E. C. ATKINS & CO.,

(INCORPORATED)

PROPRIETORS OF

SHEFFIELD SAW WORKS,

MANUFACTURERS OF

SAWS AND TOOLS

INDIANAPOLIS, IND.

BRANCH HOUSES:

MEMPHIS, TENN.

TS

853 .A64 1835

CHATTANOOGA, TENN.

. . . 1895 . . .

MINNEAPOLIS, MINN.



Class TS 853 Book ... A64

SAWS*AND*SAW*TOOLS.

WITH SUGGESTIONS TO

·⊲LUMBERMEN ↔ AND ↔ SAWYERS⊳

IN THE USE AND CARE OF SAWS.

E. C. ATKINS & CO.

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TRADE

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SHEFFIELD SAW WORKS →

TINS & CO.

FACTORY

ILLINOIS, SOUTH AND EDDY STREETS. 206 AND 208 SOUTH ILLINOIS STREET.

OFFICE :-----

MARK.

INDIANAPOLIS, IND.

-BRANCH HOUSES:----

MEMPHIS, TENNESSEE,

CHATTANOOGA, TENNESSEE,

MINNEAPOLIS, MINNESOTA.

ESTABLISHED, 1857.

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OFFICE OF THE

SHEFFIELD SAW WORKS,

E. C. ATKINS & CO., Proprietors,

INDIANAPOLIS, IND., August, 1895.

GENTLEMEN:

We hand you with this revised edition of our Catalogue and Hand Book, "Saws and Saw Tools," which contains revised prices on goods of our manufacture and mill supplies.

The suggestions for the use and care of Saws will be found to be practical, and will often enable the sawyer to overcome difficulties in the running of both Circular and Band Saws, as has been the experience of many sawyers who have made use of the suggestions contained in the book. But when a saw has become badly out of condition by use, it will require the attention of a skilled saw maker, with the proper tools for doing the work and putting the Saw in the best condition for use; in which case, it should be shipped to our factory, or to one of our Branch Houses. Our Branch Houses are located at Minneapolis, Minn., Memphis, Tenn., and Chattanooga, Tenn. At our Branch Houses, we have skilled saw makers, and our repair shops are fitted up with improved appliances and tools, and the repairs will be carefully and promptly done. We also carry a full line of Circular and Band Saws at our Branch Houses.

In reference to the ATKINS' SAWS, we call attention to their high standard of excellence, which has been attained by using the best grades of steel, with our patent method of tempering and skillful workmanship. We propose to maintain this high standard of excellence, and furnish saws that shall receive the favorable commendation in the future that they have in the past.

Soliciting your favors, we are,

Yours respectfully,

E. C. ATKINS & Co.

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INDIANAPOLIS, IND.

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E. C. ATKINS & CO.'S TELEGRAPH CIPHER FOR CIRCULAR SAWS.

TIME AND MANNER OF SHIPPING.

Express at once	STEAMER
Freight at once	SCHOONER
Express soon as possible	TRAVELER
Freight soon as possible.	TRADER
Freight soon as possible	

DIAMETER.

Forty-eight inch Saw	PARIS
Fifty inch Saw	PARK
Fifty-two inch Saw	PLEASANT
Fifty-four inch Saw	PEKIN
Fifty-six inch Saw	PRATT
Fifty-eight inch Saw	PORTLAND
Sixty inch Saw	Potter
Sixty-two inch Saw	POPLAR
Sixty-four inch Saw	PRICE
Sixty-six inch Saw	POLAND
Sixty-eight inch Saw	PUDDLE
Seventy inch Saw	PENDLETON
Seventy-two inch Saw	PITTSBURG
NOTOLLOJ UTTO LALOAR NOUTI HILL CLARKED AND AND AND AND AND AND AND AND AND AN	The second secon

RIGHT OR LEFT HAND.

Right Hand	NASHVILLE
Left Hand	NEWPORT

GAUGE.

6 x 6	LADOGA
6 x 7	LAKE
6 x 8	LAMB
7 x 7	LANSING
7 x 8	LAWRENCE
7 x 9	LEBANON
8 x 8	LIBERTY
8 x 9	LOCKE
8 x 10	LODI
9×9	LONG
9 x 10	LOWELL
0 / 10	

KIND OF TIMBER TO BE SAWED.

Hard Wood	EAGLE
Soft Wood	ASTON
Norway Pine.	EDEN
Yellow Pine	ELROD
All kinds of Timber.	IGLISH

KIND OF DRESS.

Spring	Set	DARLING
Spread	Set	DAISY

SPECIAL.

Order confirmed by mail	BAKER
Answer saying when you can ship	CAIRO
If you can't ship at once advise us by wire	.WANTED

HOLES.

Standard Holes (see specifications)	GALLATIN
Mandrel Hole, two inch	GEORGE
Mandrel Hole, two inch full	GALE
Mandrel Hole, two inch scant	GALENA
Mandrel Hole, two and one-sixteenth	GALVESTON
Mandrel Hole, two and eighth	GARFIELD
Mandrel Hole, two and quarter	GARNET
Mandrel Hole, two and half	GARVIN
Pin Holes, one-half inch	Gem
Pin Holes, five-eighths	GREGORY
Pin Holes, three-quarters	GERMAN
Pin Holes, as per template mailed,	
Pin Holes, 3 in. from center to center	GIBSON
Pin Holes, 3¼ in. from center to center	GILMAN
Pin Holes, 3 ¹ / ₂ in. from center to center	GLENDALE
Pin Holes. 33% in. from center to center	Gold
Pin Holes, 4 in. from center to center	GRAND
Pin Holes, 4¼ in, from center to center	GOSPORT
Pin Holes, 4¼ in, from center to center	GRAFTON
Pin Holes. 43% in. from center to center	GRAVEL

NUMBER OF TEETH.

30	Teeth	1 72 Teeth
32	Teeth. HOBOKEN	74 TeethHELLO
34	Teeth	76 TeethHANFIELD
36	Teeth HONEY	78 Teeth
38	TeethHOOKER	80 Teeth
40	TeethHOPE	30 to 36 Teeth
42	Teeth	32 to 38 TeethHALEY
44	Teeth HORNER	34 to 40 Teeth
4 6	TeethHovey	36 to 42 TeethHAMLET
48	TeethHoward	38 to 44 TeethHANCOCK
50	Teeth HUDSON	40 to 46 TeethHANNAH
52	Teeth HOWLAND	42 to 48 Teeth
54	TeethHUNT	44 to 50 Teeth
56	Teeth HALSEY	46 to 52 TeethHARPER
58	TeethHURON	48 to 54 Teeth HARTFORD
60	Teeth HUBBARD	50 to 56 Teeth HARRIS
62	Teeth HAY	52 to 58 TeethHATFIELD
64	TeethHIGH	54 to 60 Teeth
66	Teeth HIP	56 to 62 TeethHEBRON
68	TeethHomer	58 to 64 TeethHECLA
70	TeethHURLBURT	60 to 66 TeethHECTOR

SPEED OF SAW.

Speed	400 FAIR	I Speed 675	Fox
Speed	425FLINT	Speed 700	FULTON
Speed	450	Speed 725	FRANK
Speed	475	Speed 750	FRIEND
Speed	500 FLORIDA	Speed 775	FELLOW
Sneed	525. FLORENCE	Speed 800	FARMER
Speed	550. FOREST	Speed 825	FINLEY
Speed	575. EOPT	Speed 850	FALLS
Sneed	600 EBENCH	Speed 875	FAST
Speed	625 FRANKLIN	Speed 900	FURIOUS
Speed	650 (BEEDOM	pecca boomment	

FEED.

1 ind	ch	Feed	BARREN	5	inch	FeedBEDFORD
11/2 in	\mathbf{ch}	Feed	BASCOM	6	inch	FeedBEACH
2 in	\mathbf{ch}	Feed	Ватн	7	inch	FeedBELDEN
21/2 in	\mathbf{ch}	Feed	BATTERY	8	inch	FeedBELLMORE
3 in	\mathbf{ch}	Feed	BATTLE	9	inch	Feed BELMONT
31/2 in	\mathbf{ch}	Feed	BEACON	10	inch	FeedBENGAL
4 inc	ch	Feed	BEAN	11	inch	FeedBENTON
41/2 in(ch	Feed	BEAVER	12	inch	FeedBERLIN

TERMS OF WARRANTY.

CIRCULAR SAWS.

Each Saw is warranted free from flaws and seams, and practically true. Any Saw failing to run well will be rehammered free of charge, if immediately returned; or if found defective in metal or temper, within thirty days from delivery, a new one will be given in exchange.

Saws cracked or broken, as the result of filing square corners in the gullet of the tooth, as is frequently the case, or from using a cold-chisel or punch in retoothing, are not covered by our warranty.

Any alteration in the holes of Circular Saws, by filing, reaming, or otherwise, will generally spring the Saw. When such alteration is made, the Saw will not be subject to the above warranty.

No warranty upon Saws used in frozen timber.

The name of "E. C. Atkins & Co." on a Saw is an assurance to the buyer of its superior quality and reliability, and no further guarantee is needed.

E. C. ATKINS & Co.

PRACTICAL SUGGESTIONS, STANDARD RULES, ETC., CONCERNING THE USE AND CARE OF CIRCULAR SAWS.

HANGING THE SAW

Saws of our manufacture, unless they are ordered to be put up straight, are marked near the center with the words "LoG SIDE." Before placing the new saw upon the mandrel, be sure that the side so marked comes next to the log on your mill; if it does not, it should be sent to the factory to be hammered so as to suit your mill.

Be sure that the mandrel is level, and that the saw when placed on it and the flanges screwed up, is perfectly plumb. The holes in the saw should be an easy fit on the mandrel and lug pins.

Be sure that it does not bind on the mandrel or the pins. If it does, the least warmth of the mandrel will be sure to cause it to expand, bind and spring the saw.

It should slip on readily, neither tight nor loose.

Saws are often pronounced crooked when the fault is in the collars.

If the position or "dish" of the saw is changed in the least by tightening the collars for work, the defect should be remedied at once. Put a straight-edge on the log side of the saw, and ascertain whether the fault is in the saw or in the collars.

Thin saws, and saws of high speed, are put up very open so that the center will pull through, and the saw, when hung on the mandrel, may show concave or convex on the log side when standing still, but when run up to the speed for which it is hammered, it should straighten up and be flat, or nearly so, on the log side.

When hung upon the mandrel and the collars tightened, the saw should be perfectly round, so that every tooth will do its proper work. Should the saw be too crowning or too dishing on the log side, the difficulty may be overcome by papering between the saw and the collars. If the saw is dished on the log side, cut a ring of paper of the size of the collar and about three-fourths inch wide; wet it with oil and lay it on the loose collar.

Cut a smaller ring of paper of the same width to fit the mandrel, and place it on the mandrel against the fast collar. If one thickness of paper is not sufficient, add another ring, and so on until the saw, when clamped between the flanges, is brought to the proper position.

Should the saw be too crowning on the log side, reverse the position of the paper rings, placing the large one next the fast collar and the smaller one next the loose collar. Letter paper for making the rings is preferable, being solid and firm.

LINING THE SAW WITH THE TRACK.

Take all the end play out of the mandrel. Run the carriage up past the saw so that one of the head-blocks will be opposite the center of the saw. Fasten a square piece of board on the head-block and let the end of the board touch the face of the saw at its center. Then run the carriage back from the front of the saw 20 feet. Draw a line from the end of the board past the saw parallel with the track. The line where it passes the center of the saw should be from oneeighth inch to one-fourth inch from the face of the saw. This would show the track at 20 feet from the center of the saw on a line with the saw, and that the track at the center of the saw, if put down right, is one-eighth inch to one-fourth inch further off from the saw than at 20 feet distant.

Some saws require more inclination toward the track than others, and the track being adjusted properly, any small variation required may be accomplished by means of the set screws on the box.

The track should be solid, level and perfectly straight, and the saw frame firmly anchored. Trouble is often caused by a neglect to keep the track in order, and it should be examined frequently.

LEAD.

We have shown that the lead of the saw to the log may be adjusted by its position to the track. It may be held to its work in the log by beveled filing on the back of the tooth. The teeth, if properly filed, should always be perfectly square on the front side, but if the saw tends to lead in or out of the log it may be held to the proper position by beveling the back side of the tooth at the point. If the front of the tooth is filed perfectly square and the teeth are beveled on the back, on the board side, this will lead your saw into the log or, if you bevel on the log side, it will lead the saw out of the log.

Should the saw lead in and out, or what is called "snaky," it is evident that it needs hammering, that the rim is too large for the center and the saw needs opening out at the center. Such a saw may be run warm at the center and the difficulty overcome in this way; otherwise it will require hammering.

POINTS TO BE OBSERVED.

See that the track is solid, level and straight, that saw shaft is level and the saw hangs plumb; that it goes on the mandrel easy, is a close fit, and that the lug pins have a bearing; that the tight collar is a little concave and the loose one perfectly flat; that the saw is straight on the log side when the collars are screwed up and the saw run up to the required speed; that it is in line with the carriage and a little inclined toward the log; that the saw is perfectly round and has throat-room sufficient for the dust; that the teeth are not too high on the back side; that the teeth are filed perfectly square on the front side, and swaged sufficient to give clearance for the body of the saw; that there is very little, if any, end play to the mandrel; that the guides are perfectly adjusted when the saw is standing still.

Do not try to lead the saw with the guide pins, but lead the saw by adjusting it properly to the track and by proper filing. If you wish the saw to run warm at the center, you can create friction by reducing the set or spread of the teeth. If the saw heats too much in the center give it a little more set. If the saw heats on the rim it is because the teeth have not sufficient throat-room for clearance of the dust, or the backs of the teeth are too high. If the saw is too tight on the rim increase the motion if possible, and be sure to keep it cool in the center.

The saw should be run at uniform speed both in and out of the cut.

If the guide pins are run too close, the saw will heat at the rim and run "snaky." If gum is allowed to collect on the sides of the saw, the rim will heat from the friction.

TRUEING SAW ON THE MANDREL.

If the saw is in proper tension and does not run true, take all the end play out of the mandrel; rest a small piece of board with one end sharpened, upon the saw frame; hold the sharpened end against the board side of the saw near the rim. Mark with chalk the high places or those that touch, and on the opposite side the hollow places or those which do not touch the board. Turn the saw so as to bring the high points directly over the arbor, and, with a sharp pull, bend the points which are high on the board side toward you, and with a sharp push bend the parts which are high on the log side from you. By testing and bending in this way you may make a saw run perfectly true on the mandrel which has been sprung or does not from any cause run true.

CAUSES FOR HEATING ON THE RIM.

Guide pins set too close. Teeth have not enough spread or set. Backs of the teeth too high. Not throat-room enough for saw dust. Accumulation of gum on the teeth. Saw not open enough in the body for the speed.

CAUSES OF HEATING AT CENTER.

Teeth have not enough spread or set. Saw lined too much out of log. Mandrel runs too warm. Saw too open in the body or center for the speed. Speed not sufficient to expand the rim. Saw dished too much to or from the log.

HAMMERING AND TENSION.

All mechanical arts require a skill acquired by long practice for their perfect execution. No art is more difficult of acquirement than that of saw making. All the conditions under which a saw has to be run, need to be exactly known and provided for in the construction and final finishing of the saw.

For the benefit of our patrons and sawyers using our saws, we take pleasure in explaining the general principles involved in the hammering and tension of circular saws. The practice taught by masters of the art thirty years ago, when saws of small diameter only were used, was that a circular saw to do proper work should be left firm between the center and the rim, and open as to its whole diameter, whereas experience has shown, and it is the practice of the best artists, to open out the body of the saw between the center and the rim to the extent required for the speed the saw is to run.

Very high speed and thin saws require that the saw be opened out until it takes a strong push or pull to throw the center either way when the saw is standing upon the floor. When the saw is in proper tension and is shaken or pulled through, the body only of the saw should vibrate, while the rim should be nearly or quite steady.

Gumming a circular saw, or the alternate heating and cooling of the rim will permanently expand a saw at the rim, and in consequence it will become too stiff in the center or body of the saw and run "snaky"; a few strokes of a round face hammer on both sides of the saw at the proper place will restore the tension. (See illustration, Fig. 1.) The portion of the saw to be hammered being indicated by the dotted lines. The same treatment is required if the saw is put up for too low speed. The rule is that it must be more open or limber in the body of the saw for fast speed than for slow speed; tor hard than for soft wood.

When the saw is standing on the floor and shaken with the hand and the center and rim both vibrate, the saw requires more hammer ing on the line nearest the rim (Fig. 1). When opening out the body of the saw, do not hammer within 6 inches to 10 inches of the center.

Observe the motion of the saw when on the mandrel and running up to speed; if it runs wavy on the rim it needs opening out in the body of the saw on the dotted lines (Fig. 1). If it runs steady and true out of the log, it is the fault of the hanging, lining, fitting or management if it does not run steady and true in the log. The dotted lines (Fig. 1) indicate where the face of the saw must be hammered on both sides with the round face hammer to open the body of the saw for high speed, or when it runs wavy on the rim in full motion. Fig. 2 illustrates examination of the saw with the straightedge in adjusting the tension. The center of the saw resting on the anvil, the rim back of the anvil supported on a narrow bench extending from the anvil to the wall, and the opposite point raised with the hand, the straight-edge extending from the center toward the rim of the saw.

