inch in 50ths, Third inch in 100ths, remainder in 10ths; Top Edge, First two inches in 32ds, Third inch in 64ths, remainder in 16ths; Weight per dozen about 2 lbs.	6.60

One-half Dozen in a Cardboard Box.



No. 62. Full Width.

STRAIGHT.

Bright Surface, Distinct Black Sunken Figures and Lines.

No. 62—1½ inch by 16 Gauge; Graduated on Both Sides; Upper Edge 8ths, Lower Edge 16ths.			
Length, feet	3	4	
Weight per dozen about, lbs.	7	10½	
Per dozen	\$22.00	28.00	
No. 60—¾ inch by 20 Gauge; Graduated on Both Sides; 8ths on One Side and 16ths on the other; Marked on Lower Edge Only; Machine Divided.			
Length, feet	1	2	
Weight per dozen about, lbs.	1	2	
Per dozen	\$4.00	8.00	

Packed Loose.



WOOD RULES.



FLAT.

Maple, Natural Finish, Polished; Graduated on One Side in Inches and Eighths, and on the other side in Inches and Sixteenths, on Both Edges.

Brass Capped.

	Per Dozen
No. 7131—24 INCH; 1½ by 3/16; Weight per dozen about 3 lbs.	\$3.60
No. 7132—36 INCH; 1½ by 3/16; Weight per dozen about 4 lbs.	7.80
No. 7133—48 INCH; 1½ by ¼; Weight per dozen about 6 lbs.	11.20
No. 7134—60 INCH; 1½ by ¼; Weight per dozen about 8 lbs.	18.00
No. 7135—72 INCH; 1½ by ¼; Weight per dozen about 10 lbs.	27.00

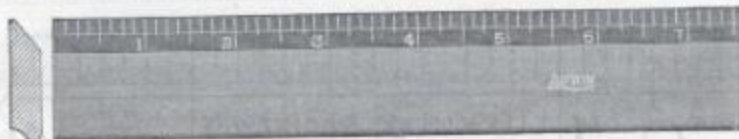
Brass Bound.

	Per Dozen
No. 7131½—24 INCH; 1½ by 3/16; Weight per dozen about 3 lbs.	\$13.80
No. 7132½—36 INCH; 1½ by 3/16; Weight per dozen about 4 lbs.	24.00
No. 7133½—48 INCH; 1½ by ¼; Weight per dozen about 6 lbs.	36.00
No. 7134½—60 INCH; 1½ by ¼; Weight per dozen about 8 lbs.	54.00
No. 7135½—72 INCH; 1½ by ¼; Weight per dozen about 10 lbs.	72.00

One-half Dozen in a Package.

DESK RULES.

Finished in Natural Color and Highly Polished; 1½ inches Wide; 5/16 inch Thick.



No. 7102—MAPLE; Plain Edges; Graduated in Inches and Eighths.

Length, inches	12	15	18
Weight per dozen about, lbs.	1¾	2	2½
Per dozen	\$0.90	1.15	1.40

No. 7202—BOXWOOD; Plain Edges; Graduated in Inches and Sixteenths.

Length, inches	12	15	18
Weight per dozen about, lbs.	2	2½	3
Per dozen	\$4.80	5.40	6.00



No. 7103—MAPLE; One Inlaid Brass Edge; Graduated in Inches and Eighths.

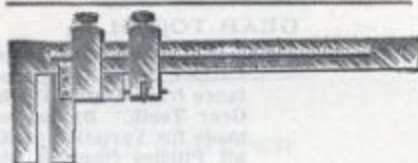
Length, inches	12	15	18
Weight per dozen about, lbs.	1¾	2¼	2¾
Per dozen	\$1.75	1.90	2.60

No. 7203—BOXWOOD; One Inlaid Brass Edge; Graduated in Inches and Sixteenths.

Length, inches	12	15	18
Weight per dozen about, lbs.	2	2½	3
Per dozen	\$5.40	7.20	9.00

One Dozen in a Cardboard Box.

CALIPER SQUARES.



Polished Steel, Natural Finish; 4, 6 and 9 inch Sizes take Inside as well as Outside Measurements; The 6 and 9 inch have Hardened Jaws; These Squares can be furnished with any of the following Three Styles of Graduations: English, Graduated on One Side to Read to 64ths and on the other to 100ths of an inch; Metric, Graduated to read $\frac{1}{2}$ m/m on One Side and to 1 m/m on the other; Metric and English, Graduated to read to $\frac{1}{2}$ m/m on One Side and to 100ths of an inch on the other.

In ordering specify graduations wanted.

No.	Size, inches.	Length of Jaws, inches.	Width of Jaws closed, inches.	Weight Each, ozs.	With adjusting screw.		Without adjusting screw.	
					Each.	Each.	Each.	Each.
No. 700	2	$\frac{3}{4}$	..	1	\$3.50		\$2.25	
No. 702	4	$1\frac{1}{2}$	$\frac{1}{2}$	$3\frac{1}{2}$	4.50		3.50	
No. 704	6	2	1	$9\frac{1}{2}$	7.50		5.50	
No. 706	9	$3\frac{1}{4}$	1	$15\frac{1}{2}$	11.00		9.00	

Packed Loose.



STARRETT'S.

Tool Steel, Polished; For Both Outside and Inside Measure; The Beam is Graduated in 64ths on One Side and 100ths on the other.

With Adjusting Screw.

No.	Measures, inches.	Length over all, inches.	Weight Each, ozs.	Each
No. 25A	3	4	5	\$3.50
No. 25B	4	5	5	4.00

Without Adjusting Screw.

No.	Measures, inches.	Length over all, inches.	Weight Each, ozs.	Each
No. 25D	3	4	5	\$3.00
No. 25F	4	5	5	3.50

One in a Cardboard Box.



MICROMETER.

Polished Steel.

For Outside and Inside Measure.

This instrument enables one to Enlarge or Decrease work One or More Thousandths from that Calipered, and fills the bill for both a First-class Caliper Square and Micrometer of Large Scope and Quick Adjustment. The Jaws are $1\frac{1}{2}$ inches Long, Hardened, and Open 4 inches. One Side of the Beam is Graduated in 64ths and the other in 40ths, and Either Side may be used as a Common Caliper Square, or, through the Micrometer, to show 1000ths Full Length, on either Inside or Outside Work. An Excellent Feature of this Instrument is the Spiral Spring between Jaw and Clasp, which not only takes up all Back-lash, but limits the pressure against the work to strength of Spring.

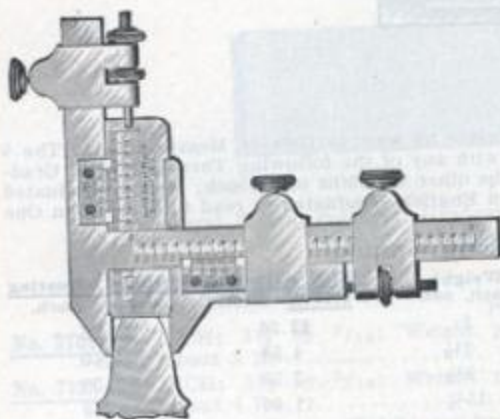
No. 28C—4 inch; IN LEATHERETTE CASE; Weight each about 1 lb.	Each	\$8.75
No. 28 —4 inch; WITHOUT LEATHERETTE CASE; Weight each about $\frac{1}{2}$ lb.	Each	8.00
No. 28M & E—4 inch; Same as No. 28, except that the Beam is Graduated on One Side in $\frac{1}{2}$ Millimeters and on the other in 100ths of an inch, and the Micrometer is Graduated to read in 100ths of a Millimeter; IN LEATHERETTE CASE; Weight each about 1 lb.	Each	8.75

Packed Loose.



CALIPERS.

GEAR TOOTH.



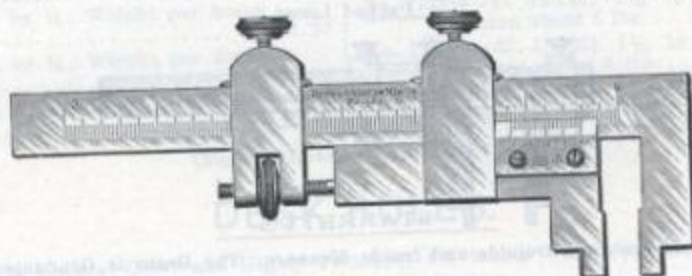
Steel, Natural Finish; English or Metric Measure. This Caliper is for the purpose of Accurately Measuring the Distance from Top to Pitch Line, and Thickness at Pitch Line of Gear Teeth. By use of this Caliper compensation may be made for Variation or Error in Size of Blank. It will Measure all Pitches from 20 Diametral to 2 Diametral. The Sliding Jaw moves upon a Bar Graduated to read by means of a Vernier to Thousandths of an Inch. A Tongue, moving at Right Angles with the Jaws, is Graduated in the same manner.

This Caliper is also Graduated to read to $1/50$ of a Millimeter and Measures all Pitches from $1\frac{1}{4}$ m/m to 12 m/m.

Both the Sliding Jaw and Tongue are equipped with Adjusting Screws.

	Each
No. 670—ENGLISH MEASURE; Weight each about $\frac{1}{2}$ lb.	\$25.00
No. 671—METRIC MEASURE; Weight each about $\frac{1}{2}$ lb.	25.00

Packed Loose.



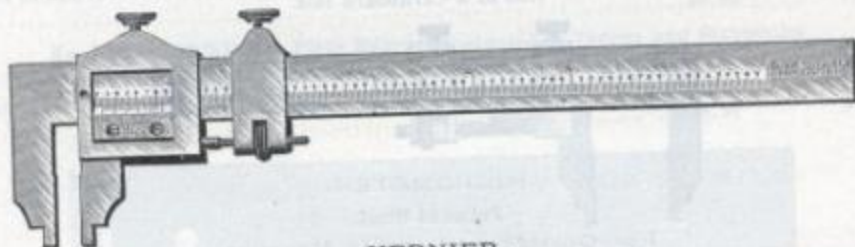
POCKET VERNIER.

Polished Steel, Natural Finish, with Hardened Jaws; English and Metric Measure; This Pocket Vernier Caliper is Graduated on the Front to read by means of a Vernier to Thousandths of an Inch; It is Graduated on the Back to 64ths of an inch; The Jaws are $\frac{3}{4}$ inch Long, $\frac{1}{4}$ inch Wide when closed, and take Inside as well as Outside Measurements. The Caliper Measures to $1\frac{11}{16}$ inches Outside Diameter.

This Caliper can be furnished Graduated to Millimeters in place of 64ths of an inch, with a Vernier to read 50ths of a Millimeter, at the same price, when so specified.

An explanation of the Vernier is sent with each Caliper.

	Each
No. 680C—IN MOROCCO CASE; Weight each about 4 ozs.	\$10.50
No. 680 —WITHOUT CASE; Weight each about 2 ozs.	10.00



VERNIER.

Steel, Natural Finish; IN MOROCCO CASE; These Calipers are Graduated on the Front to read, by means of a Vernier, to Thousandths of an Inch; They are Graduated on the Back to 64ths of an Inch; The Jaws are Hardened and Ground and take Inside as well as Outside Measurements; Points are placed on the Bars and Slides so that Dividers can be set to Transfer Distances.

These Calipers can also be furnished Graduated on one Side to read to $1/50$ of a Millimeter and to Thousandths of an Inch on the other, at the same price, when so specified.

An explanation of the Vernier is sent with each Caliper.

	Size, inches.	Length of Jaws, inches.	Width of Jaws, closed, inches.	Weight each about, lbs.	Each.
No. 682	6	$1\frac{1}{4}$	$\frac{1}{4}$	$\frac{3}{4}$	\$15.00
No. 686	12	$2\frac{1}{4}$	$\frac{5}{16}$	2	20.00
No. 688	24	$2\frac{1}{4}$	$\frac{5}{16}$	4	25.00

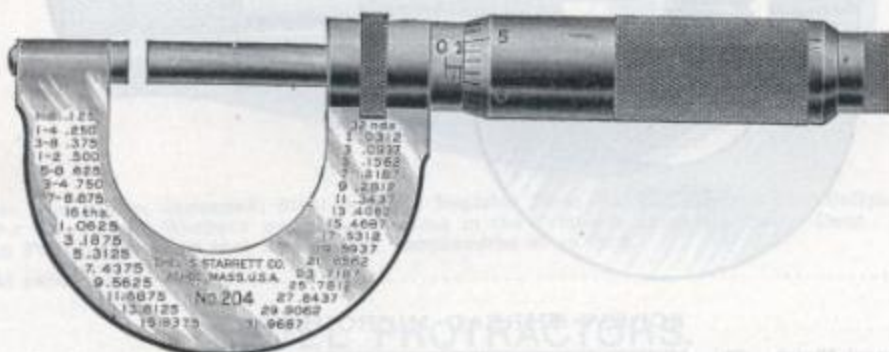
Packed Loose.

MT



CALIPERS.

MICROMETER.



Polished Steel.

This is rightly termed a Quick Adjusting Micrometer because it can be Instantly Opened or Closed to any point within its Capacity, and this is done WITHOUT IMPAIRING ITS ACCURACY OR SENSITIVENESS IN THE SLIGHTEST DEGREE. Forty complete Revolutions of the Screw are required to Open or Close an ordinary 1 inch Micrometer its Full Length, taking approximately twenty seconds. This time is practically saved by the use of this Tool. To operate the Micrometer it is only necessary to press with the finger against the end of the Plunger, this immediately releases the Nut, Disengaging it from the Screw, when any Adjustment within an inch may be Instantly made; Releasing the pressure, the Nut instantly Engages the Screw, when Fine Adjustments may be made in the usual way. This Micrometer also has a Patented Sleeve and Lock-nut as well as a Ratchet Stop. For Measuring by Thousandths up to One inch; Length over all $5\frac{1}{2}$ inches.

Each

No. 204—As Described above, in Leatherette Case; Weight each about $\frac{1}{2}$ lb.....\$10.50

No. 205—As Described above, except for Measuring by Ten Thousandths up to One inch; In Leatherette Case; Weight each about $\frac{1}{2}$ lb..... 11.50

One in a Wood Box.



IMPROVED.

Each

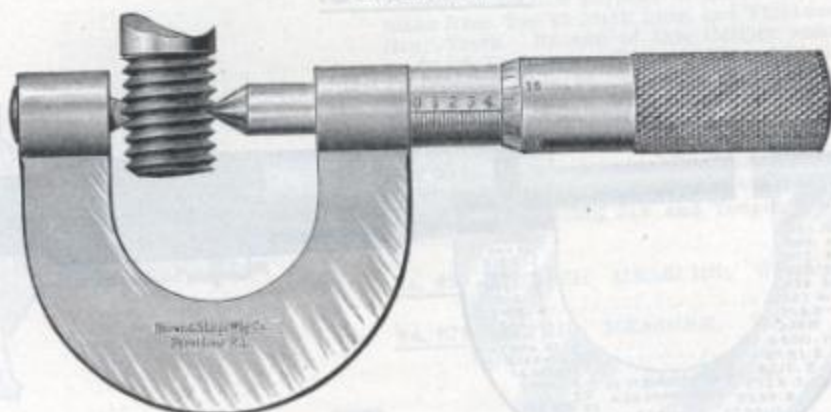
No. 15—Milled from Finest Tool Steel, Tempered and Polished; Knurled Grip; Capacity 1 inch; Graduated in Thousandths of an inch; Decimal Equivalents of Fractions of an inch shown on Both Sides of Frame, 8ths, 16ths and 32ds on One Side, 64ths on Reverse Side; Width of Frame $\frac{5}{8}$ inch; Thickness $\frac{1}{4}$ inch; Diameter of Grip $\frac{1}{2}$ inch; Length over all, Closed, $4\frac{1}{4}$ inches; Weight each about 8 ozs..... \$5.50

One in a Morocco Covered Plush Lined Case.



CALIPERS.

Cuts full size.



SCREW THREAD MICROMETER.

Steel, Natural Finish. These Calipers are intended for the Accurate Measurement of V-Thread on Screws, Standard Screws, Taps, Thread Gauges, etc., by Measuring the Actual Thread.

	Each
No. 690— $\frac{1}{2}$ inch; RANGE 48 TO 64 PITCH; For V-Thread only; Weight each about 3 ozs.....	\$7.00
No. 691—1 inch; RANGE 8 TO 13 PITCH; For V or U. S. S. Thread; Weight each about $6\frac{1}{2}$ ozs.....	7.50
No. 693—1 inch; RANGE 14 TO 20 PITCH; For V or U. S. S. Thread; Weight each about $6\frac{1}{2}$ ozs.....	7.50
No. 692—1 inch; RANGE 22 TO 30 PITCH; For V-Thread Only; Weight each about $6\frac{1}{2}$ ozs.....	7.50
No. 694—1 inch; RANGE 32 TO 40 PITCH; For V-Thread Only; Weight each about $6\frac{1}{2}$ ozs.....	7.50
No. 695—2 inch; RANGE $4\frac{1}{2}$ TO 7 PITCH; For V or U. S. S. Thread; Weight each about $8\frac{1}{2}$ ozs.....	9.00



INSIDE MICROMETER.

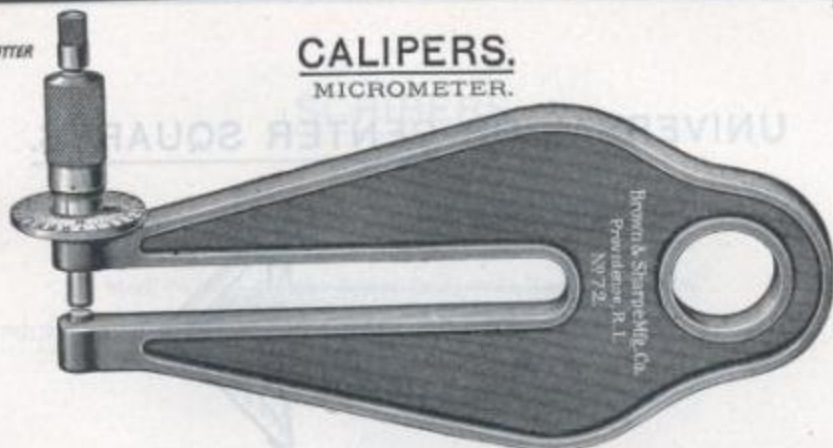
Steel, Natural Finish; English and Metric Measures; These Calipers are intended to meet the demand for a Tool adapted to Measuring Small Internal Dimensions. They are Graduated to read to Thousandths of an inch by English Measure, and to Hundredths of a Millimeter by Metric Measure; The Measuring Screw is Entirely Enclosed, thus protecting it from Injury; The Measuring Surfaces are Hardened and Ground to a Radius to Insure Accurate Measurements and prevent cramping when Measuring Parallel Surfaces; Each Caliper is provided with a Clamp Screw to Preserve the Setting.

	Each
No. 806 —ENGLISH MEASURE; Measures .200 to 1 inch; Weight each about $4\frac{1}{2}$ ozs.....	\$5.00
No. 807 —ENGLISH MEASURE; Measures 1 to 2 inches; Weight each about 5 ozs.....	6.00
No. 806A—METRIC MEASURE; Measures 5 to 25 m/m; Weight each about $4\frac{1}{2}$ ozs.....	5.00
No. 807A—METRIC MEASURE; Measures 25 to 50 m/m; Weight each about 5 ozs.....	6.00
Morocco Cases for Nos. 806 and 806A.....	.50
Morocco Cases for Nos. 807 and 807A.....	.75

Packed Loose.

TRADE MARK
E. C. SIMMONS' KEEN KUTTER
REGISTERED.

CALIPERS. MICROMETER.



Malleable Iron Frame, Japanned; Steel Bolt and Register Plate, Natural Finish. This Caliper will be found well adapted for Sheet Metal Workers' use. The Opening in the Frame is about $4\frac{1}{2}$ inches Deep. It Measures all Sizes Less than Four-tenths of an inch by One-half Thousandths of an inch. Each

No. 72—Weight each about $1\frac{1}{4}$ lbs. \$7.00

BEVEL PROTRACTORS.

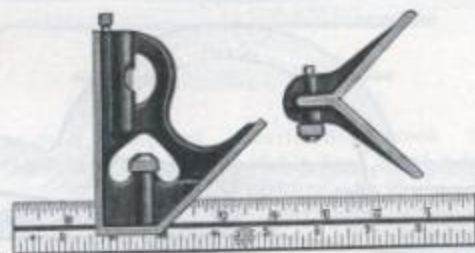
KEEN KUTTER *



Maroon Finish Gray Iron Head; Highest Grade Crucible Steel Blade, Polished and Tempered. Held in a Revolving Turret by a Round-Ended Bolt; Turret is Accurately Fitted and Graduated to 90 Degrees either Side of Zero; Blade Graduated in inches, 8ths, 16ths, 32ds and 64ths on Both Sides.

Nos.	K 109	K 112
Length of Blade, inches	9	12
Length of Head, inches	7	7
Weight per dozen about, lbs.	11	13
Per dozen	\$33.00	36.00

COMBINATION SQUARES.



KEEN KUTTER *

Maroon Finish Gray Iron Head; Highest Grade Crucible Steel Blade, Polished and Tempered; Blade Accurately Ground and Engine Graduated in inches, 8ths and 16ths on One Side, and 32ds and 64ths on the other. Head Fitted with Level and Scribing Point.

With Center Head.

Nos.	K 60	K 90	K 120
Length of Blade, inches	6	9	12
Length of Head, inches	$3\frac{1}{2}$	4	$4\frac{1}{2}$
Weight per dozen about, lbs.	9	12	13
Per dozen	\$18.00	21.00	24.00

Without Center Head.

Nos.	K 9	K 12
Length of Blade, inches	9	12
Length of Head, inches	4	$4\frac{1}{2}$
Weight per dozen about, lbs.	$9\frac{1}{2}$	11
Per dozen	\$15.00	18.00

One-twelfth Dozen in a Cardboard Box.



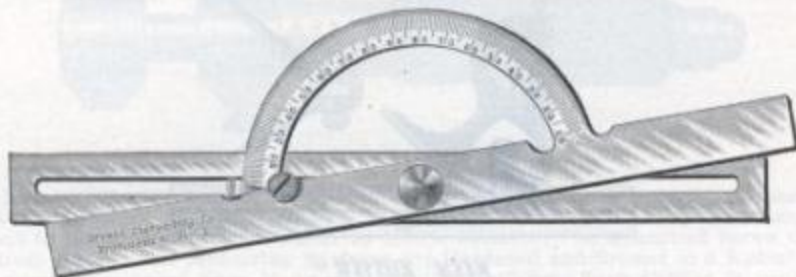
UNIVERSAL OR CENTER SQUARES.



Steel, Natural Finish; Graduated on One Side Only; The 4 inch Blade is Graduated to 32ds of an inch on the First Corner and to 20ths of an inch on the Second Corner. The 6, 8, 10 and 12 inch Blades are Graduated on the First Corner to 16ths of an inch, the Last inch of the First Corner is Graduated to 32ds of an inch; The Second Corner is Graduated to 12ths of an inch; The Last inch of the Second Corner is Graduated to 48ths of an inch.

	Length of Blade, Inches.	Length of Head, Inches.	Width of Blade, Inches.	Weight each about, lbs.	Each
No. 650	4	3	$\frac{7}{16}$	$\frac{1}{4}$	\$2.00
No. 652	6	4	$\frac{9}{16}$	$\frac{3}{4}$	2.50
No. 654	8	$5\frac{1}{2}$	$\frac{7}{8}$	1	3.50
No. 656	10	7	$1\frac{1}{8}$	$1\frac{1}{4}$	5.00
No. 658	12	$8\frac{3}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	6.00

BEVEL PROTRACTORS.



Steel, Natural Finish; Half Circle Divided into Degrees.

	Length of Sliding Arm, Inches.	Weight each, about ozs.	Each.
No. 490	6	5	\$4.50
No. 492	10	$7\frac{1}{2}$	5.75

Packed Loose.

MT



SCRIBERS.



Steel, Natural Finish; Points Tempered; Knurled Holders.

Per Dozen

No. 835—SINGLE POINT; Length 5 inches; Weight per dozen about $\frac{1}{2}$ lb. \$3.60



Steel, Natural Finish; Points Tempered; Knurled Holders.

Per Dozen

No. 836—DOUBLE POINT; Length 8 inches; Weight per dozen about $\frac{3}{4}$ lb. \$4.20

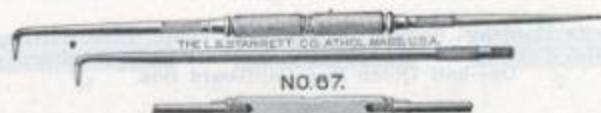
Packed Loose.



