DISSTON SAW, TOOL AND FILE MANUAL

DISSTON SAW, TOOL, FILE, KNIFE AND STEEL WORKS

DISSTON
SAWS
TOOLS
AND FILES

Disston Saws, Tools and Files are distributed throughout the world. They are carried in stock by most of the better hardware stores in the United States and other countries. If the exact tool to meet your needs is not carried by your local hardware merchant, he can procure it for you. If, for any reason, you find your dealer unwilling to do this for you, write to us, giving his name and location, and we will see that you are supplied.

HENRY DISSTON & SONS, INC.

PHILADELPHIA, U. S. A., Canadian Factory, Toronto

Introductory

For ninety-nine years, Henry Disston & Sons, Inc., Philadelphia, has been manufacturing the saw that—"For Beauty, Finish and Utility—cannot be excelled". Disston Saws, Tools and Files have done much to improve both wood and metal working the world over. When a need arose for a new type of saw, a better saw or a more efficient saw, Disston created it. In this book, the new

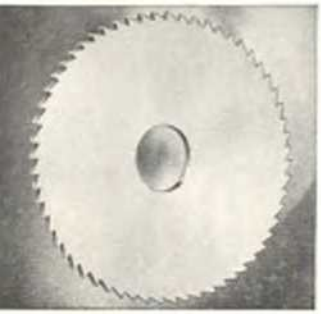
DISSTON
SAW, TOOL AND FILE
MANUAL

you will find illustrated and described the Disston Saws, Tools and Files which today are to be found in the hands of thousands of craftsmen all over the world. To those men and the thousands of younger men who will turn to tools for a livelihood or for recreation, this Disston Manual is presented. It contains useful and valuable information relative to the selection of the proper tools for the job, and the correct use and care of tools. Reference to this up-to-date Manual will help every user of Disston Saws, Tools and Files to keep his tools in condition to do a better piece of work.

1840 Henry Disston began the manufacture of saws in Philadelphia, and trained saw makers in his methods. Disston Saws rapidly displaced imported saws throughout America.

1855 Disston built his own furnace and cast the first crucible saw steel ever made in America. Disston Steel always has been famous for the service it renders to users.

1865 Because he needed better files, Henry Disston began the manufacture of files in 1865. Today, Disston makes 250 kinds—more than 1,000 different cuts and sizes.



1889 Disston produced the first 18-inch circular metal cutting saw, which revolutionized metal cutting in America. This first milling saw was used in Midvale Steel Works.

1894 Disston made America's first machine hack saw blades. Millions of Disston Machine and Hand Hack Saw Blades are now in use throughout the world.

1906 Disston cast first heat of electric tool steel of crucible quality in America. Today, giant furnaces in Disston Steel Works make tool steel of this quality every day.

1924 Disston made 110-inch Spiral Inserted Tooth Cut-off Saws for cutting shingle bolts from the large logs on the Pacific Coast. Each saw weighed 675 pounds; each had 190 teeth.

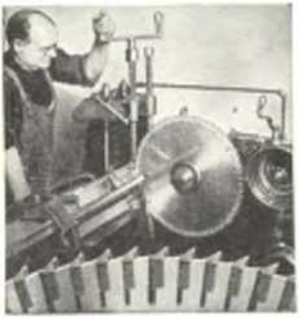
1929 Disston perfected and introduced Disston Carboloy-fitted Saws and Knives with cutting edges tipped with Carboloy, the hardest alloy ever used for saws and knives.

1932 Disston metallurgists developed a new steel for thin planer and similar knives—a steel superior in many respects to high speed steel. It is called DISSTEEL.

ROSE TO

Through the years with

1874 Henry Disston designed the skew-back saw. Until then all hand saws had straight backs. He called in his engineer and with a piece of crayon drew the design on the office floor.



1918 Disston introduced the Sectional Interlock Inserted Tooth Milling Saw. In 1922, Disston was awarded the Franklin Institute Medal for this improvement.

1935 Disston developed the D-95 MASTERPIECE, a hand saw with new type handle, made of toughest, strongest molded material ever developed. Will not chip, shrink or swell.

1840-1939

99 YEARS OF DISSTON LEADERSHIP

In the United States, before 1840, American carpenters used saws made in Europe. Henry Disston, however, felt that he could make a finer saw than the European manufacturers, so he set to work in a cellar in Philadelphia.

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Henry Disston was then twenty-one years old, a young man with vision, for he saw a need that he could fulfill. It was necessary to create a finer saw than the imported tool then in use, for the existant demand was for foreign saws.

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Within a few years, saws made by Disston and his skilled workmen became known as "The Saw Most Carpenters Use". Demand for foreign saws gave way to American workmanship and the Disston Saw Works was well under way. In time, foreign demand for quality tools and saws created export trade for Disston. Today, there is not a place in the world where tools are used, which does not know the name, Disston.

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For nearly a century, Disston has made advance after advance in the production of high grade saws. Today, Disston is looked upon as the leader in saw manufacturing.

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Even though Disston Saws, Tools and Files are known all over the world, there are thousands of boys and young men who are now students in vocational schools and apprentices in shops and trades, who may not know how important it is to use tools of Disston quality. Such tools, when properly taken care of, will last longer, give better service and in the end prove to be cheaper. A careful reading of this Manual will repay any one who may be interested in the use of tools.

Disston

DISSTON STEEL

Henry Disston, in his early years of saw making, was obliged to use foreign made steel. Having difficulty in obtaining high grade steel of uniform quality which he required for the production of hand saws, he determined to make his own steel. He then set about mastering the art of steel making, turning to crucible steel in order to obtain the highest grade steel of that day.

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In 1855 Henry Disston built his own furnaces and melted the first Crucible Saw Steel ever made in America, becoming a pioneer in fine steel making. From that day on, Disston has been making its own saw and tool steel.

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In 1906, faced with the necessity of making steel in larger heats, Disston again made a pioneering step. Electricity was used in heating the furnace and the first commercial heat of Electric Tool Steel of crucible quality ever made in America was cast in the Disston plant. Since then, Heroult Electric Furnaces, capable of pouring from three to six tons at a heat, have been placed in operation.