If the saw is properly opened in the body the portions indicated by the dotted lines in Fig. 1 will drop away from the straight-edge (Fig. 2) equally all around the saw. To equalize the tension, the parts which drop least require hammering until the tension is equalized and all parts indicated by the dotted lines drop equally all around the saw. The center line should drop a trifle more than the others.

Hammering to take out lumps should always be done on the high side or on that point which touches the straight-edge. Lumps or ridges upon or near the rim may be found with the straight-edge by examining that part of the saw, with the center of the saw resting on the anvil; but lumps or ridges in the body of the saw should be found with the saw standing upon the floor perfectly perpendicular (Figs. 3 and 4). Mark with chalk the high points which touch the straight-edge on either side of the saw, and hammer where marked, either on a slightly oval wooden block or an anvil. (The anvil is preferred by practical saw makers.)

If the anvil is used, allowance must be made for change in tension produced by the blow of the hammer, as every blow upon the anvil stretches and opens the saw at the point hammered. If the end of a wooden block is used in taking out lumps, the tension will not be affected. The tension must be adjusted by hammering on the anvil. Lumps usually run in ridges and should be hammered out with a cross pene hammer, the pene following the ridge in the direction which it runs as discovered with the straight-edge. Round lumps may be hammered down with the round face hammer, or with the cross pene hammer by changing the hammer over between each blow so that the strokes cross each other. The strokes should be directly on the lump or ridge.

The adjustment of tension is preferably done with a hammer having a slightly oval and perfectly round face. Figures 3 and 4 illustrate the examination of the saw for lumps and ridges when standing on the floor. Move the level across the saw from a to b(Fig. 3) all over the surface on both sides of the saw, rolling the saw on the floor while making the examination, and mark the points which touch the straight-edge, the lumps x and the ridges —.

Test the saw with the straight-edge between the center and edge from c to d (Fig. 4) all around the saw, marking the lumps and ridges as before. Hammer lightly on the points marked. After leveling, examine the tension; if it remains as before, your saw is ready to go on to the mandrel for test, but if not, adjust the tension again with the round face hammer; then level it again, and, if necessary, adjust again for tension, and so on until the saw is perfect. If the saw has an even tension, put it on the mandrel and run it up to speed. If it runs steady and true, it is ready for fitting, and, when properly hung and fitted, it will stand up to its work.

E. C. Atkins & Co.,





INSTRUCTIONS-INSERTED TOOTH SAWS.

HOLDERS AND BITS.

Keep the extreme point of the bit wider than any other part of the swaged portion, thus---



FIG 5.

Never side-file so as to make the extreme point narrower, or even the same width, thus --



FIG. 6.

If necessary to swage the bits, take them out and swage them in the vise, then replace them, side file and round up the saw and sharpen the bits. Keep the pitch the same as when new. In side-filing, the file should be set in at an angle to form the point on a bevel as when new, leaving the extreme point full width. If the pitch is filed out, the strain is too great on the holder.

If the holders, having a stop at "E," Fig. 8, become loose, hammer along the inner circle of the mouth-piece at "C C C." The holder should never have a bearing at "E D," Fig. 7, so as to prevent a solid bearing of the bit against the plate at "A B." If the holder is too long, file off the end at "D" until the bit bears firmly against the plate at "A B." Better to shorten the holder at "D" until the light passes through when the bit bears firmly at "A B."

Those holders having no stop, as in Fig. 9, if they become loose require hammering at "A A A," if the holder is too small to fit the circle of the socket at "B B B." If, however, they fit this circle, the hammering should be done at "C C C." A few light blows on each side of the holder with the holder resting on an anvil is quite sufficient.





Fig. 9.

TO LUMBER MANUFACTURERS AND SAW OPERATORS.

CAUSES OF COMPLAINT.

Good saws are frequently ruined by crowding them beyond their limit of endurance and by unskillful use. There are other causes which tend to produce dissatisfaction with good saws, among which may be mentioned: Saw too thin; teeth too coarse; saw not properly hung; saw not properly fitted or dressed; saw not properly balanced on mandrel; a badly running carriage; collars not true, etc.

PROCURE GOOD SAWS.

In justice to saw-mill men, we have to say that they sometimes have good reasons for complaint on account of bad saws, which leads us to remark that it is the duty of every saw-mill man to procure a good and reliable saw. Too many are governed by prejudice in the selection of a saw, while others allow themselves to be influenced in the purchase by the matter of a few dollars in price. Purchasers should consider only the character of the saws offered them, based on the reputation of the manufacturer.

ATKINS' SAWS RELIABLE.

We are ready to admit that we are not infallible in our work, but we claim most emphatically that we have come as near to perfection in saw making as is possible, as we use only the finest grades of selected steel and have in our employ the most skillful mechanics, assisted by the most modern machinery and appliances.

Our methods of tempering and adjusting circular saws produce uniform results, unexcelled by any methods known to the trade.

These facts, together with our invariable disposition to comply with the terms of our warranty, assure the buyer of the reliable, character of the Atkins Saws.

POINTS TO BE OBSERVED IN ORDERING SAWS.

In ordering a circular saw, the kind of work to be done and the power at hand to drive it, should always be taken into account.

GAUGE OF SAW.

For mills of ordinary capacity, doing general work, we recommend saws seven gauge at the center, and eight on the rim. If the timber is valuable and the sawyer skillful, an eight by nine gauge may be used, and in special cases an eight by ten gauge. Any lighter gauge than eight at the center and ten at the rim we consider impracticable for use in ordinary mills. A trial of very thin saws as an economical means will, in most cases, be followed by disappointment, for greater than ordinary skill is necessary to successfully manage thin saws, and the lumber saved by the reduced thickness of the saw is more than offset by the waste by bad cuts, where the sawyer is not an expert.

The greater the speed and feed used, the heavier the saw should be to stand up to the work, hence it is that for the large mills, where the saving of time more than lumber is desired, saws of six and seven gauge are mostly in demand.

NUMBER OF TEETH.

With a high motion more teeth are required, for high feed follows great speed, and the saw having more work to do should have more teeth with which to do it, in order that the strain may be evenly distributed.

The number of teeth, therefore, should depend not alone on the thickness of the saw, but on the kind of timber to be sawed, and the speed and feed of the mill.

Having considered these matters, orders for circular saws should be accompanied by the following:

INSTRUCTIONS FOR ORDERING CIRCULAR SAWS.

When ordering circular saws, the following directions should be explicitly given :

Diameter of saw in inches: right or left-hand (see engravings below); thickness or gauge of saw at rim; thickness or gauge of saw at center; number of teeth in saw; kind and No. of tooth, as shown on engraving (see following page); size of mandrel hole; size of pin holes; distance between pin holes from center to center; number of revolutions per minute; greatest feed at each revolution of saw, in inches; kind of lumber to be sawed; spring set or swage; whether for ripping or cross-cutting. When ordering bolting saws, state whether rip or cross-cut.

N. B.—All our stock saws forty inches and larger in diameter have 2-inch mandrel holes and § lug pin holes, three inches from center to center. If wanted different, please send full pattern of holes.



Standing in front of a circular saw, with the saw revolving toward you, if the log passes to the right of the saw it is a righthand saw; if to the left, it is a left-hand saw.

OUR STANDARD GAUGE

EXACTLY CORRESPONDS WITH THE STUBBS ENGLISH GAUGE.

Gauge	No.	41/2	inch scant.	Gauge	No.	11	s inch scant.
66-	6.6	5	inch.	44 [°]	6.6	12	4 inch.
66	86	6	inch.	66	6.6	13	inch.
66	66	7	inch scant.	46	66	14	s inch full.
66	66	8	inch full.	66	6.6	15	s inch scant.
66	66	9	inch scant.	66	66	16	inch full.
66	66	10	inch full.	56	66	22	h inch full.

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E. C. ATKINS & CO.,



The above illustration represents our various styles and sizes of Saw Teeth; also our Standard Gauge. By consulting it, a person will be enabled to inform us the size and style of tooth, and also the gauge of any saw he may desire.

THE MOTION OF CIRCULAR SAWS.

This is one of the most essential things to be observed, and no one can give this too much attention. If the speed of the saw is too high, it can not do good work, besides rendering it liable to many accidents. It generates heat in the saw, makes it touchy and limber, and it will only run and do good work on light feed, and while the teeth are in the best of order, and have a keen, sharp, cutting corner; as soon as this is gone, the saw will run or dodge whenever it comes in contact with the least obstacle. And again: Too low has its objections, but it is not attended with such ruinous effects upon the saw. These difficulties can be remedied to a limited extent by the hammering of the saw, but can not be entirely overcome.

SIZE OF SAW.	REV. PER MIN.	SIZE OF SAW.	REV. PER MIN.
8 inches.	4,500	42 inches.	870
10 inches. 12 inches.	3,600 3,000	44 inches. 46 inches.	840 800
14 inches. 16 inches	2,585 2.222	48 inches. 50 inches.	750 725
18 inches	2,000	52 inches. 54 inches.	700 675
22 inches.	1,636	56 inches. 58 inches	625
26 inches.	1,384	60 inches.	600 575
30 inches.	1,200	64 inches.	550
34 inches.	1,120	68 inches.	529
36 inches. 38 inches.	950	72 inches.	500
40 inches.	900		• • • • • • • • • • • • • • • • • • • •

TABLE OF SPEED OF CIRCULAR SAWS.

The above table is figured on a periphery speed of 9000 ft. per minute, but saws for portable mills are usaally run at a speed of about 450 revolutions per minute, and saws for steam feed mills, from 600 to 900 revolutions per minute.

RULES FOR CALCULATING THE SPEED OF SAWS, PULLEYS OR DRUMS.

PROBLEM 1. The diameter of the driven being given, to find its number of revolutions.

RULE.—Multiply the diameter of the driver by its number of revolutions, and divide the product by the diameter of the driven; the quotient will be the number of revolutions of the driven.

PROBLEM 2. The diameter and revolutions of the driver being given, to find the diameter of the driven, that shall make any given number of revolutions in the same time.

RULE.—Multiply the diameter of the driver by its number of revolutions, and divide the product by the number of revolutions of the driven; the quotient will be its diameter.

PROBLEM 3. To ascertain the size of the driver.

RULE.—Multiply the diameter of the driven by the number of revolutions you wish it to make, and divide the product by the revolutions of the driver; the quotient will be the size of the driver.

GENERAL HINTS RESPECTING THE MANNER OF FITTING OR DRESSING SAWS.

A saw tooth should have the proper spread and pitch for the wood which it is to cut. Soft wood requires more spread or "set," and less pitch; hard wood the reverse. A saw swaged full on both corners with square dress will do the fastest cutting, but requires the most power. In swaging use oil on point of tooth.

By careless dressing we have seen saw teeth higher back of the cutting point than at the point itself, thereby causing the saw to bind and heat on the rim.

The greater the feed the lower the back of the tooth should be, giving easier clearance and greater dust room.

In spreading the points of teeth it is almost impossible to make them all of equal width, but they may be reduced to a uniform width by the use of our patent Side File, which is illustrated herein.

By this treatment the corners are stronger and less liable to break off in hard cuts.

THE EMERY WHEEL.

Emery wheels, as employed in gumming and sharpening saws, accomplish a great saving of time and labor, but when improperly used, as they often are, cause irreparable injury to saws. When the points of teeth become heated or "blued" by the use of an emery wheel, the steel loses its toughness and tenacity in some degree, and is liable to split and crumble off in the process of spreading the points afterward.

We have had saws returned to the factory in this condition, said to be defective, which we were unable ourselves to spread on the points without checking and breaking them off, but which, after cutting off the points and starting new teeth, stood every test perfectly, thus proving that the trouble was caused by the improper use of the emery wheel.

BAD FILING.

No saws are so liable to crack in using as circular cut-off saws, for the reason that they are generally filed so as to leave a square corner at the base of the teeth, and the bevel of the face being carried down into this corner, still further weakens it. Saws broken in this condition can not be considered subject to our warranty.

It is surprising that so many still persist in this manner of filing, when a few strokes with a round file at the base of the tooth after beveling the front, will keep it in good shape by preventing the formation of the square corners from which the crack starts. The saw will clear better if the bevel is carried down only half the depth of the teeth.

INSERTED TOOTH SAWS. CHISEL TOOTH "AA." PATENTED MARCH 28, 1893.



The above cut shows full size of "AA" tooth.

Especially adapted for use on the Pacific Coast.

The following list gives the number of teeth allowed in Chisel Point Saw "AA:"

Size20 No. Teeth10	22 10	$\frac{24}{12}$	26 12	$\begin{array}{c} 28 \\ 14 \end{array}$	$\begin{array}{c} 30\\ 14 \end{array}$	32 16	34 18	$\frac{36}{20}$	38 20	40 22	42 24	$\frac{44}{24}$	46 26	48 28	50 20
Size			•••••	•••••	52	54	56	58	60	62	64	66	68	70	72
No. Teetn	••••••		••••••	• • • • • •	30	32	32	34	34	36	30	40	40	44	44

For prices, see page 32.

For each additional tooth inserted, add \$1.75. Duplicate "A A " Points, \$6.00 per hundred. Duplicate "A A " Holders, 60 cents each. Wrenches, \$1.00 each.

INSERTED TOOTH SAWS. CHISEL TOOTH "BB." PATENTED MARCH 28, 1893.



The above cut shows full size of "BB" tooth.

For general sawing. Best tooth in frozen timber.

The following list gives the number of teeth allowed in Chisel Point Saw "BB."

Size20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
No. Teeth12	12	14	14	16	16	18	20	22	22	24	24	26	28	28
Size			.50	52	54	56	58	60	62	64	66	68	70	7 2
No. Teeth		••••••	.30	30	3 2	34	34	36	36	38	40	40	42	42

For prices, see page 32.

For each additional tooth inserted, add \$1.75. Duplicate "BB" Points, \$6 00 per hundred. Duplicate "BB" Holders, 55 cents each. Wrenches, \$1.00 each.

· INSERTED TOOTH SAWS CHISEL TOOTH "CC." PATENTED MARCH 28, 1893.



The above cut shows full size of "CC" tooth.

The best tooth for hard wood.

The following list gives the number of teeth allowed in Chisel Point Saw "CC:"

Size	2 14 0 10	$\begin{array}{c} 16 \\ 12 \end{array}$	18 14	20 14	22 16	24 18	26 18	$\frac{28}{20}$	$\frac{30}{20}$	32 22	34 22	$\frac{36}{24}$	38 24	40 26
Size	4 46) 30	48 32	50 34	52 36	54 38	$\begin{array}{c} 56 \\ 40 \end{array}$	$\begin{array}{c} 58 \\ 42 \end{array}$	60 42	62 44	64 44	66 48	68 48	70 52	72 52

For prices, see page 32.

For each additional tooth inserted, add \$1.75. Duplicate "CC" Points, \$5.00 per hundred. Duplicate "CC" Holders, 50 cents each. Wrenches, \$1.00 each.

INSERTED TOOTH SAWS.

CHISEL TOOTH "DD." PATENTED MARCH 28, 1893.



The above cut shows full size of "DD" tooth.

Used principally for Edger and Bolter Saws.

The following list gives the number of teeth allowed in Chisel Point Saw "DD:"

Size, inches......10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 No. Teeth......10 10 12 14 16 18 20 22 22 24 24 26 26 28 28 30 32 For prices, see page 32.

The "DD" inserted tooth Saw can be furnished any size, one tooth to the inch.

For each additional tooth inserted, add \$1.50. Duplicate "DD" Points, \$5.00 per hundred. Duplicate "DD" Holders, 45 cents each. Wrenches, \$1.00 each.

INSERTED TOOTH SAWS.

CHISEL TOOTH.-PRICE-LIST.