This Tool is made from Steel Tubing, Knurled and Nickel Plated; The Scriber is made from the Best Quality of Steel, Tempered, and is held by a Knurled Chuck. The Scriber is Reversible, Telescoping into the Stock, and is held by a Slight Turn of the Chuck so that it is always as safe to carry in the pocket as a penknife.

Per Dozen

No. 70— $4\frac{3}{4}$ inches Long; Weight per dozen about $1\frac{1}{2}$ lbs. \$3.00



NO. 67.

Points made of Fine Grade of Steel, Tempered. Knurled Steel Stock. The Long Bent Point will be found a Valuable Help for reaching through holes; Length with Short Bent Point 9 inches; With Long Point 12 inches.

Per Dozen

No. 67—Complete with Long and Short Point; Weight per dozen about $2\frac{1}{4}$ lbs. \$5.40



THE L. S. STARRETT CO. NO. 68 ATHOL, MASS. U.S.A.

Knurled Steel Sleeves, Nickel Plated. Tempered Steel Points, Polished. Length 8 inches.

Per Dozen

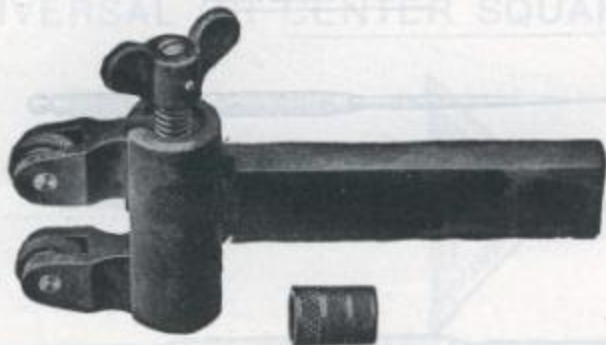
No. 68—WITHOUT KNIFE POINT; Weight per dozen about $1\frac{1}{2}$ lbs. \$6.00

No. 68K—WITH KNIFE POINT; Weight per dozen about $1\frac{3}{4}$ lbs. 7.80

One-half Dozen in a Cardboard Box.



KNURLING TOOL.



IMPROVED

For use in Engine Lathe.

Made of Tool Steel; The Movable Arms holding the Knurls in connection with the Rocking Joint, have a Positive Opening and Closing Movement in Parallel Lines, actuated by a Right and Left Hand Screw, moving the Knurls toward and from each other; The Knurls Center themselves to the work.

No. 15—KNURL HOLDER WITHOUT KNURL; Size of Shank $\frac{1}{2} \times 1 \times 4$ inches; Length over all $6\frac{1}{4}$ inches; Weight each about $1\frac{1}{2}$ lbs. Each \$4.25

Knurls for No. 15 Holders Per Pair \$0.75

Packed Loose.

NOTE.—In ordering, be sure to state whether FINE, MEDIUM OR COARSE KNURLS are wanted.

KNURL HOLDERS.



ADJUSTABLE.

No. 20—Soft Steel, Polished, with Hardened Spindle; Applewood Handle; Length over all 10 inches; WILL HOLD ALL SIZE KNURLS SHOWN ON FOLLOWING PAGE; Weight per dozen about 4 lbs. Per Dozen \$5.00
One-half Dozen in a Cardboard Box.

KNURL SETS.



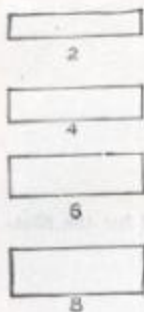
No. 12—Contains One No. 20 Adjustable Knurl Holder and 12 Assorted Knurls in a Hardwood Box; Length of Box $11\frac{1}{2}$ inches; Weight per set about $1\frac{1}{2}$ lbs. Per Set \$5.00
Packed Loose.



KNURLS.

TOOL STEEL, HARDENED AND POLISHED.

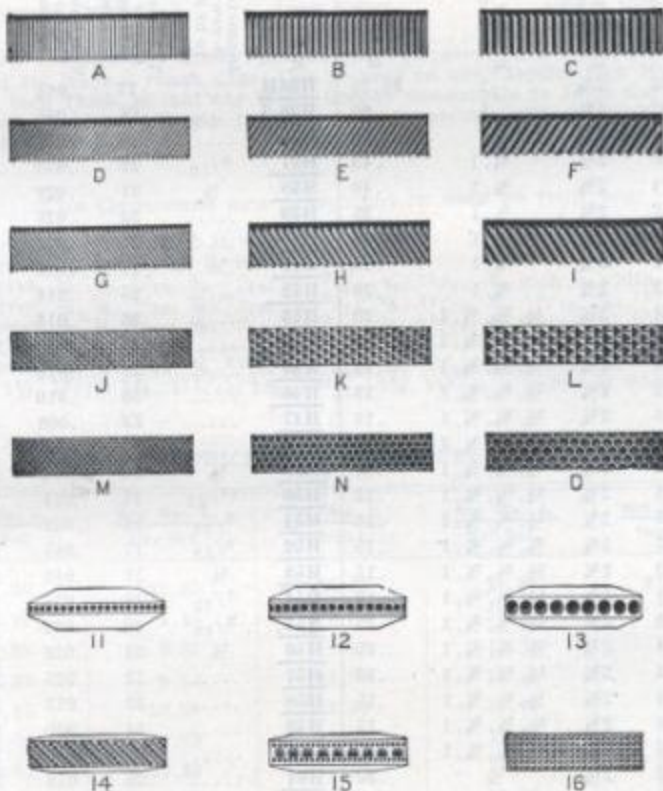
NUMBERS indicate SHAPE and WIDTH OF FACE, LETTERS indicate DESIGN.



Examples.

No. 8A is a Wide Flat Face Knurl with Fine Straight Lines.

No. 7C is a Wide Concave Face Knurl with Coarse Straight Lines.



Cuts Full Size.

Nos. 1 to 16, Inclusive.

Per Dozen
\$6.00

Packed Loose; Weight per Dozen about 1/4 lb.



SCREW SLOTTING CUTTERS.



Tempered Steel, Natural Finish. These Cutters have a Fine Pitch of Teeth especially adapted for the Slotting of Screw Heads and Similar Work. They are Not Ground on the Sides.

No.	Diameter of Screw Head to be Slotted.	Thickness of Cutter by Am. Standard Wire Gauge, No.	Thickness of Cutter in Decimals.	Diameter of Cutter, inches.	Size of Hole, inches.	Each.	No.	Diameter of Screw Head to be Slotted.	Thickness of Cutter by Am. Standard Wire Gauge, No.	Thickness of Cutter in Decimals.	Diameter of Cutter, inches.	Size of Hole, inches.	Each.
H10	.....	5	.182	2 3/4	1	\$0.70	H36H	.....	17	.045	2 3/4	5/8	\$0.15
H11	.....	6	.162	2 3/4	1	.60	H36/I	.....	18	.040	2 3/4	5/8	.15
H12	.....	7	.144	2 3/4	1	.50	H36J	.....	19	.035	2 3/4	5/8	.15
H13	5/8	8	.128	2 3/4	3/4, 1	.45	H37	3/16	20	.032	2 3/4	1/2, 5/8, 3/4	.15
H14	5/8	9	.114	2 3/4	3/4, 1	.40	H38	1/4	21	.028	2 3/4	1/2, 5/8, 3/4	.15
H15	5/8	10	.102	2 3/4	3/4, 1	.35	H39	.....	22	.025	2 3/4	1/2, 5/8, 3/4	.15
H16	.....	11	.091	2 3/4	3/4, 1	.30	H40	.....	23	.023	2 3/4	1/2, 5/8, 3/4	.15
H17	3/4	12	.081	2 3/4	3/4, 1	.25	H41	.....	24	.020	2 3/4	1/2, 5/8, 3/4	.15
H18	.....	13	.072	2 3/4	3/4, 1	.20	H42	.....	25	.018	2 3/4	1/2, 5/8, 3/4	.15
H19	5/8	14	.064	2 3/4	1/2, 5/8, 3/4, 1	.20	H43	.....	26	.016	2 3/4	1/2, 5/8, 3/4	.15
H20	11/32	15	.057	2 3/4	1/2, 5/8, 3/4, 1	.15	H44	.....	27	.014	2 3/4	1/2, 5/8, 3/4	.15
H21	5/16	16	.051	2 3/4	1/2, 5/8, 3/4, 1	.15	H45	.....	28	.012	2 3/4	1/2, 5/8, 3/4	.15
H22	9/32	17	.045	2 3/4	1/2, 5/8, 3/4, 1	.15	H46	.....	30	.010	2 3/4	1/2, 5/8, 3/4	.15
H23	3/4	18	.040	2 3/4	1/2, 5/8, 3/4, 1	.15	H47	.....	32	.008	2 3/4	1/2, 5/8, 3/4	.15
H24	7/32	19	.035	2 3/4	1/2, 5/8, 3/4, 1	.15	H48	.....	34	.006	2 3/4	1/2, 5/8, 3/4	.15
H25	3/16	20	.032	2 3/4	1/2, 5/8, 3/4, 1	.15	H49	5/8	14	.064	1 3/4	5/8	.15
H26	1/4	21	.028	2 3/4	1/2, 5/8, 3/4, 1	.15	H50	11/32	15	.057	1 3/4	5/8	.15
H27	.....	22	.025	2 3/4	1/2, 5/8, 3/4, 1	.15	H51	3/16	16	.051	1 3/4	5/8	.15
H28	.....	23	.023	2 3/4	1/2, 5/8, 3/4, 1	.15	H52	9/32	17	.045	1 3/4	5/8	.15
H29	.....	24	.020	2 3/4	1/2, 5/8, 3/4, 1	.15	H53	1/4	18	.040	1 3/4	5/8	.15
H30	.....	25	.018	2 3/4	1/2, 5/8, 3/4, 1	.15	H54	7/32	19	.035	1 3/4	5/8	.15
H31	.....	26	.016	2 3/4	1/2, 5/8, 3/4, 1	.15	H55	3/16	20	.032	1 3/4	5/8	.15
H32	.....	27	.014	2 3/4	1/2, 5/8, 3/4, 1	.15	H56	1/4	21	.028	1 3/4	5/8	.15
H33	.....	28	.012	2 3/4	1/2, 5/8, 3/4, 1	.15	H57	.....	22	.025	1 3/4	5/8	.15
H34	.....	30	.010	2 3/4	1/2, 5/8, 3/4, 1	.15	H58	.....	23	.023	1 3/4	5/8	.15
H35	.....	32	.008	2 3/4	1/2, 5/8, 3/4, 1	.15	H59	.....	24	.020	1 3/4	5/8, 1/2, 5/8	.12
H36	.....	34	.006	2 3/4	1/2, 5/8, 3/4, 1	.15	H60	.....	25	.018	1 3/4	5/8, 1/2, 5/8	.12
H36A	.....	10	.102	2 3/4	5/8	.30	H61	.....	26	.016	1 3/4	5/8, 1/2, 5/8	.12
H36B	.....	11	.091	2 3/4	5/8	.25	H62	.....	27	.014	1 3/4	5/8, 1/2, 5/8	.12
H36/C	.....	12	.081	2 3/4	5/8	.20	H63	.....	28	.012	1 3/4	5/8, 1/2, 5/8	.12
H36D	.....	13	.072	2 3/4	5/8	.15	H64	.....	30	.010	1 3/4	5/8, 1/2, 5/8	.12
H36E	.....	14	.064	2 3/4	5/8	.15	H65	.....	32	.008	1 3/4	5/8, 1/2, 5/8	.12
H36F	.....	15	.057	2 3/4	5/8	.15	H66	.....	34	.006	1 3/4	5/8, 1/2, 5/8	.12
H36G	.....	16	.051	2 3/4	5/8	.15							

These Cutters are Light and can be easily Sent by Mail.

PATENT GROOVER

OR DADO HEADS.



Outside Cutter.



Inside Cutter.



Outside Cutter.

Made of Best Quality Crucible Saw Steel, Polished and Tempered; Will cut a Perfect Groove either with or across the Grain and will not leave a rough edge; Can be used on any Circular Saw Mandrel; The Inside Cutters are made $\frac{1}{16}$, $\frac{1}{8}$ and $\frac{1}{4}$ inch Thick, so that any Width Groove measurable in 16ths may be cut; The Outside Cutters are $\frac{1}{8}$ inch Thick and can be used Singly, together or in connection with as many Inside Cutters as required to cut the necessary Width Groove.

The Groovers are arranged in sets as follows:

- No. 1 SET, Cutting Grooves, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$ inch in width.
 No. 2 SET, Cutting Grooves, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ inch in width.
 No. 3 SET, Cutting Grooves, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$ inch in width.
 No. 4 SET, Cutting Grooves, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{15}{16}$, 1 inch in width.
 No. 5 SET, Cutting Grooves, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{15}{16}$, 1, $1\frac{1}{16}$, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{5}{8}$, $1\frac{7}{8}$, $1\frac{9}{8}$ inches in width.
 No. 6 SET, Cutting Grooves, $\frac{1}{8}$, $\frac{1}{4}$, $\frac{5}{16}$, $\frac{3}{8}$, $\frac{7}{16}$, $\frac{1}{2}$, $\frac{9}{16}$, $\frac{5}{8}$, $\frac{11}{16}$, $\frac{3}{4}$, $\frac{13}{16}$, $\frac{15}{16}$, 1, $1\frac{1}{16}$, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{1}{2}$, $1\frac{3}{4}$, $1\frac{5}{8}$, $1\frac{7}{8}$, $1\frac{9}{8}$, $1\frac{11}{8}$, $1\frac{13}{8}$, $1\frac{15}{8}$, 2 inches in width.

PRICE LIST OF GROOVERS.

Diameter in inches.	Set No. 1. Per Set.	Set No. 2. Per Set.	Set No. 3. Per Set.	Set No. 4. Per Set.	Set No. 5. Per Set.	Set No. 6. Per Set.
6 in.	\$5.80	\$7.05	\$8.65	\$9.90	\$12.40	\$14.90
7 in.	6.80	8.15	9.85	11.20	13.90	16.60
8 in.	7.60	9.05	10.85	12.30	15.20	18.10
9 in.	8.35	9.90	11.90	13.45	16.55	19.65
10 in.	9.15	10.80	13.00	14.65	17.95	21.25
11 in.	9.75	11.60	13.90	15.75	19.45	23.15
12 in.	10.85	12.95	15.45	17.55	21.75	25.95
14 in.	13.30	15.40	18.00	20.00	24.25	28.50
16 in.	15.80	17.90	20.50	22.50	26.75	31.00
18 in.	18.30	20.40	23.00	25.00	29.25	33.50
20 in.	19.80	22.90	25.50	27.50	31.75	36.00

In Ordering, Please state the number of set, diameter of groover and size of hole wanted.
 Packed Loose; Weight runs from 3 ozs. to 10 lbs., and Varies according to Size of Hole.

GAUGE GLASSES OR TUBES.



Moncrieff's GENUINE SCOTCH.

With Fused Ends.

 $\frac{1}{8}$ inch, Outside Diameter.

Length, inches.....	10	12	14	16
Weight per dozen about, lbs....	2 $\frac{1}{4}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$	3 $\frac{3}{4}$
Per dozen.....	\$3.00	3.60	4.20	4.80

 $\frac{3}{8}$ inch, Outside Diameter.

Length, inches.....	10	11	12	13	14	15	16
Wgt. doz. about, lbs.	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{3}{4}$	3 $\frac{1}{2}$
Per dozen.....	\$3.00	3.24	3.60	3.84	4.20	4.44	4.80

 $\frac{1}{2}$ inch, Outside Diameter.

Length, inches.....	10	12	13	14	15	16	18
Wgt. doz. about, lbs.	2 $\frac{1}{4}$	2 $\frac{3}{4}$	3	3 $\frac{1}{4}$	3 $\frac{3}{4}$	3 $\frac{1}{2}$	4
Per dozen.....	\$3.60	4.32	4.80	5.16	5.52	5.88	6.60

One-half Dozen in a Package.

LUBRICATOR GLASSES.



MONCRIEFF'S GENUINE SCOTCH,

For Cylinder Lubricators.

 $\frac{1}{8}$ inch, Outside Diameter.

Length, inches.....	3	4
Weight per dozen about, lbs.....	$\frac{3}{4}$	1 $\frac{1}{4}$
Per dozen.....	\$1.40	1.60

 $\frac{3}{8}$ inch, Outside Diameter.

Length, inches.....	2 $\frac{1}{4}$	3	3 $\frac{1}{4}$	3 $\frac{3}{4}$	4
Weight dozen about, lbs.	$\frac{3}{4}$	$\frac{1}{2}$	1	1	1 $\frac{1}{4}$
Per dozen.....	\$1.60	1.70	1.85	1.85	2.00
Length, inches.....	4 $\frac{1}{4}$	4 $\frac{3}{4}$	4 $\frac{1}{2}$	4 $\frac{3}{4}$	5
Weight dozen about, lbs.....	1 $\frac{1}{4}$	1 $\frac{3}{4}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$
Per dozen.....	\$2.00	2.00	2.00	2.00	2.25

One Dozen in a Package.

RUBBER GASKETS.



Pure Black Rubber Gaskets or Rings for Gauge Glasses.

$\frac{1}{8}$ inch Inside Diameter; $\frac{3}{8}$ inch Outside Diameter; $\frac{1}{4}$ inch Thick; Weight per gross about 12 ozs.....	Per Gross \$2.00
$\frac{3}{8}$ inch Inside Diameter; 1 inch Outside Diameter; $\frac{1}{4}$ inch Thick; Weight per gross about 12 ozs.....	2.00
Packed Loose.	

INDEXED DRILL CASES.



No. 5A.



No. 8A.

Without Drills; For Morse Twist Drills.

Polished Hardwood Mahogany Finish Solid Block; Nickel Plated Brass Cover; Series of Holes arranged in Concentric Circles in the Block. The Different Size Drills that the Case contains are stamped around edge of Cover; Holes to admit Drills in Cover are opened by moving Knurled Knob to Groove of size of Drill to register with sizes on edge of cover; Size of Drill wanted is obtained by bringing Size on Edge of Cover in line with a Small Brass Index Mark, and by inverting the Case Selected Drill will drop out.

Each

No. 5A—HOLDS 29 STRAIGHT SHANK DRILLS,
 $\frac{1}{16}$ to $\frac{1}{2}$ inch, by 64ths; Height 6 $\frac{1}{4}$ inches;
Diameter 3 $\frac{1}{4}$ inches; Weight each about 1 $\frac{1}{4}$ lbs \$1.25

No. 6A—HOLDS 15 STRAIGHT SHANK DRILLS,
 $\frac{1}{16}$ to $\frac{1}{2}$ inch, by 32nds; Height 6 $\frac{1}{4}$ inches;
Diameter 3 $\frac{1}{4}$ inches; Weight each about 1 $\frac{1}{4}$ lbs 1.25

No. 12A—HOLDS 13 MACHINE BITS, $\frac{1}{16}$ to $\frac{1}{2}$ inch
by 32nds; Height 6 $\frac{1}{4}$ inches; Diameter 3 $\frac{1}{4}$ inches; Weight each about 1 $\frac{1}{4}$ lbs..... 1.25

No. 13A—HOLDS 18 BIT STOCK DRILLS, $\frac{1}{16}$ to $\frac{1}{2}$ inch
by 32nds; $\frac{3}{16}$ to $\frac{1}{2}$ inch by 16ths; Height 6 $\frac{1}{4}$ inches; Diameter 2 $\frac{3}{4}$ inches; Weight each about 1 lb..... 1.25

No. 9A—HOLDS HALF SET DRILLS; Alternate Numbers from 1 to 59; Height 4 $\frac{1}{2}$ inches; Diameter 2 $\frac{3}{4}$ inches; Weight each about 1 $\frac{1}{2}$ lb..... 1.25

Nos. 5A, 9A, One in an Imitation Leather Covered Box; Nos. 6A, 12A and 13A, One in a Carton.

MT



SPEED INDICATORS.

Used to find speed of revolving Axles or Spindles, or any kind of machinery.

STARRETT'S.



Nickel Plated Cast Steel Frame; Fitted with Rubber Tips for Pointed and Hollow Centers; Working Parts encased in Frame; By a pressure and twist with thumb the Indicator Plate is loosened so that the Indicator may be moved to any point; Registers 100 Revolutions; Length over all $5\frac{1}{4}$ inches.

No. 104—RIGHT OR LEFT HAND; Nickel Plated Cast Steel Handle; Weight each about 5 ozs. Each \$1.00

No. 106—RIGHT OR LEFT HAND; Mahogany Handle; Weight each about 5 ozs. Each \$1.50



No. 1.



No. 10.



No. 12.

No. 1—RIGHT HAND; Nickel Plated Cast Iron Frame and Handle; Steel Spindle and Tip; Registers 100 Revolutions; Length over all $3\frac{3}{4}$ inches; Weight each about 3 ozs. Each \$1.50

No. 10—TABOR, RIGHT HAND; Nickel Plated Cast Iron Frame and Handle; Steel Spindle and Tip; Registers 5000 Revolutions; Length over all 4 inches; Weight each about 4 ozs. 1.50

No. 12—ALARM, RIGHT OR LEFT HAND; Nickel Plated Cast Iron Frame and Handle; Steel Spindle and Point; Nickel Plated Steel Alarm Bell, $1\frac{1}{4}$ inches in Diameter, which rings when Indicator shows 100 Revolutions; Registers 100 Revolutions; Length over all $3\frac{3}{4}$ inches; Weight each about $4\frac{1}{2}$ ozs. 1.50

One in a Cardboard Box.

CENTER KEYS.



For Sockets and Sleeves.

Drop Forged Steel, Natural Finished and Hardened.

	For Socket or Sleeve No.	Weight Each about, ozs.	Each.
No. 100/C/1	1	$1\frac{1}{2}$	\$0.80
No. 100/C/2	2	$2\frac{3}{4}$	.95
No. 100/C/3	3	$5\frac{1}{2}$	1.10
No. 100/C/4	4	$11\frac{3}{4}$	1.40
No. 100/C/5	5	19	1.60

Packed Loose.

STEEL SOCKETS.



Morse Taper Sockets for Taper Shank Drills.

Finest Tool Steel.

	Each
No. 100/1—Holds Drills $\frac{1}{4}$ to $1\frac{1}{32}$ inch, inclusive; Diameter of Blank End $1\frac{1}{4}$ inches; Extreme Length 7 inches; Weight each about 2 lbs.	\$1.20
No. 100/2—Holds Drills $\frac{5}{16}$ to $2\frac{1}{32}$ inch, inclusive; Diameter of Blank End $1\frac{1}{4}$ inches; Extreme Length 8 inches; Weight each about 3 lbs.	1.80
No. 100/3—Holds Drills $\frac{15}{16}$ to $1\frac{1}{4}$ inches, inclusive; Diameter of Blank End $1\frac{1}{4}$ inches; Extreme Length 10 inches; Weight each about 5 lbs.	2.50
No. 100/4—Holds Drills $1\frac{1}{32}$ to 2 inches, inclusive; Diameter of Blank End 2 inches; Extreme Length 13 inches; Weight each about 11 lbs.	4.00
±No. 100/5—Holds Drills $2\frac{1}{16}$ to 3 inches, inclusive; Diameter of Blank End $2\frac{1}{2}$ inches; Extreme Length 15 inches; Weight each about 20 lbs.	7.50
±No. 100/6—Holds Drills $3\frac{1}{16}$ to 4 inches, inclusive; Diameter of Blank End 3 inches; Extreme Length 18 inches; Weight each about 21 lbs.	14.00



For Morse Taper Shank Drills.

Finest Tool Steel.