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The steel mill in the Disston plant today is equipped with modern steam hammers, steel rolling mills, annealing furnaces and all other modern devices for making high grade saw and tool steels. Heat is controlled in the furnaces to the closest degree by pyrometers; testing is done by skilled men in the laboratories under the close supervision of Disston's nationally known metallurgists. Exacting tests and laboratory checks control the output of the Disston Steel Works at all times.

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Disston Steel is known the world over and is famous for its toughness, stamina and long cutting life.

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The high quality and uniformity of Disston Steels, is such that manufacturers of other products who require steel to meet the most exacting requirements, come to Disston for their finer steels.

How to choose and use Hand Saws

To many persons, a saw is just a saw, but to the skilled mechanic there is one saw intended for each specific job. When choosing a hand saw it is important that the buyer consider the work to be done and not buy just a saw.

Disston Saws are improved in every feature; lighter blades for easier sawing, narrower blades to save the user's strength, true taper ground from tooth edge to back and from butt to point on back, with even gauge along the entire tooth edge for easier, faster cutting. Disston saws always run true. They will run with less set and stay sharp longer than any other saw made.

There are saws in the Disston line for every kind of sawing—wide blades (regular pattern), narrow blades (lightweight pattern) for ripping or cross cutting—each pattern made with fine, medium or coarse teeth — the right saw for your job.

TO MAKE a perfectly square end cut is easy, when the face of the board is marked square and a try square used, as illustrated, to keep the saw in a perfectly vertical position.

RIP SAWS

Tooth edge of rip saw

The rip saw is made for cutting with the grain. The teeth have an angle of 8° on the front and 52° on the back. The upper half of each tooth is set, alternately, one to the right, one to the left, to give clearance. This set is equal to one-third or less of the thickness of the blade.

Disston Rip Saws have finer teeth at the point of the blade on saws 6 points and coarser. Rip saws are made this way to make it easier to start the cut. The teeth of a rip saw act like vertical chisels, each tooth chipping out a small portion of the wood from the kerf.

Starting the cut with a draw stroke

How to Use a Rip Saw

The position for ripping should be such as to permit long, easy strokes. The user who does most of the cutting with a few inches of blade, in the middle of the saw, has difficulty in keeping the line of the cut straight. He also dulls the saw more rapidly, because a few teeth are called upon to do all the cutting. Full strokes are desirable in both ripping and cross-cutting.

In ripping, the cut should be started with the finer teeth, at the point of the blade. Ripping usually is done with the work supported on saw horses, but if the board must be held in a vise, place it to give the proper cutting angle.

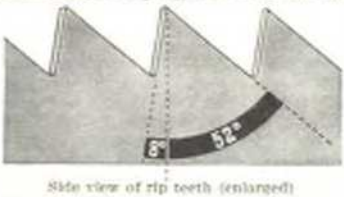
An angle of 60° between the edge of the saw and the face of the work, as illustrated below, gives best results when using a rip saw.

Disston Rip Saws cut with extreme ease when kept properly sharpened. It is not necessary or desirable to force them in the cut.

Proper angle for ripping

No saw can be expected to give good service indefinitely without resharpening. Owners claim Disston saws require less sharpening than others and when sharpened, retain their keen edges longer.

In ripping and cross-cutting, it is good practice to cut on the waste side of the line instead of trying to halve the line.

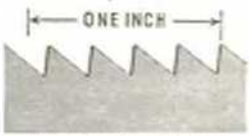


Side view of rip teeth (enlarged)

Disston Rip Saws are made 5, 5½, 6 and 7 points to the inch. The 5½ and 6 point are most widely used and will prove most satisfactory for general work. Some mechanics, however, prefer blades toothed 7 points to the inch.

Length of Blades

The length of either rip or cross-cut hand saws is measured from point to butt on the cutting edge. Both cross-cut and rip saws are made in various lengths, the 26-inch being the most popular.



5½-point rip teeth, the popular size for rip saws

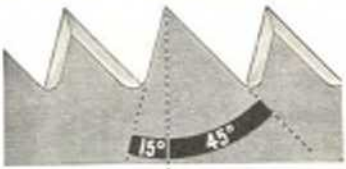
Some patterns of Disston cross-cut saws are made with blades 20, 22, 24 and 26 inches long; and rip saws with blades 22, 24 and 26 inches. Saws 24 inches and shorter are known as panel saws. The 22 inch, 10 point cross-cut saw is most popular among the shorter saws.

CROSS-CUT SAWS

Tooth edge of cross-cut saw

The cross-cut saw, being designed to cut across the grain, cuts with an action similar to a number of small knife blades. The front faces of the teeth of a cross-cut saw have an angle of 15°, the back of the teeth have an angle of 45°. The teeth are usually filed with a bevel of about 24°. The upper half of each tooth is set, alternately, one to the right the other to the left, to insure clearance. The true taper grind of Disston Hand Saws gives them additional clearance and makes them run easily with less set than is the case with saws ground in the ordinary manner.

The amount of set given a saw is highly important because it determines the ease with which the saw runs; it insures accuracy of cutting; and it helps keep the saw sharp for a longer time.

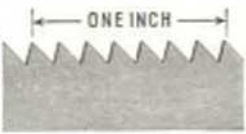


Side view of cross-cut teeth (enlarged)

The nature and character of the wood to be cut also must be considered. Green or wet wood requires a saw with coarse teeth and wide set, 6 or 7 points to the inch, while a 10 or 11 point saw with light set will work better in dry, well seasoned lumber. For ordinary cross-cutting, the user will find the 7, 8 or 9 point most in demand.

Points to the Inch

Points to the inch is a term used to designate the size of teeth in a saw. The saw with a small number of tooth points to the inch, 6 or 7 points for example, will make a rough cut, yet cut fast. Saws with more points, say 10 or 11 points, will make smooth, even cuts.



8-point cross-cut teeth, showing how points are counted

How to Use a Cross-cut Saw

Proper position for cross-cutting

Keep your saw SHARP and properly set. Instructions for setting and filing are given on pages 16 to 22. The correct position for cross-cutting is shown at right. An imaginary line through the saw, arm and shoulder would be slightly to the left of the saw blade, permitting view of the line where the work is to be cut.