Diameter. Inches.	Thickness Gauge.	No. of Teeth.	Size Hole, Inches.	Price. Each.	Extra fdr each ad- ditional gauge. (Heavier).	Price for bevel- ing new saws. (Grinding or beveling old saws extra).
$\begin{array}{c} 12\\ 14\\ 16\\ 18\\ 20\\ 22\\ 24\\ 26\\ 28\\ 30\\ 32\\ 34\\ 36\\ 38\\ 40\\ 42\\ 44\\ 46\\ 48\\ 50\\ 52\\ 54\\ 56\\ 58\\ 60\\ 62\\ 64\\ 66\\ 68\\ 72 \end{array}$	$11\\11\\11\\11\\11\\10\\10\\9\\9\\8\\8\\8\\8\\7\\7\\7\\6\\6\\6\\6\\5\\5\\5\\5\\5\\4\\4$	$ \begin{array}{c} 10\\ 10\\ 12\\ 14\\ 14\\ 16\\ 18\\ 20\\ 20\\ 22\\ 22\\ 22\\ 22\\ 24\\ 24\\ 24\\ 26\\ 28\\ 30\\ 32\\ 34\\ 36\\ 38\\ 40\\ 42\\ 42\\ 44\\ 48\\ 48\\ 48\\ 48\\ 52\\ 52\\ \end{array} $	・・・・14 ⁶ ¹⁰ ¹⁰ ・・・・14 ¹⁰ ¹⁰ ¹⁰ 14 ¹¹ 14	$\begin{array}{c} \$17 & 00\\ 19 & 00\\ 22 & 00\\ 25 & 00\\ 30 & 00\\ 35 & 00\\ 40 & 00\\ 45 & 00\\ 55 & 00\\ 55 & 00\\ 66 & 00\\ 55 & 00\\ 66 & 00\\ 72 & 00\\ 78 & 00\\ 84 & 00\\ 90 & 00\\ 72 & 00\\ 78 & 00\\ 84 & 00\\ 97 & 00\\ 105 & 00\\ 115 & 00\\ 115 & 00\\ 115 & 00\\ 115 & 00\\ 200 & 00\\ 225 & 00\\ 255 & 00\\ 290 & 00\\ 255 & 00\\ 360 & 00\\ 450 & 00\\ 450 & 00\\ \end{array}$	$\begin{array}{c} \$0 & 17 \\ 21 \\ 25 \\ 30 \\ 35 \\ 45 \\ 55 \\ 65 \\ 80 \\ 90 \\ 1 & 00 \\ 1 & 20 \\ 1 & 40 \\ 1 & 75 \\ 2 & 00 \\ 2 & 50 \\ 3 & 50 \\ 4 & 00 \\ 4 & 50 \\ 5 & 00 \\ 4 & 00 \\ 4 & 50 \\ 5 & 00 \\ 6 & 00 \\ 7 & 00 \\ 8 & 00 \\ 9 & 00 \\ 10 & 00 \\ 12 & 00 \\ 15 & 00 \\ 18 & 00 \\ 21 & 00 \\ 24 & 00 \end{array}$	$ \begin{tabular}{c} \$0 & 35 \\ & 40 \\ & 50 \\ & 60 \\ & 70 \\ & 80 \\ & 90 \\ 1 & 05 \\ 1 & 20 \\ 1 & 30 \\ 1 & 40 \\ 1 & 55 \\ 1 & 70 \\ 1 & 85 \\ 2 & 00 \\ 2 & 20 \\ 2 & 40 \\ 2 & 60 \\ 2 & 80 \\ 3 & 25 \\ 2 & 60 \\ 2 & 80 \\ 3 & 25 \\ 3 & 50 \\ 3 & 55 \\ 3 & 55 \\ 4 & 65 \\ 5 & 55 \\ 5 & 75 \\ 6 & 55 \\ \end{array} $

Ten extra sets of Points given with each saw, whether new or altered from a solid tooth. For each additional tooth inserted, add \$1.75; for each tooth less than the number indicated on the list or regular, deduct \$1.75 list.

Above list gives number of teeth allowed in "CC" tooth saw, which is especially adapted for hard woods.

ADJUSTABLE TOOTH CIRCULAR SAWS.

Patented April 12, 1887.





TOOLS FURNISHED WITH EACH SAW.

1. Wrench.

1. Taper Swaging Key. 1. Set Followers.

Diameter Inches.	Thick- ness. Gauge.	No. of Teeth.	Size of Hole. Inches.	Price. Each.	Extra for each addi- tional Gauge. (Heavier.)	Price for bevel- ing new saws. (Grinding or beveling old saws extra)
20 22 24 26 28 30 32 34 36	11 11 10 10 10 9 8	12 12 14 14 16 16 18 18 20	1 15 1 15 1 15 1 33/8 1 1/2/2 1 1/2/2 1 1/2/2 1 5/8/8 1 5/	\$30 00 35 00 40 00 45 00 50 00 55 00 60 00 66 00 72 00	\$0 35 45 55 65 80 90 1 00 1 20 1 40	\$0 70 80 99 1 05 1 20 1 30 1 40 1 55 1 70
8 40 42 44 45 48 50 52	8 8 7 7 7 7 6	22 24 26 26 28 28 30	158 2 2 2 2 2 2 2 2 2 2 2 2 2	78 00 84 00 90 00 97 00 105 00 115 00 130 00 150 00	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	1 85 2 00 2 20 2 40 2 60 2 80 3 00 3 25
54 56 58 60 62 61 66 68	66655555 55555555555555555555555555555	32 34 34 36 38 40 42 42	2 2 2 2 2 2 2 2 2 2 2 2 2	175 00 200 00 225 00 255 00 290 00 325 00 360 00 400 00	6 00 7 00 8 00 9 00 10 00 12 00 15 00	3 50 3 75 4 05 4 35 4 65 5 00 5 35 5 75
70 72	4	44 44	$\frac{\tilde{2}}{2}$	450 00 500 00	21 00 24 00	6 15 6 55

Prices for Teeth and Tools: Wrench, \$1.00. Adjustable Tooth, 50 cents. Eccentric Fastener, \$1.00. Followers, 20 cents each, list.

KERF KING SAWS.

Twelve-Gauge Circular Saws for Log Mills.

ADVANTAGES TO BE GAINED IN USING THE KERF KING SAWS.



Saws constructed by this method will run with much narrower swage or set, and do their work with less binding and friction, thus avoiding the expenditure of a great portion of the motive power usually employed indriving such saws. A large saving is made in the Kerf, which is an important item, of loss in lumber manu-factured by the old method with heavy saws, a large amount of lumber being wast-

ed in sawdust. The Kerf King Saws are made at center from 4 to 6 gauge thick, according to size of saw, and are left even thickness at center for a space of about 7 inches diameter. They are shouldered on one or both sides and ground abruptly to ten-gauge. From the shoulder they are evenly ground to the rim twelve-gauge.

Diameter. Inches.	Thickness. Gauge.	Hub Diam. Inches.	Number of Teeth.	Size of Hole. Inches.	Price. Each.
30	8x12x14	6	40	2	\$25 00
32	8x12x14	6	42	2	28 00
34	8x12x14	6	44	2	32 00
36	8x12x14	6	46	2	36 00
38	8x12x14	6	48	2	42 00
40	7x11x13	61/2	50	2	50 00
42	7x11x13	$6^{1/2}_{2}$	52	2	60 00
44	7x11x13	$6^{1/2}_{2}$	54	2	73 00
46	7x11x13	$6^{1/2}_{2}$	56	2	85 00
48	7x11x13	$6\frac{1}{2}$	58	2	100 00
50	6x10x12	7	60	2	112 00
52	6x10x12	7	62	2	125 00
54	6x10x12	7	66	2	140 00
56	6x10x12	7	66	2	160 00
58	6x10x12	7	70	2	180 00
60	6x10x12	7	70	2	200 00
62	6x10x12	7	72	2	240 00
64	6x10x12	7	76	2	265 (0
66	6x10x12	7	76	2	300 00
66	5x 8x10	7	72	2	300 00
68	6x10x12	7	80	2	350 00
68	5x 8x10	7	80	2	350 00
70	6x10x12	7	80	2	400 60
70	5x 8x10	7	80	2	400 00
72	6x10x12	7	80	2	450 00
72	5x 8x10	7	80	2	450 00

The number of teeth is given for a speed of 400 to 500 revolutions per minute for 48-in. diameter and over. For each hundred increase in speed add ten to the number of teeth. The flat hub at center of saw should be one inch larger in diameter than collar on saw mandrel.

PRICE-LIST.
SOLID TOOTH CIRCULAR SAWS.

Patent Ground and Tempered.

Made of best selected Cast Steel-extra quality. Workmanship unequaled.

Diameter Inches.	Thick- ness Gauge.	Size of Hole Inches.	Price Each.	Extra for each addi- tional Gauge, (Heavier.)	Price for Beveling New Saws Per Gauge.	Setting and Sharpening Cross-Cut Saws, each.
$\begin{array}{c} 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 11\\ 12\\ 14\\ 16\\ 18\\ 22\\ 24\\ 26\\ 28\\ 30\\ 32\\ 44\\ 46\\ 50\\ 54\\ 56\\ 58\\ 60\\ 254\\ 56\\ 68\\ 70\\ 72\\ 76\\ \end{array}$	19 19 18 18 18 16 10 10 9 9 9 9 8 8 8 8 7 7 7 7 7 6 6 6 6 6 6 5 5 5 5 5		$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

Filing and setting rip saws, 40 in. and under, 2/3 price for setting and harpening Cross-Cut Saws.

No extra charge for saws one gauge thicker than list. Saws 38 inches and under beveled one gauge without extra charge.

Saws 40 inches and over beveled two gauges without extra charge. We furnish Lathe Saws for handle turning machines and similar work at special prices.

Saws 48 inches in diameter, and larger, thinner than ten gauge, add ten per cent. for each gauge thinner, and no warrant.

TOP SAWS FOR DOUBLE MILLS.

Comp	DIAMETER IN INCHES.											
GAUGE.	24	26	28	30	32	34	36					
10each	\$12 00	\$14 50	\$ 16 00	\$ 18 00	\$20 00	\$ 22 50	\$ 25 50					

RE-SAWING OR SIDING SAWS.

GROUND TAPERING.

Diameter. Inches.	Gauge.	Price, Each.	Diameter. Inches.	Gauge.	Price, Each.
16 16 18 18 20 20 22 22 22 22 22 22 22 24 26 26 26	$\begin{array}{c} 13 \times 17 \\ 12 \times 16 \\ 11 \times 15 \\ 12 \times 16 \\ 11 \times 15 \\ 12 \times 17 \\ 12 \times 17 \\ 12 \times 17 \\ 12 \times 17 \\ 11 \times 15 \\ 10 \times 14 \\ 10 \times 14 \\ 10 \times 11 \\ 9 \times 18 \\ 10 \times 15 \\ 10 \times 15 \\ 10 \times 15 \\ \end{array}$	$\begin{array}{c} \$7 \ 00 \\ 7 \ 25 \\ 7 \ 50 \\ 8 \ 80 \\ 9 \ 10 \\ 9 \ 10 \\ 10 \ 60 \\ 10 \ 95 \\ 11 \ 30 \\ 12 \ 40 \\ 12 \ 40 \\ 12 \ 85 \\ 13 \ 20 \\ 14 \ 70 \\ 15 \ 25 \\ 15 \ 60 \\ 17 \ 15 \\ 17 \ 80 \\ 18 \ 20 \end{array}$	23 28 28 30 30 32 32 34 34 34 34 36 35 33 33 38 38	$\begin{array}{c}9x13\\9x14\\8x13\\9x14\\8x13\\9x14\\8x13\\9x14\\8x13\\9x14\\8x13\\8x13\\8x13\\8x14\\8x13\\8x14\\8x13\\8x14\\8x12\\8x13\\8x14\\7x14\\8x12\\8x13\\8x14\\7x14\\8x13\\8x13\\8x14\\8x13\\8x14\\8x13\\8x14\\8x13\\8x13\\8x14\\8x13\\8x13\\8x14\\8x13\\8x13\\8x14\\8x13\\8x13\\8x14\\8x13\\8x13\\8x14\\8x13\\8x13\\8x14\\8x13\\8x13\\8x13\\8x14\\8x13\\8x13\\8x13\\8x14\\8x13\\8x13\\8x13\\8x13\\8x13\\8x14\\8x13\\8x13\\8x13\\8x14\\8x13\\8x14\\8x$	\$19 60 20 80 20 40 21 90 23 20 24 10 24 20 25 60 27 15 28 70 20 25 32 30 34 00 37 10 35 55 37 40 41 00

EDGER SAWS.

() - man	DIAMETER IN INCHES.											
GAUGE.	12 14		16	18	20	22	24					
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	\$4 10 4 25 4 45 4 60 4 75	\$4 95 5 15 5 35 5 55 5 75	\$5 75 6 00 6 25 6 50 6 75	$\begin{array}{c} \$7 & 00 \\ 7 & 30 \\ 7 & 60 \\ 7 & 90 \\ 8 & 20 \end{array}$	£ 8 50 8 85 9 20 9 55 9 90	\$10 00 10 00 10 45 10 90 11 35	\$12 00 12 00 12 00 12 55 13 10					

SHINGLE AND HEADING SAWS, OF THE BEST SELECTED CAST STEEL.





TAPERED AND PATENT GROUND.

Inches	30		32	3	4	3	6		38	4	4 0	-	42		44	4	46	4	8
Each	\$29 0	0 32	00	35	00	38	50	44	00	50	00	60	00	72	00	85	00	100	00
Inches					5(0			Ę	52				54				56	
Each .		•••••		\$1	15	00		60	135	5 00)	ç	\$15	50	0		\$17	5 0	0

When ordering Shingle Saws give following specifications: Diameter of saw in inches, thickness or gauge of saw at center and at rim, full sketch of pattern of holes and sample of screw by which to drill and countersink saw. If you have a flange, send it, to have holes drilled in saw to fit flange. If you wish us to furnish the flange, send full and correct sketch, diameter, thickness, holes, etc. Give maker's name of machine upon which saw is to be used, number of teeth you desire to have in saw, and be sure to give flat or countersunk side, and the direction in which the teeth run. (See engraving above.)

SHINGLE AND HEADING SAW FLANGES.

Inches, diameter	18	20	21½	24
For Saws, diameter	30 to 34	36 to 38	40 to 46	48 to 50
Each	\$18 00	\$20 00	\$21 50	\$24 00





LEFT HAND.

RIGHT HAND.

Inches.	Gauge.	Price, each.	Extra for each additional Gauge. Cents.
$\begin{array}{c} 4\\ 6\\ 7\\ 8\\ 9\\ 10\\ 12\\ 14\\ 16\\ 18\\ 20\\ \end{array}$	$16\\16\\15\\15\\15\\14\\14\\14\\13\\13\\12\\12$	$\begin{array}{c} \$2 \ 20 \\ 2 \ 20 \\ 2 \ 60 \\ 3 \ 10 \\ 3 \ 60 \\ 4 \ 50 \\ 5 \ 90 \\ 7 \ 20 \\ 9 \ 00 \\ 10 \ 75 \\ 13 \ 50 \end{array}$	$5 \\ 5 \\ 6 \\ 8 \\ 10 \\ 13 \\ 17 \\ 21 \\ 25 \\ 30 \\ 35$
$\frac{20}{22}$	12 12	$ \begin{array}{cccc} 13 & 50 \\ 16 & 50 \end{array} $	35 40

All Saws concaved to a smaller circle than 16 inches, extra price. Extra sizes made to order. When ordering Concave Saws, give circle to be cut; also, which side is to be dished or concaved, right or left-hand, Saw running toward you. (See cut.)



These saws are ground to run without set, especially adapted for smooth cutting, such as Cabinet and Cigar-box work. When ordering, give size of center hole, also diameter of collar on mandrel.

	Size.	Gauge at Hole.	Gauge at Teeth	Price Each.
	6 in.	19	16	\$3 50
	7 in.	19	16	3 75
	8 in	19	16	4 00
	9 in	18	15	4 75
	10 in.	17	14	5 00
1	11 in.	17	14	5 25
	12 in.	17	14	5 75
	14 in.	17	14	6 75
	16 in.	16	13	7 50
	18 in	16	13	8 25
	20 in.	16	13	10 00
	22 in.	15	12	12 00
	24 in.	15	12	14 00

Extra gauges heavy, and bevel-ing will be charged for same as our regular circular saw list.



Diam.		THICKNESS.													
Inches.	1/8 Inch.	³ Inch.	1/4 Inch.	⁵ ₁₆ Inch.	⅔ Inch.	1 ⁷ Inch.	$\frac{1}{2}$ Inch.								
4 5 6 7 8 9 10 11 12 Space Te	\$1 20 1 55 1 90 2 30 2 70 3 30 3 90 4 50 5 10 eth $\frac{1}{2}$ in	\$1 40 1 75 2 20 2 70 3 20 3 75 4 50 5 10 5 70	\$1 60 2 10 2 70 3 30 4 50 5 10 5 70 6 25 1 inch	$\begin{array}{c} \$2 50 \\ 3 00 \\ 3 50 \\ 4 00 \\ 4 75 \\ 5 25 \\ 6 00 \\ 6 50 \\ 7 50 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ $	\$3 50 4 00 4 50 5 75 6 25 7 00 7 50 8 50 1 in ab	\$450 500 600 675 725 800 850 950 13 < in ch	\$5 50 6 00 6 50 7 00 7 75 8 25 9 00 9 50 10 50 2 inch								

Saws with less space or special teeth extra price.

MILLING SAWS FOR METAL.



Diameter.	Gauge.	Size of Hole.	No. of Teeth.	Price, Each.	Extra for Each Addi- tional Gauge Heavier.
$\begin{array}{c} 2\\ 3\\ 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 9\\ 10\\ 12\\ 14\\ 16\\ 18\\ 20\\ 22\\ 24\\ 26\\ 28\\ 30\\ 32\\ 34\\ 36\\ 38\\ 40\\ 42\\ 44\\ 44\\ 44\\ 45\\ 8\end{array}$	$\begin{array}{c} 22 \ x \ 20 \\ 22 \ x \ 20 \\ 21 \ x \ 19 \\ 20 \ x \ 18 \\ 19 \ x \ 17 \\ 18 \ x \ 16 \\ 17 \ x \ 15 \\ 16 \ x \ 13 \\ 14 \ x \ 10 \\ 12 \ x \ 9 \\ 11 \ x \ 7 \\ 9 \ x \ 6 \\ 8 \ x \ 5 \\ 5 \ x \ 2 \\ 5 \ x \ 4 \\ 4 \ x \ 14 \ 14 \\ 4 \ x \ 14 \ 14 \ 14 \ 14 \ 14 \ 14 \ 1$	1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	$\begin{array}{c} 48\\ 64\\ 76\\ 88\\ 96\\ 104\\ 110\\ 116\\ 120\\ 134\\ 148\\ 148\\ 148\\ 192\\ 200\\ 208\\ 214\\ 192\\ 200\\ 208\\ 214\\ 222\\ 228\\ 232\\ 236\\ 236\\ 236\\ 266\\ 266\\ 266\\ 266$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	

VENEERING SAWS IN SEGMENTS.