	Each		Each
No. 100A1/2—With Shank Fitted to Nos. 100/2, 100A4 and 100B4 Sockets; Weight each about 1 lbs.	\$2.00	±No. 100A2/5—With Shank Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	\$4.80
No. 100A2/3—With Shank Fitted to Nos. 100/3, 100A3 and 100B3 Sockets; Weight each about $1\frac{1}{2}$ lbs.	2.50	±No. 100A3/2—With Shank Fitted to Nos. 100/2, 100A2 and 100B2 Sockets	3.20
No. 100A3/4—With Shank Fitted to Nos. 100/4, 100A2 and 100B2 Sockets; Weight each about 3 lbs.	3.20	±No. 100A3/3—With Shank Fitted to Nos. 100/3, 100A3 and 100B3 Sockets	3.20
±No. 100A4/5—With Shank Fitted to Nos. 100/5, 100A5 and 100B5 Sockets; Weight each about 5 lbs.	4.80	±No. 100A3/5—With Shank Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	4.80
±No. 100A1/3—With Shank Fitted to Nos. 100/3, 100A3 and 100B3 Sockets	2.50	±No. 100A4/3—With Shank Fitted to Nos. 100/3, 100A3 and 100B3 Sockets	4.80
±No. 100A1/4—With Shank Fitted to Nos. 100/4, 100A4 and 100B4 Sockets	3.20	±No. 100A4/4—With Shank Fitted to Nos. 100/4, 100A4 and 100B4 Sockets	4.80
±No. 100A1/5—With Shank Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	4.80	±No. 100A4/6—With Shank Fitted to Nos. 100/6, 100A6 and 100B6 Sockets	12.00
±No. 100A2/4—With Shank Fitted to Nos. 100/4, 100A4 and 100B4 Sockets	3.20	±No. 100A5/4—With Shank Fitted to Nos. 100/4, 100A4 and 100B4 Sockets	12.00
		±No. 100A5/5—With Shank Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	12.00
		±No. 100A5/6—With Shank Fitted to Nos. 100/6, 100A6 and 100B6 Sockets	12.00

STEEL SLEEVES.



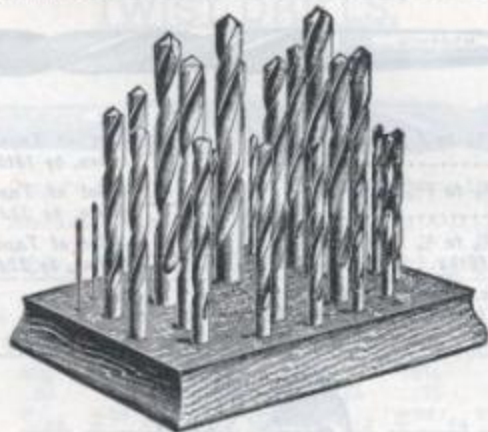
For Morse Taper Shank Drills.

Finest Tool Steel.

	Each		Each
No. 100B1/2—Fitted to Nos. 100/2, 100A2, and 100B2 Sockets; Weight each about $\frac{1}{2}$ lb.	\$1.80	No. 100B3/4—Fitted to Nos. 100/4, 100A4 and 100B4 Sockets; Weight each about 1 lb.	\$3.00
No. 100B2/3—Fitted to Nos. 100/3, 100A3 and 100B3 Sockets; Weight each about $\frac{1}{2}$ lb.	2.40	No. 100B4/5—Fitted to No. 100/5 Sockets; Weight each about $2\frac{1}{2}$ lbs.	4.40
±No. 100B1/3—Fitted to Nos. 100/3, 100A3 and 100B3 Sockets	2.40	±No. 100B2/5—Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	4.40
±No. 100B1/4—Fitted to Nos. 100/4, 100A4 and 100B4 Sockets	3.00	±No. 100B3/5—Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	4.40
±No. 100B1/5—Fitted to Nos. 100/5, 100A5 and 100B5 Sockets	4.40	±No. 100B4/6—Fitted to Nos. 100/6, 100A6 and 100B6 Sockets	10.00
±No. 100B2/4—Fitted to Nos. 100/4, 100A4 and 100B4 Sockets	3.00	±No. 100B5/6—Fitted to Nos. 100/6, 100A6 and 100B6 Sockets	10.00

Packed Loose.

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TWIST DRILLS IN SETS.

MORSE; In Sets, Mounted.

Polished Hardwood Block; Size of Drill each Hole contains Stamped on Block.

Block 7 inches Long, 5 inches Wide, $1\frac{1}{8}$ inch Thick.

- | | Per Set |
|---|---------|
| No. 5—HOLDS 29 STRAIGHT SHANK DRILLS,
$\frac{1}{16}$ to $\frac{1}{2}$ inch by 64ths; Complete with
Drills; Weight per Set about 3 lbs..... | \$10.00 |
| No. 6—HOLDS 15 STRAIGHT SHANK DRILLS,
$\frac{1}{16}$ to $\frac{1}{2}$ by 32nds; Complete with Drills;
Weight per Set about 2 lbs..... | 5.40 |
| No. 7—HOLDS 65 STRAIGHT SHANK DRILLS,
No. 60 to $\frac{3}{8}$ inch; Complete with Drills;
Weight per Set about 2 lbs..... | 9.90 |

- | | Per Set |
|--|---------|
| No. 8—HOLDS 60 STRAIGHT SHANK DRILLS,
No. 1 to 60; Complete with Drills; Block
7 inches Long, $4\frac{1}{8}$ inches Wide, 1 inch Thick;
Weight per Set about $1\frac{1}{2}$ lbs..... | \$8.10 |
| No. 9—HOLDS 30 STRAIGHT SHANK DRILLS,
Alternate Nos. 1 to 59; Complete with Drills;
Block $6\frac{1}{2}$ inches Long, $4\frac{3}{8}$ inches Wide, 1
inch Thick; Weight per Set about 1 lb..... | 4.30 |
| No. 15—HOLDS 25 STRAIGHT SHANK DRILLS, from
A to Z; Complete with Drills; Weight per
Set about $\frac{3}{4}$ lb. | 10.00 |
| Each | |
| Extra Blocks for Drill Sets; Weight each about 6 ozs.. | \$0.35 |

One Set in a Cardboard Box.



Jewelers', in Case.

- | | Per Set |
|--|---------|
| No. 10—MOUNTED in Genuine Polished Mahog-
any Case with Cap; Size of Drills each Hole
contains Stamped on Case; 26 Steel Wire
Gauge Drills, Nos. 30 to 65; Height of Case
over all $2\frac{1}{4}$ inches. Diameter at Base $3\frac{1}{4}$
inches; Weight per Set about $\frac{5}{8}$ lb..... | \$4.25 |

One Set in a Wood Box.



- | | Per Set |
|---|---------|
| No. 109M—MORSE BIT STOCK DRILLS, IN
SETS, in Hardwood Cylindrical Boxes,
one each, 2, 3, 4, 5, 6, 7, 8, 10, 12/32; Weight
per Set about $1\frac{1}{2}$ lbs..... | \$2.75 |

WILL FIT ANY BRACE IN THE MARKET, and will Drill Steel, Iron or other Metals, as well as Wood.

±TWIST DRILLS IN SETS.



	Per Set
±No. 1—Set of Taper Shank Drills, $\frac{1}{4}$ to 1 inch, by 16ths	\$20.00
±No. 2—Set of Taper Shank Drills, $\frac{3}{8}$ to $1\frac{1}{4}$ inches, by 16ths	34.50
±No. 3—Set of Taper Shank Drills, $\frac{3}{8}$ to $\frac{3}{4}$ inch, by 32ds, $1\frac{3}{16}$ to $1\frac{1}{4}$ inches, by 16ths	42.00
±No. 4/1—Set of Taper Shank Drills, $\frac{3}{8}$ to $\frac{3}{4}$ inch, by 32ds, $1\frac{3}{16}$ to $1\frac{1}{2}$ inches, by 16ths	64.00

	Per Set
±No. 4/2—Set of Taper Shank Drills, $1\frac{3}{16}$ to 2 inches, by 16ths	\$67.00
±No. 11/1—Set of Taper Shank Drills, $\frac{3}{8}$ to $1\frac{1}{2}$ inches, by 32ds	109.85
±No. 11/2—Set of Taper Shank Drills, $1\frac{1}{2}$ to 2 inches, by 32ds	132.70



Sets in Hardwood Cylindrical Boxes, with Metal Top.

	Per Set
±No. 5AS—Set Drills, Straight Shanks, $\frac{1}{16}$ to $\frac{1}{2}$ inch by 64ths	\$11.60
±No. 6AS—Set Drills, Straight Shanks, $\frac{1}{16}$ to $\frac{1}{2}$ inch by 32ds	6.00
±No. 7AS—Set Drills from No. 60 to $\frac{3}{8}$ inch	11.40

	Per Set
±No. 8AS—Set Drills, Steel Wire Gauge, from No. 1 to 60	\$9.60
±No. 9AS—Half Set Drills, alternate numbers from No. 1 to 59	5.80



	Per Set
±No. 13AS—Set Bit Stock Drills, $\frac{1}{16}$ to $\frac{1}{4}$ inch by 32ds, $\frac{5}{16}$ to $\frac{3}{8}$ inch by 16ths	\$4.10

±MACHINE BITS IN SETS.



	Per Set
±No. 12—Set Straight Shank Machine Bits, $\frac{1}{8}$ to $\frac{1}{2}$ inch, Mounted by 32ds	\$7.00



Sets in Hardwood Cylindrical Boxes, with Metal Top.

	Per Set
±No. 12AS—Set Straight Shank Machine Bits, $\frac{1}{8}$ to $\frac{1}{2}$ inch by 32ds	\$9.50

Packed Loose.

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TWIST DRILLS.

Finest Tool Steel.



No. 102—Morse; Taper Shank; Patent Straight Lip; Increase Twist.

Fit Sockets Nos. 100/1, 100A1/2, 100B1/2.

Diameter, inches	$\frac{1}{16}$	$\frac{5}{64}$	$\frac{3}{32}$	$\frac{7}{64}$	$\frac{1}{8}$	$\frac{9}{64}$	$\frac{5}{32}$	$\frac{11}{64}$	$\frac{3}{16}$	$\frac{13}{64}$	$\frac{7}{32}$	$\frac{15}{64}$
Length over all, inches	4%	4½	4½	4½	5½	5½	5½	5½	5½	5½	6	6½
Each	\$0.35	.40	.40	.45	.45	.45	.45	.50	.50	.55	.55	.60
Diameter, inches	$\frac{1}{4}$	$\frac{17}{64}$	$\frac{9}{32}$	$\frac{19}{64}$	$\frac{5}{16}$	$\frac{21}{64}$	$\frac{11}{32}$	$\frac{23}{64}$	$\frac{3}{8}$	$\frac{25}{64}$	$\frac{13}{32}$	$\frac{27}{64}$
Length over all, inches	6½	6½	6½	6½	6½	6½	6½	6½	6½	7	7	7½
Each	\$0.60	.65	.65	.70	.70	.75	.75	.80	.80	.85	.85	.90
Diameter, inches	$\frac{7}{16}$	$\frac{29}{64}$	$\frac{15}{32}$	$\frac{31}{64}$	$\frac{1}{2}$	$\frac{33}{64}$	$\frac{17}{32}$	$\frac{35}{64}$	$\frac{9}{16}$	$\frac{37}{64}$	$\frac{19}{32}$	
Length over all, inches	7½	7½	7½	7½	7½	8	8	8½	8½	8½	8½	8½
Each	\$0.90	.95	.95	1.00	1.00	1.10	1.10	1.20	1.20	1.30	1.30	

Fit Sockets Nos. 100/2, 100A2/3, 100B2/3.

Diameter, inches	$\frac{39}{64}$	$\frac{5}{8}$	$\frac{41}{64}$	$\frac{21}{32}$	$\frac{43}{64}$	$\frac{11}{16}$	$\frac{45}{64}$	$\frac{23}{32}$	$\frac{47}{64}$	$\frac{3}{4}$
Length over all, inches	8½	8½	9	9	9½	9½	9½	9½	9½	9½
Each	\$1.40	1.40	1.50	1.50	1.60	1.60	1.70	1.70	1.85	1.85
Diameter, inches	$\frac{49}{64}$	$\frac{25}{32}$	$\frac{51}{64}$	$\frac{13}{16}$	$\frac{53}{64}$	$\frac{27}{32}$	$\frac{55}{64}$	$\frac{7}{8}$	$\frac{57}{64}$	$\frac{29}{32}$
Length over all, inches	9½	9½	10	10	10½	10½	10½	10½	10½	10½
Each	\$2.00	2.00	2.15	2.15	2.30	2.30	2.45	2.45	2.60	2.60

Fit Sockets Nos. 100/3, 100A3/4, 100B3/4.

Diameter, inches	$\frac{59}{64}$	$\frac{15}{16}$	$\frac{61}{64}$	$\frac{31}{32}$	$\frac{63}{64}$	$\frac{1}{2}$	$\frac{11}{16}$	$\frac{1}{32}$	$\frac{13}{16}$	$\frac{11}{16}$	$\frac{15}{16}$
Length over all, in.	10½	10½	10½	10½	11	11	11½	11½	11½	11½	11½
Each	\$2.75	2.75	2.90	2.90	3.00	3.00	3.20	3.20	3.40	3.40	3.60
Diameter, inches	$\frac{13}{32}$	$\frac{17}{64}$	$\frac{11}{16}$	$\frac{19}{64}$	$\frac{15}{32}$	$\frac{111}{64}$	$\frac{13}{16}$	$\frac{113}{64}$	$\frac{17}{32}$	$\frac{115}{64}$	$\frac{11}{4}$
Length over all, inches	11½	11½	11½	11½	11½	12	12	12½	12½	12½	12½
Each	\$3.60	3.80	3.80	4.00	4.00	4.20	4.20	4.40	4.40	4.50	4.50

Fit Sockets Nos. 100/4, 100A4/5, 100B4/5.

Diameter, inches	$\frac{117}{64}$	$\frac{19}{32}$	$\frac{119}{64}$	$\frac{15}{16}$	$\frac{121}{64}$	$\frac{111}{32}$	$\frac{123}{64}$	$\frac{13}{8}$	$\frac{125}{64}$	$\frac{113}{32}$
Length over all, inches	14½	14½	14½	14½	14½	14½	14½	14½	14½	14½
Each	\$4.65	4.65	4.80	4.80	5.00	5.00	5.20	5.20	5.40	5.40
Diameter, inches	$\frac{127}{64}$	$\frac{17}{16}$	$\frac{129}{64}$	$\frac{115}{32}$	$\frac{131}{64}$	$\frac{13}{2}$	$\frac{133}{64}$	$\frac{117}{32}$	$\frac{135}{64}$	$\frac{113}{16}$
Length over all, inches	14½	14½	14½	14½	15	15	15	15	15½	15½
Each	\$5.60	5.60	5.80	5.80	6.00	6.00	6.30	6.30	6.60	6.60
Diameter, inches	$\frac{19}{16}$	$\frac{137}{64}$	$\frac{119}{32}$	$\frac{139}{64}$	$\frac{15}{8}$	$\frac{141}{64}$	$\frac{121}{32}$	$\frac{143}{64}$	$\frac{111}{16}$	$\frac{145}{64}$
Length over all, inches	15½	15½	15½	15½	15½	15½	15½	15½	15½	15½
Each	\$6.60	6.90	6.90	7.20	7.20	7.50	7.50	7.80	7.80	8.10
Diameter, inches	$\frac{123}{32}$	$\frac{147}{64}$	$\frac{13}{4}$	$\frac{149}{64}$	$\frac{125}{32}$	$\frac{151}{64}$	$\frac{113}{16}$	$\frac{153}{64}$	$\frac{127}{32}$	$\frac{133}{16}$
Length over all, inches	15½	16	16	16	16	16½	16½	16½	16½	16½
Each	\$8.10	8.40	8.40	8.60	8.60	8.80	8.80	9.00	9.00	9.00
Diameter, inches	$\frac{155}{64}$	$\frac{17}{8}$	$\frac{157}{64}$	$\frac{129}{32}$	$\frac{159}{64}$	$\frac{115}{16}$	$\frac{161}{64}$	$\frac{131}{32}$	$\frac{163}{64}$	$\frac{9}{4}$
Length over all, inches	16½	16½	16½	16½	16½	16½	16½	16½	16½	16½
Each	\$9.20	9.20	9.35	9.35	9.50	9.50	9.65	9.65	9.80	9.80

Weight Each about: $\frac{3}{16}$ inch, 2 ozs.; $\frac{13}{32}$ inch, ¼ lb.; $\frac{43}{64}$ inch, ¾ lb.; $\frac{15}{16}$ inch, 1½ lbs.; $\frac{1}{4}$ inch, 2½ lbs.; $\frac{11}{8}$ inch, 4 lbs.; $\frac{123}{32}$ inch, 5 lbs.; 2 inch, 7 lbs.

Packed Loose.

TWIST DRILLS.

Finest Tool Steel.



Turned from Tool Steel; Tempered and Polished.

No. 105—MORSE; Straight Shank; Patent Straight Lip; Increase Twist.

Diameter, inches	$\frac{1}{32}$	$\frac{3}{64}$	$\frac{1}{16}$	$\frac{5}{64}$	$\frac{3}{32}$	$\frac{7}{64}$	$\frac{1}{8}$	$\frac{9}{64}$	$\frac{5}{32}$	$\frac{11}{64}$	$\frac{3}{16}$
Length over all, inches	$\frac{17}{16}$	$\frac{11}{16}$	$2\frac{1}{2}$	$2\frac{5}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$
Per dozen	\$0.90	1.00	1.00	1.10	1.20	1.30	1.45	1.60	1.80	2.00	2.20
Diameter, inches	$\frac{13}{64}$	$\frac{7}{32}$	$\frac{15}{64}$	$\frac{1}{4}$	$\frac{17}{64}$	$\frac{9}{32}$	$\frac{10}{64}$	$\frac{5}{16}$	$\frac{21}{64}$	$\frac{11}{32}$	
Length over all, inches	$3\frac{3}{4}$	$3\frac{3}{4}$	$3\frac{3}{4}$	4	$4\frac{1}{8}$	$4\frac{1}{4}$	$4\frac{1}{2}$	$4\frac{1}{2}$	$4\frac{3}{4}$	$4\frac{3}{4}$	$4\frac{3}{4}$
Per dozen	\$2.40	2.65	2.90	3.15	3.40	3.65	3.90	4.20	4.50	4.80	
Diameter, inches	$\frac{23}{64}$	$\frac{3}{8}$	$\frac{25}{64}$	$\frac{13}{32}$	$\frac{27}{64}$	$\frac{7}{16}$	$\frac{29}{64}$	$\frac{15}{32}$	$\frac{31}{64}$	$\frac{1}{2}$	
Length over all, inches	4	5	$5\frac{1}{8}$	$5\frac{1}{4}$	$5\frac{1}{2}$	$5\frac{1}{2}$	$5\frac{3}{4}$	$5\frac{3}{4}$	$5\frac{3}{4}$	6	
Per dozen	\$5.10	5.40	5.70	6.00	6.40	6.80	7.20	7.50	7.75	8.00	

Weight per Dozen about, $\frac{1}{16}$ inch, 1 oz.; $\frac{1}{8}$ inch, $\frac{1}{2}$ lb.; $\frac{3}{16}$ inch, $1\frac{1}{4}$ lbs.; $\frac{1}{4}$ inch, 2 lbs.; $\frac{5}{16}$ inch, 2 lbs.; Packed Loose.

No. 105A—MORSE; Straight Shank Drills, with Increase Twist or Constant Angle.

Millimeter Sizes.

Diameter, M. M.	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$	3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
Diameter in Decimals of 1 inch	.0393	.0590	.0787	.0984	.1181	.1378	.1575	.1771	.1968
Twist Cut, M. M.	17	21	29	34	43	46	51	56	62
Length over all, M. M.	39	46	53	60	70	73	79	86	93
Each	\$0.08	.09	.09	.12	.14	.15	.17	.19	.21
Diameter, M. M.	$5\frac{1}{2}$	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$	8	$8\frac{1}{2}$	9	
Diameter in Decimals of 1 inch	.2165	.2362	.2559	.2756	.2953	.3149	.3346	.3543	
Twist Cut, M. M.	67	70	73	76	79	81	84	89	
Length over all, M. M.	100	102	105	108	111	114	117	124	
Each	\$0.22	.26	.28	.32	.35	.37	.42	.45	
Diameter, M. M.	$9\frac{1}{2}$	10	$10\frac{1}{2}$	11	$11\frac{1}{2}$	12	$12\frac{1}{2}$	13	
Diameter in Decimals of 1 inch	.3740	.3937	.4134	.4330	.4527	.4724	.4921	.5118	
Twist Cut, M. M.	93	95	98	104	106	109	112	114	
Length over all, M. M.	127	130	133	140	143	146	149	152	
Each	\$0.48	.50	.58	.69	.63	.65	.70	.85	



No. 106—Straight Shank Drills, with Increase or Constant Angle.

Size by Gauge	A	B	C	D	E	F	G	H	I	J	K	L	M
Decimal Equivalent	.234	.238	.242	.246	.250	.257	.261	.266	.272	.277	.281	.290	.295
Twist Cut, inches	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$	$\frac{219}{32}$
Length over all, in	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$	$3\frac{13}{16}$
Each	\$0.26	.27	.28	.29	.30	.30	.31	.32	.33	.34	.35	.36	.36
Size by Gauge	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
Decimal Equivalent	.302	.316	.323	.332	.339	.348	.358	.368	.377	.386	.397	.404	.413
Twist Cut, inches	$\frac{231}{32}$	$\frac{215}{16}$	$\frac{35}{16}$	$\frac{35}{16}$	$\frac{37}{16}$	$\frac{313}{32}$	$\frac{317}{32}$	$\frac{317}{32}$	$\frac{317}{32}$	$\frac{317}{32}$	$\frac{317}{32}$	$\frac{317}{32}$	$\frac{317}{32}$
Length over all, in	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$	$4\frac{1}{4}$
Each	\$0.37	.38	.39	.40	.42	.44	.45	.47	.49	.51	.53	.55	.59

Packed Loose.

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TWIST DRILLS.



No. 107—Morse; Twist, Straight Shank, Wire Drills, Finest Tool Steel.

Size Wire Gauge.

Nos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Length over all, in.	4	3 ¹⁵ / ₁₆	3 ¹⁵ / ₁₆	3 ⁷ / ₈	3 ¹³ / ₁₆	3 ¹³ / ₁₆	3 ¹¹ / ₁₆	3 ¹¹ / ₁₆	3 ¹¹ / ₁₆	3 ⁵ / ₈	3 ⁹ / ₁₆	3 ⁹ / ₁₆	3 ¹⁵ / ₁₆	3 ⁷ / ₈	3 ⁷ / ₈	3 ³ / ₄
Per dozen	\$2.35	2.35	2.35	2.35	2.35	2.25	2.25	2.25	2.25	2.25	2.10	2.10	2.10	2.10	2.10	1.95
Nos.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Length over all, in.	3 ⁵ / ₁₆	3 ⁵ / ₁₆	3 ¹ / ₂	3 ³ / ₁₆	3 ³ / ₁₆	3 ¹ / ₂	3 ¹ / ₂	3 ¹ / ₂	3	2 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	2 ⁷ / ₈	2 ¹³ / ₁₆	2 ¹³ / ₁₆	2 ³ / ₄	2 ¹¹ / ₁₆
Per dozen	\$1.95	1.95	1.95	1.75	1.75	1.75	1.75	1.75	1.75	1.55	1.55	1.55	1.55	1.55	1.40	1.40
Nos.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
Length over all, in.	2 ¹¹ / ₁₆	2 ³ / ₄	2 ⁹ / ₁₆	2 ⁹ / ₁₆	2 ¹ / ₂	2 ¹ / ₂	2 ¹ / ₂	2 ¹ / ₂	2 ¹ / ₂	2 ⁵ / ₈	2 ⁵ / ₈	2 ¹ / ₂	2 ¹ / ₂	2 ¹ / ₂	2 ¹ / ₂	2 ¹ / ₂
Per dozen	\$1.40	1.40	1.40	1.25	1.25	1.25	1.25	1.25	1.25	1.10	1.10	1.10	1.10	1.10	.95	.95
Nos.	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
Length over all, in.	2	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1 ⁷ / ₈	1 ¹⁵ / ₁₆	1 ¹⁵ / ₁₆	1 ¹ / ₂	1 ¹¹ / ₁₆	1 ¹¹ / ₁₆	1 ⁵ / ₈	1 ⁹ / ₁₆	1 ⁹ / ₁₆	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄
Per dozen	\$0.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.90	.90	.90
Nos.	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Length over all, inches	1 ¹ / ₂	1 ¹ / ₂	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ¹ / ₂	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄	1 ³ / ₄
Per dozen	\$0.90	.90	.90	.90	.90	.90	.90	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Weight per Dozen about, No. 1, 6 ozs.; No. 10, 5 ozs.; No. 20, 4 ozs.; No. 30, 2 ozs.; No. 40, 2 ozs.; No. 50, 1 oz.

*MACHINE BITS.

Finest Tool Steel.



±No. 108—Morse Straight Shank and Patent Straight Lip; Increase Twist; For Wood.