To start the cut, rest the blade on the waste side of line, support the side of the blade with the thumb and draw the saw toward you a few times until a slight groove is formed; then cut straight with a full stroke.

In cross-cutting, it is best to maintain an angle of 45° between the saw and the face of the work. Extending the forefinger along the side of the handle aids in guiding the blade. Take long, easy strokes and make each stroke do its work.

Supporting the waste side of the work will prevent the wood from splintering on under side when the cut is nearly completed. Do not twist off waste with the saw blade.

Look carefully at repair work to see that there are no nails in the path of saw. Don't throw your saw around; keep blade covered with a thin coat of light oil and hang it up when not in use.

Proper angle for cross-cutting

DISSTON HAND SAWS

DISSTON D-95 MASTERPIECE

The Disston D-95 Masterpiece Hand Saw is the finest saw ever made. Streamlined for beauty, action, service!

Blade of the finest Disston Steel, perfectly ground, set and filed; polished to a brilliant lustre.

Entirely new design in handle construction. Handle made of the toughest, strongest molded material ever developed for practical industrial purposes. Blade fits snugly into recess of handle and over 4 hollow-molded dowels. Shield, over dowels, is attached with 4 chromium-plated screws, lock washers and nuts. Cannot work loose. Color combinations:

Onyx Green and Red Shield;
Brown and Green Shield;
Brown and Orange Shield

Packed individually in an attractive box.

Lengths—24"—8, 10 points.
26"—7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

D-13 Lightweight Pattern
Straight-back

Cover-top, carved rosewood handle, weatherproof finish, roomy comfortable grip. Nickel-plated screws. Disston Steel blade, striped back, true taper ground. Beautifully finished. This saw, the D-115 and D-95 are three of the finest hand saws ever manufactured.

Lengths—24"—7, 8, 9, 10, 11 points.
26"—7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

D-115 Regular Pattern
Skew-back

Cover-top, carved rosewood handle with comfortable grip, weatherproof finish. Nickel-plated screws. Disston Steel blade, striped back, true taper ground. Beautiful finish.

Lengths—26"—7, 8, 9, 10, 11 points.

D-12 Lightweight Pattern
Straight-back

Cover-top, carved applewood handle, weatherproof finish. Nickel-plated screws. Disston Steel blade, striped back, high polish, true taper ground.

Lengths—24"—7, 8, 9, 10, 11 points.
26"—7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

D-12 Regular Pattern
Straight-back

Cover-top, carved applewood handle, weatherproof finish. Nickel-plated screws. Disston Steel blade, striped back, high polish, true taper ground.

Lengths—24"—7, 8, 9, 10, 11 points.
26"—6, 7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

Disston Hand Saws are made for every kind of sawing job. Saws with wide or regular pattern blades; narrow or lightweight pattern blades, sometimes called ship pattern or ship saws; saws for ripping or cross-cutting; saws with fine, medium or coarse teeth. The true taper grind reduces weight and prevents the saw from binding.

The temper of the Disston Saw is such that the saw will remain keen, true and fast-cutting, without refiling, for a longer time than ordinary saws. The handles are comfortable, with large hand holes and covered tops which add strength and provide triple anchorage of the blade in the handle. They are weatherproof finished, which seals the pores and prevents warping, making the finished saw a modern, beautiful and long-lasting tool.

D-17 Regular Pattern Skew-back

This is a double duty type saw. Can be used for either ripping, cross-cutting or cutting diagonally. Alternate sections of five cross-cutting and two ripping teeth with fine teeth at point for starting cut. Hardwood handle, weatherproof finish. Brass screws, Disston Steel blade, polished, striped back, true taper ground.

Length—26"

D-8 Regular Pattern Skew-back

Cover-top applewood handle, weatherproof finish, brass screws. Disston Steel blade, polished, striped back, true taper ground. The original skew-back saw.

Lengths—20"—8, 10, 12 points.
22"—8, 10, 12 points.
—Rip 7 points.
24"—7, 8, 9, 10, 11 points.
—Rip, 6, 7, points.
26"—5, 6, 7, 8, 9, 10, 11 points.
—Rip, 5, 5½, 6 points.

D-23 Lightweight Pattern Straight-back

Cover-top, carved applewood handle, weatherproof finish, brass screws. Disston Steel blade, high polish, striped back, true taper ground.

Lengths—20"—8, 9, 10, 11, 12 points.
22"—8, 9, 10, 11, 12 points.
24"—7, 8, 9, 10, 11 points.
26"—7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

D-7 Lightweight Pattern Straight-back

The D-7 Lightweight differs from the D-7 Regular in width of blade only. Cover-top beechwood handle, weatherproof finish, brass screws. Disston Steel blade, striped back, true taper ground.

Lengths—26"—7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

D-8 Lightweight Pattern Skew-back

The D-8 Lightweight differs from the D-8 Regular in width of blade only. Cover-top applewood handle, weatherproof finish, brass screws. Disston Steel blade, polished, striped back, true taper ground.

Lengths—26"—7, 8, 9, 10, 11 points.
—Rip, 5½, 6 points.

D-7 Regular Pattern Straight-back

Cover-top beechwood handle, weatherproof finish, brass screws. Disston Steel blade, striped back, true taper ground.

Lengths—20"—8, 10, 12 points.
22"—8, 10, 12 points.
—Rip 7 points.
24"—7, 8, 9, 10 points.
—Rip 6, 7 points.
26"—6, 7, 8, 9, 10 points.
—Rip 5, 5½, 6 points.

How to choose and use Back Saws

One of the handiest and most useful saws for fine joinery and cabinet work is the Disston Back Saw. Its fine teeth and stiff back make it possible for the user to do smooth, accurate cutting in making mitres, tenons, etc. It is the saw to use for cutting moldings, picture frames and other light stock.

Disston Back Saws are made of the same fine steel as Disston hand saws. They have the famous Disston temper and edge-holding qualities so vital to the craftsman who wants high quality tools.