When ordering segments, give gauge or thickness at butt, gauge or thickness at edge, depth of bevel, diameter of saw that segments are to form, number of segments in saw, depth of segments, number of teeth in each segment, sample of screw by which to drill and counter-



sink flat or countersunk side, and direction in which teeth run. (See



engraving). In ordering for a flange that has been drilled, send a sheet-iron or tin templet, or a correct tracing, showing holes and other particulars; or one of the old segments, giving the depth they originally were.

Left Hand.

PRICE SEGMENT SAWS.

12	inches	deep.	No.	5 gauge,	per	foot	in	diameter	of	saw\$	17	05
12	inches	deep,	No.	6 gauge,	per	foot	\mathbf{in}	diameter	of	saw	16	20
12	inches	deep,	No.	7 gauge,	per	foot	in	diameter	of	saw	15	50
12	inches	deep,	No.	8 gauge,	per	foot	in	diameter	of	saw	14	50
12	inches	deep,	No.	9 gauge,	\mathbf{per}	foot	in	diameter	of	saw	14	00
12	inches	deep,	No.	10 gauge	, pe	r foot	; ir	i diamete	r o	f saw	13	50
	1226		0.000	for coal	a di	1:+:	101	inch in de	and t	h		

Deduct five per cent. for each inch under twelve inches in depth.

CIRCULAR SAWS OR DISCS, FOR CUTTING HOT OR COLD IRON.

Diameter.	Thickness.	Price.	Diameter.	Thickness.	Price.
Inches.	Gauge.	Each.	Inches.	Gauge.	Each.
$14 \\ 16 \\ 18 \\ 20 \\ 22 \\ 24 \\ 26 \\ 28 \\ 30 \\ 32$	$ \begin{array}{c} 10 \\ 10 \\ 8 \\ 7 \\ 7 \\ 7 \\ 6 \\ 6 \\ 6 \end{array} $	$\begin{array}{c}\$4 & 00 \\ 5 & 00 \\ 6 & 50 \\ 7 & 50 \\ 9 & 00 \\ 10 & 50 \\ 12 & 00 \\ 13 & 50 \\ 13 & 50 \\ 15 & 50 \\ 17 & 00 \end{array}$	$\begin{array}{c} 34\\ 36\\ 38\\ 40\\ 42\\ 44\\ 46\\ 48\\ 50\\ \end{array}$	55433333	

WESTERN AND SOUTHERN AGENTS FOR THE WHIT-NEY PATENT STAVE SAWING MACHINE.

THE MOST PRACTICAL MACHINE MADE.



We make a specialty of re-steeling cylinder saws. Satisfaction guaranteed. Cylinder and Bilge Saws of all descriptions. All these saws are tempered and ground by patented processes, which add greatly to their durability and efficiency.

PRICE-LIST	$\mathbf{0F}$	SAWS	FOR	BUCKET,	TUB,	KEG	AND	BARREL
				STAVES.				

KIND OF STAVE.	Diameter of Saw.	Length of Saw Inside.	Price of Saw with Wood Frame and Iron Carriage Complete	Price of Saw with Iron Frame and Iron Carriage Com- plete.
For buckets or pails For small tubs For wash tubs For Jarge wash tubs For 5 gallon kegs For 10 gallon kegs or half bbls For 20 gallon kegs or fish bbls For 20 gallon kegs or fish bbls For flour barrels For tight barrels	11 inch. 15 " 20 " 22 " 12 " 15 " 16 ¹ / ₂ " 18 " 20 " 24 "	15 inch. 15 " 19 " 22 " 20 " 24 " 30 " 32 " 38 " 42 "	\$118 00 188 40 291 60 351 78 185 18 256 80 337 28 372 14	\$780 00 950 00

Cylinder saws of other sizes than those mentioned above made to order at corresponding prices. Bilging Cylinder Saws of all sizes made to order. Prices named on receipt of inquiry giving size of saw and radius of bilge. Write for circulars and prices.

REPAIRING SAWS.



We make a specialty of repairing saws, employing in that department expert workmen, whose experience and skill with our improved machinery and appliances, enable us to make repairs promptly and in the best possible manner.

PARTICULAR NOTICE TO PARTIES SENDING SAWS FOR REPAIR; PLEASE OBSERVE THE FOLLOWING DIRECTIONS:

The case or package containing them should be not only plainly marked to our address, but should have upon it also the name and post-office address of the party sending them. We receive hundreds of saws for repair, and it is impossible to identify them without the name of the owner on each. Attention to this matter at the time of shipping will save delay and annoyance. Send by mail full instructions of work to be done, and shipping directions for the return of the saw when finished. Never fail to state whether mill saw is to be used on a right or left hand mill. BREAKING IN REPAIRING AT OWNER'S RISK.

E. C. ATKINS & CO.,

Net Prices. Not Subject to Discount.						
Diameter. Inches.	Hammering only.	Gumming and Hammering	Cutting down, re- toothi'g and Hammering	Grinding first gauge.	Grinding additional gauges. Each gauge.	
$\begin{array}{c} 4\\5\\6\\7\\8\\9\\10\\12\\14\\16\\18\\20\\22\\24\\26\\28\\30\\32\\34\\36\\38\\40\\42\\44\\46\\50\\52\\54\\56\\60\\62\\46\\68\\70\\72\\74\end{array}$	$\begin{array}{c} \$0 \ 20 \\ 25 \\ 30 \\ 35 \\ 40 \\ 45 \\ 50 \\ 55 \\ 60 \\ 75 \\ 80 \\ 90 \\ 1 \ 20 \\ 1 \ 30 \\ 1 \ 40 \\ 1 \ 55 \\ 1 \ 60 \\ 2 \ 05 \\ 2 \ 20 \\ 2 \ 35 \\ 2 \ 60 \\ 3 \ 40 \\ 3 \ 55 \\ 3 \ 70 \\ 3 \ 85 \\ 4 \ 00 \\ 5 \ 80 \\ 6 \ 00 \\ 6 \ 40 \\ 8 \ 30 \\ 8 \ 60 \\ 8 \ 80 \\ 9 \ 10 \\ 9 \ 35 \\ 9 \ 60 \\ 9 \ 90 \end{array}$	\$0 25 30 40 \$0 47 \$0 47 \$		\$0 10 12 Saws Re-ground require Hammering. See List for Hammering. See Ust for Hammering. See Ust for Hammering. See Ust for Hammering. See Use 1 1 1 1 1 1 2 5 2 5 5 2 5 2 5 5 5 5 5 5	$\begin{array}{c} \$0 & 07 \\ 10 \\ 17 \\ 20 \\ 23 \\ 27 \\ 28 \\ 33 \\ 37 \\ 44 \\ 50 \\ 53 \\ 63 \\ 77 \\ 97 \\ 1 \\ 07 \\ 1 \\ 17 \\ 1 \\ 30 \\ 1 \\ 40 \\ 1 \\ 60 \\ 1 \\ 87 \\ 1 \\ 97 \\ 2 \\ 03 \\ 2 \\ 13 \\ 2 \\ 23 \\ 2 \\ 30 \\ 2 \\ 40 \\ 2 \\ 57 \\ 2 \\ 67 \\ 2 \\ 77 \\ 2 \\ 90 \\ 2 \\ 93 \\ 3 \\ 03 \\ 3 \\ 17 \\ 3 \\ 20 \\ 3 \\ 27 \end{array}$	

These prices are Net. When we Gum Saws we grind the teeth FREE. Saws re-ground require Hammering. See List for Hammering.

REPAIRING SAWS.

Net Prices.

MILL OR MULAY SAWS.

Re-toothing and Hammering, each, to 5 ft., \$1.25, over 5 ft., \$1.50. Hammering only, each, to 5 ft., 75c., over 5 ft., \$1.00.

DRAG SAWS.

Re-toothing, Hammering and Filing, each	\$1	50
Hammering only, each		75
Setting and Sharpening only, each		75
Re-toothing and Hammering only, each	1	00

TAPER-GROUND SHINGLE AND HEADING SAWS.

All sizes,	Gummed and Hammered, per inch in diameter	\$0	15
All sizes,	Hammered, per inch in diameter		10

REPAIRING CROSS-CUT SAWS.

Hammering	\$0	50	each.
Gumming and Hammering		75	66
Gumming, Hammering and Filing	1	00	" "
Re-toothing, Hammering and Filing	1	50	66
Setting and Sharpening only		50	66

BAND SAW BLADES.

Brazing wide Blade for Log	; Mill\$2.00 each braze.
Hammering	3c per in., per in. width, per running ft.
Gumming and Toothing	4c per running ft.
Filing and Swaging	4c per running ft.

REPAIRING BURNED SAWS.

The temper of burned saws can generally be restored. We make a specialty of this class of work, and rarely fail to make such saws as good as new. We undertake the work at owner's risk, though no charge will be made by us in case of failure. Please prepay freight on all such saws.

TEMPERING, GUMMING, STRAIGHTENING AND GRINDING.

S	SIZE.	PRICE.
30	inches	\$6 00
32	inches	7 00
34	inches	8 00
36	inches	. 8 50
38	inches	9 00
40	inches	9 50
42	inches	10 50
44	inches	12 00
4 6	inches	13 50
48	inches	15 00
50	inches	17 50
52	inches	. 20 00
54	inches	. 22 50
56	inches	25 00
58	inches	27 50
60	inches	30 00
62	inches	34 00
64	inches	38 00
66	inches	44 00
68	inches	50 00
70	inches	58 00

All sizes under 30 inches, one-third list price for Circular Saws.

BAND SAWS.

SUGGESTIONS FOR THE SUCCESSFUL USE AND CARE OF BAND SAWS.

THE MILL.

The first requisite is a well constructed mill, having closely fitted bearings, perfectly balanced wheels, and sufficient weight of metal properly distributed to stand the heaviest strain put upon it, without vibration. Prevent vibration from every cause, as much as possible, by keeping the mill in perfect condition, the saws in perfect tension, and everything in good order.

CROWN OF WHEELS.

Wheels having too much crown are objectionable. They produce excessive vibration. The saw must be opened up through the middle to fit the crown of the wheels, therefore, requires more rolling and hammering than if the face of the wheel is flat. If the wheels have too much crown the saw is not as flat when strained. It is subject to greater friction in the guides and in the log. It cuts a wider kerf. It is more liable to crack from uneven tension when strained and from vibration. It will not make as straight lines. It will not cut as smooth lumber. Therefore, wheels with flat, or nearly flat faces are preferable. About one sixty-fourth of an inch crown in a width of 10 inches is the limit permitted.

OPERATOR'S ROOM AND TOOLS.

If the location of the mill will permit, have the operating room well lighted from the north. Locate the anvil, etc., as shown in Figure 10.



Fig. 10.

NOTE.—A indicates position of operator and hammer board; B anvil; C anvil block; D leveling table; E saw board.

For hand work the tools required are:

One anvil, of 80 to 100 pounds weight; one cross-face, one roundface and one twist-face hammer, weight of each about 3½ pounds; one five foot and one twelve inch straight-edge; one tension gauge; one leveling table; one brazing table and irons; one portable forge for heating the irons; one Victor Swage; one Pribnow Shaper, or one Combined Pribnow Swage and Shaper; one side file; one jointer; one set of pulleys and stands; one clamp for setting, swaging and jointing; round edge mill saw files.

For machine work:

One roller stretching machine; one automatic band saw sharpener; one automatic power swage; one scarfing machine.

All the above we are prepared to furnish on application.

TENSION.

The tension should be as perfectly uniform as possible throughout the length of the blade. A fast place may cause fracture from undue strain at that point; and a loose place, from excessive vibration. The tension should be so adjusted that the saw will bear firmly upon the face of the wheels, the principal strain being near the edges of the saw. When the saw is in proper tension the central portion of the blade is expanded, or opened up, so that when the saw is raised, the middle will drop away from the straight-edge $\frac{1}{16}$ to $\frac{3}{16}$ of an inch, as in Figure 11.

Two methods of testing for tension are in use. In the first method the operator raises the saw while the straight edge is held firmly



Fig. 11.

NOTE.—FIRST METHOD. The central portion being in proper tension, drops from the straight-edge when the saw is raised. If too open, roll or hammer with the round-face hammer along both edges on both sides of the saw. across it, and the loose or open places will drop away from the straight edge (as in Fig. 11), and the fast or firm places will be drawn to the straight-edge (as in Fig. 12). This is the method in common use, and is the most convenient.



Fig. 12.

NOTE.—FIRST METHOD. The central portion being fast and requires opening up, is drawn to the straight edge when the saw is raised. These fast places require rolling, or hammering with the round face hammer on both sides of the saw.

In the second method the saw is pressed down by the operator (as in Fig. 13), and in this method the loose places are drawn to the straight-edge (Fig. 13), and the fast or firm places drop away from it (Fig. 14). Some experts claim this method, although more difficult to operate, will disclose variations of tension, even the smallest loose and fast places, which could not be detected by the first method



Fig. 13.

NOTE.-SECOND METHOD. The open or loose places are drawn to the straight-edge when the saw is pressed down. If too open, roll or hammer with the round-face hammer along both edges on both sides of the saw



Fig. 14.

NOTE.—SECOND METHOD. The fast or firm places drop away from the straight-edge when the saw is pressed down. These fast places require opening up with the rolls, or round face hammer. Hammer on both sides of the saw.

To increase the tension, open up the center or body of the saw by rolling or hammering (see dotted lines Fig. 16). If the rolls are used, some hammering will be required after rolling, to even up the tension so as to make it uniform throughout the length of the blade. The greatest tension should be in the middle of the blade, decreasing gradually to within a short distance from the edges, say $\frac{3}{4}$ to $1\frac{1}{2}$ inch on the back edge, and 1 to 2 inches on the tooth edge.

The wider the saw and the heavier the work to be done, the wider the firm band on the edge should be. This is evident when it is remembered that a 12-inch band saw is subjected to a strain of from six to seven tons in use, in addition to the strain of the cut. By this means a narrow, firm band extends the length of the saw, along each edge, which receives the principal strain.



Note —If the saw is too open reduce the tension by rolling, or hammering with the round-face hammer on both sides of the saw, near both edges, as indicated by the dotted lines.



Note. -To open the saw and give it more tension, roll or hammer with the round face hammer along the central portion of the saw indicated by the dotted lines.

If the saw has too much tension, that is to say, is opened up too much through the center, the tension may be decreased by hammering near the edges of the saw, on both sides (see dotted lines on Fig. 15). The round-face hammer is used for tensioning; light strokes should be used, and the hammering done equally on both sides of the saw. Keep at least $\frac{1}{2}$ of an inch from the edge of the saw. Test frequently with the straight-edge or tension gauge. Hammer as little as possible. No heavy blows should be struck, and the hammer faces should be nearly flat. The tension must be adjusted to suit the crown of the wheel and feed used, the drop from the level in testing varying from $\frac{1}{16}$ to $\frac{3}{16}$ of an inch in ten inches wide. In hammering and rolling a band saw to adjust the tension, all the work must be done on the fast or firm part of the blade. The tension gauge (Fig. 17), with the edges curved to suit the crown of wheels and feed used, will be found useful in testing for tension, and if the saw is in proper tension, and the saw raised by the operator, the blade should fit the curve of the tension gauge.



TENSION GAUGE. Fig. 17.

Note.—The tension gauge may be made with curves of different diameter on its edges. If the tension gauge is of the proper curve for your mill the saw when raised, if in proper tension, would fit the curve of the gauge.

TWISTS AND LUMPS.

These are detected by the use of the short straight-edge while the saw rests on the leveling table, and are removed by hammering lightly with the cross-face and twist-face hammers. The faces of these hammers should be nearly flat. Heavy blows and sharp hammers are sure to crystallize the steel and cause fracture at the point of contact. Lay the saw upon the leveling table, examine it by passing a straightedge over it at different angles. Whenever ridges appear, trace their direction, or the angle at which they run along the surface of the saw, and mark same with a piece of chalk. Draw the part which shows lumps or twists over the anvil, and hammer down the ridges. In hammering down the ridges the face of the hammer should always run in the direction of the ridge.

STRAIGHTENING THE BACK.

Use the five foot straight-edge on the back of the saw. While it rests on the leveling table, mark the extent of the curve with the chalk.

The back of the saw may be drawn to a straight line or a true outward curve, by using the round-face hammer upon and near the edge, carrying the blows into the central portion of the saw (Fig. 18), and so preventing unequal expansion, and leaving the saw open. Or better, by the use of the rolls in the same way.



Fig. 18.

Note.—If the back of the saw curves from the straight-edge, as shown, roll or hammer with the round-face hammer on both sides of the saw, as shown in the shading, until the back shows rounding about $\frac{1}{16}$ to $\frac{1}{6}$ inch in 15 feet. A convenient method of testing the curve is to place two iron pins 15 feet apart, and one pin central between the others on the curve you find operates best on your mill, which should not exceed $\frac{1}{16}$ of an inch in 15 feet. By moving the saw along with the back resting against the pins, every section of the saw may be gauged to a true curve, suitable for your mill.