Diameter, inches	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	13/32	7/16	15/32
Length over all, inches	3	3 ¹ / ₂	3 ¹ / ₂	3 ¹ / ₂	4	4 ¹ / ₂	4 ¹ / ₂	5	5 ¹ / ₂	5 ¹ / ₂	6	6 ¹ / ₂
Each	\$0.20	.25	.30	.35	.40	.45	.50	.55	.65	.70	.75	.80
Diameter, inches	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2
Length over all, inches	6	6 ¹ / ₂	6 ¹ / ₂	6 ¹ / ₂	7	7 ¹ / ₂	7 ¹ / ₂	8	8 ¹ / ₂	8 ¹ / ₂	9	9 ¹ / ₂
Each	\$0.85	.95	1.00	1.10	1.15	1.25	1.35	1.50	1.65	1.80	2.00	2.25
Diameter, inches	3	4	5	6	8	10	12	14	16	18	20	22
Length over all, inches	9 ¹ / ₄	9 ¹ / ₂	10 ¹ / ₄	10 ¹ / ₄	11 ¹ / ₄	11 ¹ / ₄	12	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂
Each	\$2.35	3.00	3.60	4.00	4.40	4.80	5.20	5.60	6.00	6.40	6.80	7.20



±No. 108A—MORSE; Taper Lengths Fitting Prentice Blacksmith's Drill Press Nos. 1 and 2; Straight Shanks 1/2 inch

Diameter and 2 1/2 inches Long.

Diameter, inches	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	13/32	7/16	15/32	1/2
Length over all, inches	4 ³ / ₈	4 ⁷ / ₈	5	5 ¹ / ₂	6 ¹ / ₈	6 ¹ / ₈	6 ¹ / ₈	6 ¹ / ₈	7	7 ¹ / ₄	7 ¹ / ₄	7 ¹ / ₄	7 ¹ / ₄
Twist Cut, inches	1 ¹³ / ₁₆	2 ³ / ₃₂	2 ⁵ / ₁₆	2 ¹¹ / ₃₂	3	3	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈	3 ¹ / ₈
Each	\$0.50	.50	.60	.60	.70	.75	.80	.85	.90	.95	1.00	1.10	1.20
Diameter, inches	1 1/2	2	2 1/2	3	4	5	6	7	8	9	10	11	12
Length over all, inches	8	8 ¹ / ₂	8 ¹ / ₂	8 ³ / ₄	9	9 ¹ / ₄	9 ¹ / ₄	9 ¹ / ₄	9 ¹ / ₄	9 ¹ / ₄	10	10 ¹ / ₄	10 ¹ / ₄
Twist Cut, inches	4 ³ / ₈	5	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈	5 ¹ / ₈
Each	\$1.30	1.40	1.50	1.60	1.70	1.80	1.90	2.00	2.10	2.20	2.40	2.60	2.80
Diameter, inches	14	16	18	20	22	24	26	28	30	32	34	36	38
Length over all, inches	10 ⁵ / ₈	10 ³ / ₄	10 ⁷ / ₈	11	11 ¹ / ₄	11 ¹ / ₄	12	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂	12 ¹ / ₂
Twist Cut, inches	7 ³ / ₈	7 ¹ / ₂	7 ⁵ / ₈	7 ³ / ₈	7 ³ / ₈	7 ³ / ₈	8	8 ¹ / ₈	8 ¹ / ₈	8 ¹ / ₈	8 ¹ / ₈	8 ¹ / ₈	8 ¹ / ₈
Each	\$2.80	3.00	3.20	3.40	3.70	4.00	4.30	4.60	5.05	5.60	5.95	6.40	6.80

Packed Loose.

TRADE MARK:
E. C. SIMMONS' KEEN KUTTER.
REGISTERED.

TWIST DRILLS.

KEEN KUTTER®



Bit Stock, for Metal or Wood.

No. K109—Forged from Highest Grade Crucible Steel, Oil Tempered and Full Polished.

Diameter, inches	$\frac{2}{32}$	$\frac{3}{32}$	$\frac{4}{32}$	$\frac{5}{32}$	$\frac{6}{32}$	$\frac{7}{32}$	$\frac{8}{32}$	$\frac{9}{32}$	$\frac{10}{32}$	$\frac{11}{32}$
Length, inches	3 $\frac{1}{4}$	3 $\frac{1}{2}$	4	4 $\frac{1}{4}$	4 $\frac{3}{4}$	5	5 $\frac{1}{4}$	5 $\frac{1}{2}$	5 $\frac{3}{4}$	6
Per dozen	\$1.50	1.65	2.10	2.60	3.10	3.60	4.10	4.70	5.40	6.30
Diameter, inches	$\frac{12}{32}$	$\frac{13}{32}$	$\frac{14}{32}$	$\frac{15}{32}$	$\frac{16}{32}$	$\frac{17}{32}$	$\frac{18}{32}$	$\frac{20}{32}$	$\frac{22}{32}$	$\frac{24}{32}$
Length, inches	6	6 $\frac{1}{2}$	6 $\frac{3}{4}$	7	7	7 $\frac{1}{2}$	7 $\frac{1}{2}$	7 $\frac{3}{4}$	7 $\frac{1}{2}$	7 $\frac{1}{2}$
Per dozen	\$7.20	8.00	8.80	9.60	10.30	11.00	14.40	16.20	18.00	19.80

Weight per Dozen about, lbs., $\frac{2}{32}$, $\frac{3}{32}$ lb.; $\frac{10}{32}$, 1 $\frac{1}{4}$ lbs.; $\frac{16}{32}$, 2 $\frac{3}{4}$ lbs.; $\frac{24}{32}$, 6 lbs.

$\frac{2}{32}$ to $\frac{16}{32}$, One Dozen in a Wood Box; $\frac{17}{32}$ and Larger, Packed Loose.

No. K109/S—IN SETS, One each, 2, 3, 4, 5, 6, 7, 8, 10, 12/ $\frac{32}$; Weight per Set about $\frac{3}{4}$ lb. Per Set \$2.60

One Set in a Wood Box.



No. K109M—BIT STOCK DRILLS, IN SETS, in Varnished Hardwood Cylindrical Boxes, one each, 2, 3, 4, 5, 6, 7, 8, 10, 12/ $\frac{32}$; Weight per Set about 1 $\frac{1}{4}$ lbs. Per Set \$2.75

One Set in a Wood Box.

WILL FIT ANY BRACE IN THE MARKET, AND WILL DRILL STEEL, IRON OR OTHER METALS, AS WELL AS WOOD.

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*MACHINE BITS.



No. 108B—With Morse Taper Shank.

Fits Sockets Nos. 100/1, 100A1/2 and 100B1/2.

Diameter, inches	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32
Length over all, inches	4 5/8	4 7/8	5	5 1/4	5 1/2	5 3/4	6 1/8	6 1/2
Twist Cut, inches	1 13/16	2 3/32	2 5/16	2 17/32	3	2 15/16	3 1/16	3 3/16
Each	\$0.50	.50	.60	.60	.70	.75	.80	.85
Diameter, inches	3/8	1/2	7/16	15/32	1/2	17/32	9/16	19/32
Length over all, inches	6 3/4	7	7 1/4	7 1/2	7 3/4	8	8 1/8	8 1/2
Twist Cut, inches	3 7/16	3 11/16	3 15/16	4 3/16	4 7/16	4 11/16	4 15/16	5 3/16
Each	\$0.90	.95	1.00	1.10	1.20	1.30	1.40	1.50

Fits Sockets Nos. 100/2, 100A2/3 and 100B2/3.

Diameter, inches	5/8	21/32	11/16	23/32	3/4	25/32	13/16	27/32	7/8	29/32
Length over all, inches	8 3/4	9	9 1/4	9 1/2	9 3/4	9 7/8	10	10 1/4	10 1/2	10 5/8
Twist Cut, inches	4 15/16	5 3/16	5 7/16	5 11/16	5 15/16	6 1/16	6 3/16	6 7/16	6 11/16	6 15/16
Each	\$1.60	1.70	1.80	1.90	2.00	2.30	2.30	2.60	2.60	3.00

Fits Sockets Nos. 100/3, 100A3/4 and 100B3/4.

Diameter, inches	15/16	27/32	1	1 1/16	1 1/8	1 1/4	1 1/2	1 5/8	1 3/4
Length over all, inches	10 3/4	10 7/8	11	11 1/4	11 1/2	11 3/4	12	12 1/4	12 1/2
Twist Cut, inches	6 1/4	6 3/8	6 1/2	6 5/8	6 3/4	6 7/8	7 1/2	7 1/4	7 1/2
Each	\$3.00	3.40	3.40	4.10	4.10	4.80	4.80	4.80	4.80

Fits Sockets Nos. 100/4, 100A4/5 and 100B4/5.

Diameter, inches	1 5/8	1 3/4	1 7/8	2
Length over all, inches	14 1/4	14 1/2	14 3/4	15
Twist Cut, inches	8 3/4	9	9 1/4	9 1/2
Each	\$5.60	5.60	6.40	6.40

TWIST DRILLS.



No. 109—Morse's Bit Stock, for Metal or Wood.

Diameter, inches	2/32	3/32	4/32	5/32	6/32	7/32	8/32	9/32	10/32	11/32	12/32	13/32
Length over all, inches	3 3/4	3 1/2	4	4 1/4	4 1/2	5	5 1/4	5 1/2	5 3/4	6	6 1/2	6 3/4
Per dozen	\$1.50	1.65	2.10	2.60	3.10	3.60	4.10	4.70	5.40	6.30	7.20	8.00
Diameter, inches	14/32	15/32	16/32	17/32	18/32	19/32	20/32	22/32	24/32	26/32	28/32	30/32
Length over all, inches	6 1/2	7	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2	7 1/2
Per dozen	\$8.80	9.60	10.30	11.00	14.40	15.60	16.20	18.00	19.80	21.60	23.40	25.80

Per Set

No. 109/S—IN SETS; one each, 2, 3, 4, 5, 6, 7, 8, 10, 12/32; Weight per set about 1 lb.; One set in a Wood Box \$2.60



No. 109E/1—Morse's Taper Square Shank Drills.

Diameter, inches	1/8	5/32	3/16	7/32	1/4	9/32	5/16	11/32	3/8	13/32
Length over all, inches	4 3/8	4 7/16	4 11/16	4 13/16	5	5	5	5	6	6 1/2
Each	\$0.90	.95	.95	1.00	1.00	1.05	1.10	1.15	1.20	1.25
Diameter, inches	7/16	15/32	1/2	17/32	9/16	19/32	5/8	21/32	11/16	23/32
Length over all, inches	6 1/4	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2	6 1/2
Each	\$1.25	1.30	1.30	1.35	1.35	1.40	1.40	1.45	1.45	1.50
Diameter, inches	3/4	25/32	13/16	27/32	7/8	29/32	15/16	31/32	1	1 1/8
Length over all, inches	6 1/2	6 3/4	7	7 1/4	7 1/2	7 1/2	8	8 1/4	8 1/2	8 1/2
Each	\$1.55	1.65	1.75	1.90	2.05	2.20	2.30	2.40	2.55	2.55
Diameter, inches	1 1/8	1 1/16	1 1/8	1 1/16	1 1/4	1 5/16	1 3/8	1 7/16	1 1/2	1 5/8
Length over all, inches	8 1/2	9	9	9	9	9	9	9	9	9
Each	\$2.70	2.85	3.10	3.35	3.65	3.90	4.20	4.50	4.80	4.80

Packed Loose.

For Boring all kinds of Metal. Shank Fits any Ratchet Drill. Shanks 3/8 inch by 3/8 inch and 1 1/2 inches Long.

TWIST DRILLS.

No. 112/2—Morse; Straight Shanks $2\frac{1}{2}$ inches Long and $\frac{1}{4}$ inch in Diameter.

Diameter, inches	$\frac{1}{8}$	$\pm\frac{9}{64}$	$\frac{5}{32}$	$\pm\frac{11}{64}$	$\frac{3}{16}$	$\pm\frac{13}{64}$	$\frac{7}{32}$	$\pm\frac{15}{64}$	$\frac{1}{4}$
Length over all, inches	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$	$5\frac{1}{4}$
Each	\$0.45	.45	.45	.50	.50	.55	.55	.60	.60
Diameter, inches	$\pm\frac{17}{64}$	$\frac{9}{32}$	$\pm\frac{19}{64}$	$\frac{5}{16}$	$\pm\frac{21}{64}$	$\frac{11}{32}$	$\pm\frac{23}{64}$	$\frac{3}{8}$	$\pm\frac{25}{64}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$0.65	.65	.70	.70	.73	.73	.75	.75	.78
Diameter, inches	$\frac{13}{32}$	$\pm\frac{27}{64}$	$\frac{7}{16}$	$\pm\frac{29}{64}$	$\frac{15}{32}$	$\pm\frac{31}{64}$	$\frac{1}{2}$	$\pm\frac{33}{64}$	$\frac{17}{32}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$0.78	.80	.80	.83	.83	.85	.85	.88	.88
Diameter, inches	$\pm\frac{35}{64}$	$\frac{9}{16}$	$\pm\frac{37}{64}$	$\frac{19}{32}$	$\pm\frac{39}{64}$	$\frac{5}{8}$	$\pm\frac{41}{64}$	$\frac{21}{32}$	$\pm\frac{43}{64}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$0.90	.90	1.00	1.00	1.05	1.05	1.10	1.10	1.15
Diameter, inches	$\frac{11}{16}$	$\pm\frac{45}{64}$	$\frac{23}{32}$	$\pm\frac{47}{64}$	$\frac{3}{4}$	$\pm\frac{49}{64}$	$\frac{25}{32}$	$\pm\frac{51}{64}$	$\frac{13}{16}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$1.15	1.20	1.20	1.25	1.25	1.30	1.30	1.35	1.35
Diameter, inches	$\pm\frac{53}{64}$	$\frac{27}{32}$	$\pm\frac{55}{64}$	$\frac{7}{8}$	$\pm\frac{57}{64}$	$\frac{29}{32}$	$\pm\frac{59}{64}$	$\frac{15}{16}$	$\pm\frac{61}{64}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$1.40	1.40	1.45	1.45	1.55	1.55	1.60	1.60	1.70
Diameter, inches	$\frac{31}{32}$	$\pm\frac{63}{64}$	1	$\frac{11}{32}$	$\frac{11}{16}$	$\pm\frac{13}{32}$	$\frac{1}{8}$	$\pm\frac{15}{32}$	$\pm\frac{13}{16}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$1.70	1.80	1.80	1.90	2.00	2.10	2.20	2.25	2.30
Diameter, inches	$\pm\frac{17}{32}$	$\pm\frac{11}{4}$	$\pm\frac{19}{32}$	$\pm\frac{15}{16}$	$\pm\frac{111}{32}$	$\pm\frac{13}{8}$	$\pm\frac{113}{32}$	$\pm\frac{17}{16}$	$\pm\frac{115}{32}$
Length over all, inches	6	6	6	6	6	6	6	6	6
Each	\$2.35	2.40	2.50	2.60	2.70	2.80	2.90	3.00	3.20

STRAIGHTWAY DRILLS.



No. 114A—MORSE; Straight Shank, Straightway Drills.

Diameter, inches	$\frac{1}{16}$	$\frac{5}{64}$	$\frac{3}{32}$	$\frac{7}{64}$	$\frac{1}{8}$	$\frac{9}{64}$	$\frac{5}{32}$	$\frac{11}{64}$	$\frac{3}{16}$	$\frac{13}{64}$
Length over all, inches	$2\frac{1}{2}$	$2\frac{3}{8}$	$2\frac{3}{4}$	$2\frac{7}{8}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{5}{8}$
Each	\$0.09	.10	.11	.12	.13	.15	.16	.18	.20	.21
Diameter, inches	$\frac{7}{32}$	$\frac{15}{64}$	$\frac{1}{4}$	$\frac{17}{64}$	$\frac{9}{32}$	$\frac{19}{64}$	$\frac{5}{16}$	$\frac{21}{64}$	$\frac{11}{32}$	$\frac{23}{64}$
Length over all, inches	$3\frac{3}{4}$	$3\frac{7}{8}$	4	$4\frac{1}{8}$	$4\frac{1}{4}$	$4\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{5}{8}$	$4\frac{3}{4}$	$4\frac{7}{8}$
Each	\$0.23	.26	.28	.30	.32	.35	.37	.40	.42	.45
Diameter, inches	$\frac{3}{8}$	$\frac{25}{64}$	$\frac{13}{32}$	$\frac{27}{64}$	$\frac{7}{16}$	$\frac{29}{64}$	$\frac{15}{32}$	$\frac{31}{64}$	$\frac{1}{2}$	
Length over all, inches	5	$5\frac{1}{8}$	$5\frac{1}{4}$	$5\frac{3}{8}$	$5\frac{1}{2}$	$5\frac{5}{8}$	$5\frac{3}{4}$	$5\frac{7}{8}$	6	
Each	\$0.48	.50	.53	.55	.59	.63	.65	.67	.70	

Weight Each, all Numbers, about: $\frac{1}{16}$ inch, $3\frac{1}{2}$ ozs.; $\frac{5}{64}$, 4 ozs.; $\frac{3}{32}$, $4\frac{1}{2}$ ozs.; $\frac{7}{64}$, $5\frac{1}{4}$ ozs.; $\frac{1}{8}$, $6\frac{1}{2}$ ozs.; $\frac{9}{64}$, 8 ozs.; $\frac{5}{32}$, $9\frac{1}{2}$ ozs.; $\frac{11}{64}$, 11 ozs.; $\frac{3}{16}$, 1 lb.; $\frac{13}{64}$, $1\frac{1}{2}$ lbs.

Packed Loose.

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REAMERS.

Finest Tool Steel.

Morse Taper Finishing Reamers, with Straight Shank.
Used for making Sockets.

Each

†No. 118/0—Length over all, 3 3/4 inches, Length of Flutes 2 1/4 inches; Taper .367 x .252.....	\$1.60
No. 118/1—Length over all, 5 1/2 inches, Length of Flutes 3 inches; Taper .517 x .369.....	2.00
No. 118/2—Length over all, 7 inches, Length of Flutes 3 1/2 inches; Taper .745 x .573.....	2.60
No. 118/3—Length over all, 8 inches, Length of Flutes 4 1/4 inches; Taper .989 x .778.....	3.40
No. 118/4—Length over all, 9 inches, Length of Flutes 5 1/4 inches; Taper 1.290 x 1.020.....	4.20
No. 118/5—Length over all, 10 inches, Length of Flutes 6 1/4 inches; Taper 1.801 x 1.475.....	6.60
†No. 118/6—Length over all, 12 inches, Length of Flutes 8 1/2 inches; Taper 2.557 x 2.116.....	12.00

Weight Each, No. 118/1, 1/4 lb.; No. 118/3, 1 lb.; No. 118/5, 2 lbs.

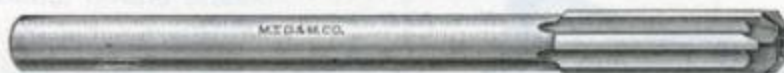


Morse Taper Roughing Reamers, with Straight Shanks; Used for Making Sockets.

Each

†No. 118 1/2/0—Length over all, 3 3/4 inches; Length of Flutes 2 1/4 inches; Taper .367 by .252.....	\$1.60
†No. 118 1/2/1—Length over all, 5 1/2 inches; Length of Flutes 3 inches; Taper .517 by .369.....	2.00
†No. 118 1/2/2—Length over all, 7 inches; Length of Flutes 3 1/2 inches; Taper .745 by .572.....	2.60
†No. 118 1/2/3—Length over all, 8 inches; Length of Flutes 4 1/4 inches; Taper .989 by .778.....	3.40
†No. 118 1/2/4—Length over all, 9 inches; Length of Flutes 5 1/4 inches; Taper 1.290 by 1.020.....	4.20
†No. 118 1/2/5—Length over all, 10 inches; Length of Flutes 6 1/4 inches; Taper 1.801 by 1.475.....	6.60
†No. 118 1/2/6—Length over all, 12 inches; Length of Flutes 8 1/2 inches; Taper 2.557 by 2.116.....	12.00

Weight Each about, No. 118 1/2/0, 1/4 lb.; No. 118 1/2/3, 1 lb.; No. 118 1/2/5, 2 lbs.



†No. 120—Morse Rose Chucking Reamers, with Straight Shank.

Diameter, inches.....	1/4	5/32	3/16	11/32	3/8	13/32	7/16	15/32	1/2	17/32	9/16
Length over all, inches.....	6	8	6	7	7	7	7	7	8	8	8
Length of Flute, inches.....	1 1/2	1 1/2	1 1/2	1 1/2	1 3/4	1 3/4	1 3/4	1 3/4	2	2	2
Each.....	\$0.80	.85	.90	.95	1.00	1.05	1.10	1.15	1.20	1.25	1.30
Diameter, inches.....	19/32	1	1 1/32	1 1/16	1 1/8	1 1/4	1 1/2	1 3/4	1 7/8	2	2 1/8
Length over all, inches.....	9	9	9	9	9	9 1/2	9 1/2	9 1/2	9 1/2	10	10
Length of Flute, inches.....	2	2 1/4	2 1/4	2 1/4	2 1/4	2 1/2	2 1/2	2 1/2	2 1/2	2 3/4	2 3/4
Each.....	\$1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80	1.90
Diameter, inches.....	1 1/16	1 1/8	1 1/4	1 1/2	1 3/4	1 7/8	2	2 1/8	2 1/4	2 1/2	2 3/4
Length over all, inches.....	10	10	10 1/2	10 1/2	10 1/2	10 1/2	11	11	11	11	11 1/2
Length of Flute, inches.....	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	2 5/8	2 7/8	2 7/8	2 7/8	2 7/8	3
Each.....	\$1.95	2.05	2.10	2.20	2.25	2.35	2.40	2.50	2.55	2.65	2.70
Diameter, inches.....	1 5/16	1 3/4	1 7/8	2	2 1/8	2 1/4	2 1/2	2 3/4	2 5/8	2 7/8	3
Length over all, inches.....	11 1/2	12	12	12 1/2	12 1/2	13	13	13 1/2	13 1/2	14	14
Length of Flute, inches.....	3	3 1/4	3 1/4	3 1/2	3 1/2	3 3/4	3 3/4	4	4	4 1/4	4 1/4
Each.....	\$2.85	3.00	3.15	3.30	3.45	3.60	3.75	3.90	4.05	4.20	4.40
Diameter, inches.....	2 1/16	2 1/8	2 1/4	2 1/2	2 3/4	2 5/8	2 7/8	3	3 1/8	3 1/4	3 1/2
Length over all, inches.....	14 1/2	14 1/2	14 1/2	14 1/2	14 1/2	15	15	15	15	15	15
Length of Flutes, inches.....	4 1/2	4 1/2	4 1/2	4 1/2	4 1/2	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4	4 3/4
Each.....	\$4.90	5.20	5.50	5.80	6.10	6.40	6.70	7.00	7.30	7.60	7.90
Diameter, inches.....	2 5/8	2 7/8	3	3 1/8	3 1/4	3 1/2	3 3/4	3 5/8	3 3/4	3 7/8	4
Length over all, inches.....	15 1/2	15 1/2	15 1/2	15 1/2	15 1/2	16	16	16	16	16	16
Length of Flutes, inches.....	5	5	5	5	5	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4	5 1/4
Each.....	\$7.50	7.80	8.10	8.40	8.70	9.00	9.30	9.60	9.90	10.20	10.50

Weight Each about, 1/4 inch, 1 oz.; 3/8, 2 1/2 oz.; 1/2, 6 oz.; 3/4, 13 1/2 oz.; 1, 1 1/4 lbs.; 1 1/4, 3 1/4 lbs.; 1 1/2, 4 lbs.; 1 3/4, 5 1/4 lbs.; 2, 6 1/4 lbs.; 2 1/4, 8 lbs.; 3, 12 lbs.
Packed Loose.

*REAMERS.

Finest Tool Steel.

No. 120A—MORSE; Locomotive Taper Reamers, Tapering $\frac{3}{32}$ inch per Foot, with Morse Straight Shank.