Disston Back Saws are made in 8, 10, 12, 14 and 16 inch lengths, with from 12 to 16 points to the inch. The 12-inch length, 14 points, is the most popular.

In using a back saw in a mitre box be sure that the cut to be made lines up with the slots in the box. Hold work against back of box and start cut carefully with a back stroke, holding handle of saw slightly upward. Gradually level the saw and continue cutting with blade horizontal. Hold saw firmly for clean, straight and accurate cutting.

When not using a mitre box it is advisable

USING back saw with bench hook to support work.

to use a bench hook to support the work. For long material use two bench hooks. In making mortises, etc., keep saw level after starting cut and watch depth at both ends of cut. Use a light, even, level stroke.

To sharpen a back saw proceed as in sharpening a hand saw. Use a 4½-inch Disston Extra Slim Taper File.

Disston No. 4 Back Saw

The handiest of all small saws, a saw necessary for fine joinery and cabinet work. The blade is of Disston Steel, hard and tough, with teeth shaped for fast, accurate cutting. The back is extra heavy, of bright, polished steel. The handle is hardwood, with Disston weatherproof finish. Brass screws.

Length of Blade	Width Under Back	Points to Inch
8 inches	2¼ inches	16
10 inches	2½ inches	15
12 inches	3 inches	14
14 inches	3½ inches	13
16 inches	3⅞ inches	12

Disston No. 4 Mitre Box Saw

Mitre Box Saws, owing to the length and general construction are extremely delicate tools. When not in use they should be put away with the tooth edge protected from contact with other tools.

Every Disston Mitre Box Saw is tested for accuracy. Every one will run true and cut a smooth, accurate joint. The blade is placed deep into the handle, and the back is extra heavy to prevent twisting in the cut. All blades are made 11 points to the inch. Blade of Disston Steel, with hard, tough Disston temper. Back of bright, polished steel. Hardwood handle, Disston weatherproofed finish; brass screws.

Disston Mitre Box Saws are made in all required sizes; those 4 inches under back in 18 to 26-inch lengths; 5 inches under back, 28 and 30-inch lengths; 6 inches under back, 30 inches in length.

The following sizes are most popular:

Length of Blade	Width Under Back
20 inches	4 inches
26 inches	4 inches
28 inches	5 inches

Disston Dovetail Saws Nos. 68, 70, 71

Wherever the finest possible joint is needed, and for dovetailing, tenoning, model building, pattern making, etc.,

No. 68

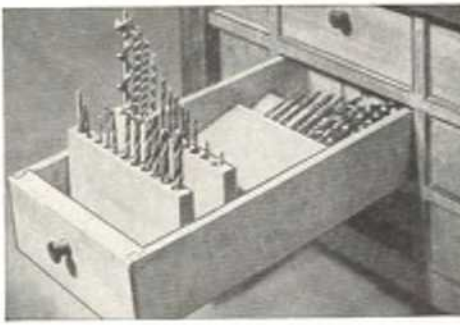
a Disston Dovetail Saw is needed. No. 68 has straight handle; No. 70, open grip handle, No. 71 is same as No. 68, with handle and blade offset. All are extremely thin (.018), with fine teeth

No. 70

(17 points). Sturdy brass-plated steel back supports the Disston Steel blade.

No. 71 Dovetail saw, is made with offset handle, for cutting in close quarters, this saw can be supplied with the handle offset for either right or left-hand cutting.

Length of Blade	Width Under Back
6" (No. 68)	1⅜"
8" (Nos. 68 and 70)	1½"
10" (Nos. 68, 70, 71)	1⅝"
10" (No. 71)	2"
12" (No. 68)	1⅝"



A SIMPLE method of keeping bits and drills in order. Wood blocks drilled with holes are hinged to bottom of drawer. They lie flat when drawer is closed.

How to choose and use Small Saws

There are many uses for compass saws in the shop, in the home, on the farm and in manual training schools. Just the saw for cutting curves and circles and when starting a cut from a hole bored in the wood. Handy for cutting holes in board and plaster to receive gas or water pipes, cutting floor boards, etc. To make brackets for a shelf or round the corners of book shelves, etc., just mark a line as a guide and saw along it.

Disston Compass Saws and Nest Saws are made tough and strong, yet flexible enough to stand the strain of cutting a curve. All are made of Disston Steel and tempered for long cutting life. They are taper ground from tooth edge to a thin back which allows for clearance. They also taper to a sharp point, and are toothed to the point for easy access to holes and for cutting sharp curves.

The new flat-top, hardwood handle, with its comfortable grip, furnished on No. 4 Compass Saws, Nos. 3 and 7 Nest Saws and No. 8 Plumbers' Compass Saw, adds much to the usefulness of these saws. It permits undercutting with the blade in reverse position.

A HANDY home made reflector for light bulbs in workshop, can be made quickly with tinner's snips and a quart size tin can. First experiment with cardboard to get shape.

Disston No. 2 Compass Saw

This Compass Saw has been giving fine service to users for years. Open grip handle is shaped for easy control when sawing; has Disston Steel blade toothed to point; taper ground for clearance; tempered to withstand strain of curve cutting; tapered to sharp point; 8 points to inch. Applewood handle has Disston weatherproof finish; two brass screws, one a medallion. Sizes, 10, 12, 14 and 16 inches.

The Disston No. 4 Interchangeable Compass Saw

This saw will prove a convenient and practical tool for any kit. Flat top handle, comfortable grip, weatherproof finish. Different lengths of blades—10, 12, 14, 16-inch, 8 points to inch—for different kinds of work. Blades can be used in reverse position. All blades of Disston Steel; taper ground; tempered to stand strain of curve cutting. Cluster bolt and wing nut adjustment in handle holds blade firmly.

No. 8 Plumbers' Compass Saw

The Disston No. 8 Plumbers' Compass Saw has an extra heavy Disston Steel blade, specially tempered for plumbing work and other tough, heavy cutting. It is taper ground to give clearance in the kerf and make sawing easy. 9 points to inch. The butt of the blade is slotted; hole directly in front of slot receives bolt; cluster bolt and wing nut clamps blade securely in handle—no moving front or back, up or down. Can be used in regular or reverse position.