SHORT STRAIGHT-EDGE. Fig. 19.

Note.—For testing saw for twists and lumps on leveling table, and when hung on the wheels. Also used in testing saw for tension, as illustrated in Figures 11 and 12, First Method, and 13 and 14, Second Method. In testing with straight-edge for tension, the space between the straight-edge and saw through which the light passes, should be the same throughout the entire length of the saw, and there should be no places where the tension varies from the center, or is too close to the edge of the saw.

If the back of the saw is too rounding, the hammering or rolling must be done upon the toothed edge. LIGHT BLOWS should be used, and both sides of the saw hammered equally, care being taken not to give heavy blows on the extreme edge of the saw, which may cause fracture.

It is desirable that the toothed edge should be strained a little tighter than any other portion of the saw. To accomplish this, and preserve uniformity of tension, the back of the saw should be rolled or hammered to a curve, showing about $\frac{1}{3\sqrt{2}}$ inch in 5 feet, or $\frac{1}{8}$ inch in 15 feet rounding, then by tilting the upper wheel so that the saw has a uniform pressure all across the blade, this will secure a tightly strained tooth edge without subjecting the saw to undue strain upon the edge, caused by an all tilt movement.

Do not permit the back of the saw to touch the back guide wheel. If it becomes case hardened by running against the guide wheel, hold a piece of soft emery wheel against the back edge, while moving slowly, and so remove the case-hardened portion at once.

The strain put upon the saw in the best constructed mills is arely over 5,000 to 12,000 pounds, and should be only sufficient to prevent slipping on the wheels. The use of the roller or stretching nachine for putting in tension and regulating the curve of the back is preferable to all hammering, but the use of the hammer after rolling is necessary to insure the perfect adjustment of tension.

To arrest cracks and prevent their extension into the blade, punch a small hole at the extreme end of the fracture.

Size.	GAUGE.	Pounds.	Size.	GAUGE.	Pounds.
inches. 6 6 6 6 7 7 7 8 8 8 8 9	$ \begin{array}{r} 16\\ 17\\ 18\\ 19\\ 20\\ 15\\ 16\\ 17\\ 14\\ 15\\ 16\\ 14\\ 14 \end{array} $	$\begin{array}{c} 4,212\\ 3,756\\ 3,174\\ 2,718\\ 2,268\\ 5,439\\ 4,914\\ 4,382\\ 7,168\\ 6,216\\ 5,616\\ 8,064\\ \end{array}$	Inches 9 9 10 10 10 11 11 11 11 12 12 12 12	$ \begin{array}{r} 15 \\ 16 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 13 \\ 14 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 16 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 15 \\ 14 \\ 15 \\$	$\begin{array}{c} 6,993\\ 6,318\\ 10,260\\ 8,960\\ 7,770\\ 11,286\\ 9,856\\ 8,547\\ 12,312\\ 10,752\\ 9,324 \end{array}$

TABLE OF STRAIN FOR BAND SAWS.

FEED, PITCH OF TEETH AND CLEARANCE.

These are important features in the use of Band Saws.

The speed should be maintained at a uniform rate. Sudden and excessive increase is liable to result in fracture of the saw. Under heavy feed the pitch of the teeth should be in corresponding ratio, say from 4 to $6\frac{1}{2}$ inches in ten inches width of saw, and the clearance on the back of the tooth maintained at a proper angle to the pitch. If the pitch and clearance are maintained at the proper ratio, the saw will run steady on the wheels without lateral motion, and if i properly tensioned, seldom, if ever, touch the back guide wheel or run off the wheels. This matter of pitch and clearance has been deemed of sufficient consequence to be made the subject of an elaboration.

rate geometrical claim in patent No. 521,343, by Dexter Hazzard. Variations from the formula laid down are admissible in different kinds of timber and under varying requirements.

SHAPE AND SWAGING OF TEETH.

The teeth should be as short as will afford proper dust room, and gullets always round; no sharp corners to invite fracture. Long teeth vibrate in the cut, and vibration from any cause is ruinous to successful band saw practice. In band swaging we advise the use of the Pribnow Combined Swage and Shaper, or the Victor (Parke) Swage, to be followed by the Pribnow Shaper. The shaper insures a perfect shape of point, having the under cut or bevel from outside of point to blade, essential to perfect lines and smooth work.

OUR SILVER STEEL.

We can assure our patrons that the Silver Steel used in our Band Saws, and made on formulas expressly for us, is not excelled by any other steel, and the saws with proper usage will wear out without fracture. Fluxes, such as Aluminum, and alloys, such as Nickel, are useful, and are used in the manufacture of our steels, but these things in the absence of high grade material and the proper per centage of carbon, will not produce fine steel having the qualities of toughness, elasticity and edge-holding qualities characteristic of our HIGH GRADE SILVER STEEL, which we guarantee superior to any in these essential particulars, as well as our superior method of manufacture.

ATKINS' SILVER STEEL BAND SAWS.

Every saw is joined, filed, set and fitted ready to go on the mill without further hammering.



LIST PRICES.

Width.	Usual Gauge.	Per Running Foot.
2 inches.	17 to 19	\$0 50
$2\frac{1}{2}$ "	17 to 19	65
3 ''	17 to 19	80
$3\frac{1}{2}$ "	17 to 19	1 00
4 ² "	16 to 18 ·	1 20
41	16 to 18	1 35
5 "	16 to 18	1 50
51 ''	16 to 18	1 65
6 "	15 to 17	1 80
7 "	15 to 17	2 15
8 ''	14 to 16	2 50
9 ''	14 to 16	3 00
10 ''	14 to 16	3 50
11 ''	14 to 16	4 20
12 "	14 to 16	5 00
13 ''	1 13 to 15	6 00
14 ''	13 to 15	7 00

NARROW BAND SAWS.

FOR RE-SAWING AND SCROLL SAWING.



Inc	hes.	Pe	er Foot.
18	Not joined		\$0 06
316	66		07
14	" "		08
38	"		09
12	"		10
5	66		12
34	"		14
78	**		17
1	**		20
11	66		24
11	66		28
13	66		32
$1\frac{1}{2}$	66		36
134	**		40

Filing and setting, 5 cents per foot extra.

BRAZING.

Brazing $\frac{1}{4}$	to $\frac{1}{2}$ inch	§ to 🖁 inch.
Price	30 cents	40 cents.
Brazing1	to 14 inch 1	$\frac{3}{8}$ to $1\frac{1}{2}$ inch.
Price	50 cents	65 cents.

WRIGHT'S NON-FRICTION BAND-SAW GUIDE.



A FEW REASONS WHY THESE GUIDES ARE SUPERIOR TO OTHERS.

BECAUSE—We avoid friction, avoid using oil, at the same time having a good, firm support for the saw.

BECAUSE-It is instantly adjusted to any width or thickness of saws.

BECAUSE—We have narrow side guides above and below the back-bearing which are spread apart, preventing the side of the saw from heating.

BECAUSE — The wearing parts are so constructed, should they become broken or lost, they can be replaced at a mere trifle.

BECAUSE—They can be readily attached without injury to the machine; and if not found just as represented, may be returned.

Price of Small Guide, taking saw from one inch in width to

INDIANAPOLIS, IND.

EGAN BAND SAW GUIDE. PRICE, \$10.00.

COMPANY

THE EGAN

DESCRIPTION OF ROLLER GUIDE.

The roller is made of hardened steel and perfectly true to size and shape, and is attached to a spindle of same material running in a close-fitting sleeve and so arranged that all bearings are easily olded and secure from escape. The frame holding the side guides is adjustable to and fro for the various widths of blades by means of the thumb screw as seen in the cut. The back of the saw blade has a very long bearing across the face of the roller, thus providing for the least amount of friction and spreading it over the largest surface possible, which thereby prevents the crystallization that causes the breakage of saws through heat and friction. The side guides are extra long and of hardened steel, supporting the sides of the saw blade in the most approved manner, and which results in an improved action of the saw in many ways, especially with respect to breakage and twisting or running. These side guides are adjustable sidewise with a wrench, and are movable to the blade or from it, as desired, to suit the various widths of saws, so that at all times the saw blade is held rigid the full with and close to the teeth of the same.

THE AMBLER PERFECT FILING MACHINE FOR BAND SAWS.



WHAT IT WILL DO.

It will file your saws without your attention.

It will save you 50 per cent. in the cost of files.

It will file saws sharper than by hand.

It will encourage your men to keep them sharp.

It will thus save your saws from breakage.

It will pay for itself in a few months.

These things appeal strongly to the good sense of every business man, for they show a better margin than can be made on investments in lumber or stock.







E. C. ATKINS & CO.,

INDIANAPOLIS, IND.

MULAY SAWS.

		G	auge.		4		5		6		7		8	9	
10 i	n. wide	, per foc	.t	\$3	15	\$3	00	\$2	75	\$2	40	\$ 2	20	\$19	0
11	44	44	•••••	3	50	3	30	3	00	2	75	2	40	2 2	20
12	66	**	••••••	3	85	3	50	3	30	3	00	2	75	24	10

MILL SAWS.

Gauge.	5	6	7	8	9	10
8 in. wide, price per foot	\$2 20	\$2 10	\$1 90	\$1 75	\$1 6 5	\$ 1 55

LANCE TOOTH DRAG SAWS.

	Width.	5 Ga.	6 Ga.	7 Ga.	8 Ga.	9 Ga.	10 Ga.
	8 inches				\$ 1 75	\$1 65	\$1 45
	9			\$2 20	2 00	1 75	1 55
	10			2 55	2 20	2 00	1 75
	12		\$3 30	3 00	2 65	2 40	2 20
	14	\$4 40	4 00	3 65	3 3 0	3 00	2 65
	16	4 85	4 50	4 20	3 85	3 55	3 20
Гa	pered 8 in. butt, 6 in. point			•••••	1 55	1 45	1 3 5

Saws over 8 feet long extra Price.

PIT SAWS.

Length	5 ft.	5½ ft.	6 ft.	6½ ft.	7 ft.	7½ ft.	8 ft.
	Each.	Each.	Each.	Each.	Each.	Each.	Each.
Price	\$ 5 00	\$5 50	\$6 00	\$6 50	\$7 00	\$7 50	\$8 00

Boxes for Pit Saw, \$1.00 each. Tillers, \$1.25 each.

WHIP SAWS.

Length	5 ft.	5½ ft.	6 ft.	6½ ft.	7 ft.	7½ ft.
	Each.	Each.	Each.	Each.	Each.	Each.
Price	\$3 00	\$3 30	\$3 60	\$3 90	\$4 2 0	\$4 50

CROSS-CUT SAWS.

The high standard of excellence attained for the Atkins Cross-Cut Saws is the result of years of experience and practical tests of methods, appliances and steel used in their production.

We have introduced all the recognized improvements in Cross-Cut Saws; prominent among these are the original Tuttle Tooth, Silver Steel Diamond and Dexter. These stand at the head of fine, fast-cutting saws.

We are prepared to say that there are no results obtained by any method of grinding saws that have not been accomplished in our factory. Our method of tempering is the most approved known, dispensing almost entirely with hammering, and securing absolute *uniformity of temper* throughout the entire length of the saw, and of any number of saws. Every saw is carefully tested for temper and fitted perfectly for use before shipment. We assure our patrons, and those desiring to purchase, that we shall continue to maintain this high standard.

INTERESTING FACTS.

An examination of the following pages, and a practical test of the merits of our saws, substantiate the claim that, in quality of material and temper; in perfect fitting for use; in general finish and appearance; in the great variety of styles; in adaptability to all sections and kinds of timber; in fast cutting and light running qualities, our line of Cross-Cut Saws is unequaled by any American or foreign manufacturer.

CAUTION.

The fine qualities of the Atkins high grade saws have been appreciated by lumbermen and sawyers, causing a large demand for our leading brands of cross-cut saws. This has led manufacturers of inferior goods to imitate saws of our manufacture. Beware of these imitations and see that the brand, E. C. Atkins & Co., is on every saw.

OUR REGISTERED TRADE-MARKS.

"Silver Steel," "Dexter," "Effigy of a Horse," "Diamond," "Effigy of a Diamond," "Segment Ground," "Rex," "Victor Lance," "Diamond Point."

 MARR 14, 1833. Yerrs to the Columbian Year. Embodying y of thickness of the toothed edge. This int. Perforated blade. Diamond footh and hemper. Perfection in manufacture and ende these any style of tooth re- leance. Thuthe Tooth with Diamond Point invite especial attention to our new brand pressly for these saws. NWWW WWWW WWWWW NWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	8 IL., 86 72
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ATKIN'S COLUMBIAN.

INDIANAPOLIS, IND.

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OND CROSS-CUT.	the distinction of not only having first mond and Dexter, but of improving hich challenges comparison.	id Raker Gauge.	ООМИ ОИМОИМОИ ОТ 25 11. 27 11. 27 11. 28 11.	I DEXTER.	ATENTED. then made of the same class of steel, is the two is protected consists of a depression of set, thus removing all friction while in use, stold the durability of the set. This saw		DLES. 01/LES. 7.tl. 7.tl. 7.tl. 8.fl. <
ATKINS' SILVER STEEL DIAMO THE KING OF SAW	We are the sole manufacturers of Silver Steel Saws and enjoy t introduced the best Saws, among which are the Tuttie, Dian and maintaining the quality of Saws to a degree wh	Silver Steel Saws, with Handles and		ATKINS' CONCAVE TOOTH	SPECIAL SELECTED STEEL-P Second only to the Silver Steel Diamond, and equal to it wh PATERT CONCAVE TOOTH DEXTER. The patent by which this save the face of the cutting teach through the center from point to base giving strength and stiftness to the teeth and increasing three- never fails to give the best satisfaction.	MWAWWAWWAWWWWWWWWWWWWW	PRICE, WITHOUT HANJ Thin Back, 14x18 gauge 4 ft. 4/5 ft. 5 ft.

E. C. ATKINS & CO.,



INDIANAPOLIS, IND.

E. C. ATKINS & CO.,


INDIANAPOLIS, IND.



ATKINS' ONE-MAN CROSS-CUT SAWS.	TUTTLE TOOTH.	3 ft., 3 ft., 4 ft., 4 ft., 5 ft., 5 ft., 6 ft. er style handle\$1 98 \$2 18 \$2 64 \$2 91 \$3 24 \$3 56 \$3 92 ated on this Saw is the Hand-Saw Handle or One-Man Saw Handle, No. 2.	VINNUMMUMUMUMUMUMUMUMUMUMUMUMUMUMUMUMUMUM	THE AMERICAN TOOTH. 3 ft., 3½ ft., 4 ft., 4½ ft., 5 ft., 5½ ft., 6 ft. 3 ft., 3½ ft., 4 ft., 4½ ft., 5 ft., 5½ ft., 6 ft. 5 ft., 5½ ft., 6 ft. 5 ft., 5½ ft., 6 ft.	MARKICAN TOOFH ECATIKINS & CO INDIANARDELSIND INDIANARDELSIND INDIANARDINI MANANA MANANA MANANAMANANA MANANANANA INA AMANANANANANANANANANANANANANANANANANA
A		<pre>8 ft Tuttle Tooth, either style handle\$1 ' Handle illustrated on this Saw is ti</pre>	MANNAN BANKAAMAAAMAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	American Tooth, either style handle	Lummen Rend and had had had and had



E. C. ATKINS & CO.,



HANDLES.

ATKINS' PATENT CROSS-CUT SAW HANDLES.



ATKINS' No. 1 LOOP.

ATKINS' No. 3 LOOP.

No.	1	Loop,	\mathbf{per}	pair\$0	48
No.	3	Loop,	\mathbf{per}	pair	30

The best Loop handles made.

ATKINS' CROSS-CUT SAW HANDLES.



ATKINS' PATENT CROSS-CUT SAW HANDLES.



REVERSIBLE HANDLE No. 4.

Dutes			30
Price.	per pair	 ***************************************	

ATKINS' PATENT EXCELSIOR SAW TOOLS.

FOR USE IN FITTING UP CROSS-CUT SAWS.

Comprising a combined Jointer and Raker Tooth Gauge, Side File, Setting Block and Set Gauge. Put up in a neat box containing full instructions for use.

Price, 75c per set. Postage, if sent by mail, 25c extra.



JOINTER.



RAKER TOOTH-GAUGE.



SIDE-FILE.

INDIANAPOLIS, IND.

ATKINS' PATENT EXCELSIOR SAW TOOLS.



SETTING BLOCK. DIRECTIONS FOR USE.

In fitting a saw, the teeth should first be jointed, or made uniform in length. To accomplish this, place a nine-inch file in the Jointer, as shown in the cut, and by means of the large screw, spring it to suit the curve of the saw, and pass it lightly over the points of the teeth until it touches the shortest tooth; then place the tooth gauge over the cleaner drag teeth, as indicated in eut, and file them down to the gauge. Now.



file them down to the gauge. Now, if the saw requires setting, lay the setting block on a log with a place leveled to receive it, or end of a block of wood, and lay the saw upon the setting block so that the point of the tooth to be set projects over the apex of the beveled surface fully one-quarter of an inch, bringing the point of tooth to the line scored on the face of the block. (See cut.)