Diameter $\frac{1}{2}$ inch from Small End, in..	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$
Length over all, inches	$5\frac{5}{16}$	$5\frac{1}{2}$	$5\frac{1}{4}$	$5\frac{1}{2}$	$6\frac{1}{8}$	$6\frac{1}{2}$	$6\frac{3}{4}$	$7\frac{1}{8}$	$7\frac{1}{2}$	$8\frac{1}{4}$	$8\frac{1}{2}$
Length of Flutes, inches	4	4	4	4	5	5	5	6	6	7	7
Each	\$2.20	2.20	2.25	2.25	2.30	2.40	2.55	2.70	3.00	3.20	3.50
Diameter, inches	$\frac{11}{16}$	$\frac{3}{4}$	$\frac{13}{16}$	$\frac{7}{8}$	$\frac{15}{16}$	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{3}{8}$	$1\frac{1}{2}$
Length over all, inches	$8\frac{1}{8}$	$8\frac{1}{2}$	$11\frac{1}{4}$	$11\frac{1}{4}$	$11\frac{1}{4}$	$11\frac{1}{4}$	$12\frac{1}{8}$	$12\frac{1}{4}$	$12\frac{1}{4}$	$14\frac{1}{2}$	$14\frac{1}{2}$
Length of Flutes, inches	8	8	9	9	9	9	10	10	10	12	12
Each	\$3.80	4.10	4.50	4.80	5.10	5.40	5.70	6.20	6.60	7.00	7.60
Diameter, inches	$1\frac{3}{8}$	$1\frac{7}{8}$	$1\frac{1}{2}$	$1\frac{9}{16}$	$1\frac{5}{8}$	$1\frac{11}{16}$	$1\frac{3}{4}$	$1\frac{13}{16}$	$1\frac{7}{8}$	$1\frac{15}{16}$	2
Length over all, inches	$14\frac{1}{2}$	$14\frac{1}{2}$	$14\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	$16\frac{1}{2}$	$18\frac{1}{2}$	$18\frac{1}{2}$	$18\frac{1}{2}$	$18\frac{1}{2}$
Length of Flutes, inches	12	12	12	14	14	14	14	16	16	16	16
Each	\$8.00	8.50	9.00	9.60	10.20	10.85	11.60	12.40	14.00	15.00	16.00



No. 120B—Morse Bit Stock Taper Reamers.

Nominal Size, inches	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{11}{16}$	$\frac{3}{4}$
Length over all, inches	$3\frac{7}{8}$	4	$4\frac{1}{8}$	$4\frac{1}{4}$	$4\frac{3}{8}$	$4\frac{1}{2}$	$4\frac{5}{8}$	$4\frac{3}{4}$	$4\frac{7}{8}$
Length of Flute, inches	$1\frac{3}{4}$	$1\frac{1}{2}$	2	$2\frac{1}{8}$	$2\frac{1}{4}$	$2\frac{3}{8}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$2\frac{7}{8}$
Each	\$0.45	.50	.55	.60	.70	.80	.90	1.05	1.20
Nominal Size, inches	$1\frac{3}{16}$	$\frac{7}{8}$	$1\frac{1}{8}$	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$
Length over all, inches	5	$5\frac{1}{8}$	$5\frac{1}{4}$	$5\frac{3}{8}$	$5\frac{1}{2}$	$5\frac{5}{8}$	$5\frac{3}{4}$	$6\frac{1}{8}$	$6\frac{1}{4}$
Length of Flute, inches	$2\frac{7}{8}$	3	$3\frac{1}{8}$	$3\frac{1}{4}$	$3\frac{3}{8}$	$3\frac{1}{2}$	$3\frac{5}{8}$	$3\frac{3}{4}$	$3\frac{7}{8}$
Each	\$1.45	1.65	1.95	2.20	2.35	2.45	2.60	2.70	2.70

Weight Each about, $\frac{1}{4}$ inch, 1 oz.; $\frac{3}{8}$ inch, $1\frac{1}{2}$ ozs.; $1\frac{1}{2}$ inch, 2 ozs.; $\frac{3}{4}$ inch, $4\frac{1}{2}$ ozs.

No. 120D—Morse Taper-Pin Reamers, with Straight Shank.

Size Number	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Diameter Small End, inches	.135	.146	.162	.183	.208	.240	.279	.331	.398	.482	.581	.706	.842	1.009	1.250
Length over all, inches	$2\frac{1}{4}$	$2\frac{5}{8}$	3	$3\frac{7}{16}$	$3\frac{7}{8}$	$4\frac{1}{8}$	$4\frac{1}{2}$	$5\frac{1}{8}$	$5\frac{1}{2}$	$6\frac{1}{8}$	$6\frac{3}{4}$	$8\frac{1}{8}$	$10\frac{1}{8}$	$12\frac{1}{8}$	$14\frac{1}{8}$
Length of Flute, inches	$1\frac{1}{2}$	$1\frac{3}{4}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	$3\frac{1}{4}$	$4\frac{1}{4}$	$5\frac{1}{4}$	$6\frac{1}{4}$	$7\frac{1}{4}$	$8\frac{1}{4}$	10	12	14
Each	\$1.00	1.00	1.25	1.50	1.75	2.00	2.25	2.50	3.00	3.50	4.00	4.75	5.50	6.50	7.75

Weight Each about, Size 0, $\frac{1}{8}$ oz.; Size 2, $\frac{1}{2}$ oz.; Size 4, $\frac{3}{4}$ oz.; Size 6, $1\frac{1}{4}$ ozs.; Size 8, 6 ozs.; Size 10, 11 ozs.; Size 12, 1 lb.

Packed Loose.

REAMERS.

BURRING.

Spiral Flutes, Bit Brace Shank.
Tool Steel; Polished.

Nos.	1	2	4
Total Length, inches.....	2 3/4	3 3/4	4 5/8
Length of Flute, inches.....	1	1 1/2	2
Length of Shank, inches.....	1 3/4	2 1/4	2 5/8
Size at Point, inches.....	7/32	7/16	1
Size at Large End, inches.....	3/4	1 1/4	2 7/16
Capacity Pipe, inches.....	1/2 to 1/2	1/2 to 1	1 to 2
Weight each about, ozs.....	3	6	19
Each.....	\$1.00	1.25	3.00



No. 120H1—Morse Center Reamers, with Straight Shank.

Size Cut, inches.....	1/4	3/8	1/2	5/8	3/4
Length over all, inches..	1 1/2	1 13/16	2	2 1/4	2 3/4
Diameter Shank, inches..	1/4	3/8	1/2	5/8	3/4
Length Shank, inches..	3/4	1	1 1/4	1 3/4	2
Each.....	\$0.22	.25	.30	.50	.70

No. 120H2—Morse Center Reamer, with Straight Shank.

Size Cut, inches.....	1/4	3/8	1/2	5/8	3/4
Length over all, inches..	1 1/2	1 13/16	2	2 1/4	2 3/4
Diameter Shank, inches..	1/4	3/8	1/2	5/8	3/4
Length Shank, inches..	3/4	1	1 1/4	1 3/4	2
Each.....	\$0.25	.30	.35	.60	.75

COUNTERSINKS.



Lightning, Round Shank.

Finest Tool Steel.

No.	515	525	516	526
Size	1/2 inch, with 1/2 inch Round Shank;	1/2 inch, with 1 1/4 inch Round Shank;	1/2 inch, with 1/2 inch Round Shank;	1/2 inch, with 1 1/4 inch Round Shank;
Length over all	3 3/4 inches.....	3 3/4 inches.....	4 1/2 inches.....	4 1/2 inches.....
Each	\$0.50	.50	.75	.75



Lightning, Square Shank.

No.	505	506
Size	1/2 inch, Square Shank for Bit Brace....	1/2 inch, Square Shank for Bit Brace....
Weight Each about	1/2 lb.	
Each	\$0.50	.75

BELL CENTERING PUNCHES.



Finest Tool Steel.

No. BC—Capacity up to 1 1/2 inches; Weight each about 1/2 lb..... \$1.00

Used by Machinists to mark the center of Round Iron (any diameter up to 1 1/2 inches), in order to place it between the Lathe centers correctly.

The Center Point slides back with the Rod when the Rod is inserted in the Cap. When the Rod fits its own size in the Cap, the Stem is struck with hammer or mallet and the Center Point strikes and indicates the Exact Center of the Rod.

COUNTERSINKS.



Finest Tool Steel.

No. 109A—Morse Three-Groove Bit Stock Countersinks.

Diameter, inches.....	3/8	1/2	5/8	3/4	7/8	1
Length over all, inches.....	4 1/4	4 1/4	4 3/4	5	5	5
Each.....	\$0.50	.60	.75	.90	1.05	1.20

Packed Loose.

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**±COUNTERSINKS.**

Finest Tool Steel.



Morse Combined Drills and Countersinks, with No. 1 Morse Taper Shanks.

No. 109C22—Diameter of Body $7/16$ inch; Diameter of Drill, Gauge No. 22; Length over all $3\frac{1}{2}/16$ inches; Weight each about $2\frac{1}{4}$ ozs.	Each
No. 109C13—Diameter of Body $7/16$ inch; Diameter of Drill, Gauge No. 13; Length over all $3\frac{1}{2}/16$ inches; Weight each about $2\frac{1}{4}$ ozs.	\$1.00
	1.25



No. 109D—Morse Taper Shank Counter Bores.

Diameter Counterbore, inches	$3/8$	$7/16$	$1/2$	$5/16$	$3/8$	$11/16$	$3/4$	$13/16$	$7/8$	$15/16$
Diameter Guide, inches	$1/4$	$5/16$	$3/8$	$3/8$	$7/16$	$7/16$	$1/2$	$5/8$	$5/8$	$3/4$
Length over all, inches	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$	$5\frac{1}{16}$	$5\frac{1}{16}$	$5\frac{1}{16}$	$6\frac{1}{16}$	$6\frac{1}{16}$
Morse Taper Shank, No.	1	1	1	1	1	1	1	1	2	2
Each	\$1.40	1.40	1.40	1.40	1.40	1.50	1.50	1.50	1.80	1.80
Diameter Counterbore, inches	1	$1\frac{1}{16}$	$1\frac{1}{8}$	$1\frac{1}{8}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{3}{4}$	$1\frac{3}{4}$	$1\frac{7}{8}$	$1\frac{7}{8}$
Diameter Guide, inches	$3/4$	$3/4$	$13/16$	$13/16$	$7/8$	$7/8$	$15/16$	$15/16$	$15/16$	1
Length over all, inches	$6\frac{1}{16}$	$6\frac{1}{16}$	$6\frac{1}{16}$	$6\frac{1}{16}$	$6\frac{1}{16}$	$7\frac{1}{16}$	$7\frac{1}{16}$	$7\frac{1}{16}$	$7\frac{1}{16}$	$7\frac{1}{16}$
Morse Taper Shank, No.	2	2	2	2	2	3	3	3	3	3
Each	\$1.80	1.80	2.00	2.00	2.00	2.20	2.40	2.60	2.80	2.80

Packed Loose.

FLAT DRILLS.

Finest Tool Steel.



No. FD—For Packer Ratchets.

(See Page 294).

Diameter, inches	$3/8$	$1/2$	$5/8$	$3/4$	$7/8$	1
Length over all, inches	6	6	6	6	6	6
Weight each about, ozs.	8	8	8	8	8	8
Each	\$0.40	.40	.40	.45	.45	.45

Packed Loose.

CENTER ARBORS.

For Attaching Little Giant Drill Chucks to Lathes, Drill Presses and Blacksmiths' Drill Presses.

Finest Tool Steel.



No. 1—With $1/2$ inch Shank for No. 2/0 Little Giant Drill Chucks	Each
No. 2—With $1/2$ inch Shank for No. 1/0 Little Giant Drill Chucks	\$0.75
	.75



No. 15—With 1 inch Blank Shank, $4\frac{1}{4}$ inches Long, to fit No. 1 Little Giant Drill Chucks	Each
	\$0.75



No. 9—With Morse No. 1 Taper Shank, to fit No. 2/0 Little Giant Drill Chucks	Each
No. 10—With Morse No. 2 Taper Shank, to fit No. 1/0 Little Giant Drill Chucks	\$2.00
No. 11—With Morse No. 2 Taper Shank, to fit No. 1 Little Giant Drill Chucks	2.00
No. 12—With Morse No. 2 Taper Shank, to fit No. 2 Little Giant Drill Chucks	2.00
No. 13—With Morse No. 3 Taper Shank, to fit No. 1 Little Giant Drill Chucks	2.25
No. 14—With Morse No. 3 Taper Shanks, to fit No. 2 Little Giant Drill Chucks	2.25

Average Weight Each about 1 lb.

Packed Loose.



TAPER PINS.

MORSE; Taper 1/4 inch to the Foot. Finest Tool Steel.

Number.	136A0	136A1	136A2	136A3	136A4	136A5	136A6	136A7	136A8	136A9	136A10
Diameter at Large End, inches.	.156	.172	.193	.219	.250	.289	.341	.409	.492	.591	.706
Approximate Fractional Sizes.	5/32	11/64	3/16	7/32	1/4	9/32	11/32	13/32	1/2	19/32	23/32
Length, inches.	Per 100	Per 100	Per 100	Per 100	Per 100	Per 100	Per 100	Per 100	Per 100	Per 100	Per 100
1	\$1.80	\$2.00	\$2.10	\$2.30	\$2.50	\$2.75	\$3.00	.....	.....	.....	.....
1 1/4	2.05	2.25	2.35	2.55	2.75	3.00	3.25	\$3.75	.....	.....	.....
1 1/2		2.50	2.60	2.80	3.00	3.25	3.50	4.00	\$4.65	.....	.....
1 3/4			2.85	3.05	3.25	3.50	3.75	4.25	5.00	\$7.00	\$9.00
2				3.30	3.50	3.75	4.00	4.50	5.40	7.50	9.50
2 1/4					3.75	4.05	4.35	4.75	5.80	8.00	10.00
2 1/2						4.40	4.75	5.25	6.25	8.60	10.75
2 3/4							5.20	5.75	6.75	9.20	11.50
3							5.70	6.25	7.25	9.80	12.25
3 1/4							6.25	6.75	7.80	10.50	13.25
3 1/2							6.75	7.25	8.40	11.20	14.25
3 3/4								7.75	9.00	11.90	15.25
4								8.25	9.60	12.60	16.25
4 1/4									10.20	13.30	17.25
4 1/2									10.80	14.00	18.25
4 3/4									11.40	14.70	19.25
5										15.40	20.25
5 1/4										16.10	21.25
5 1/2										16.80	22.25
5 3/4											23.25
6											24.25
.....											25.25



Star Drill.

Nos.	1/8	2/8	3/8
Diameter of Shank, inches..	1/8	3/16	3/8
Length of Shank, inches....	2	3 1/2	4 1/2
Holds Drills Nos.....	0 to 3/4	0 to 3/8	0 to 1/2
Weight each about, lbs.....	1	1 1/2	3
Each	\$1.00	1.50	3.00

BEACH PATENT
DRILL CHUCK.

Finest Tool Steel.

No.	121/0	121/1	121/2	121/3	121/4
Morse; Holding from 0 to 3/8 inch Diameter (for Jewelers); Weight each about 2 1/2 ozs.....	\$8.00	8.00	8.50	10.00	11.00
Morse; Holding from 0 to 1/4 inch Diameter; Weight each about 1 1/4 lbs.....	.....	.....	.....	.....	.....
Morse; Holding from 1/16 to 1/2 inch Diameter; Weight each about 3 lbs.....	.....	.....	.....	.....	.....
Morse; Holding from 3/16 to 5/8 inch Diameter; Weight each about 3 lbs.....	.....	.....	.....	.....	.....

ALL CHUCKS HAVE TO BE FITTED TO EACH LATHE THEY ARE USED ON.

Packed Loose.

CHUCKS.

Finest Tool Steel.

Barber's Lathe for Holding Square
Shank Drills.

No. 112—With 1/2 inch Round Shank.....	Each \$1.50
--	-------------

Weight Each about 2 1/2 lbs.





Little Giant Improved Drill.

Nos.	00	0	1	2 1/2
Diameter, inches.	1 1/16	2 1/2	3	4
Holding Drills, in.	0 to 1/4	0 to 1/2	0 to 3/4	0 to 1
Wgt. each about, lbs.	1	4	6	10 1/2
Each	\$7.00	8.00	9.00	11.00



Morse Center Drill Chuck.

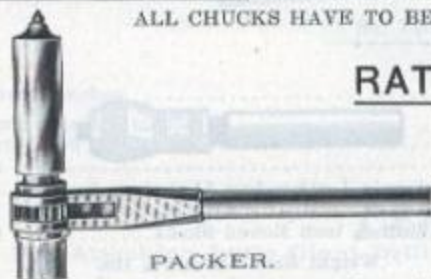
Each Chuck will Hold but One Size of Drill—that for which it is specially made.

No.	124/1	124/2
Size Drill from 1/16 to 3/16 inch; Outside Diameter of Chuck 3/8 inch; Length over all 2 1/16 inches.	Each \$2.50	
Size Drill from 3/16 to 1/2 inch; Outside Diameter of Chuck 1 1/4 inches; Length over all 2 1/2 inches.		Each 2.50
Arbor for Center Drill Chuck		.80

ALL CHUCKS HAVE TO BE FITTED TO EACH LATHE THEY ARE USED ON.
Packed Loose.

RATCHET DRILLS.

Finest Tool Steel.



PACKER.

Nos.	1	2	3	4
Length of Handles, inches.	10	12	15	17
Length of Head, inches.	8 1/4	9	10	10 1/2
Weight each about, lbs.	6 1/2	7	10 1/2	14
Each	\$10.50	13.50	16.00	19.00

Ratchet Drills Nos. 1, 2, 3, 1B and 2B take Morse Drills No. 109E1, and No. 4 takes Morse Drills No. 109E2. No. FD Flat Drills on Page 292 will fit all of these Ratchet Drills.



RENSHAW'S. Each
No. 3R—WITH COLLET AND 4 SOCKETS; 15 inch Handle; Weight each about 9 lbs. \$15.00
By transferring the collet and feed screw, as arranged for right-hand drilling, to opposite ends of the spindle, the ratchet may be used for left-hand drilling. Four sockets are furnished with each Drill, Nos. 1, 2 and 3 correspond in size of holes with the Morse Taper Sockets. Socket No. 5 is for square shank drills of 1/2 to 1 1/2 inch diameter. Nos. 3 and 5 Sockets are held in the spindle by screw thread. Nos. 1 and 2 Sockets have taper shanks, fitting No. 3 Socket, and can be forced out of position by turning in the feed screw.
One in a Package.

CHUCKS.

Finest Tool Steel.



Hartford Drill.

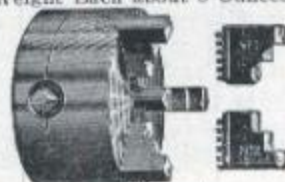
Nos.	0H	1H	2H
Diameter, inches.	1 1/4	2 1/4	2 3/4
Holding Drills, inches.	0 to 1/4	0 to 1/2	0 to 3/4
Weight each about, lbs.	1 1/2	2 1/2	5
Each	\$6.00	7.00	8.00



Screws for Little Giant Improved Drill Chucks.

In ordering specify whether your Chuck has a ★ Stamped on it.

For Nos.	00	0	1	2	2 1/2
Screws, each	\$1.00	1.00	1.00	1.10	1.50
Weight Each about 8 Ounces.					



Cushman's.

No.	2U
Diameter, inches.	2
Weight each about, lbs.	1 1/2
Each	\$8.50

ALL CHUCKS HAVE TO BE FITTED TO EACH LATHE THEY ARE USED ON.
Packed Loose.

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DRILLS.**BLACKSMITHS' TIRE.**

Each

No. 2—Japanned Cast Iron Frame, Crank and Feed Wheel; Polished Steel Feed Screw and Chuck; Painted Hardwood Grip on Crank; Diameter of Feed Screw 1 1/2 inches; Will Drill to the center of a 6 inch Circle; Length over all 30 inches; Tail End of Frame Adjustable with Ratchet Teeth; Weight each about 26 lbs.....

\$3.00



Each

No. 1—Natural Finish Cast Iron Frame, Crank and Feed Wheel; Polished Steel Feed Screw and Chuck; Plain Finish Hardwood Grip on Crank; Diameter of Feed Screw 1 1/2 inches; Will Drill to the center of a 7 inch Circle; Length over all 28 1/2 inches; Tail End of Frame Adjustable with Ratchet Teeth; Weight each about 22 lbs.....

\$2.40

Will take Morse Square Shank Drills No. 109E.
One in a Crate.



Bench.

Each

No. 69—BUFFALO; Japanned Cast Iron Frame and Wheels; Steel Axles, Chuck and Crank; Height over all 26 inches; Will drill to center of a 9 inch Circle; fitted for 1/2 inch Drill Shank; Weight each about 59 lbs.....

\$15.00

One in a Crate.



POST DRILLS.

BUFFALO.

These Drills are Strong, Simple and of Rigid and Durable Design, careful attention being given to Distribution of Metal along lines of Greatest Strain. They have Painted Cast Iron Frames, Gearing, Feed, Fly Wheels and Tables; Steel Shafts, Axles, Chucks and Cranks.



Each

No. 149—HAND FEED; WITHOUT FLY-WHEEL;

The Feed has a $3\frac{1}{2}$ inch run, and will Drill Holes up to $\frac{3}{4}$ inch, to Center of a 12 inch Circle; Chuck fitted for Drills with $\frac{1}{2}$ inch Straight Shank; Diameter of Shaft $1\frac{1}{4}$ inches; Diameter of Chuck $1\frac{3}{4}$ inches; Round Table 7 inches in Diameter; Diameter of Feed Wheel 6 inches; Diameter of Drive Wheel 6 inches; Length of Crank $12\frac{1}{2}$ inches; Bolted to a Natural Finish Hardwood Upright 33 inches Long, $4\frac{1}{2}$ inches Wide and $1\frac{1}{4}$ inches Thick; Height over all $35\frac{1}{2}$ inches; Weight each about 52 lbs. \$7.00



Each

No. 151—BALL BEARING, WITH DOUBLE GEARED SELF-FEED; The Feed has a 3

inch Run and will Drill Holes up to 1 inch, to Center of a 12 inch Circle; Chuck fitted for Drills with $\frac{1}{2}$ inch Straight Shank; Diameter of Shaft $1\frac{1}{4}$ inches; Diameter of Chuck $1\frac{3}{4}$ inches; Round Table 7 inches in Diameter; Diameter of Feed Wheel 5 inches; Diameter of Drive Wheel 6 inches; Diameter of Fly Wheel $12\frac{1}{2}$ inches; Length of Crank 13 inches; Bolted to a Natural Finish Hardwood Upright 33 inches Long, $4\frac{1}{2}$ inches Wide and $1\frac{1}{4}$ inches Thick; Height over all 36 inches; Weight each about 65 lbs. \$8.50



Each

No. 155—BALL BEARING, WITH DOUBLE GEARED SELF-FEED; The Feed has a

$3\frac{1}{4}$ inch Run, and will Drill Holes up to 1 inch, to Center of a 15 inch Circle; Chuck fitted for Drills with $\frac{1}{2}$ inch Straight Shank; Diameter of Shaft $1\frac{1}{4}$ inches; Diameter of Chuck $1\frac{3}{4}$ inches; $7\frac{1}{2}$ inch Square Table; Diameter of Feed Wheel 5 inches; Diameter of Drive Wheel 6 inches; Diameter of Fly Wheel $13\frac{1}{2}$ inches; Length of Crank 13 inches; Bolted to a Natural Finish Hardwood Upright 38 inches Long, $5\frac{1}{4}$ inches Wide, $1\frac{1}{4}$ inches Thick; Height over all 47 inches; Weight each about 94 lbs. \$13.00

One in a Crate.

—486B—

*POST DRILLS.

BUFFALO.

These Drills are Strong, Simple and of Rigid and Durable Design, careful attention being given to Distribution of Metal along lines of Greatest Strain. They have Painted Cast Iron Frames, Gearing, Feed, Fly Wheels and Tables; Steel Shafts, Axles, Chucks and Cranks.