Square top hardwood handle, comfortable open grip; Disston weatherproof finish.

Made in 12 and 14-inch lengths.

TO DRILL a hole at an angle, clamp block of wood cut to desired angle and use as guide. Holding head of brace against body at exact height of hole will insure horizontal accuracy.

No. 7 Nest

The Disston No. 7 Nest is widely used by plumbers, electricians, and others. One of the 14-inch blades has special temper for cutting lead pipe, thin metals and wood in which nails are embedded; 12 points to inch. The other 14-inch blade is for regular compass saw work; 8 points to inch. Both are tempered to withstand strain of curve cutting.

The keyhole blade is 10 inches long, 10 points to inch, tempered; tapered to sharp point for keyhole and other sharp-curve cutting.

All blades of Disston Steel taper ground—used in the same handle, in either regular or reverse positions.

The improved square top handle has weatherproof finish; cluster bolt and wing nut adjustment.

No. 3 Nest

The Disston No. 3 Nest of Saws can be used for a wide range of work.

Keyhole blade, 10 inches long, 10 points, for cutting keyholes, sharp curves, and other small work.

Compass blade, 14 inches long, 8 points; for cutting curves and shapes in heavier work.

Pruning blade, 16 inches long, 8 points, for pruning fruit and ornamental trees, shrubbery, etc. Can also be used as a general purpose saw.

All blades of Disston Steel; all fit same flat-top handle, which permits use in regular or reverse position. Handle has weatherproof finish. Cluster bolt and wing nut adjustment.

DISSTON KEYHOLE SAWS

To cut a keyhole it is good practice to mark with pencil or scriber, shape and size of hole desired, then bore a hole through the door, chest, drawer, etc., and with this handy little saw cut along the marked line.

No. 95 Keyhole Saw

Made for small work in close quarters —cutting keyholes, fret work, model work, etc. The blade is made of Disston Steel; thin back, tapering to a sharp point; 10 points to the inch.

The handle is made of hardwood, polished; rounded; has slot in handle to receive blade; steel ferrule. Blade inserted at butt end of handle; held at required length by steel thumb screw. Handles and blades supplied separately if desired. Handle is 7 inches long; blade 10 inches long.

No. 15 Keyhole Saw

The Disston No. 15 Keyhole Saw has an open grip, hardwood handle, weatherproof finish. Fine for cutting frets and other fine work. Disston Steel blade, thin back, tapered to sharp point; 10 points to inch; two brass screws. Made 10 and 12-inch lengths.

No. 1 Bead Saw for Weather Stripping

The Disston No. 1 Bead Saw is used for scoring window frames, door frames, etc., preparatory to inserting metal or other weather stripping. Disston Steel blade, 10 inches long, 1½ inches wide at handle, curving to point; 5 teeth at point of blade have ¼-inch spacing. Curved hardwood handle; orange lacquer; 3 screws.

No. 1 Pattern Maker's Saw

The blade of the No. 1 Disston Pattern Makers' Saw is thin—(.028). This saw is designed for small, accurate work in pattern and cabinet-making. The teeth are shaped to make a fine, exact cut. 15 points to the inch. Blade of Disston Steel with Disston temper, is 7½ inches long and 1½ inches wide. Open handle, applewood; varnished edges; brass screws.

No. 6 Stair Builders' Saw

Used for trenching out stringers, making slots in stair treads or risers, cutting dadoes, etc. Removable blade may be raised or lowered to cut any depth up to ¾ inch. Blade of Disston Steel with Disston temper, is 6 inches long and 1⅝ inches wide, toothed 8 points to inch. Hardwood handle, weatherproof finish.

Disston Veneer Saw Knife

Specially designed for cutting veneer and for inlay woodwork. Blade of Disston steel, .016" thick, with convex edges. Toothed 12 points to inch. Blade is removable and fastened to malleable iron tang with countersunk screws. Lacquered handle, nickel-plated ferrule. One of the edges of the blade has the teeth side beveled to cutting edge; other edge with regular saw teeth for sawing. Blade is 2⅞" long and 2" wide at the widest part. Length overall, 8 inches.

Disston No. 10 Coping Saw

The Disston Coping Saw is designed for cutting curves. It is also used for shaping the ends of moulding for joints, for scroll work, making shelf brackets, wooden toys, etc. It takes narrow blades, only ⅛ inch wide, fitted at each end with a pin which is inserted in stretcher at each end of the frame. Blades are 6½ inches long between pins.

A square nut forced into the handle engages threaded end of stretcher. By turning handle blade is strained. The blade when strained tight in the frame may be turned as desired for cutting sharp angles, etc. It is customary in placing blades in frame to have the teeth pointing toward the handle. This will give better control of the saw when cutting. The frame is made of Disston Steel. It is ¾ inch wide; ⅝ inch thick; and 4½ inches deep from tooth edge to inside of back. Handle is of polished hardwood, with nickel plated ferrule and machined stretchers.

A coping saw is generally used with a saddle, as illustrated, to support the work. It consists of a board cut with a V notch about 3 inches wide and 3½ inches deep, attached to a support as shown. The stroke should be as long as possible, to avoid overheating the blade.

Using coping saw with saddle

In cutting scroll work, furniture overlays, etc., the piece marked with the design is held on the saddle and shifted so that the saw can accommodate the curves as they are encountered. Change the angle of the blade in the frame when making sharp turns, to avoid breakage of blades.

VENEER Saw Knife makes easy work of cutting thin veneers used in making inlay pictures. Beveled edge is exceptionally fine for cutting across or diagonally to the grain.

Disston Coping Saw Blades No. 10

For wood; made of spring saw steel. Bright blade. Filed and set. Blade fits Disston No. 10 frame. Length overall 6¾ inches; 6½ inches pin to pin; ⅛ inch wide; 16 points to inch.

No. 20 (pin-end)

For cutting wood, bakelite, brass, celluloid, bone, composition board, copper, and other metals. Oil hardened and tempered, both set and filed; black finish. Length 6¾ inches overall; 6½ inches between pins, ⅛" wide, 16 points.