The tooth being in position, give two or three strokes with a light hammer over the apex, fully onequarter of an inch from the point, which will usually give the required set; regulate the set by gauging each tooth with the tooth-gauge; take it in the left hand and place it against the side of the saw. (See cut.) The

TOOTH SET-GAUGE.

point on short end indicates the least set, and the point on long end indicates a little more set.

The side file should be used to remove any feather-edge or bur left in filing, and even the set perfectly. This can be done when the saw is in the vise or filing clamp. Place an eight-inch mill bastard file in the recess on the side file, tighten the serves holding the file. Be particular that the saw is placed firmly in the holder. Pass the center of the file lightly against the teeth until the bur is removed and the set evened up. Care should be exercised not to use the side file more than is necessary to remove the feather-edge and even up the set.

The wrench may be used to lessen the set if necessary, but should never be used to set the teeth. This should be done only with a hammer upon the setting block, or any

This should be done only with a hammer upon the setting block, or any hard and slightly beveled surface. Notice carefully the manner in which the saw is filed when new, and file as

Notice carefully the manner in which the saw is filed when new, and file as nearly as possible in the same manner.

To secure the best results, our Diamond Tooth (both Silver Steel and Cast Steel) and Dexter Saws should be sharpened after being set,

TOOTH GAUGE.

For Regulating the Length of Clearers and the Width of the Set in Cross-Cut Saws.





USERS OF CROSS-CUT SAWS WILL FIND THIS TOOL INDISPENSABLE.

The cleaning teeth of all saws should be somewhat shorter than the cutting teeth, and, although shortened, should be of uniform length throughout. The flange of the Gauge rests on the points of the cutting teeth, the cleaning teeth projecting through the cpening in the center of Gauge. Reduce the projecting points by means of a file until arrested by the edge of the Gauge, which can not be cut with a file. Thus tooth after tooth can be rapidly and correctly reduced to an even length by any unskilled operator.

Our Single Gauge regulates the cleaners for hard wood, and our Double Gauge for both hard and soft wood. One end of the straightedge of these Gauges has been slightly beveled, so that they may be used for gauging the set, as shown in cut.



GAUGING THE SET.

Price, Double Gauge Each, \$0 15. Per dozen, \$1 20.

CROSS-CUT SAW TOOLS.

THE ATKINS PATENT CRITERION SAW-SET.



No. 1. FOR CROSS-CUT SAWS.

The above cut shows our improved ADJUSTABLE CRITERION SAW-SET. In the CRITERION ADJUSTABLE SET we have combined the principle of the ANVIL AND HAMMER. The hammer or striking part is FINE TOOL STEEL, DROP FORGED. The anvil is TEMPERED STEEL.

By the use of the Criterion set, with a light hammer, giving a light blow, an inexperienced person can set each tooth in a saw to an EXACT GAUGE, imparting an absolutely uniform set to each tooth, and preventing more set than is desired.

DIRECTIONS FOR USING.

It is essential that an improperly set saw should have the set taken out before giving it a proper set; this can be done by loosening the screw at the end of the block and slipping the slide forward as far as it will go; that raises the back of the saw, and with a light blow of the hammer on the hammer-set the set can easily and rapidly be taken out. To set the teeth, put the slide back as far as it will go and tighten the screw; with a light hammer and a light blow a full set is easily given to the saw. If less set is required, put the slide forward to the first or second notch, as may be desired. *Be particular*, in using the Set, to press the blade firmly down on the bed of the Set with the hand.

THE ATKINS PATENT CRITERION SAW-SET.

No. 2. FOR HAND, WOOD AND SMALL SAWS.



DIRECTIONS FOR USE.

To vary the set, loosen the forward screw, then turn the screw at end of the block until the end of the bar is raised, then tighten the forward screw.

TO SET FINE-TOOTH SAWS.—Pay no attention to guide at base of anvil for length of tooth, but place the tooth under the point of the hammer, the point of the hammer nearly reaching the base of the tooth. The hammer being close down on the tooth, makes a perfect guide for setting the teeth.

CAUTION.—Use a light hammer and strike a light blow. A heavy hammer and a heavy blow will not impart more set than a light hammer and a light blow.

Price,	each	\$	0 75
Price,	each, by	mail	1 00

ATKINS' ADJUSTABLE SAW-SET.

A Strong, Durable and Efficient Common-Sense Set, for Every-Day Use, by Users of Cross-Cut Saws.



In ordering please refer to it as "Atkins' Adjustable Set."

ADVANTAGES.

Adjustment to obtain quantity and uniformity of set required for hard and soft, dry and green timber.

A substantial, unyielding support while setting.

Safety from breakage in setting and compression of the fibre of the steel, securing a more permanent set.

The set can be easily removed by adjustment of the set screws and use of the hammer as in setting.

The point of the tooth being in sight, the effect of the set can be seen by the operator.

For use its setting small circular or cross-cut saws, in the hands of any person reasonably skilled in the use of tools, ATKINS' ADJUST-ABLE SET has no superior.

Directions for use accompany each set.

In ordering, mention ATKINS' ADJUSTABLE SET.

ATKINS' WOOD SAWS.



No. 508 WOOD SAW, FRAME RED.

Price, with Extra Fine Steel Blade, each......\$1.00

BACK SAWS.

E. C. ATKINS & CO.'S SILVER STEEL.



No. 2 Silver Steel, Apple Handle, Blued Black.

Inches	8	10	12	14	16	18
Per dozen\$1	5 00	\$16 00	\$18 00	\$20 00	\$22 50	\$25 00

INDIANAPOLIS, IND.



85

\$23.90

FELLOE WEBS.

0

Inches	Gauge	Width	Per Dozen	Inches	Gauge	Width	Per Dozen
6 7 8 10 12 14 16 18 20	19 19 19 18 18 17 17 17 17	arearearearearearearearearearearearearea	$\begin{array}{c} \$1 50 \\ 1 60 \\ 1 70 \\ 2 10 \\ 2 40 \\ 2 75 \\ 3 10 \\ 3 45 \end{array}$	22 24 26 28 30 32 34 36	17 17 17 17 16 16 16 16 16	$\frac{1}{4} to \frac{3}{4}$ $\frac{1}{4} to \frac{7}{8}$ $\frac{1}{4} to 1$ $\frac{1}{4} to 1$ $\frac{1}{4} to 1$ $\frac{1}{4} to 1$ $\frac{1}{4} to 1$ $\frac{1}{4} to 1$	\$3 85 4 25 5 15 5 65 6 15 6 65 7 15

One gauge heavier than above list, no extra charge; 5 per cent. extra for each additional gauge to 14 gauge. Above 14 gauge, special prices.

Extra width, 10 per cent. for each $\frac{1}{8}$ inch.

N. B.—All Web Saws, $\frac{1}{8}$ inch and narrower, will be made with wide ends, in order to give strength at the hole, 25 per cent. advance. With Pins, 50 cents per dozen additional.

FAY'S PATENT SCROLL SAWS.

Inches.	Per Dozen.	Inches	Per Dozen.
8	\$2 40	14	\$4 25
9		16	4 85
10	3 00	18	5 45
11		20	6 05
12		22	6 70
13	3 90	24	

Webs to 16 inches, over $\frac{3}{4}$ inch wide, extra price; 18 to 24 inches, over 1 inch wide, extra price.

We make the above webs from 13 to 16 gauge in thickness. With Pins, 50 cents per dozen additional. INDIANAPOLIS, IND.

CABINET SCRAPERS. MADE FROM SILVER STEEL.



	SIX	inches in Length.	
V	Vidth.	Per Do	zen.
2	inches	\$0) 60
23	66		70
;	66		80
1	66		-90
2	66		. 00
1	66		10
5	66		20
1			

Put up One Dozen in a Box.

BENCH SCRAPERS.



- No. 1 BENCH SCRAPER.



DEHORNING SAW.



E C. ATKINS & CO.

Japanned, Malleable Iron Frame, Beech Handle, Complete. Blades, 9½ inches long, ¼ inch wide. Price complete, per doz....\$12 00 | Price, Blades only, per doz., \$1 50

PLASTERING TROWELS.



No. 1. SILVER STEEL FINISHING TROWEL.

Inches	10	$10\frac{1}{2}$	11	$11\frac{1}{2}$	12
Per dozen	\$17 00	\$17 75	\$1850	\$20 50	\$2250



No. 2. CAST STEEL FINISHING TROWEL.

Inches 10) 1	101/2	11 1	111/2	12
Per dozen\$13	50 \$1	4 50 \$1	5 50 \$1	6 75 💲	18 00

SAW KNIFE.



\$6 00

Price, per dozen

PUT UP ONE DOZEN IN A BOX.

SAW MAKERS' TOOLS

-AND-----

SAW MILL SPECIALTIES.

To accomplish the best results, a workman must have suitable tools, and mills should be equipped with the latest improved appliances.

Our practical experience and knowledge of the requirements of saw makers and wants of the mill enable us to furnish a line of Tools and Mill Specialties adapted to meet their wants.

We invite your attention to the following list of

TOOLS AND MILL SPECIALTIES.

STANDARD WIRE GAUGES.



Wire Gauges, No. 1 to 26, each	\$1	25
Round Wire Gauges	1	00

SAW MAKERS' TOOLS.

ANVILS, STEEL FACED.



We keep in stock Anvils 10 x 6 face, 86, 110, 145 pounds; 12 x 6, 250 pounds.

ROUND FACE HAMMER.

Price...... 50c. per pound.

Furnished any weight desired, 50c. per pound.

SQUARE FACE HAMMER.

1.
ł

Furnished any weight desired, 50c. per pound.





INDIANAPOLIS, IND.

BRAZING AND FILING CLAMPS. FOR BRAZING NARROW BAND SAWS.



DIRECTIONS FOR BRAZING.

Bevel the ends of saw about one-half inch, and bind firmly together with two or three strands of very fine wire. Fasten the saw in position with the set screws in clamp; place a small piece of silver solder on the lap, and cover with powdered borax. The braze can then be made either with our alcohol lamp with automatic blower, or with the common brazing tongs. When the lamp is used, a piece of charcoal placed in the recess in the clamp, above and below the saw, assists in holding the heat, and insures a perfect weld. Use the half circle of clamp when filing the bevel and in finishing up the braze.



DIRECTIONS FOR USING LAMP.

Use alcohol in the lamps, having the upper one, or blower, about half full. Light both wicks in the lower lamps and place the heating lamp in position under the blower. See that the blow-pipe is directed against the base of the blaze, and in a moment, as the alcohol becomes heated, the flame can be sent in any direction, and the weld quickly made. As the solder melts, spread it evenly over the surface of the saw with the point of a file.

Price, each\$3 50



THE EUREKA SCARFER, OR LAPPING MACHINE FOR BAND SAWS.



The cutter leaves a perfect, clean, smooth surface, and makes a joint as perfect as a weld, and what is of greatest importance, it makes every cut exactly alike. A beginner can make a better joint than the most experienced man can by hand.

The machine will pay its cost in three months in the saving of labor, files, and the results of bad brazing. The machine is nicely mounted on four legs: is run by a three-inch belt on a ten-inch pulley, which should run sixty revolutions per minute. In case of necessity the pulley can be taken off and a hand crank substituted. But care should be taken not to exceed the prope speed.

We furnish with each machine an extra cutter and a neat power cuttergrinder.

Price	, comp	lete		 	\$80	00
Price	Extra	Cutters,	each	 	. 1	00



INDIANAPOLIS, IND.



Patented Sept. 12, 1876.

IMPROVED SPEED INDICATOR.

Correct and reliable. This instrument is very useful for accurately giving the speed of any machine or shaft when in motion. It is very important that the exact speed of saws be given, and with the Speed Indicator there can be no mistake. Every mechanic should have one.

Sent by mail, prepaid, with cap, for......\$0 75 For proper speed of circular saws, see page 25









\$2 50 No. 2 Swage, for Band Saws.....



SILVER SOLDER.

The successful brazing of Pand Saws largely depends on the solder used. We use, and keep constantly in stock, special Silver Solder that has proven to be the best adapted for brazing tempered steel.

We will furnish Silver Solder at the lowest market price, predicated on the price of silver.



ATKINS' PATENT SIDE FILES.

THE ADJUSTABLE No. 1.

THE ADJUSTABLE No. 2.

(FOR CIRCULAR SAWS.)

(FOR CIRCULAR, BAND AND GANG SAWS.)

The No. 1 File is the simplest tool ever invented for the purpose. The width of the set or swaged tooth is regulated by a *single set-screw*. The clamp for holding the file is *adjustable*, permitting the use of any kind of file, if one of our files made specially for them can not be easily obtained. This tool is especially adapted for circular saws.

Price......\$1 00

The No. 2 File is adjustable for holding 8-inch to 10-inch files. It is adapted for both circular and long saws. It can be used on blades down to two inches in width, and as wide as desired, and on all sizes of circular saws.

Price			00
Extra	Files,	each	20

ATKINS' PATENT SIDE FILES.



THE ADJUSTABLE No. 3. (FOR BAND AND GANG SAWS.)

The No. 3 File is adjustable for holding 8-inch or 9-inch files, and so arranged that the file can be tilted to any desired angle. A gauge passes over the points of the teeth, bringing the file in proper position for doing the work. The No. 3 file is for all long saws. It can be used on any width of blade.

ATKINS' GUMMER FOR BAND AND CROSS-CUT SAWS.

SISSON'S PATENT SAW GUMMER.

Patented December 20, 1881.



Price	Net.	\$ 27	00
Extra	Dies	7	00
We	furnish dies for Shearing	Ba	nd
Saws	to be used in this Gummer	c.	
Price		.\$8	00

PRICE-LIST.

No. 2, for cross-cut saws ... 20 lbs. \$12 00



The above illustration shows the Atkins Cylinder Saw Gummer. This Gummer is adjustable, being so constructed that it can be raised or lowered, and the wheel can be used at any desired angle while the Gummer is in use.



MIXTER'S CELEBRATED CHAMPION GUMMER.

WITH PATENT AUTOMATIC SELF-FEED.



PRICE-LIST MIXTER'S PATENT CHAMPION GUMMERS.

The Mixter Patent Automatic Self-Feeding Champion Gummer, includ-ing three cutters (usual size, 34, 74 and 1 inch), grinder and wrench...\$30 00 Small size Patent Automatic Self-Feeding Champion Gummer, especially

adapted for cross-cut saws and small and medium circular saws, including three cutters (%, % and % inch, grinder and wrench...... Extra arbors for %, % and % inch cutter for Mixter's Champion Gummers Extra arbor for %, % and % inch cutter for Mixter's Champion Gummers TAKE NOTICE: Full directions sent with each machine. 25 00 2 00

1 50 The engraving represents Mixter's Famous Champion Gummer, with patent

adjustable Automatic Self-Feed. It can be regulated at will to feed faster or slower, according to the work to be performed, and can be changed in an instant from self-feeding to hand-feeding.

It is self-acting, throwing itself out of gear when the teeth are cut to the required depth, making them of uniform length.

The Champion has the lateral or oscillating movement of the cutter, and is fully adjustable to all kinds of saws, from the largest circular to the smallest in general use; also mill and cross-cut saws. The line of the teeth can be cut at any angle desired from horizontal to perpendicular. It cuts very rapidly, and with no risk of bending, breaking, or case-hardening the saw.

GUMMER CUTTERS.



IMPROVED CUTTER GRINDER.



Price\$1 00 Grinds cutters perfectly round and true. We give a grinder free with each gummer.

PRICES OF GUMMER CUTTERS.

MIXTER'S XX CUTTERS.

XXX CUTTERS.

For Mixter's, Standard, I. X. L., and Diston's Gummers, when ordering say for which make of Gummer.

STONE'S GUMMER CUTTERS.

Size		$\frac{1}{2}$ in.	5% in.	3⁄4 in.	$\frac{7}{8}$ in.	1 in.
Each	\$0.50	.50	.75	1.00	1.25	1.50

STAR GUMMER CUTTERS.

Size	$\frac{3}{4}$ in.	7% in.	1 in.
Each	.\$0.55	.60	.65

In ordering cutters be sure and give size of hole, as well as size of cutter required; or you can send us an impression of one end of cutter on paper. Be particular to state what gummer they are to be used in.

THE ROBERTS PATENT ROLLER SWAGE.

Patented February 23, 1892.

FOR CIRCULAR AND GANG SAWS.



The Roberts Patent Swage produces results that are accomplished by the bar and hammer swage, drawing the teeth without changing the pitch, or injury to the steel, and shortens the teeth less than by any other process of swaging. It makes the point very strong, and less liable to drop the point in hard lumber and pine knots, thus insuring economy in the wear of the saw, and better results in the production of lumber than with saws dressed with the swages in general use.

Price...... \$75.00.
VICTOR SWAGE.

FOR CIRCULAR, BAND, GANG, MULAY, SHINGLE, LATH AND RE-SAWS.



FOR LONG SAWS.

Price Net. \$30 0	0
Two Dies go with each Swage.	
Two Dies for Long Cow Swogo	
Extra Dies for Long Saw Swage.	
No. 3 Die, for Gang Saws 9 to 13	
gauge \$0 7	5
No. 5 Die, for Band and Gang	
Course 16 to 18 gouge	5
Saws, 10 to 10 gauge	
No. 6 Die, for Band and Gang	
Saws, 14 to 16 gauge	9
No. 7 Die for Band Saws, 17 to	
10 manage	5
19 gauge Dand Correct 10	
No. 8 Die, for Band Saws, 15	
gauge and thinner	Э
In ordering state whether for Circu	1-
lar or Long Saws, gauge of saw an	d
shape of teeth.	