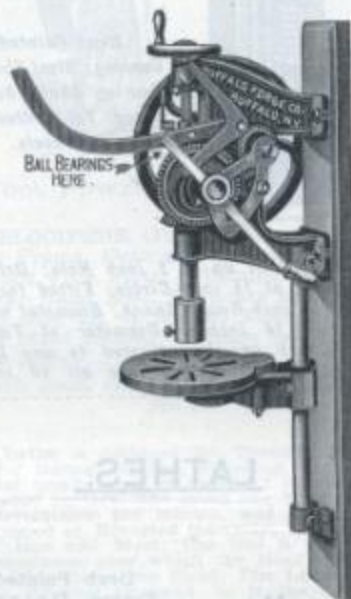


Each

- ±No. 90—Ball Bearing, WITH AUTOMATIC HAND AND LEVER FEED; Two Speeds for Drilling and Three for Automatic Feed, make this Machine adaptable to a Large Range of Work; Has a 5 inch Run and will Drill Holes up to $1\frac{3}{4}$ inches to the Center of a 22 inch Circle; Spindle $1\frac{1}{8}$ inches in Diameter; Chuck Fitted for Drills with $\frac{5}{8}$ inch Straight Shank; Diameter of Shaft $1\frac{1}{4}$ inches; Diameter of Chuck $2\frac{1}{8}$ inches; Round Table 11 inches in Diameter; Diameter of Feed Wheel 6 inches; Diameter of Drive Wheel $6\frac{3}{4}$ inches; Diameter of Fly Wheel 16 inches; Length of Crank $14\frac{1}{2}$ inches; Bolted to a Plain Finished Hardwood Upright 48 inches Long, $5\frac{1}{2}$ inches Wide and 2 inches Thick; Height over all 46 inches; Weight each about 325 lbs. \$55.00

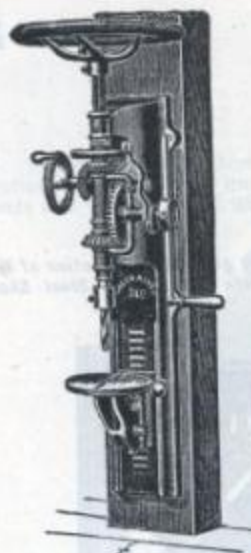
- ±No. 90P—WITH TIGHT AND LOOSE PULLEYS FOR POWER; Otherwise Same as No. 90; Weight each about 330 lbs. 60.00

One in a Crate.



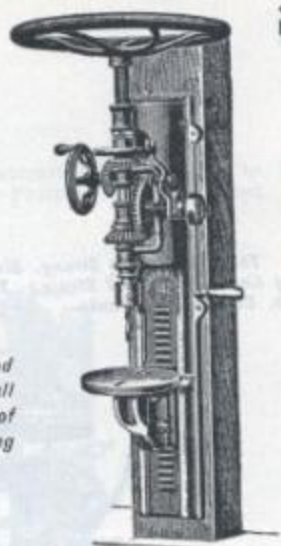
Each

- ±No. 104—Ball Bearing, WITH AUTOMATIC HAND AND LEVER FEED; Two Speeds; Has a 4 inch Run and will Drill Holes up to $1\frac{1}{2}$ inches to the Center of an 18 inch Circle. Spindle $1\frac{1}{8}$ inches in Diameter; Chuck Fitted for Drills with $\frac{1}{2}$ inch Straight Shank; Diameter of Shaft $1\frac{3}{8}$ inches; Diameter of Chuck $2\frac{1}{8}$ inches; Diameter of Table $15\frac{1}{2}$ inches; Diameter of Feed Wheel 9 inches; Diameter of Drive Wheel $7\frac{3}{4}$ inches; Diameter of Fly Wheel 22 inches; Length of Crank $14\frac{1}{2}$ inches; Bolted to a Plain Finished Hardwood Upright 72 inches Long, 9 inches Wide and 2 inches Thick; Height over all 74 inches; Weight each about 140 lbs. \$30.00

DRILLING MACHINES.

GREEN RIVER.

Black Painted Cast Iron Frame, Balance Wheel, Table and Gearing; Steel Shafts, Axles, Crank and Swinging Table; Ball Bearing Shaft; Automatic Feed, capable of Three Changes of Speed; Table fitted to Forked Arm, can be removed for Drilling Tires on Wheels.



Each
 No. 740—Will Drill up to 1 inch Hole; Drills to center of 15 inch Circle; Fitted for Drill Bits with $\frac{1}{2}$ inch Round Shank; Diameter of Balance Wheel 16 inches; Diameter of Table 8 inches; Crank can be adjusted to any Length up to 18 inches; Height over all 40 inches; Weight each about 185 lbs. \$20.00

Each
 No. 742—Will drill up to 1 inch Hole; Drills to center of 15 inch Circle; Fitted for Drill Bits with $\frac{1}{2}$ inch Round Shank; Diameter of Balance Wheel 22 $\frac{1}{2}$ inches; Diameter of Table 9 $\frac{1}{2}$ inches; Crank can be adjusted to any Length up to 18 inches; Height over all 50 inches; Weight each about 232 lbs. \$37.00

One in a Crate.

LATHES.

Drab Painted Cast Iron Frame, Drive Wheel Treadle, Slide Rests and Heads; Cast Steel Bed; Steel Axles and Shafts; Complete with 5 Turning Tools; The Drive Wheel has Two Grooves of Different Depths on its Face to give a Change of Speed; The Lathe Head has a 2 inch Face Plate, Spur Center, Screw Center and Drill Chuck to hold Twist Drills up to $\frac{1}{4}$ inch in Diameter; On the outer side of the Pulley is fitted an Emery Wheel $4\frac{1}{2}$ inches in Diameter by $\frac{3}{8}$ inch Thick, and

a Drill Spindle to hold Small Drill Points for Wood Boring; The Tail Stock has a Screw Feed Center which is secured at any point by a Clamp.

Each
 No. 1—GOODELL'S; Swing of Lathe 5 inches; Length of Bed 24 inches; Distance between Centers 13 $\frac{1}{2}$ inches; Height over all 24 inches; Diameter of Drive Wheel 13 $\frac{1}{2}$ inches; Round Leather Belt $\frac{3}{4}$ inch Thick; Weight each about 56 lbs. \$10.00

One in a Case.

SCROLL SAW ATTACHMENT.

Each
 No. 2—Scroll Saws; To fit No. 1 Goodell's Lathe; Drab Painted Cast Iron Frame; Polished Hardwood Arms; Attached to Lathe with one Heavy Bolt and Nut; Length over all 31 inches; Weight each about 10 lbs. \$1.50

One in a Case.

CIRCULAR SAW ATTACHMENT.

Each
 No. 2—Circular Saw; To fit No. 1 Goodell's Lathe; Consisting of a Saw Table 6x7 inches; One Circular Saw 3 inches in Diameter, and a Saw Arbor; Weight each about 1 lb. \$1.00

Packed Loose.

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LATHES.



BARNES', with Velocipede Foot Power.

No. 55—VELOCIPED (Factory No. 3); Painted Iron Frame, Gear and Pulleys; Including 3 Centers (1 a Spur), 2 Tool Rests and Sockets, and 1 Turned Face Plate; Height over all 48 inches; Floor Space required 24x56 inches; Distance between Centers 36 inches..... **\$40.00**

Weight Each about 230 lbs.; Boxed for Shipment, about 320 lbs.

No. 55 Lathe is designed for Wood Turning; Will take in Stuff 12 inches in Diameter and 3 feet Long; Speed can be varied from 1,000 to 2,000 Revolutions per minute; Seat can be moved readily along to any part of the Bed that the work requires; The Lathe is made entirely of Iron and Steel, except the Bed, which is Wood; Centers are accurately fitted to Taper Holes; No Wrench is required to adjust the Tail Stocks or Tool Rests and Sockets, Hand Wheels being used instead.



No. 93—VELOCIPED (Factory No. 4); Painted Iron Frame, Gear and Pulleys; Including 1 Turned Face Plate, 2 Pointed and 1 Spur Centers; Hand Rest, Wrenches and Belting; Height over all 44 inches; Floor Space required 24x34 inches; Distance between Centers 20 inches..... **\$50.00**

Weight Each about 210 lbs.; Boxed for Shipment, about 265 lbs.

No. 93 Lathe is designed for Turning both Wood and Iron, and for Boring, Drilling, Polishing, etc. It is a desirable size for small work; it swings 7 inches and takes 20 inches between centers; The speed can be varied from 1,000 to 2,000 Revolutions per minute, and the motion can be Started, Stopped or Reversed instantly; This Lathe is made entirely of Iron and Steel; The Bed is solid and has V-shaped Projections, over which the Head and Tail Stocks, Hand and Slide Rests are fitted; The Lead Screw for the Carriage is operated by hand, by it the Carriage can be traveled 20 inches, the entire distance between Centers; The Carriage can be engaged or disengaged instantly from the Lead Screw; The Cross Feed Way on which the Tool Post moves can be set at any desired angle for Taper Turning and Boring; The Tail Stock can be moved and set at any point desired by the simple turning of the Hand Wheel; or it can be taken off entirely, thus leaving the Bed free for Face Plate or Chuck Work; The Head Stock Spindle is Hollow; Size of Hole $\frac{1}{2}$ inch; The Lead Stock Spindle has Taper Bearings and is capable of very nice adjustment; The Tail Stock Center is Self-Discharging.



No. 97.

No. 97—VELOCIPED (Factory No. 4½); Painted Iron Frame, Gear and Pulleys; Height over all 46 inches; Floor Space required 24x42 inches; Distance between Centers 25 inches; Swings 9 inches..... **\$75.00**

Weight Each 270 lbs.; Boxed for Shipment, about 340 lbs.

No. 97 is a Back-Geared Screw Cutting Lathe; Feeds Right or Left, and Cuts Screws Right or Left without change of Gearing; The Carriage is Adjustable for Taper Boring or Ball Turning; It is thoroughly Gibbed for taking up wear.

The Tail Stock has Side Movement to Adjust Centers for Turning Tapers; The Head Stock has Hollow Spindle for Rods up to $\frac{1}{2}$ in.; All the Gearing is Cut from Solid Metal; All Parts are made of Steel where this would best serve the purpose.

It is Indexed for Threads 5 to 40 and the Change Gears furnished can be combined for many other Threads; It Swings $4\frac{1}{4}$ in. over Tool Carriage.

The Small Pulley on Cone is $2\frac{1}{4}$ in.; the Large Pulley $4\frac{1}{2}$ in.; It has Three Speeds, and is suitably arranged for Heavy or Light Work in Turning or Polishing.

WHEN IT IS POSSIBLE TO DO SO, CHUCKS SHOULD BE FITTED TO LATHES BEFORE BEING SHIPPED.

#LATHES.



#BARNES', with Velocipede Foot Power.

#No. 113—VELOCIPEDE (Factory No. 5); Painted Iron Frame, Gear and Pulleys; Distance between Centers 34 inches; Swings 11 inches; Height over all 48 inches; Floor Space 24x54 inches; Weight Each about 385 pounds; Boxed for Shipment about 500 pounds.....\$100.00

#No. 115—VELOCIPEDE (Factory No. 5); Painted Iron Frame, Gear and Pulleys; Distance between Centers 40 inches; Swings 11 inches; Height over all 48 inches; Floor Space required 24x64 inches; Weight Each about 420 pounds; Boxed for Shipment about 530 pounds.....105.00

#No. 129—Fixtures to raise the Head and Tail Stocks, Extra and Tool to bore out and swing 11 inches in diameter..\$10.00

#No. 131—Hand Rest, with Sockets for Hand Turning... 3.00

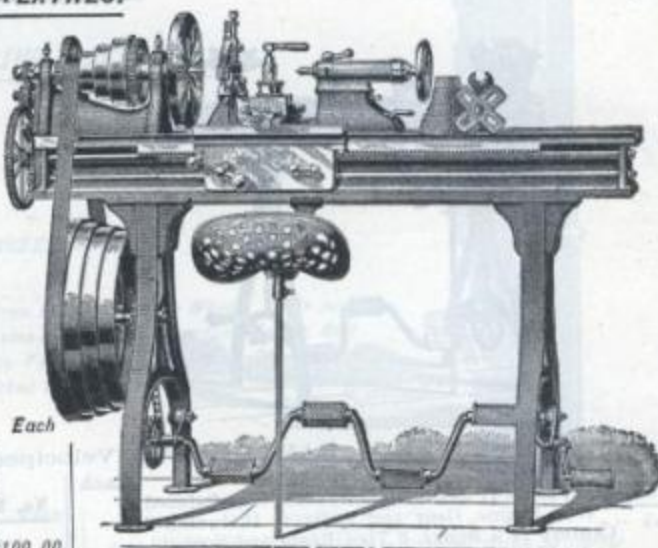
#No. 133—Countershaft only for above..... 15.00

Swings 6 1/2 inches over the Tool Carriage; With its Back-Gearing and Cone Pulleys the Lathe has a Great Range of Speed.

The Head Stock has a Steel Spindle with 1 1/2 inch Hole through its Entire Length; The Boxes are accurately fitted to the Spindle, with provision to keep them true and to take up Wear; The Tail Stock can be readily set at any desired point, or taken altogether from the Lathe Bed, thus leaving it free for Face Plate or Chuck Work; It can also be set over for Turning Tapers; The Spindles of both Head and Tail Stocks are of Steel, with positively true Taper Holes for the reception of the Centers, and the Tail Stock Center is Self-Discharging; The Tool Carriage is Glibbed to the Bed; Not made with Automatic Cross Feed; On a Small Lathe, less than 15 or 16 inches Swing, Automatic Cross Feed is of no particular advantage; The Tool Carriage Swivels so that the Tool can be set to work at any desired angle and it also adapts the Lathe for Taper Boring; These Features are of Greater Value than Automatic Cross Feed; All the Works are securely protected from chips and dirt, thus insuring long wear and durability to the most costly and vital parts of the Lathe; It is indexed for Threads 4 to 40, and the Change Gears furnished can be combined for many other Threads; As a Right or Left Screw Cutting Lathe it is perfect; all the Gearing is Cut from Solid Metal in the Best Machinery known for Gear Cutting, and is as True and Noiseless as it is possible for Metal Gearing to be.

BED—Extra Length. The Dimensions of No. 113 Velocipede Lathe are in true proportion; Gunsmiths and others often require a Greater Length of Bed, and do not care for Proportionate Strength in other parts; For such we can furnish a Bed that will admit of 40 inches between Centers. See No. 115.

Each



#BARNES', with Velocipede Foot Power.

(Factory No. 5 1/2); Painted Iron Frame, Gear and Pulleys; Swing on Face Plate 13 inches; Swing over Carriage 8 inches.

Nos.....	#137	#139	#141
Length of Bed, feet	6	7	8
Distance between Centers, inches....	45	57	69
Height over all, inches	46	46	46
Floor Space Required, inches.....	24x72	24x84	24x96
Weight of Lathe about, pounds.....	690	740	790
Weight Boxed about, pounds.....	850	890	950
Each.....	\$145.00	155.00	165.00

Extra

#No. 195—Countershaft only, for Lathes Nos. 137 to 141.....\$20.00

#No. 163—Hand Rest, with Sockets, for Hand Turning. 3.50

Nos. 137 to 141 Lathes are designed to do as large work as it is practical to do by foot power; They are Strong, Substantial Lathes for a job or manufacturing shop where the demand on a Lathe is from the Smallest to the Largest Work.

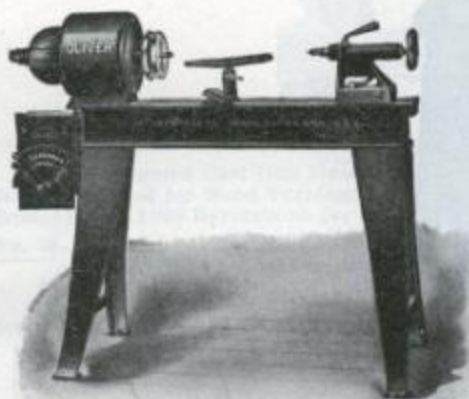
Patent Twin Screw Feed and Screw Cutting Combination, which makes Change of Feed in the Tool Carriage instead of in the Head Stock; This greatly simplifies and reduces the number of parts commonly used for these purposes.

The Tail Stock has Side Movement to Adjust Centers for Turning Tapers; The Head Stock has Hollow Spindle for Rods up to 1 1/2 inch; All the Gearing is Cut from Solid Metal; They are Indexed for Threads 4 to 20, and the Change Gears furnished can be combined for many other Threads.

WHEN IT IS POSSIBLE TO DO SO, CHUCKS SHOULD BE FITTED TO THE LATHES BEFORE BEING SHIPPED.

LATHES.

OLIVER MOTOR HEAD SPEED.



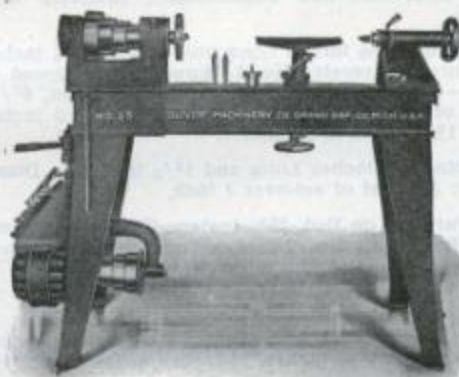
Especially adapted for use in Manual Training Schools; Self-contained; No Overhead Countershaft; No Belting to care for; Light Unobstructed; No Accumulation of Dust; No Accidents from Tangled Belting; Only Two Bearings to Oil; Speed Control at Operator's Hand; Greater Number of Speed Variations; Costs Less to Maintain. Head Stock consists of a Standard High Grade Motor of the Variable Speed Type, Fully Enclosed with ample overload capacity; Hollow Spindle; Thrust Bearing; Hand Wheel for Adjustments; Bronze Spindle Bearings; Controller Specially designed for this Lathe; Equipped with $\frac{1}{4}$ inch Spur Center, $\frac{1}{2}$ inch Cup Center, Pair Conical Centers, $2\frac{1}{2}$ inch Rosette Chuck, 6 inch Face Plate, 12 inch Rest and Holder; Center Driving Rod; Shifter Lever and Rod; Head Stock has $1\frac{1}{4}$ inch Spindle; Hole through Spindle $\frac{1}{2}$ inch in Diameter; Uses No. 2 Morse Taper; Speed 600 to 3,000 Revolutions per Minute. Tail Stock has $1\frac{1}{4}$ inch Spindle; 8 inch Bearing; Traverse of Spindle 4 inches.

	Each
No. 53A —WITH 48 INCH BED, TO TURN 24 INCHES LONG	\$125.00
No. 53B —WITH 60 INCH BED, TO TURN 36 INCHES LONG	125.00
No. 53/C —WITH 48 INCH BED, TO TURN 24 INCHES LONG, WITH HAND FEEDING CARRIAGE AND COMPOUND SWIVEL REST	175.00
No. 53D —WITH 60 INCH BED, TO TURN 36 INCHES LONG, WITH HAND FEEDING CARRIAGE AND COMPOUND SWIVEL REST.....	175.00

One in a Crate; Weight Each about 500 lbs.

OLIVER MOTOR DRIVE SPEED.

Using Alternating Current.



This is the only High Class Motor Driven Speed Lathe on the market that has been designed for using Alternating Current. We furnish it for One, Two or Three Phase, and 110 or 220 Volts, as may be required. The Head Stock, Tail Stock and General Equipment are the same as used on the No. 19 Lathe shown on page 302. The Motor Drive consists of an Alternating Current Motor, Capacity One-half H. P., 1,700 Revolutions per Minute, with the Armature Shaft extended at one end and supporting a Four Step Cone Pulley of Correct Sizes to give Desirable Spindle Speed and Receiving an Out-board Bearing to hold it rigidly in alignment; Motor and Out-board Bearing are mounted on a Bracket attached to the Left Hand Leg. Motor Bracket may be raised $\frac{1}{4}$ inch by a Quarter Turn of the Handle at the end of the Bed; This slacks the Belt, making it less difficult to shift the Belt to the different Steps of the Cone. This Operation may be used to Stop the Lathe for Short Periods, namely, for Measuring Work; The Motion is then dropped back and the Lathe speeds up at once; For taking up the Stretch in the Belt there is a Fine Adjustment of the Motor Bracket Independent of the Raising Movement above mentioned.

	Each
No. 55A —WITH 48 INCH BED, TO TURN 24 INCHES LONG; Weight each about 450 lbs.	\$250.00
No. 55B —WITH 60 INCH BED, TO TURN 36 INCHES LONG; Weight each about 475 lbs.	250.00
No. 55/C —WITH 60 INCH BED, TO TURN 36 INCHES LONG, WITH HAND FEEDING CARRIAGE AND PLANE REST; Weight each about 500 lbs.	330.00
No. 55D —WITH 60 INCH BED, TO TURN 36 INCHES LONG, WITH HAND FEEDING CARRIAGE AND COMPOUND SWIVEL REST; Weight each about 525 lbs.	350.00
No. 55E —WITH 60 INCH BED, TO TURN 36 INCHES LONG, WITH POWER FEEDING CARRIAGE AND COMPOUND SWIVEL REST; Weight each about 550 lbs.	430.00

One in a Crate.



LATHES.



THE NEW OLIVER SPEED.

This Lathe is Specially Designed for use in Educational Institutions, but its qualities of Efficiency, Durability and Utility recommend it highly for Shop Use as well. It will stand very hard usage. Essentially a Wood-working Tool; It has been successfully used for Filing, Polishing and Turning Brass and similar Metals. Its Mechanical Design and Careful Construction place it on a par with the Best Iron-working Tools. The Head Stock is Lubricated perfectly by Ring Oilers; The Bearings have Bronze Bushings; The Spindle is Machine Ground and of the Best Crucible Steel; End Thrust is taken care of by the ends of the Cone Pulley pressing against the Bushings; To take up end wear the Cone Pulley may be Expanded, as the Smallest Step is screwed into the rest of it. The Tail Stock is of the Open Side Design, allowing the Tool Post to pass by it when Hand-feeding Carriage is used; Tail Spindle is well proportioned and will give no trouble. The Bed is One Solid Casting, Heavily Ribbed to Eliminate Vibrations; The Legs are Heavy and Rigidly fastened with Three Point Bearing, which does away with undue strains; At the left end of the Bed is a Lever which easily Operates the Shifter Rod; Center Rod hangs conveniently from a Bracket. Countershaft furnished regularly with this Machine has Self-Oiling Bearing; The Loose Pulley is fitted with a well Lubricated Bronze Collar which runs Loose both on the Shaft and inside the Pulley, thus furnishing Double Wearing Surface.

EQUIPMENT—For this Lathe, besides the Machine already for use, according to numbers below, consists of One Rest Socket complete with Clamp, and Cup Center, One Spur Center, Two Conical Centers, One 6 inch Face Plate, One 12 inch Long Tool Rest, One Rosette Chuck, One Center Rod, and One Countershaft, complete with Tight and Loose Pulleys, Driving Cone, New Shifter and Ring Oilers.

HEAD STOCK—12 $\frac{1}{4}$ inches Long, 6 inches Wide on Bottom; Spindle 15 $\frac{1}{2}$ inches Long over all and 1 $\frac{1}{2}$ inches in Diameter; Hole through Spindle $\frac{1}{2}$ inch in Diameter; Spindle Bored to receive No. 2 Morse Taper; Speed of Spindle 700, 1195, 1920, 2800 R. P. M.; Cone on Spindle, four Steps—2 $\frac{1}{2}$ inches, 3 $\frac{1}{2}$ inches, 4 $\frac{1}{2}$ inches, 6 $\frac{7}{16}$ inches in Diameter; 1 $\frac{1}{2}$ inch Face. Distance from Floor to Center of Spindle 42 inches; Front Bearing 3 inches Long and 1 $\frac{1}{2}$ inches in Diameter; Rear Bearing 3 inches Long and 1 $\frac{1}{2}$ inches in Diameter.

TAIL STOCK—7 inches Long; 6 inches Wide on Bottom; Spindle 8 inches Long and 1 $\frac{1}{2}$ inches in Diameter; Spindle Bearing 8 inches Long; Traverse of Spindle 4 inches; Amount of set-over 1 inch.

CARRIAGE—Traverse of Cross Speed 6 $\frac{1}{2}$ inches; Travel of Carriage on Bed, 36 $\frac{1}{4}$ inches; Traverse of Compound Rest 3 $\frac{1}{2}$ inches; Length of Bearing on the Bed 10 inches; Tool Post Slot 2 inches Long and $\frac{19}{32}$ inch wide.

BED—Lengths 48 and 60 inches; Width 6 $\frac{1}{2}$ inches; Depth 6 $\frac{1}{4}$ inches; Height from Floor to Top of Bed 36 inches.

COUNTERSHAFT—Length 27 $\frac{1}{4}$ inches; Diameter 1 $\frac{1}{2}$ inches; Hangers, 8 inch Drop; Bearings 5 inches Long and 1 $\frac{1}{2}$ inches in Diameter; Cone, Four Steps—6 $\frac{7}{16}$ inches, 8 inches, 9 $\frac{1}{4}$ inches, 10 inches in Diameter; 1 $\frac{1}{2}$ inch Face.