No. 2 Coping Saw Blades (loop-end)

An all-purpose blade for cutting wood, bakelite, brass, celluloid, bone, composition board, copper, etc. These blades cannot be used in No. 10 frame but are for use in the common wire frame.

Oil hardened and tempered; teeth set and filed; black finish. Ends of blade are looped and tempered to stand strain of tension. Length 6" overall, 1/16" wide; 16 points to the inch.

How to sharpen a Hand Saw

Shape of cross-cut saw teeth

Shape of rip saw teeth

A Disston Saw is a fine tool, accurately made by master-craftsmen and will give a life-time of service if properly handled. Use it as a fine tool should be used. When necessary to set and file it, follow these directions carefully.

Before starting work, read ALL the directions. Then, as you work, read them step by step.

Examine the tooth-edge of your saw to see if the teeth are uniform in size and shape and to see that they are properly set.

It is not necessary to reset the teeth of a well-tempered hand saw every time it needs sharpening. If the teeth are touched up with a file from time to time as the saw is used (on the same principle as stropping a razor) the saw will cut longer and better, and sufficient set will remain

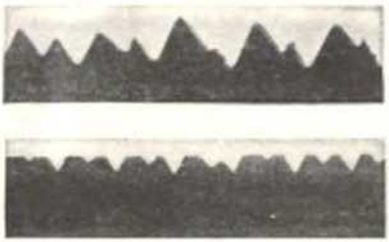
to enable the saw to clear itself. The proper amount of set is shown in illustration at right.

Now study the shape of the teeth. Teeth of saws for cross-cutting should be shaped as illustrated on opposite page; teeth of saws for ripping should be like those shown in second illustration on preceding page. A saw cannot give good service unless the teeth are even (of the same size and regular) and properly shaped.

If the teeth are uneven, it is necessary to Joint the Saw and Shape the Teeth in accordance with the following instructions:

Jointing

To be done only when the teeth are uneven or incorrectly shaped, or when tooth edge is not straight or slightly breasted. Unless the teeth are regular in size and shape, it is useless to attempt to set and file a saw. In such cases jointing is necessary to bring all teeth to the same shape and height.



THE ABOVE illustrations are photographic reproductions showing actual condition of some saws returned to us. They are typical of the manner in which many saws are used and abused. It is best to have saws, such as these, retoothed at the factory.

To Joint a Saw

Place the saw in a clamp, handle to the right. Lay a mill file lengthwise on the teeth. Pass it lightly back and forth the length of the blade, on the tops of the teeth, until the file touches the top of every tooth. If the teeth of your saw are very uneven, it is best not to make all the teeth the same height the first time they are jointed. In this case joint only the highest teeth first, then shape (see Shaping the Teeth, in next column) the teeth that have been jointed, then joint the teeth a second time, passing the file along the tops

LOOKING from the back of a saw. This shows how the teeth, when set, extend beyond the sides of the blade.

of all the teeth until it touches every tooth. The teeth then will be of equal height. Do not allow the file to tip to one side or the other. Hold file flat.

The Disston Hand Saw Jointer, described on page 22, is made to help you do this work accurately. This tool holds the file squarely on the tooth edges. This eliminates any chance of tipping the file to one side or the other and thus rounding the points of the teeth.

Shaping the Teeth

To be done only when the saw has been jointed. After jointing, all teeth must be filed to the correct shape. The gullets must be of equal depth. The fronts and backs of the teeth must have the proper shape and angle. The teeth must be uniform in size. See page 16 for shape. (Disregard bevel, which will be taken care of later). To do this, place the file well down in the gullet and file straight across the saw, at right angles to the blade (under no conditions hold the file at any other angle). If the teeth you are filing are of unequal size, press the file against the teeth having the largest tops, until you reach the center of the flat top made by jointing.

Then move the file to the next gullet, and file until the rest of the top disappears and the tooth has been brought up to a point. Make no effort to bevel the teeth at this time.

The teeth, now shaped and of an even height, are ready to be set.

Setting the Teeth

As mentioned before, one need not reset the teeth of a well-tempered hand saw every time the teeth need a light sharpening. If it is not necessary to joint and shape the teeth, examine the saw to see if the teeth have the proper amount of set indicated in upper right illustration this page and those shown on next page. If they have proper set the saw is ready for filing. If they do not, set them in accordance with the following instructions:

Note—It is always necessary to set the teeth when you have jointed and shaped the teeth of your saw.

The teeth of a hand saw should be set before final filing to avoid injury to the cutting edges.

Purpose of Set. The purpose of setting the teeth of saws, that is, springing over the upper part of each tooth (not more than the half of the tooth nearest the point), one to the right, the next to the left, and so on alternately throughout the entire tooth edge, is to make the saw cut a kerf slightly wider than the thickness of the blade. This gives clearance and prevents friction which would cause the saw to bind and pull hard in the cut.

End view cross cut teeth

End view rip teeth

Depth of Set. Whether the saw is fine or coarse, the depth of the set should not go lower than half the tooth. This is important. If deeper than this it is likely to spring, crimp or crack the blade, if it does not break out the teeth.

A taper ground saw requires very little set, for the blade, being of uniform thickness along the entire tooth-edge, tapers thinner to the back and also tapers from butt to point along the back which provides the measure of clearance necessary for easy running.

Soft, wet woods require more set and coarser teeth than dry, hard woods. For fine work on either hard or soft dry woods, it is best to have a saw with fine teeth and only a slight set.

Setting with Saw Set. The general practice, outside a saw factory, is to set the teeth by bending over the point of tooth by pressure with a special tool known as a saw set. Many so called saw sets are impractical; they give too deep a set, or the pressure is improperly applied. Recognizing this difficulty years ago, Disston invented and produced the Triumph Saw Set. We fully recommend it as a tool that will do this work properly. The Triumph Saw Set is illustrated and described on page 22.

In setting teeth, particular care must be taken to see that the set is regular. It must be the same width from end to end of the blade, and the same width on both sides of the blade, otherwise the saw will not cut true, it will run out of line and the cut will be "snaky". Frequently complaints have been made that the saw is soft and will not hold an edge, when the main trouble is the irregularity of the width of the set.