FOR CIRCULAR SAWS.

riceNet, \$35 00
Two Dies go with each Swage.
Extra Dies for Circular Saw Swage.
to. 1 Die. for Circular Saws, 6 and 7 gauge \$1 00
To. 2 Die, for Circular Saws, 8 9 and 10 gauge 1 00
to 4 Die, for Circular Saws, 10 to 13 gauge 75
to 16 gauge 75

THE PRIBNOW PATENT SWAGE SHAPER.

PRICE.....\$25.00.



In ordering the Swage Shaper be particular to specify gauge of saw and give shape of teeth in saw.

This device is adapted to give perfect and uniform shape to the points of teeth on Band and Gang Saws. It compresses the point of the tooth, making it more durable, and at the same time giving it that form which affords the most perfect clearance and economy of power and lumber.

The advantages to be obtained by the use of the PRIBNOW SHAPER on Band and Gang Saws are obvious. It is the invention of an expert, and has the endorsement of experts and users of Band and Gang Saws everywhere.

Large Shaper takes saws up to 17 gauge.

Small Shaper takes saws 17 gauge and thinner.

PRIBNOW PATENT COMBINED SWAGE AND SHAPER, \$125.00.



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ATKINS' PATENT COMBINED CIRCULAR SAW-GUIDE AND ROUNDER.

THE GUIDE.

This new invention, used simply as a saw-guide, has advantages which are possessed by no other guide. A glance at the accompanying engraving will make this fact apparent to every practical sawmill man. Guide is adjustable and reversible. If the guide-pins (E) are set at proper distance apart to admit the rotation of the saw, the adjustment is easily accomplished without danger to the operator while the saw is in motion. Loosen the set-serew (D) and turn the hand-wheel (A) in the direction required until the saw has the proper lead. Every sawyer will appreciate the practical value of this feature of our guide, as the adjustment of saw-guides-often necessary or desirable to change the lead of the saw-has heretofore been attended with more or less danger, or accomplished with considerable inconvenience and loss of time by the stoppage of the mill. Being reversible, our guide may be used on a right or left-handed mill, or turned back to permit the removal of the saw from the arbor without displacing the guide. Loosen the set-serew (D) and turn back the arms of the guide, or reverse them as is desired. In the sleeve enclosing the shank of the guide, is inserted the set-screw (D), which fits into a groove on either side of the shank, and which is employed to hold the arms of the guide rigid when turned either to right or left, preventing them from turning over whenever the motion of the saw is reversed. When the guide is in use, the set-screw (D) should be set tight.

THE ROUNDER.

The "ROUNDER" or "JOINTER" is entirely new and original, and its attachment to a saw-guide a novel and valuable feature. When not in use, detach the rounder by using the thumb-nut (F). Saw teeth frequently require jointing, and no device has ever been constructed that will "round up" a circular saw so perfectly, effectually and conveniently as that we have now introduced in combination with our saw-guide. Whenever it is desirable to joint the teeth of a saw, the emery block is brought into contact with the rapidly revolving saw by means of the hand-wheel (C) to which the emery block is attached. During the operation the attendant will turn thhand-wheel (B), thereby rotating the emery block so as to present a constantly changing surface for action on the saw teeth, and wear the face evenly. The saw is thus made perfectly round and all ready for dressing, and every tooth will do its proper duty. The saw will wear longer, cut more lumber, and the lumber will be smoother.

ATKINS' PATENT COMBINED CIRCULAR SAW GUIDE AND ROUNDER.



PRICES.

NO.	1,	FOR	ORDIN	ARY	MILLS
-----	----	-----	-------	-----	-------

Guide, without Rounder		00
Combined Guide and Rounder	9	00
NO 2 FOR HEAVY WORK		

Guide, without Rounder	\$10	00
Combined Guide and Rounder	13	00

ATKINS' PATENT SAW MILL DOGS.

RAPIDITY AND SAFETY IN OPERATING, SIMPLICITY, STRENGTH, DURABILITY AND ECONOMY.

Patented Oct. 18, 1887.



SINGLE.

DUPLEX.

DIRECTIONS.

To attach to any mill, drill two nine-sixteenth $\binom{r_6}{r_6}$ holes in the standard or knee and bolt on the dog, as shown in cut. The dog should set back from the face of the knee far enough to allow it to pass the bur or nut on the top saw when holding the last piece—or one inch on the carriage. The bottom of the dog should be two inches above the top of the head-block.

In ordering the Atkins Duplex Dog, give the exact dimension of knee to head-block; make a paper pattern of knee, full size, with impression of holes and thickness of knee four inches back from its face; also give the height and width of head-block.

ATKINS' INDEPENDENT UNDER DOG.

(Patented April 29, 1890.)



FOR QUARTER SAWING.

Can be attached to any mill and used in connection with the upper dogs in use on the mill.

The Atkins Under Dog is so constructed that it will dog under a square surface and not hit the nut on the mandrel, and will pass over set rod and not interfere in opening the head blocks.

It has fourteen inches travel up and down, giving sufficient capacity for holding logs firmly, avoiding slipping and getting away; and, if required, can lift a knotty or crooked log up so it will pass over the mandrel without turning or rubbing.

It can be used with any upper dog, and with the upper dog makes a good double dog for quarter sawing. The Atkins Under Dog is simple and durable in construction, convenient and easy of operation, and holds the log fast.

THE DOG FOR QUARTER SAWING.

Price, per pair......\$25.00

BUCK SAW MILL DOGS.



SINGLE.

Price, pe	er Pa	ir	••••		\$30	00
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DUPLEX.

Price, per Pair \$50 00

In ordering the BUCK DUPLEX DOG, please give distance from cnee to side of head-block; make a paper pattern showing position of holes in knee. This can be done by placing the paper over the roles and rubbing the same with the hand.



PORTABLE WOOD SAW AND FRAME.

The above cut represents a Portable Circular Saw and Table, for sawing fire-wood, etc. With a two-horse railway power or four-horse lever power they will saw from fifteen to twenty cords of wood per day, or just as much as three men can handle. It can also be used to advantage in cutting off fencing stuff or building material of any kind, and is a very useful machine for farmers, railroads and wood-yards.

Size of pulley, 6 x 6 inches, with 24-inch saw.

IMPROVED SWING CUT-OFF SAW.



The above cut illustrates our new Swing Cut-off Saw. In our standard size we make the entire drop from ceiling to mandrel eight feet, but can make the drop any length required when ordered. This will be found a strong, simple and durable cut-off.

Size of Driving and Loose Pulleys, 10 inches in diameter, 5-inch face.

Size of Large Pulley for driving Saw Mandrel, 24 inches in diameter, 5-inch face.

Size of Pulley on Mandrel, 5 inches in diameter, 5-inch face. Revolutions required of Saw Mandrel, 1,800 per minute.

Price, with 20-inch Saw......\$50 00

Price does not include belt.

CIRCULAR SAW MANDRELS.

PULLEY OUTSIDE BOXES.



CAST-STEEL. SELF-OILING BOXES.

We fill all orders for Mandrels with pulley outside of boxes, unless otherwise ordered. Price does not include saw.

Number.	Extreme Length. Inches.	Diameter of Arbor. Inches,	Diameter of Pulley. Inches.	Face of Pulley, Inches,	Diameter of Collars. Inches,	Size of Hole in Saw. Inches.	Size of Saw. Inches.	Price, Each.
$ \begin{array}{c} 1\\2\\3\\4\\5\\7\\8\\9\\10\\11\\12\\13\end{array} $	$\begin{array}{c} 16\frac{1}{2}\\ 19\\ 21\frac{1}{2}\\ 24\\ 26\\ 28\\ 30\frac{1}{2}\\ 33\frac{1}{2}\\ 37\\ 41\\ 44\frac{1}{2}\\ 48\\ 54\\ \end{array}$	$1\frac{1}{15}1$	$ \begin{array}{c} 3\\3\\3\\3\\4\\4\\4\\5\\5\\5\\6\\7\\8\\10\\12\end{array} $	$ \begin{array}{c} 3\\ 3\frac{1}{2}\\ 4\\ 4\frac{1}{2}\\ 5\\ 5\frac{1}{2}\\ 6\\ 6\frac{1}{2}\\ 7\\ 8\\ 10\\ 10\\ 10\\ 10\\ \end{array} $	3 3 3 3 3 4 4 ¹ (1)(2)(2) 3 3 4 4 4 ¹ (1)(2)(2) 5 5 5 5 5	$\begin{array}{c} 1 \\ 1 \\ 1_{15} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 1_{25} \\ 2 \end{array}$	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	\$8 00 9 00 9 50 11 25 12 50 14 00 15 00 23 50 28 00 33 50 40 00 50 00

PRICE-LIST.

Our Mandrels are made with pulley on right-hand side, with left hand thread, unless otherwise ordered.

CIRCULAR SAW MANDRELS.

PULLEYS INSIDE BOXES. CAST-STEEL, SELF-OILING BOXES.



PRICE-LIST.

(PRICE DOES NOT INCLUDE SAWS.)

Number.	Extreme Length. Inches.	Diameter of Arbor. Inches.	Diameter of Pulley. Inches.	Face of Pulley. Inches.	Diameter of Collars. Inches.	Size of Hole in Saw. Inches.	Size of Saw. Inches,	Price, Each.
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \end{array} $	$ \begin{array}{r} 14 \\ 16 \\ 18 \\ 20 \\ 22 \\ 24 \\ 26 \\ 28 \\ 32 \\ 36 \\ \end{array} $	$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 6 \\ 1 \\ 1 \\$	$\begin{array}{c} 3 \\ 3 \\ 3 \\ 3 \\ 4 \\ 4 \\ 5 \\ 5 \\ 6 \\ 7 \end{array}$	$\begin{array}{c} 3 \\ 3^{\frac{1}{2}} \\ 4 \\ 4^{\frac{1}{2}} \\ 5 \\ 6^{\frac{1}{2}} \\ 6^{\frac{1}{2}} \\ 7 \\ 8 \end{array}$	$\begin{array}{c} 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\$	1 118181 118181 11414 1253 1253 1253	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	\$7 50 8 50 9 00 10 50 11 50 13 00 14 50 16 00 22 00 26 00

Our Mandrels are made with pulley on right-hand side, with lefthand thread, unless otherwise ordered.

CIRCULAR SAW MANDRELS. CAST STEEL, CONNECTED BOXES, AND SELF-OILING.



Price does not include Saws. PRICE-LIST.

Number.	Extre'e Length.	Le'gth of Frame	Distance from Center to Center of Bolt Holes.	Diameter of Arbor.	Diameter of Pulley.	Face of Pulley.	Diameter of Collars.	Hole in Saw.	Size of Saw.	Price, each.
$ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array} $	$\frac{\ln {}^{\circ}h.}{231/2}$ $\frac{261/2}{283/4}$ $\frac{301/2}{331/2}$ $\frac{331/2}{361/2}$	In'h. 17 19 20 ¹ ⁄ ₂ 22 24 26	$\begin{array}{c} {\rm Inch.}\\ 1334\\ 1412\\ 1534\\ 1612\\ 19\\ 2034 \end{array}$	$\begin{array}{c} 1n'h. \\ 15 \\ 16 \\ 1 \frac{1}{16} \\ 1 \frac{3}{18} \\ 1 \frac{5}{18} \\ 1 \frac{5}{18} \\ 1 \frac{5}{18} \\ 1 \frac{7}{16} \\ 1 \frac{9}{16} \end{array}$	Inch. $3^{1/2}$ $4^{1/2}$ 5^{6}	$ \begin{array}{c} \text{Inch.} \\ 4 \\ 4^{1/2} \\ 5 \\ 5^{1/2} \\ 6 \\ 7 \end{array} $	Inch. 3 $3^{1/2}$ $3^{1/2}$ $3^{1/2}$ 4 $4^{1/2}$	Inch. $\frac{7}{8}$ 1 $1^{1/8}$ $1^{1/4}$ $1^{3/8}$ $1^{1/2}$	Inch. 4 to 10 12 to 14 16 to 18 :0 to 24 26 to 28 30	\$9 00 11 00 13 25 15 50 17 75 70 00

YOKE MANDRELS. CAST STEEL, SELF-OILING.



Price does not include Saws. PRICE-LIST.

Number.	Out to Out Boxes.	Diameter of Arbor.	Pulley.		Size of Collars.	Size Hole in Saw.	Size of Saw.	Price, each.
1 2 3 4 5 6 7	Inch. 10 14 16 18 20 22 24	Inch. ¹⁵	$ \begin{array}{c} \text{Inch.} \\ 2^{\frac{1}{2}} \\ 3 \\ 3^{\frac{1}{2}} \\ 4 \\ 4^{\frac{1}{2}} \\ 5 \\ 6 \end{array} $	Inch. 3 4 $4^{1/2}$ 5 $5^{1/2}$ 6 7	$ \begin{array}{c c} \text{Inch.} \\ 3 \\ 3 \\ 3^{1/2} \\ 3^{1/2} \\ 4 \\ 4^{1/2} \end{array} $	Inch. 7/8 1 $1^{1/8}$ $1^{1/4}$ $1^{3/8}$ $1^{1/2}$	Inch. 6 8 to 10 12 to 14 16 to 18 20 to 24 26 to 28 30 to 36	\$9 00 11 00 12 50 14 50 16 00 18 00 20 00

SAW-MILL CARRIAGE TRUCKS.

A SET CONSISTS OF ONE AXLE AND TWO WHEELS.

Wheels.		(Une ole	PRICE, PER SET.		
Diameter, Inches.	Inches.	Inches.	Open Bearings.	Patent Oil Boxes.	
8 10 10	11 133 2	50 50 56	\$7 50 10 00 13 00	$\$8 00 \\ 11 00 \\ 15 00$	

These wheels are turned and heavy, one wheel grooved and shrunk on axle, the other flat and loose on axle.

SAW-MILL CARRIAGE WHEELS, WITH CHAIRS.



V TRACK.



FLAT TRACK.



V track, 2-inch, price, per foot\$0	15
Flat track, 2-inch, price, per foot	12
Flat track, 14-inch, price, per foot	9

T RAILS.

Rails, 12, 16 and 20 pounds, furnished at lowest market prices.

LUMBER TRUCKS WITH STIRRUPS. SET CONSISTS OF TWO AXLES AND FOUR WHEELS.



Wheels, Diām. Inches.	Face. Inches.	Axel. Inches.	Track. Inches.	Price Per Set.
16 18 20 22 24 26	23/4 23/4 3 3 3 3 2	$1\frac{1}{2}$ $1\frac{1}{2}$ $1\frac{1}{2}$ 2 2 2	30 30 30 36 36 36	
	0 3 3	$\frac{2}{2}$	42 42 42	$\begin{array}{c} 44 & 00 \\ 48 & 00 \\ 52 & 00 \end{array}$

LOG TRUCKS WITH STIRRUPS, HEAVY WHEELS.

SET CONSISTS OF TWO AXLES AND FOUR WHEELS.

Diameter.	Face.	Axle.	Track.	Price.
Inches.	Inches.	Inches.	Inches.	Per Set.
$ \begin{array}{r} 10 \\ 12 \\ 14 \\ 16 \end{array} $	$2\frac{3}{4}$ $2\frac{3}{4}$ $2\frac{3}{4}$ 3	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	36 36 36 42	\$15 00 16 00 18 00 24 00

EDGER WHEELS, AXLES AND STANDS FOR BOXES.



THE VARIETY EMERY GRINDER. PATENTED FEB. 9, 1886. Will take 12x2 inch Wheels, ³/₄ inch Mandrel Hole.

ROGERS' SAW FILER AND GUMMER.



Set for Rip Saws.

NO. 3-FOR SAWS FROM 8 TO 72 IN. DIAM.

No. 3 takes saws 8 to 72 in. diam., cross-cut or rip, and doc-small saws equally as well as No. 2. Nos. 2 and 3 can be provided with an attachment for filing straight gang saws. The above illustration shows the No. 3 Gummer.



NO. 3-WITH GANG-SAW ATTACHMENT.

PRICES ROGERS' GUMMERS.

No.	1, (Circular	Saws,	6	to	40	in.	diameter			.\$50	00	net
No.	2,	66	66 [°]	8	to	48	66	66			. 65	00	66
No.	3,	66	66	8	to	72	66	66			. 75	00	66
No.	4,	66	66								. 25	00	66
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Three emery wheels are furnished with Nos. 1, 2 and 3. One emery wheel is furnished with No. 4.

COVEL'S IMPROVED AUTOMATIC SHARPENER FOR CIRCULAR RIP SAWS, FROM 8 TO 72 INCHES.



CUT NO. 1.

The above is a correct view of the different parts as they are now made, showing the operating parts and the letters to be found on each piece.

Full instructions will accompany each machine as to operation and adjustment.

Price, \$175. Net cash 30 days.

COVEL'S IMPROVED AUTOMATIC BAND-SAW SHARPENER.



CUT NO. 3.

The above illustrates the Band Machine as now made. One very important feature of this machine is that the emery wheel can be adjusted so as to give all the hook to the tooth that may be wished, and the saw carried on a level to the sharpene. A sot of pulleys complete is furnished with this machine for the support of the saw, or a double feed, either for right or left hand saws, as desired. The saw-rest and clamp is an entirely new device, and is the most com-plete and perfect working one in use.