	Each
No. 19A—LENGTH OF BED 48 INCHES; WITH LONG LEGS; Weight each, crated, about 450 lbs.	\$140.00
No. 19B—LENGTH OF BED 60 INCHES; WITH LONG LEGS; Weight each, crated, about 480 lbs.	149.00
No. 19C—LENGTH OF BED 48 INCHES; WITH BENCH LEGS; Weight each, crated, about 420 lbs.	134.00
No. 19D—LENGTH OF BED 60 INCHES; WITH BENCH LEGS; Weight each, crated, about 450 lbs.	134.00
No. 19E—WITH NO BED OR LEGS; Weight each, crated, about 235 lbs.	124.00
No. 19F—LENGTH OF BED 60 INCHES; WITH LONG LEGS AND CARRIAGE WITH PLAIN TOOL REST; Weight each, crated, about 545 lbs.	240.00
No. 19G—LENGTH OF BED 60 INCHES; WITH LONG LEGS AND CARRIAGE WITH COMPOUND SWIVEL REST; Weight each, crated, about 545 lbs.	260.00

One in a Crate.

MT



LATHES.



BARNES' BENCH.

Drab Painted Cast Iron Heads, Slide Rests, Feet, Pulley and Hand Wheels; Steel Face Plate, Axles and Bolts; Designed for Wood Turning; Will take in Stuff 12 inches in Diameter and 3 feet Long; Speed can be varied from 1,000 to 2,000 Revolutions per minute.

No. 59—(Factory No. 3); Hardwood Bed 54 inches Long, 4 inches Thick; Diameter of Pulley 5 inches; Width of Pulley Face 1 1/4 inches; Length of Slide Rests, 1 each 9 and 5 inches; Height over all 16 1/4 inches; Diameter of Face Plate 4 1/2 inches; Weight each about 75 lbs. \$25.00
One in a Case.

WHEN IT IS POSSIBLE TO DO SO, CHUCKS SHOULD BE FITTED TO LATHES BEFORE BEING SHIPPED.

LATHE DOG WRENCHES.



Per Dozen

No. 3—Cast Steel, Natural Finish; Fits Screw Heads 3/8, 7/16, 1/2, 9/16, 5/8, 11/16 and 3/4 inches; Length 8 1/4 inches; Weight per dozen about 12 lbs. \$9.00
Packed Loose.

POLISHING LATHE HEADS.



Each

No. 2—Japanned Cast Iron Base and Frame; Polished Steel Axle Pulleys; Clamp, Chuck and Taper Threaded Spindle; Diameter of Spindle 3/8 inch; Height 6 1/2 inches; Length of Spindle 2 1/4 inches; Diameter of Pulley 1 1/4 inches; Length of Shaft over all 8 inches; Size of Base 3x3 inches; Weight each about 1 1/2 lbs. \$2.50
Packed Loose.

SCREW CHASERS.

Finest Tool Steel.



Inside Chaser.

Outside Chaser.

Per Pair

For Chasing Screws in the Lathe, by Hand, of the following Number of Threads to the inch.....

7	8	9	10	11	11 1/2	12
13	14	16	18	20	22	24

\$1.50

Weight per Pair about 8 ozs.

IF SINGLE CHASERS ARE WANTED, SPECIFY WHETHER INSIDE OR OUTSIDE WHEN ORDERING.
Packed Loose.



TURNING TOOLS.

For Metal, Bone, Hard Rubber, Etc.



Cast Steel, Polished; With Handles; All Tools are about 9 inches long over all without Handle.

	Per Dozen
No. 1—SQUARE POINTS, $\frac{1}{4}$ and $\frac{3}{8}$ inch; Weight per dozen about 2 lbs.	\$4.20
No. 2—SKEW POINTS, RIGHT HAND, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ inch; Weight per dozen about 3 lbs.	4.20
No. 3—SKEW POINTS, LEFT HAND, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ inch; Weight per dozen about 3 lbs.	4.20
No. 4—ROUND POINTS, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{5}{8}$ inch; Weight per dozen about 4 lbs.	4.20
No. 5—SPEAR POINTS, $\frac{1}{4}$, $\frac{3}{8}$ and $\frac{1}{2}$ inch; Weight per dozen about 3 lbs.	4.40
No. 6—SQUARE GRAVER, $\frac{1}{4}$ and $\frac{3}{8}$ inch; Weight per dozen about 2 lbs.	4.40
No. 7—INSIDE TOOL, RIGHT HAND; Weight per dozen about 3 lbs.	6.00
No. 8—INSIDE TOOL, LEFT HAND; Weight per dozen about 3 lbs.	6.00
No. 9—SIDE TOOL, RIGHT HAND; Weight per dozen about 3 lbs.	6.00
No. 10—SIDE TOOL, LEFT HAND; Weight per dozen about 3 lbs.	6.00
No. 11—CUTTING-OFF TOOL; Weight per dozen about 3 lbs.	6.00

One-half Dozen in a Cardboard Box.

SIZERS.

Wood Turners'.



Cast Steel Blades, Polished; Not Handled; Cast Iron Frame.

No. 25—Opens 4 inches; Weight per dozen about 13 lbs.

One-half Dozen in a Cardboard Box.

PARTING TOOLS.

Wood Turners'.



Cast Steel Polished; Not Handled; Length $8\frac{1}{2}$ to $9\frac{1}{2}$ inches over all.

No. 18.

Size, inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Weight per dozen about, lbs.	2	2	$2\frac{1}{4}$
Per dozen	\$4.50	5.00	5.50

One-half Dozen in a Cardboard Box.

SLIDE REST LATHE TOOLS.

Forged from Finest Tool Steel, Natural Finish; Tempered Points; Average Length over all 5 inches.



No. 1.



No. 2.



No. 3.



No. 4.



No. 5.



No. 6.



No. 7.



No. 8.



No. 9.

Size, inches		$\frac{1}{4} \times \frac{1}{2}$	$\frac{5}{16} \times \frac{5}{8}$	$\frac{3}{8} \times \frac{3}{4}$
For Barnes' Lathes Nos.		93 and 95	97 to 115	135 to 141
No. 1—Cut-Off Tool,	Each	\$0.30	.30	.40
No. 2—Right Hand Diamond Point,	Each	.30	.30	.40
No. 3—Left Hand Diamond Point,	Each	.30	.30	.40
No. 4—Right Hand Side Tool,	Each	.30	.30	.40
No. 5—Left Hand Side Tool,	Each	.30	.30	.40
No. 6—Thread Tool,	Each	.30	.30	.40
No. 7—Bent Thread Tool,	Each	.30	.30	.40
No. 8—Inside or Boring Tool,	Each	.30	.30	.40
No. 9—Bent Right Hand Side Tool,	Each	.30	.30	.40

All the Numbers illustrated are made in all the Three Sizes. The Numbers indicate the Shape. Packed Loose. Weight Each about $\frac{1}{4}$ lb.

TOOL HOLDERS.

ARMSTRONG.

For General Lathe and Planer Work.

Drop Forged from Steel, and Case Hardened; The Top and Bottom are Planed Square with the Size; The Hole for receiving the Cutter is Drilled and Squared from the Solid, insuring a Straight and True Seat; Set Screw is Tool Steel, with Tempered Point; Cutters made of Armstrong Special Self-hardening Steel, Unexcelled for General Use on various Metals under High Speed and Heavy Feeds.



STRAIGHT SHANK.

Each Tool complete with One Drop Forged Wrench and Two Cutters, Ground to Shape.

No.	Size of Holder, inches.	Size of Cutters, inches, Square.	Weight, each about, lbs.	Each.	Extra Cutters, Each.
00/S	5/16 x 5/8 x 4 1/2	3/16	1/2	\$1.60	\$0.10
0/S	3/8 x 3/4 x 5	1/4	3/4	1.65	.12
1/S	1/2 x 1 x 6	5/16	1 1/4	1.80	.18
2/S	5/8 x 1 1/4 x 7	3/8	2	2.30	.25
3/S	3/4 x 1 1/2 x 8	7/16	3 1/4	3.00	.35
4/S	7/8 x 1 5/8 x 9	1/2	4 1/2	3.80	.45
5/S	1 x 1 3/4 x 11	5/8	7 1/2	4.75	.65
6/S	1 1/4 x 2 x 13	3/4	11 1/2	7.00	1.00
7/S	1 1/2 x 2 1/4 x 16	7/8	20	12.00	1.75
750/S	1 5/8 x 2 1/2 x 18	1	25	17.50	2.50
800/S	1 3/4 x 2 3/4 x 20	1 1/8	37	23.00	3.25



LEFT HAND OFFSET TOOL.



RIGHT HAND OFFSET TOOL.

OFF-SET SHANK.

No. Left Hand.	No. Right Hand.	Size of Holder, inches.	Size of Cutters, inches, Square.	Weight each about, lbs.	Each.	Extra Cutters, Each.
00L	00R	5/16 x 5/8 x 4 1/2	3/16	1/2	\$1.60	\$0.10
0L	0R	3/8 x 3/4 x 5	1/4	3/4	1.65	.12
1L	1R	1/2 x 1 x 6	5/16	1 1/4	1.80	.18
2L	2R	5/8 x 1 1/4 x 7	3/8	2	2.30	.25
3L	3R	3/4 x 1 1/2 x 8	7/16	3 1/4	3.00	.35
4L	4R	7/8 x 1 5/8 x 9	1/2	4 1/2	3.80	.45
5L	5R	1 x 1 3/4 x 11	5/8	7 1/2	4.75	.65
6L	6R	1 1/4 x 2 x 13	3/4	11 1/2	7.00	1.00
7L	7R	1 1/2 x 2 1/4 x 16	7/8	20	12.00	1.75
750L	750R	1 5/8 x 2 1/2 x 18	1	25	17.50	2.50
800L	800R	1 3/4 x 2 3/4 x 20	1 1/8	37	23.00	3.25

One in a Cardboard Box.



CUTTING-OFF TOOLS.

ARMSTRONG.

Shank Drop Forged from Steel; Blade made of Self-hardening Steel, Tempered.



STRAIGHT SHANK.

Complete with One Drop Forged Wrench and One Blade.

No.	Size of Holder, inches.	Size of Blade, inches.	Weight each about, lbs.	Each.	Extra Blades, Each.
20	$\frac{3}{8}$ x $\frac{3}{8}$ x 5	$\frac{3}{32}$ x $\frac{5}{8}$ x $5\frac{1}{2}$	$\frac{3}{4}$	\$1.65	\$0.25
21	$\frac{1}{2}$ x $1\frac{1}{8}$ x 6	$\frac{1}{8}$ x $\frac{5}{8}$ x $6\frac{1}{2}$	$1\frac{1}{4}$	1.80	.35
22	$\frac{3}{4}$ x $1\frac{3}{8}$ x 7	$\frac{1}{8}$ x $\frac{7}{8}$ x $7\frac{1}{2}$	2	2.30	.45
23	$\frac{3}{4}$ x $1\frac{1}{2}$ x 8	$\frac{3}{16}$ x 1 x $8\frac{1}{2}$	$3\frac{1}{4}$	3.00	.60
24	$\frac{3}{4}$ x $1\frac{3}{4}$ x 9	$\frac{3}{16}$ x $1\frac{1}{8}$ x $9\frac{1}{2}$	$4\frac{1}{2}$	3.80	.75
25	1 x 2 x 10	$\frac{1}{4}$ x $1\frac{1}{4}$ x $10\frac{1}{2}$	$6\frac{1}{2}$	4.75	.95
26	$1\frac{1}{2}$ x $2\frac{1}{2}$ x 11	$\frac{1}{4}$ x $1\frac{1}{2}$ x $11\frac{1}{2}$	$8\frac{1}{4}$	6.50	1.25



OFF-SET SHANK.

Complete with One Drop Forged Wrench and One Blade.

No. Left Hand.	No. Right Hand.	Size of Holder, inches.	Size of Blade, inches.	Weight each about, lbs.	Each.	Extra Blades, Each.
	00C	$\frac{5}{16}$ x $\frac{3}{4}$	$\frac{3}{32}$ x $\frac{9}{16}$	$\frac{3}{4}$	\$1.65	\$0.25
30L	30R	$\frac{3}{8}$ x $\frac{3}{4}$	$\frac{3}{32}$ x $\frac{5}{8}$	1	1.65	.25
31L	31R	$\frac{1}{2}$ x $1\frac{1}{8}$	$\frac{1}{8}$ x $\frac{3}{4}$	$1\frac{1}{2}$	1.80	.35
32L	32R	$\frac{5}{8}$ x $1\frac{1}{8}$	$\frac{1}{8}$ x $\frac{7}{8}$	$2\frac{1}{2}$	2.30	.45
33L	33R	$\frac{3}{4}$ x $1\frac{1}{8}$	$\frac{3}{16}$ x 1	4	3.00	.50
34L	34R	$\frac{7}{8}$ x $1\frac{1}{8}$	$\frac{3}{16}$ x $1\frac{1}{8}$	$5\frac{1}{4}$	3.80	.75
35L	35R	1 x 2	$\frac{1}{4}$ x $1\frac{1}{4}$	$7\frac{1}{2}$	4.75	.95
36L	36R	$1\frac{1}{8}$ x $2\frac{1}{8}$	$\frac{1}{4}$ x $1\frac{3}{8}$	$9\frac{1}{2}$	6.50	1.25

One in a Cardboard Box.

MT



SIDE TOOLS.

ARMSTRONG.

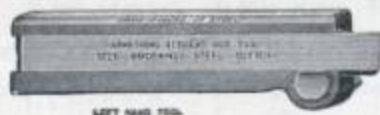
Shank Drop Forged from Tool Steel; Cutters made of Self-hardening Steel, Tempered.



STRAIGHT SHANK.

Complete with One Drop Forged Wrench and One Cutter Ground to Shape.

No. Left Hand.	No. Right Hand.	Size of Shank, inches.	Size of Cutter, inches.	Weight each about, lbs.	Each.	Extra Cutters, Each.
81L	81R	$\frac{1}{2} \times 1\frac{1}{8} \times 6$	$\frac{7}{32} \times \frac{5}{8} \times 6$	1 $\frac{1}{2}$	\$2.40	\$0.55
82L	82R	$\frac{3}{8} \times 1\frac{1}{4} \times 6$	$\frac{1}{4} \times \frac{3}{4} \times 6\frac{1}{2}$	1 $\frac{1}{2}$	3.00	.65
83L	83R	$\frac{3}{8} \times 1\frac{1}{2} \times 7\frac{1}{2}$	$\frac{5}{16} \times 1 \times 8$	2 $\frac{3}{4}$	3.90	1.15
84L	84R	1 x 1 $\frac{1}{4} \times 9$	$\frac{3}{8} \times 1\frac{1}{4} \times 9\frac{1}{2}$	5	4.90	1.35
85L	85R	1 $\frac{1}{2} \times 2 \times 11$	$\frac{7}{16} \times 1\frac{1}{2} \times 11\frac{1}{2}$	7 $\frac{1}{2}$	6.50	1.85
86L	86R	1 $\frac{1}{2} \times 2\frac{1}{2} \times 13$	$\frac{1}{2} \times 1\frac{1}{2} \times 13\frac{1}{2}$	11	8.50	2.50
87L	87R	1 $\frac{1}{2} \times 2\frac{3}{4} \times 15$	$\frac{9}{16} \times 1\frac{1}{2} \times 15\frac{1}{2}$	16	12.00	3.75



LEFT HAND TOOL.



RIGHT HAND TOOL.

OFF-SET SHANK.

Complete with One Drop Forged Wrench and One Cutter Ground to Shape.

No. Left Hand.	No. Right Hand.	Size of Shank, inches.	Size of Cutter, inches.	Weight each about, lbs.	Each.	Extra Cutters, Each.
70L	70R	$\frac{3}{8} \times \frac{3}{8}$	$\frac{7}{32} \times \frac{5}{8} \times 4\frac{1}{2}$	$\frac{5}{8}$	\$2.20	\$0.45
71L	71R	$\frac{1}{2} \times 1\frac{1}{8}$	$\frac{1}{4} \times \frac{3}{4} \times 5$	1 $\frac{1}{2}$	2.40	.50
72L	72R	$\frac{5}{8} \times 1\frac{1}{2}$	$\frac{5}{16} \times 1 \times 6$	2 $\frac{3}{4}$	3.00	.75
73L	73R	$\frac{3}{4} \times 1\frac{1}{2}$	$\frac{3}{8} \times 1\frac{1}{4} \times 7$	4	3.90	1.15
74L	74R	$\frac{7}{8} \times 1\frac{1}{2}$	$\frac{7}{16} \times 1\frac{1}{2} \times 8$	5 $\frac{3}{4}$	4.90	1.35
75L	75R	1 x 2	$\frac{1}{2} \times 1\frac{1}{2} \times 9$	8 $\frac{1}{2}$	6.50	1.85
76L	76R	1 $\frac{1}{4} \times 2\frac{1}{4}$	$\frac{9}{16} \times 1\frac{1}{2} \times 10$	12 $\frac{1}{2}$	8.50	2.50

One in a Cardboard Box.



THREADING TOOLS.



ARMSTRONG.

Shank Drop Forged from Steel and Case-hardened. Cutter requires grinding on top edge only to sharpen and, therefore, always remains True to Form and of Correct Angle, insuring Perfect Fitting Threads. Cutters are backed off to afford proper Clearance. Back of Cutter is Eccentric in form and bears upon a Hardened Stop Screw which allows a Positive and Accurate Adjustment.

Each Tool Complete with One Single Point Cutter and a Drop Forged Wrench.

No.	Size of Shank, inches.	Weight each about, lbs.	Price complete with V or U. S. Standard Cutter.	Price complete with Whitworth Cutter.
00T	$\frac{5}{16} \times \frac{3}{8} \times 5$	$1\frac{1}{2}$	\$2.25	\$2.50
50	$\frac{3}{8} \times \frac{3}{8} \times 5$	$\frac{3}{4}$	2.25	2.50
51	$\frac{1}{2} \times 1 \times 6$	$1\frac{1}{2}$	2.75	3.10
52	$\frac{5}{8} \times 1\frac{1}{4} \times 7$	$2\frac{1}{4}$	3.50	4.00
53	$\frac{3}{4} \times 1\frac{1}{2} \times 8$	$3\frac{1}{2}$	4.50	5.00
54	$\frac{7}{8} \times 1\frac{3}{4} \times 9$	4	5.50	6.00
55	$1 \times 1\frac{3}{4} \times 10$	6	7.00	7.70

One in a Cardboard Box.

NOTE.—In ordering Tools equipped with the U. S. or Whitworth Cutters, always SPECIFY NUMBER OF THREADS TO THE INCH WANTED. Tools equipped with Single Point, Sharp V Cutter will always be sent unless otherwise specified.

EXTRA CUTTERS.

For Tool No.	00T and 50.		51.		52.		53 and 54.		55.
Shape of Thread.	Single Point.	Chaser.	Single Point.	Chaser.	Single Point.	Chaser.	Single Point.	Chaser.	Single Point, only.
Sharp V, Each.	\$0.45	\$0.90	\$0.55	\$1.05	\$0.70	\$1.20	\$0.90	\$1.30	\$1.25
U. S. Std., Each.	.50	.90	.60	1.05	.75	1.20	.95	1.30	1.35
Whitworth, Each.	.75	1.25	.90	1.40	1.15	1.65	1.40	1.80	1.95

Packed Loose.

NOTE.—When ordering Cutters for U. S. or Whitworth Standard, it is necessary to SPECIFY EXACT PITCH FOR NUMBER OF THREADS TO THE INCH.

MT



PLANER TOOLS.

ARMSTRONG.



Shank Drop Forged from Steel and Case-hardened; Cutters made of Self-hardening Steel, Rectangular in shape; Cutters Adjustable to Any Desired Angle. Each Tool complete with a Drop Forged Wrench and Two Cutters Ground to Shape.

Nos.	Size of Shank, inches.	Length, inches.	Size of Cutter, inches.	Weight each about, lbs.	Each.	Extra Cutters, Each.
40	$\frac{1}{2} \times 1$	7	$\frac{1}{4} \times \frac{3}{8}$	2	\$2.75	\$0.20
401	$\frac{3}{8} \times 1\frac{1}{4}$	8 $\frac{1}{2}$	$\frac{5}{16} \times \frac{7}{16}$	3	3.50	.30
41	$\frac{3}{4} \times 1\frac{1}{2}$	10	$\frac{3}{8} \times \frac{1}{2}$	4 $\frac{3}{4}$	4.50	.40
42	$1\frac{1}{4} \times 1\frac{3}{4}$	13	$\frac{1}{2} \times \frac{3}{4}$	10 $\frac{1}{2}$	7.00	.70
43	$1\frac{3}{4} \times 2$	16	$\frac{5}{8} \times \frac{7}{8}$	18 $\frac{3}{4}$	11.00	1.00
44	$1\frac{3}{4} \times 2\frac{1}{4}$	19	$\frac{3}{4} \times 1$	32 $\frac{1}{2}$	16.00	2.00
45	$2\frac{1}{4} \times 2\frac{3}{4}$	22	$\frac{7}{8} \times 1\frac{1}{8}$	50	25.00	3.00

BORING TOOLS.

ARMSTRONG.



Made entirely of Steel, Wearing Parts Hardened; Bar can be Extended from its Holder to any desired Length to suit Depth of Hole; Cutters made of Self-hardening Steel, and can be Ground for V or Square Thread, Double End, Round Nose, or Any Desired Shape.

Each Set consists of Holder and Bar with Straight and 45 Degree End Caps, Two Cutters (Ground for Boring) and a Double End Wrench.

Nos.	Size of Shank, inches.	Size of Bar, Diam., inches.	Size of Cutters, inches, Square.	Weight each about, lbs.	Each.	Extra Cutters, Each.
00B	$\frac{5}{16} \times \frac{5}{8}$	$\frac{1}{2}$	$\frac{3}{16}$	1 $\frac{1}{2}$	\$3.00	\$0.12
8	$\frac{3}{8} \times \frac{3}{4}$	$\frac{9}{16}$	$\frac{3}{16}$	2	3.00	.12
9	$\frac{1}{2} \times 1$	$\frac{3}{4}$	$\frac{1}{4}$	4	3.60	.15
10	$\frac{5}{8} \times 1\frac{1}{4}$	$\frac{15}{16}$	$\frac{5}{16}$	7 $\frac{1}{4}$	4.75	.20
11	$\frac{3}{4} \times 1\frac{1}{2}$	$1\frac{1}{8}$	$\frac{3}{8}$	12 $\frac{1}{4}$	6.75	.30
12	$\frac{7}{8} \times 1\frac{3}{4}$	$1\frac{5}{16}$	$\frac{7}{16}$	17 $\frac{1}{4}$	10.00	.40
13	$1 \times 1\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{2}$	26	14.00	.50

KNURLING TOOLS

ARMSTRONG.



Drop Forged from Bar Steel, Hardened; Knurls and Pins are Accurately made of Tool Steel, Suitably Tempered. Ample Bearing to resist severe strains of both End and Side Thrusts. Self-Centering.

No. 1K—Size of Shank $\frac{1}{2} \times 1\frac{1}{4}$ inches; Weight each about 1 $\frac{1}{4}$ lbs.	Each
Extra Knurls for No. 1K Knurling Tool.....	Per Pair
	\$0.75

One in a Cardboard Box.



LATHE DOGS.



Malleable Iron.

Natural Finish Malleable Iron Frame, with Steel Screw.

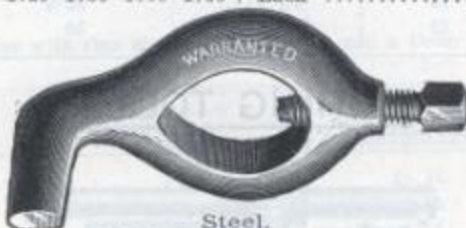
Nos.	1M	2M	3M	4M	5M	6M
Length of opening, in...	5/8	1 1/2	3/4	1	1 1/4	1 1/2
Length over all, in....	4 1/2	4 1/2	5	5 1/4	6	6 1/4
Wgt. each about, lbs....	5/8	5/8	1 1/2	5/8	1 1/4	1 1/4
Each.....	\$0.30	.30	.40	.40	.60	.60
Nos.	7M	8M	9M	10M	11M	12M
Length of opening, in...	1 1/2	2	2 1/2	3	3 1/2	4
Length over all, in....	7 1/2	7 1/2	8 1/2	9 1/4	9 3/4	10 1/2
Wgt. each about, lbs....	1 1/2	2	2 1/2	3	4 1/4	5
Each.....	\$0.90	1.00	1.20	1.30	1.40	1.60



Amateur's.

Natural Finish Cast Steel Frame and Screw to be used with Barnes' Lathes Nos. 93 and 97. (See Page 299.)

Nos.	1A	2A	3A	4A
Length of opening, inches.....	5/8	1 1/2	3/4	1
Length over all, inches.....	3	3 1/4	3 1/2	3 3/4
Weight each about, lbs.....	1/4	1/4	5/8	5/8
Each.....	\$0.30	.35	.45	.50



Steel.