Filing the Teeth

There are a variety of shapes in teeth, variation in angles, bevel, etc., each adapted for a special work, such as cutting dry, seasoned lumber; wet or green lumber; hardwood; soft wood; etc. The saw user should follow these instructions for saws in ordinary use, for the teeth, whether large or small, are alike. All but the most experienced should follow these recommendations for the best results.

Necessary Equipment. The only equipment necessary consists of a clamp and files. The clamp should be sufficiently strong to hold the blade firm enough to prevent chattering, and one in which the blade can be placed and tightened easily and quickly. The top of the clamp should be on line with the operator's elbows for best working position.

Use the Disston Extra Slim Taper File. Following table indicates length of file to be used:

5, 6 point cross-cut, 7-inch.
5, 5½, 6 point rip, 7-inch.
7, 8, 9 point cross-cut, 6-inch.
7 point rip, 6-inch.
9, 10 point cross-cut, 5½-inch.
10, 11, 12 point cross-cut, 4½-inch.

To determine the point of a saw, count the number of tooth points to the inch, measuring one inch from the point of any tooth. Note that in rip saws, 6 points and coarser, the teeth at the point of the blade are finer than the balance of the blade; therefore in measuring rip saw teeth, take the regular teeth at butt of blade.

Place the saw in filing clamp WITH HANDLE AT RIGHT. The bottom of the gullets of teeth should be ⅛ inch above the jaws of the clamp. If more of the blade projects the file will chatter or screech. This dulls the file quickly.

It will assist you to file a saw properly, if at the start, you pass a file lightly down the tops of the teeth (just as instructed under Jointing page 17) to form a VERY SMALL flat top on each tooth. The purpose of this is to provide a guide for filing. It does, however, again even up the teeth—which was the main purpose of jointing explained on page 17. Now, file the teeth as instructed in the following paragraphs:

First position for filing hand saws for cross-cutting

Second position for filing cross-cut saws

Filing Hand Saws for Cross-cutting

Stand at First Position, illustration shown at right. Start at the point. Pick out the first tooth that is set *toward* you. Place file in the gullet to the LEFT of this tooth. Hold file directly across the blade. Then swing the file handle toward the LEFT to the desired angle. Correct angle is shown in first illustration at right.

Hold the file level and at this angle. Do not allow file to tip upward or downward. Be sure the file sets down well into the gullet. Let it find its own bearing against the teeth it touches. It will help the beginner if he will first observe the shape and bevel of some of the unused teeth that can most always be found near the handle-end of a saw. If these teeth are shaped as they left the factory, they will serve as a guide.

The file should cut on the push stroke. It files the tooth to the left and the tooth to the right at the same time. File the teeth until you cut away one-half of the flat tops you made on the teeth as a guide, then lift the file from the gullet. Skip the next gullet to the right, and place the file in the second gullet toward the handle. Repeat the filing operation on the two teeth the file now touches, being careful to file at the same angle as before. Continue this way, placing the file in every second gullet, till you reach the handle-end of the saw.

Study the second position illustration shown above before you go further.

POSITION of file for beveling teeth

Turn the saw around in the clamp, HANDLE TO THE LEFT. Take Second Position. Place the file in the gullet to the RIGHT of the first tooth set TOWARD you. This is the first of the gullets you skipped when filing the other side of the saw. Turn file handle to the desired angle toward the RIGHT. Now file until you cut away the other half of the flat top made on the teeth as a guide, and the teeth are sharpened to a point. Continue this, placing file in every second gullet, until you reach the handle of the saw.

In filing teeth use care to see that in the final sharpening all the teeth are of the same size and height, otherwise the saw will not cut satisfactorily, as the teeth being of uneven sizes will place the strain only on the larger or higher teeth, and will cause the saw to jump or bind in the kerf; this will in many cases kink the blade, throwing it out of true.

Filing Hand Saws for Ripping

With one exception, this method is exactly the same as that given for Cross-cut saws.

This exception is that rip saws are filed with the file held STRAIGHT ACROSS the saw, at a right angle to the blade. The file should be placed in gullet so as to keep the angle on the front of each tooth 8° at front, 52° at back, as explained on Page 6 in description of rip saw teeth.

Place saw in clamp with handle toward the right. Start at the point. Place the file in the gullet to the left of the first tooth set toward you.

Continue, placing file in every second gullet and filing straight across. When handle of saw is reached in this way, turn saw around in the clamp. Start at point again, placing file in first gullet skipped when filing from other side. Continue to file in every second gullet until handle-end of saw is reached.

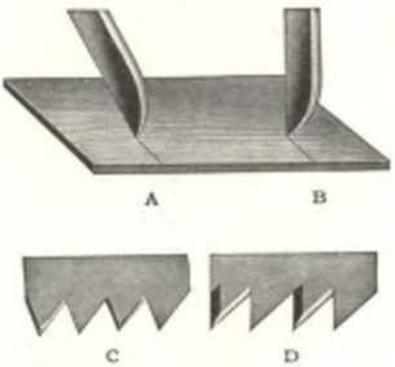
In reading this part of the saw filing instructions, the inexperienced user may be tempted to save the trouble of turning the saw around in clamp and try to file all teeth from the same side of the blade. Don't do it—this practice is one of the things that makes saws run to one side. This should never be done either with the rip saw or with a cross-cut saw.

PROPER SHAPE AND ANGLE OF SAW TEETH

Some additional information about the angle of the teeth in saws for cross-cutting may be of use. The angle of the tooth is one of the most important features and too much care cannot be taken to have the correct angle for the duty required.

Imagine the accompanying illustration as representing a board, across which you wish to make a deep mark with the point of a knife. Suppose we hold the knife nearly perpendicular as at B. It is evident that it will pull harder and will not cut as smoothly as if it were inclined forward as at A. It follows, then, that the cutting edge of the cross-cut saw should be at an acute angle as at C, rather than stand perpendicular as at D.