Price	for	r complete ri	ig\$	200	00	Net	cash	30	days.	
Price	\mathbf{of}	Machine		175	-00	66	66	66	66	

EMERY WHEEL SAW GUMMERS.

AA GUMMER.



Pulley diameter 3 inches; face $2\frac{3}{8}$ inches; carry wheel 10 inches diameter, $1\frac{1}{4}$ inch face.

AAA GUMMERS.

Same pattern as AA, illustrated above. Larger and for heavier work.

Pulley diameter, 3¹/₄ inches; face, 2¹/₂ inches; carry wheel, 14x1¹/₂ inches.

Price AAA Gummer, each\$12 00

Emery Wheels extra.

EMERY WHEELS.



Grade No. 1 is very soft, and No. 6 very hard wheels, and are seldom called for.

GRADE 1 TO 2.—Light surface or machine grinding, light tool grinding, etc. GRADE 2½.—Automatic knife grinding, etc.; light tool grinding, etc.

GRADE $2\frac{1}{2}$ to 3.—Automatic grinding with water, surface grinding on hard steel, light tools, etc.

GRADE 3 TO 3¼.--Saw sharpening and gumming on hand or automatic machines, light tool grinding, etc.

GRADE 31/4 TO 31/2.-Tool grinding, light general work, soft brass.

GRADE 4.—Making and shaping moulding tools, light wrought and malleable iron, steel, brass castings, general work, heavy tool grinding, etc.

GRADE 4¹/₂-Medium wrought and malleable iron, steel, light cast iron, heavy brass castings, general work, light stove work, etc.

GRADE 5.-Stove work, heavy castings of all kinds, general rough work, etc.

GRADE 5½ TO 6.—Hard stove work, very heavy rough grinding on sharp edges, points, etc.

Please remember that the grade of hardness is the essential thing. A little difference in the number or fineness of emery is not important.

If wheels are to be run slower than regular speed, they should be harder than above grades. If run faster, they should be softer. Thin elastic wheels should be run fully up to the speed marked on label.

HUNTINGTON EMERY WHEEL DRESSER.



For turning, shaping, sharpening and removing glaze from solid emery wheels, running at full speed.

Price, Huntington Emery Wheel Dresser	Each,	\$3	00
Cutters, per set	66		50

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THIN WHEELS.

INDIANAPOLIS, IND.

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42880 2222 2222 2222 2222 2222 2222 2222	Diameter in Inch.
19,000 12,500 7,660 7,660 7,660 3,200 3,200 2,150 1,5000 1,500 1,500 1,5000 1,5000 1,50000	No. Revo- lutions per Min.

EMERY WHEELS.

PRICE-LIST.

129

ACME MACHINE BELTING.

EVERY BELT SOLD GUARANTEED TO GIVE SATISFACTION WHEN OUR DRESSING AND HOOKS ARE USED.

	WIDTH.	4-Ply.	5-Ply.	6-Ply.
$\begin{array}{r} 4\\ 4\\ 5\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 12\\ 14\\ 16\\ 18\\ 20\\ 22\\ 4\end{array}$	inch inch inch inch inch inch inch inch	$\begin{array}{c} \$0 \ \ 25 \\ 28 \\ 30 \\ 33 \\ 35 \\ 40 \\ 45 \\ 52 \\ 60 \\ 72 \\ 90 \\ 1 \ 08 \\ 1 \ 20 \\ 1 \ 38 \\ 1 \ 62 \\ 1 \ 94 \end{array}$	$\begin{array}{c} \$0 & 38 \\ & 40 \\ & 42 \\ & 45 \\ & 48 \\ & 52 \\ & 58 \\ & 65 \\ & 73 \\ & 87 \\ 1 & 10 \\ 1 & 30 \\ 1 & 48 \\ 1 & 68 \\ 1 & 90 \\ 2 & 15 \end{array}$	0 41 43 46 49 52 58 65 75 85 1 02 1 28 1 54 1 70 1 96 2 22 2 50

PRICES PER RUNNING FOOT.

CAUTION.

When ordering belting, give full length, as belts will not stretch. Do not deduct from measure anything for stretch. In using dressing put on enough to moisten the surface of the belt next to pulley.

THE COLOR OF ACME BELT IS REDDISH BROWN.

LEATHER BELTING. PURE OAK, SHORT LAP.



PRICE PER RUNNING FOOT:

1	inch		12	7 inch	\$1 08	25 inch		40
11/4	6.6		16	8 **		26 "	4	60
112	6.6		20	9 "		27 "		80
132	6.6		24	10 "		28 *		00
214	6.6		28	11 "	1.72	30 "	5	50
21/	66	***** ******	32	19 "	1.88	32 4	6	00
512	6.6		36	12 "	2.01	21 "	6	50
633	6.6		10	11 44	9.20	26 16	7	00
2/4	4.5	•••••	40	15 44	9 40	40 11	**** **********************************	00
5		•••••	4.4	10	2 40	40		00
34			48	16		44		00
31/2			52	11		48		40
33/4	**		56	18		50		80
4	66		60	19 **	3 20	52 *		20
41/2	6.6		68	20 "		56 "		00
5	8.6		76	21 "	3 60	60 **		80
51%	6.6		84	22 *	3 80	64 "		60
6 2	6.6		92	23 **		68 "		40
61/	65	1	0.0	91 11	4 20	72 "	14	40

ROUND BELTS.

		Solid.	Twist	1	Twist.
161	inch	 \$ 0 05	\$ 0 06	1/2 inch	\$0 30
3	66	 07	10	5/8 **	36
14	6.6	 10	14	3/4 **	46
5	6.6	 14	18	7/8 **	60
3%	66	 18	22	1 ⁴⁴	72

Double Belts twice the price of Single. Intermediate widths at proportionate prices.

PRICE-LIST OF CUT LACING.

BOTH RAWHIDE AND TANNED.

1/4	inch.	perl	ounch\$1	00	1 1/2	inch,	per	bunch	82	00
5	66	66		25	5/8	66	<u> </u>		2	75
3%	66	6.6	1	50	34	66	66		3	25
76	66	66	1	75						

PUT UP IN 100 FEET BUNCHES.

ELEPHANT RUBBER BELTING.

(Trade Mark.)



PRICE-LIST.

2-Ply,	3-Ply,	4-Ply,	5-Ply,	6-Ply,
Per Foot.	Per Foot	Per Foot.	Per Foot.	Per Foot.
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$\begin{array}{c} \$0 \ 17 \\ 22 \\ 26 \\ 30 \\ 34 \\ 43 \\ 52 \\ 60 \\ 70 \\ 80 \\ 90 \\ 1 \ 00 \\ 1 \ 08 \\ 1 \ 18 \\ 1 \ 28 \\ 1 \ 38 \\ 1 \ 50 \\ 1 \ 70 \\ 1 \ 90 \\ 2 \ 12 \\ 2 \ 36 \\ 2 \ 60 \\ 2 \ 64 \\ \end{array}$	$\begin{array}{c} \$0 & 21 \\ 26 \\ 31 \\ 37 \\ 42 \\ 47 \\ 52 \\ 62 \\ 73 \\ 84 \\ 1 & 07 \\ 1 & 18 \\ 1 & 30 \\ 1 & 42 \\ 1 & 54 \\ 1 & 54 \\ 1 & 66 \\ 1 & 78 \\ 2 & 26 \\ 2 & 52 \\ 2 & 80 \\ 3 & 08 \\ 3 & 36 \\ 3 & 64 \end{array}$	\$1 05 1 18 1 33 1 47 1 62 2 77 2 27 2 52 2 82 3 15 3 50 3 85 4 20 4 55	$\begin{array}{c} \$1 \ 26 \\ 1 \ 42 \\ 1 \ 60 \\ 1 \ 777 \\ 1 \ 95 \\ 2 \ 131 \\ 2 \ 431 \\ 2 \ 49 \\ 2 \ 673 \\ 3 \ 39 \\ 3 \ 39 \\ 3 \ 78 \\ 4 \ 20 \\ 4 \ 62 \\ 5 \ 04 \\ 5 \ 46 \end{array}$

ENDLESS BELTS MADE TO ORDER.

Three feet extra will be charged for the splice. A full roll of belting measures from 300 to 400 feet.

FILES.

BEST QUALITY CAST STEEL FILES.

MILL AND ROUND.				FLAT AND SQUARE.				HALF ROUND AND THREE SQUARE.				
TDCH	Bastard	2d Cut	Smooth	Inch	Bastard	2d Cut	Smooth	Inch	Bastard	2d Cut	Sm'h	
45678910 112 13 14 15 16 17 18 19 20	\$1 80 2 00 2 25 2 55 2 90 3 80 5 40 6 50 7 80 9 30 6 50 7 80 9 30 11 00 12 90 15 10 17 60 20 40	$\begin{array}{c} \$2 \ 15 \\ 2 \ 40 \\ 2 \ 65 \\ 3 \ 00 \\ 3 \ 40 \\ 3 \ 85 \\ 4 \ 40 \\ 5 \ 20 \\ 6 \ 20 \\ 7 \ 45 \\ 8 \ 90 \\ 10 \ 60 \\ 12 \ 50 \\ 14 \ 60 \\ 12 \ 50 \\ 14 \ 60 \\ 19 \ 70 \\ 22 \ 85 \end{array}$	$\begin{array}{c} \$2 \ 40 \\ 2 \ 65 \\ 3 \ 30 \\ 4 \ 20 \\ 4 \ 80 \\ 5 \ 675 \\ 6 \ 755 \\ 6 \ 755 \\ 6 \ 755 \\ 9 \ 655 \\ 11 \ 45 \\ 60 \\ 15 \ 60 \\ 18 \ 10 \\ 18 \ 10 \\ 24 \ 50 \end{array}$	$\begin{array}{c} 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 11\\ 12\\ 13\\ 14\\ 15\\ 16\\ 17\\ 18\\ 19\\ 20\\ \end{array}$	\$2 00 2 20 2 20 2 90 3 40 4 70 5 60 9 50 11 20 13 10 15 25 17 65 20 30 23 20	$\begin{array}{c} \$2 & 40\\ 2 & 60\\ 2 & 95\\ 3 & 40\\ 4 & 00\\ 4 & 70\\ 5 & 450\\ 7 & 70\\ 9 & 15\\ 10 & 90\\ 12 & 75\\ 14 & 85\\ 17 & 25\\ 19 & 75\\ 19 & 75\\ 12 & 75\\ 22 & 75\\ 22 & 75\\ 26 & 00\\ \end{array}$	$\begin{array}{c} \$2 & 65 \\ 2 & 90 \\ 3 & 25 \\ 3 & 75 \\ 4 & 35 \\ 5 & 10 \\ 5 & 90 \\ 7 & 05 \\ 8 & 40 \\ 10 & 00 \\ 11 & 80 \\ 13 & 75 \\ 16 & 00 \\ 18 & 45 \\ 21 & 20 \\ 18 & 45 \\ 21 & 20 \\ 27 & 85 \\ \end{array}$	4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	$$2 50 \\ 2 80 \\ 3 20 \\ 3 70 \\ 4 30 \\ 5 80 \\ 6 70 \\ 7 80 \\ 9 10 \\ 10 60 \\ 12 40 \\ 14 50 \\ 16 90 \\ 19 60 \\ 22 60 \\ 26 00 $	\$3 00 3 35 3 80 5 00 5 85 6 75 7 75 9 00 10 40 12 10 14 15 16 50 19 10 22 00 25 30 29 10	\$3 30 3 70 4 15 4 80 5 50 6 40 7 30 8 45 9 755 11 25 13 10 15 25 17 70 20 50 23 50 23 50 23 50 23 50 23 10 31 20	
EXTRAS. Mill Double Cut, adv. 1 in. Mill Nar. Points, "1" C. Cut Saw (blunt), "2"				EXTRAS. Cant Blunt (Double Cut), advance 2 inch.				EXTRAS. Knife, adv. 1 in. II. B. Hlf. Rd bl't, " 2 " Cross, (blunt), " 2 " Feather Edge, " 2 2				

			SA	W FI	LES.					
INC	н.		3	31/2	4	41/2	5	$5\frac{1}{2}$	6	7
Tapers, Slim Tapers, "Pitsaw, Blunt, Hooktooth, "	Single Double Single Double Single	Cut " " "	\$1 10 1 60 1 20 1 80 2 10	\$1 10 1 60 1 20 1 80 2 10		\$1 40 2 00 1 45 2 10 2 30	\$1 70 2 40 1 70 2 40 2 50 	\$2 00 2 75 1 90 2 69 2 80	\$2 40 3 25 2 10 2 85 3 00 3 60	\$3 00 4 00 2 50 3 30 3 70 3 90
INC	н.		8	9	10	11	12	13	14	
Tapers, Slim Tapers, "Pitsaw, Blunt, Hooktooth, "	Single Double Single Double Single "	Cut " " "	\$3 80 4 95 3 00 3 90 4 30 4 40	\$4 60 5 90 3 70 4 70 5 00 5 10	\$5 70 7 10 4 50 5 60 5 80 6 00	\$7 20 8 80 5 50 6 75 6 70 7 10	\$9 00 10 80 6 80 8 20 7 70 8 40	\$11 00 12 90 8 30 9 75	\$13 2) 15 20 10 00 11 50	

EXTRAS.

Band Saw, Heavy, Blunt, take Taper Double Cut Price Taper Points same price.

Blunt, Single Cut, Take Pitsaw price. Cant Saw,

Round Gulleting, Single Cut. Take Hooktooth price. Round Of, Blunt, Single Cut. Take Hooktooth price. Tapers, pointed at both ends (without handles), double the price of Slim Tapers of half their length.

FILES WITH TWO ROUND EDGES.

LIST.

8-inch	$\begin{array}{c} 4 & 37 \\ 6 & 21 \end{array}$		
	Per	r Doz	æn.
8-inch Stave Files		\$5	00
8-inch double Stave Files	•••••	6	20
0-inch double Stave Files		8	35
0-inch Planer Knife Files		5	35
8-inch Great American Files		3	80
9-inch Great American Files		4	50

BABBITT METAL.

	rer rou	na.
Atkins' Perfection	 \$0	25
Anti Friction	 	18
No. 1	 ,	13
No. 2	 	10
No. 3	 	08
No. 4	 	06

Put up in 50 pound boxes.

COTTON WASTE.

Per	Pound.
XXX White	\$0 10
X White	08
C Colored	$07\frac{1}{2}$
D Colored	06
Put up in bales of 50, 100, 500 pounds.	

1



not satisfactory in every respect it can be returned at our expense.

GROOVER OR DADO HEADS.



The Groovers are arranged in sets, as follows: No. 1 Set, cutting grooves, 1/8, 1/4, 3/8. 1/8, 1/4, 3/8. 1/2, 5/8. No. 2 " 44 6.6 No. 3 " 4.6 1/8, 1/4, 16, 3/8, 76, 1/2, 9, 5/8, 16, 3/4. No. 4 " 1/8, 1/4, 18, 3/8, 78, 1/2, 98, 5/8, 11, 3/4, 13, 7/8, 18, 1. No. 5 " ... 1/8, 1/4, 15, 3/8, 75, 1/2, 18, 5/8, 11, 3/4, 13, 7/8, 15, 1, 1, 1, 11/6, 11/8, 13, 14, 15, 18, 18, 118, 11/2. No. 6 ** 1/8, 1/4, 18, 3/8, 18, 1/2, 9, 5/8, 18, 3/4, 13, 7/8, 18. 1, 116, 11/8, $1_{16}^3, 1_4^1, 1_{16}^5, 1_8^3, 1_{16}^7, 1_2^1, 1_{16}^9, 1_8^5, 1_{16}^{11}, 1_4^3, 1_{16}^{13}, 7_8$ 115, 2.

PRICE-LIST OF GROOVERS OR DADO HEADS.

	6 in.	7 in.	8 in.	9 in.	10 in.	11 in.	12 in.
	diam.	diam.	diam.	diam.	diam.	diam.	diam.
No. 1 Set No. 2 Set No. 3 Set No. 4 Set No. 5 Set No. 6 Set	$\begin{array}{c} \$5 & \$0 \\ 7 & 05 \\ \$ & 65 \\ 9 & 90 \\ 12 & 40 \\ 14 & 90 \end{array}$	\$6 80 8 15 9 85 11 20 13 90 16 60	$\begin{array}{c} \$7 & 60\\ 9 & 05\\ 10 & 85\\ 12 & 30\\ 15 & 20\\ 18 & 10\\ \end{array}$	\$8 35 9 90 11 90 13 45 16 55 19 65	\$9 15 10 80 13 00 14 65 17 95 21 25	\$9 75 11 60 13 90 15 75 19 45 23 15	\$10 85 12 95 15 45 17 55 21 75 25 95

In ordering, please state the number of set, diameter of groover and size of hole wanted

Extra inside cutters can be had at any time.





World's Columbian Exposition,

CHICAGO, 1893.

Awards on Circular, Cylinder, Band, Gang, Drag, Cross=cut and Hand Saws,

For Variety Exhibited, Material, Workmanship and Finish.

AWARD FOR SAW TOOLS.

WRITE FOR PRICES.