Natural Finish Cast Steel Frame and Screw.

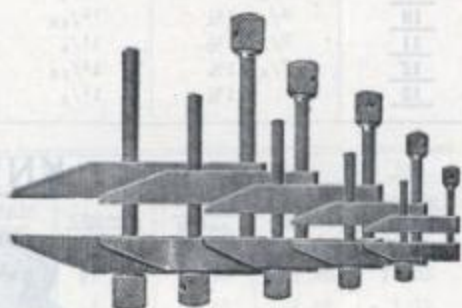
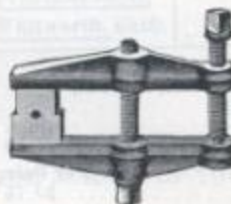
Nos.	1	2	3	4	5	6	7	8	9	10
Length of opening, inches.....	$\frac{3}{4}$	$1\frac{1}{2}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{2}$
Length over all, inches.....	$3\frac{3}{4}$	4	$4\frac{1}{4}$	$4\frac{1}{4}$	5	$5\frac{1}{2}$	$5\frac{1}{4}$	6	6	$6\frac{1}{4}$
Weight each about, lbs.....	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{4}$	$1\frac{1}{2}$	$1\frac{1}{2}$	2
Each	\$0.40	.50	.60	.60	.70	.70	.80	.80	.95	.95
Nos.	11	12	13	14	15	16	17	18	19	
Length of opening, inches.....	$1\frac{1}{2}$	2	$2\frac{1}{4}$	$2\frac{1}{2}$	$3\frac{1}{2}$	3	4	$4\frac{1}{2}$	5	
Length over all, inches.....	$6\frac{1}{2}$	7	8	$8\frac{1}{4}$	$8\frac{3}{4}$	10	11	$11\frac{1}{2}$	$11\frac{1}{2}$	
Weight each about, lbs.....	$2\frac{1}{4}$	$2\frac{1}{4}$	3	$3\frac{1}{4}$	4	5	7	$7\frac{1}{2}$	8	
Each	\$1.10	1.20	1.35	1.45	1.60	1.80	2.10	2.75	3.25	

CLAMPS.

TOOL MAKERS'.

Steel, Case-hardened, Mottled Finish. The Clamps are designed to insure Great Strength and Rigidity. The Jaws are Rounded on the ends to allow clamping under a shoulder or recess. The Screws are of Comparatively Fine Pitch to give Ample Leverage and fit the Jaws Tight enough to insure Rigidity.

No.	Length of Jaws, inches.	Jaws Open, inches.	Weight per dozen, lbs.	Per Doz.
No. 840	1 1/2	5/8	1	\$5.40
No. 841	2 1/2	1	2 1/4	6.00
No. 842	2 3/4	1 1/4	4 1/2	7.80
No. 843	3 3/4	1 3/4	6 3/4	9.00
No. 844	4	2 1/4	10	12.00



STEEL MACHINISTS'.

Drop Forged Steel; Tool Steel Screws, Case-hardened.

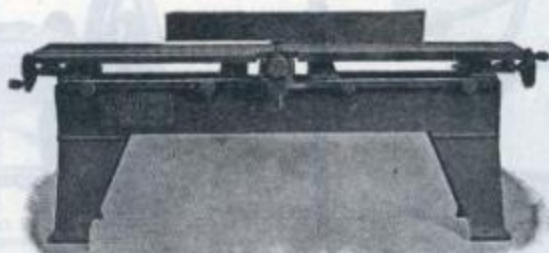
No.	Opens, inches.	Length over all, inches.	Weight each about, lbs.	Each.
No. 1	1 1/4	4	5/8	\$1.50
No. 2	2 1/4	5	1	2.00
No. 3	3 1/4	6	2	2.50
No. 4	4 1/4	7	3	3.00

Packed Loose.

MT



OLIVER HAND PLANER AND JOINTER.



This Machine has Heavy Bed and End Legs, giving Operator Ample Foot Room. Vibration is eliminated. Tables are Strong, Well Ribbed and Machined True. Table Slides are Dovetailed into the Bed and Adjust Instantly. Steel Lips to the Tables next the cut. May be renewed when worn or nicked. Cylinder is of forged Steel with Journals Machine Ground, and carries Two Long Knives regularly.

OPERATOR CANNOT LOSE HIS FINGERS ON THIS MACHINE.

Because it carries a Circular Safety Cylinder.

The Cylinder Bearings are Babbitted Properly, have Oil Chambers and are the Correct Length. An Adjustable Fence is supplied, which tilts to 45 Degrees. Has Countershaft.

The machine is made to plane 12, 16, 20 and 24 inches wide, and Tables will lower to cut 1 inch deep.

General Dimensions:

BED—34 inches Long, 34 inches High, 9 inches Deep; Width, according to size of Machine.

TABLES—Each section 42 inches Long, and in Width 2 inches more than Machine will Plane. Draw away from the Cylinder 18 inches either end. Vertical Adjustment, 1 inch.

CYLINDER—Journals $1\frac{1}{4}$ inches in Diameter, Main Bearing 8 inches Long, Front Bearing 6 inches Long, Cutting Diameter $4\frac{1}{2}$ inches, Square $3\frac{1}{2}$ inches; Pulley 4 inches Diameter, $5\frac{1}{2}$ inch Face; Speed 4200 R. P. M.

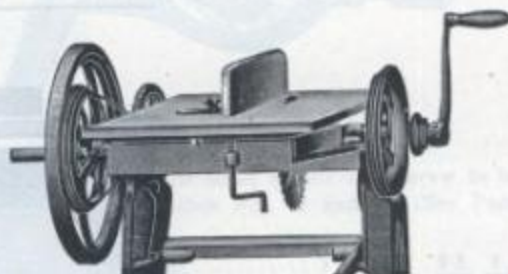
FENCE—Length 4 feet, Width 5 inches, Bevels 45 inches. Permits full Width of Table to be used.

COUNTERSHAFT—Length $3\frac{1}{2}$ feet, Diameter $1\frac{1}{2}$ inches, Hangers 14 inch drop, Bearings 6 inches Long, Tight and Loose Pulleys 10 inches Diameter, 6 inch Face; Driving Pulley 20 inches Diameter, $5\frac{1}{2}$ inch Face; Speed 800 R. P. M.

HORSE-POWER—3 to 5, according to width.

	Size, inches.	Net weight, lbs.	Crated, weight.	Each.
<u>No. 12</u>	12	1200	1400	\$350.00
<u>No. 16</u>	16	1400	1600	400.00
<u>No. 20</u>	20	1600	1900	450.00
<u>No. 24</u>	24	1900	2250	500.00

One in a Crate.

±CIRCULAR RIP SAWS.

Showing No. 11 Circular Rip Saw with the Front Table Placed Directly over the Saw.

BARNES', HAND.

Each

±No. 11—Painted Cast Iron Frame, Fly and Gear Wheels, Crank and Idler; Steel Axles and Shafts; Polished and Tempered Tool Steel Saws, for Ripping Hard or Soft Wood of any Thickness up to $3\frac{1}{2}$ inches, and any width up to 19 inches; Fitted with Two Rollers which feed the Lumber to the Saw; Rollers are Self-Adjusting to thick or thin Lumber by means of the Idler; Two Hardwood Tables; The Front Table can be placed directly over the Saw and, being provided with an Adjustable Width Gauge, can be used for cutting Rabbets, Bevels, Tenons, etc.; By using Two Saws side by side, Grooving, Window or Door Stop Work can be done; An extra Saw is furnished for this purpose; Diameter of Fly Wheel 18 inches, $1\frac{1}{2}$ inches thick at Rim; Diameter of Saws 10 inches; Height to Top of Table 25 inches; Height over all 43 inches; Width over all 31 inches; Length over all, including Two Tables, 79 inches; Weight each about 190 lbs.; Weight boxed about 275 lbs. \$40.00

Packed in Two Cases.

CIRCULAR SAWS.

BARNES', CIRCULAR.

Each

±No. 4—Painted Iron Frame and Gear; Complete with Self-Feed, with TWO 10 INCH CIRCULAR SAWS (one each Rip and Cross-Cut); Height over all 36 inches; Floor Space required 36x34 inches; Length over all with Extensions, 90 inches. \$60.00
Weight Boxed for Shipment about 400 lbs.
Packed One in a Crate.

It is a Combined Foot and Hand-Power Circular Saw, which can be used for Rip or Cross Cut Sawing; the Self-Feed can be Regulated properly for hard or soft, thick or thin Lumber, and is Self-adjusting for lumber of different or uneven thickness; Lumber up to $3\frac{1}{2}$ inches can be Ripped with the 10-inch Saw.

The Self-Feeding Mechanism can be instantly thrown back to the rear of the Machine, as also the Rip Gauge, leaving the Table perfectly clear for Cut-off Work; The Cut-off Gauge can be set at any required angle.

The Speed can be regulated to give High Speed for Cross-Cut Work or a Slower Speed for Ripping.

±FOOT POWER FORMERS.

BARNES', IMPROVED.

Each

±No. 29—WITHOUT KNIVES: Painted Cast Iron Frame, Seat, Gear Wheels, Cranks and Pedals; Steel Axles and Shaft; Plain Finish Hardwood Table; Size of Table 15x19 $\frac{1}{2}$ inches; Floor Space required 20x26 inches; Height over all 42 inches; Adapted for Moulding Edges of Brackets, Scroll Work, Panel Work and Mouldings of all Styles up to $\frac{7}{8}$ inch; the Speed of the Knives is from 2000 to 2500 Revolutions per minute; the Knives can be revolved in either direction; Table can be lowered to give 2 $\frac{1}{4}$ inch Space between it and the Lower Edge of Knife. \$20.00

Weight Boxed for Shipment about 110 lbs.

-494-

*MORTISING MACHINES.

BARNES'.

No. 33—Complete with one Mortising Chisel each, Sizes $\frac{1}{4}$, $\frac{5}{16}$ and $\frac{1}{2}$ inch; Painted Cast Iron Frame, Legs and Bed; Steel Foot Lever Plunger and Set Screws; Hardwood Bed Face; Length of Bed 22 inches; Length of Bed Face 39 inches; Floor Space required 27x27 inches; Height over all 53 inches...\$23.00

Weight Boxed for Shipment about 170 lbs.

One in a Case.

MORTISING MACHINE CHISELS.



BARNES'.

Forged from Finest Tool Steel; Polished Blade; Natural Finish Shank; Length 6 inches. Fits Barnes' Mortising Machine No. 33.

Sizes	$\frac{1}{4}$	$\frac{5}{16}$	$\frac{3}{8}$	$\frac{7}{16}$	$\frac{1}{2}$
Each	\$1.00	1.00	1.00	1.00	1.00
Sizes	$\frac{9}{16}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	1
Each	\$1.00	1.00	1.00	1.00	1.00

Weight Each about 5 ozs.; Packed Loose.

COMBINED MACHINES.

BARNES', IMPROVED.

Each

No. 13—Painted Iron Frame and Gear; CIRCULAR SAWS ONLY, including 2 Circular Saws, 1 Rip and 1 Cross-Cut; Height over all 37 inches; Floor Space required 28x30 inches; Weight Boxed for Shipment about 335 lbs... \$35.00

No. 15—Painted Iron Frame and Gear; COMBINED CIRCULAR AND SCROLL SAWS, including 2 Circular Saws and 12 Assorted Scroll Saws; Height over all 37 inches; Floor Space required 28x30 inches; Weight Boxed for Shipment about 335 lbs..... 40.00

No. 17—Painted Iron Frame and Gear; COMBINED CIRCULAR, SCROLL SAWS AND BORING ATTACHMENTS, including 2 Circular Saws, 12 Assorted Scroll Saws, the Boring Attachment with Self-Centering Drill Chuck, all combined in one Machine; Height over all about 37 inches; Floor Space required 28x30 inches; Weight Boxed for Shipment about 375 lbs. 50.00

When either the Circular Saw, Scroll Saw or Boring Machine is ordered separate, the other Parts can be furnished, if the Number of the Machine is given.

For Light Ripping, Cutting to Length, Cut-off Work, etc., the Circular Saw of the Combined Machine is invaluable.

The Circular Saw, while remaining on its Mandrel, can be taken at once out of the way when the Scroll Saw is to be used. The Mandrel is set in its Bearing in such a manner as to enable the operator to take the whole (Mandrel and Saw) from the Machine in an instant.

All Varieties of Joint Work can be done truly and rapidly. The Table can be handily Adjusted up or down by a Cam, to allow any desired Depth of Cut being made by the Saws or Cutter Tools; The Circular Saws are Six inches in Diameter, and Reach $1\frac{1}{2}$ inches above the Table; A Seven or Eight inch Saw can be used if desired.

Emery Wheels, in size up to One inch Face by Six inches in Diameter, can be used to good advantage on this Machine.

Packed in Two Cases.



MOULDERS' TOOLS.

Made of Best Tool Steel, Polished. White Birch Handle.



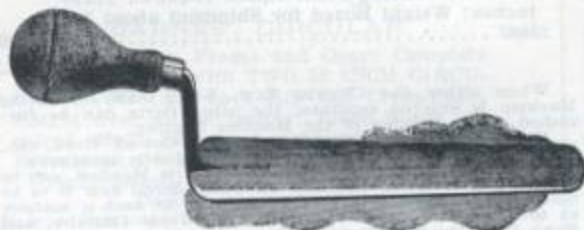
No. 3—Heart Trowels.

Width, inches	2	2 1/4	2 1/2	3
Length over all, inches	5 1/4	7	7 1/2	8
Weight each about, ozs.	3	3 1/2	3 3/4	4 1/2
Each	\$0.60	.75	.85	1.00



No. 5—Heart and Leaf.

Width, inches	1	1 1/4	1 1/2
Length over all, inches	6 1/2	8	8 3/4
Weight each about, ozs.	1	1 1/2	2
Each	\$0.50	.60	.70



No. 1—Finishing Trowels.

Length, inches	5	5 1/2	6	6 1/2	7
Width 1 1/4 inches, each	\$0.60	.65	.70	...	...
Width 1 1/2 inches, each	.70	.75	.80	.85	.95
Width 1 3/4 inches, each	.80	.85	.90	.95	1.05

Packed Loose; Weight runs from 3 ozs. on the 1 by 4 to 6 1/2 ozs. on the 2 by 7.



No. 4—Heart and Square.

Width, inches	3/4	1	1 1/4	1 1/2	1 3/4	2
Length over all, inches	5 1/2	6 1/2	7 1/2	8 1/2	8 3/4	9 1/4
Weight each about, ozs.	1 1/2	1 3/4	1 1/2	2	2	3
Each	\$0.45	.50	.60	.70	.80	.90



No. 0—Square Trowels.

Length, inches	4 1/2	5	5 1/2	6	6 1/2	7
Width 1 inch, each	\$0.50	.55	.60	.65	...	...
Width 1 1/4 inches, each	.55	.60	.65	.70	...	...
Width 1 1/2 inches, each	.65	.70	.75	.80	.85	.95
Width 1 3/4 inches, each	...	.80	.85	.90	.95	1.05
Width 2 inches, each	...	.90	.95	1.00	1.05	1.15



No. 2—Finishing Trowels.

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MOULDERS' TOOLS.

Made of Best Tool Steel, Polished.



No. 6—Heart and Square Spoon.

Width, inches	1	1 1/4	1 1/2
Length over all, inches	6 1/2	6 3/4	8
Weight each about, ozs.	1	1 1/2	2
Each	\$0.50	.60	.70



No. 7—Heart and Oval Spoon.

Width, inches	3/4	1	1 1/4	1 1/2
Length over all, inches	5 3/4	6 1/2	8	8 1/2
Weight each about, ozs.	1/2	1	1 1/2	2
Each	\$0.45	.50	.60	.70



No. 8—Taper and Square.

Width, inches	3/4	1	1 1/4	1 1/2
Length over all, inches	5 3/4	6 1/2	8	8 1/2
Weight each about, ozs.	1/2	1	1 1/2	2
Each	\$0.45	.50	.60	.70



No. 12—Slick and Oval Spoon.

Width, inches	3/4	1	1 1/4	1 1/2
Length over all, inches	6 1/2	7 1/2	8 1/4	8 3/4
Weight each about, ozs.	1	1 1/4	1 1/2	2
Each	\$0.45	.50	.60	.70



No. 13A—Spoons.

Width, inches	1	1 1/4	1 1/2
Length over all, inches	6 1/4	6 1/2	7
Weight each about, ozs.	1	1 1/2	1 3/4
Each	\$0.50	.60	.70



No. 13B—Spoons.

Packed Loose.



MOULDERS' TOOLS.

Made of Best Tool Steel, Polished.



No. 14—Taper and Square.

Width, inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Length over all, inches	$6\frac{1}{2}$	$7\frac{1}{2}$	$8\frac{1}{2}$	9
Weight each about, ozs.	1	$1\frac{1}{2}$	$1\frac{1}{2}$	2
Each	\$0.45	.50	.60	.70



No. 15—Spoon and Gate Cutter.

Width, inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Length over all, inches	7	$7\frac{1}{2}$	$7\frac{3}{4}$
Weight each about, ozs.	1	1	$1\frac{1}{2}$
Each	\$0.50	.60	.70



No. 16—Double Square.

Width, inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Length over all, inches	$6\frac{1}{2}$	$7\frac{1}{2}$	8	9
Weight each about, ozs.	$\frac{3}{4}$	1	$1\frac{1}{2}$	2
Each	\$0.50	.55	.60	.65



No. 11—Taper and Oval Spoon.

Width, inches	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Length over all, inches	6	$6\frac{3}{4}$	8	$8\frac{1}{2}$
Weight each about, ozs.	$\frac{3}{4}$	1	$1\frac{1}{2}$	2
Each	\$0.45	.50	.60	.70



No. 18—Flute Slick.

Width, inches	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$
Length over all, inches	$7\frac{1}{2}$	8	$8\frac{1}{2}$
Weight each about, ozs.	1	$1\frac{1}{2}$	2
Each	\$0.50	.60	.70



No. 20—Slick and Bead.

Width, inches	$\frac{3}{4}$	1
Length over all, inches	$6\frac{3}{4}$	$8\frac{1}{4}$
Weight each about, ozs.	$\frac{3}{4}$	$1\frac{1}{2}$
Each	\$0.50	.65

Packed Loose.

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MOULDERS' TOOLS.

Made of Best Tool Steel, Polished.



No. 24—Bead Slick.

Width, inches	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Length over all, inches	6 $\frac{1}{2}$	8	8 $\frac{3}{4}$
Weight each about, ozs.	1	1 $\frac{1}{2}$	1 $\frac{3}{4}$
Each	\$0.50	.55	.60



No. 26—Stove.

Width, inches	$\frac{5}{8}$	$\frac{3}{4}$
Length over all, inches	5 $\frac{1}{2}$	6
Weight each about, ozs.	$\frac{1}{2}$	$\frac{3}{4}$
Each	\$0.40	.45



No. 25—Stove.

Width, inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Length over all, inches	7	7 $\frac{3}{4}$	8	8 $\frac{3}{4}$	10
Weight each about, ozs.	$\frac{1}{2}$	$\frac{3}{4}$	1	1 $\frac{1}{2}$	2
Each	\$0.45	.50	.55	.60	.65



Oval Stove.

No. 29—Width $\frac{3}{4}$ inch; Length over all 5 $\frac{1}{2}$ inches;	Each
Weight each about $\frac{3}{4}$ oz.	\$0.45



Leaf Stove.

No. 30—Width $\frac{3}{4}$ inch; Length over all 6 $\frac{1}{2}$ inches; Weight each about 1 oz.	Each
	\$0.45



No. 31A—Yankee Slicks.



No. 31B—Yankee Slicks.

These Tools furnished with HEELS DOWN, to the RIGHT OR LEFT, AS ORDERED. When not specified, will send with heels down, as shown in cuts.

Width, inches	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Length over all, inches	6 $\frac{1}{2}$	6 $\frac{3}{4}$	8 $\frac{1}{4}$	9	10
Weight each about, ozs.	$\frac{1}{2}$	1	1	1 $\frac{1}{2}$	2 $\frac{1}{2}$
Each	\$0.45	.50	.55	.60	.70

Packed Loose.



MOULDERS' TOOLS.

Made of Best Tool Steel, Polished.



No. 32B—Bench Lifters.

	$\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$
Width, inches	6	6	6 $\frac{1}{2}$	7	8
Length over all, inches	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{2}$	1	1 $\frac{1}{2}$
Weight each about, ozs.	\$0.35	.45	.50	.55	.60
Each					



No. 35—Flat and Circular Flange.

	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Width, inches	16	16	16	16
Length over all, inches	2	3	4	4 $\frac{1}{2}$
Weight each about, ozs.	\$0.90	1.00	1.10	1.30
Each				



No. 36—Flange and Bead.

	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1
Width, inches	16	16	16	16
Length over all, inches	2	3	4	4 $\frac{1}{2}$
Weight each about, ozs.	\$0.80	.90	1.00	1.20
Each				



No. 38—Flange Lifter.

	$\frac{1}{2} \times 14$	$\frac{1}{2} \times 16$	$\frac{3}{4} \times 14$	$\frac{3}{4} \times 16$	$\frac{3}{4} \times 18$	1x16	1x18	1x20
Size, inches								
Each	\$1.05	1.10	1.10	1.15	1.15	1.20	1.25	1.30



No. 39—Hub Lifter.

	$\frac{1}{2} \times 12$	$\frac{1}{2} \times 14$	$\frac{1}{2} \times 16$	$\frac{3}{4} \times 14$	$\frac{3}{4} \times 16$	$\frac{3}{4} \times 18$	1x16	1x18	1x20
Size, inches									
Each	\$0.65	.70	.75	.80	.85	.90	.95	1.00	1.05

Weight ranges from 2 $\frac{1}{2}$ ozs. on $\frac{1}{2} \times 14$ to 6 $\frac{1}{2}$ ozs. on 1x20.
Packed Loose.

MOULDERS' TOOLS.

Made of Best Tool Steel, Polished.



No. 41—Lifter.

Length, inches	10	12	14	16	18	20
Width $\frac{3}{8}$ inch	\$0.40	.45	.50	.55	...	...
Width $\frac{1}{2}$ inch	.45	.50	.55	.60	...	...
Width $\frac{5}{8}$ inch	.50	.55	.60	.65	...	...
Width $\frac{3}{4}$ inch	.55	.60	.65	.70	.75	...
Width $\frac{7}{8}$ inch	...	.65	.70	.75	.80	...
Width $\frac{15}{16}$ inch	...	.70	.75	.80	.85	.90
Width 1 inch	...	...	.85	.90	.95	1.00

Weight ranges from $\frac{1}{2}$ oz. on $\frac{3}{8}$ x10 to $6\frac{1}{2}$ ozs. on 1x20.



No. 42—Box Lifter.

Size, inches	$\frac{5}{8}$ x14	$\frac{5}{8}$ x16	$\frac{5}{8}$ x18	$\frac{3}{4}$ x16	$\frac{3}{4}$ x18	$\frac{3}{4}$ x20
Each	\$1.10	1.15	1.20	1.20	1.25	1.30

Weight ranges from 3 ozs. on the $\frac{5}{8}$ x14 to $6\frac{1}{2}$ ozs. on the $\frac{3}{4}$ x20.



No. 43—Square Corner Slick.

Size, inches	$1\frac{1}{2}$ x2	$1\frac{1}{2}$ x2 $\frac{1}{4}$	$1\frac{1}{2}$ x3
Each	\$0.60	.65	.70

Weight Each about 2 ozs.



No. 44—Inside Square Corner Slick.

Size, inches	$1\frac{1}{2}$ x2	$1\frac{1}{2}$ x2 $\frac{1}{4}$
Each	\$0.75	.80



No. 45—Half Round Corner Slick.

Width, inches	1	$1\frac{1}{4}$	$1\frac{1}{2}$	2
Weight about, ozs.	1	$1\frac{1}{2}$	$1\frac{3}{4}$	$2\frac{1}{2}$
Each	\$0.50	.55	.60	.65



No. 46—Pipe Slick.

Size, inches	$1\frac{1}{2}$ x3
Weight about, ozs.	1
Each	\$0.50



No. 47—Egg Slick.

Size, inches	$1\frac{1}{2}$ x2 $\frac{1}{4}$
Weight about, ozs.	1
Each	\$0.50

Packed Loose.



No. 48—Button Slick.

Size, inches	2	$2\frac{1}{2}$
Weight about, ozs.	1	$1\frac{1}{2}$
Each	\$0.50	.50