The angles 15° front and 45° back are for cross-cut saws; and 8° front and 52° back for rip saws as the saws are made at factory will prove most satisfactory for general use. When a saw has less angle at the front of the teeth than these recommendations, it is said to have more hook or pitch. If too much hook is given to the teeth the saw often



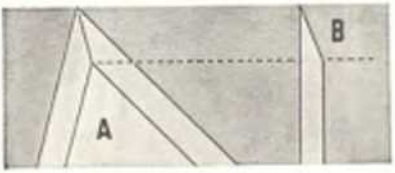
takes hold too keenly causing it to "hang up" suddenly in the cut—resulting sometimes in a kinked blade. When there is too much set, the teeth may be broken, because the strain caused by the unnecessary amount of set is out of proportion to the strength of the blade

In filing saws for cross-cutting, the file is held at an angle, therefore, the teeth are given an angle. We speak of this angle on the front and back of the teeth as bevel.

Bevel of the Teeth

The proper amount of bevel to give the teeth is very important, for if there is too much bevel the point will score so deeply that the fibres severed from the main body will not crumble out as cut, but must be removed by continued rasping. The illustration, first figure below, shows—a tooth (enlarged) of a cross-cut saw with the same amount of bevel front and back. This saw with long front B is best suited for work in soft woods where rapid, rather than fine, work is required.

The second illustration shows a tooth (enlarged) of a saw for medium hard-



Enlarged view illustrating bevels

woods. This tooth has less bevel on the back which gives a shorter bevel to the point as at B.

It will be seen from these illustrations that the bevel on the front of the teeth is about the same, but the bevel of the point looking the length of the saw is quite different, depending upon the difference in the angles of the backs of the teeth. Here again, experience will indicate what is best. For the beginner, we recommend that the instructions given under Filing the Teeth be followed carefully.

PROPER CARE OF SAWS, TOOLS AND FILES

Moisture against a steel face, unless that face is well protected, means almost immediate rust. In order to keep a saw blade in the most perfect working condition, it must be entirely smooth on both sides. Rust means pitting and therefore, a rough surface. When you finish using a saw, rub it down with light oil. In case the saw is slightly rusted, rub the blade down first with fine emery cloth and then apply the oil.

Another important thing is the way edge tools are put away. Whether a saw is placed in a tool box or on a shelf, or hung from a nail or hook, always take care that the tooth edge is placed so that no other tools will knock against the teeth and injure them.

Tools should always be placed with the cutting edges away from the person using them. Never hang a saw from a bench where the teeth can scratch a leg or knee.

When you are through using a tool lay it down carefully. Do not drop it. A file, for instance, is an edge tool. Its teeth, to give the greatest efficiency, are very hard. When one carelessly throws a file across his bench he is likely to break off the edges of several teeth. A good tool deserves good treatment and the more care you give it the better service it will give you.

Common sense will suggest many necessary rules for caring for your tools. Keep them in good working order, in a clean container or neatly arranged on hooks and keep them in a dry place.

All Disston Saws, Tools and Files are guaranteed to be perfect in workmanship and material. But it is not to be expected that we can make a tool that will do good work when it is not properly used and cared for.

Nearly every day we hear from someone who has used one of our saws 20, 30, and up to 50 and 60 years. On the other hand, some saws, after being used for a few months, are returned to us as defective when they are perfect as far as workmanship and material are concerned, but have been made useless through abuse or lack of care.

TOOLS FOR REFITTING HAND SAWS

Any one can sharpen a saw with the following Disston tools. They are the best and most practical tools made for the purpose.

No. 10 Hand Saw Jointer

The Disston No. 10 Hand Saw Jointer is a simple, practical tool for dressing uneven saw teeth to uniform height before sharpening or resetting a saw.

Made of malleable iron, formed to fit the hand. It opens and closes like a hinge, and is fitted with a file of the proper cut to joint a saw. The file can be replaced readily by the turn of a set screw.

File furnished with each jointer.

D-3 Filing Guide and Clamp

Saw and guide in position for filing.

The D-3 Filing Guide and Clamp is especially designed for those not experienced in filing hand saws. It enables the user to file each tooth at the same angle. It is made to file both cross-cut or rip saws. The length of the jaw is 12½ inches.

Clamp is japanned; strong and durable; readily adjusted; eccentric lever opens and closes jaws; thumb screw attaches clamp to bench.

Any three cornered file with tapered end can be used in filing guide and clamp.

Guide frame is made of heavy steel wire; japanned iron swivel attachment; hardwood file handle turned for a comfortable grip. 5½-inch Disston Slim Taper File supplied with the D-3 Filing Guide and Clamp.

No. 28 Triumph Saw Set

The Disston Triumph Saw Set makes saw setting easy. It is a strong tool, powerful in action, easily operated. The double plunger is the principal feature—one plunger holds the saw set securely in position against the saw while the other plunger sets the teeth. Can be adjusted to any set required; malleable iron head and handle; head polished, handle black finish; hardened steel plungers; coil spring opens handle.

No. 28 Triumph Saw Set for hand saws, back saws, web saws, narrow band saws, 16 gauge and thinner, 10 points to the inch and coarser.

The No. 280 Triumph Saw Set is made for setting hand saws, back saws, butcher saws and other saws with 10 to 16 points to inch.

Star Saw Set

The Disston Star Saw Set is made for setting hand, back, band, web, wood, and small circular saws not thicker than 18 gauge. The only practical set that can be operated by striking the plunger with a mallet, or working the plunger by foot power.

Japanned; frame plunger and anvil of hardened steel; set can be regulated; coil spring returns plunger to position; frame shaped to fasten on work bench or in vise. Gauge supplied with each set to hold narrow band and web saws.

How to choose and use Circular Saws

For the home workshop, training school and the small bench saws used in industry, Disston Small Circular Saws are ideal. These saws are made from the famous Disston Steel, hardened and tempered to give long and exacting service.

When buying, the user should give consideration to the following: Is it for ripping, cross-cutting, mitreing, grooving?

Is it for cutting wood, metal or other material?

Is a smooth edge desirable?

A well equipped shop should have a rip, a cross-cut, a combination flat ground and a combination hollow ground saw. Disston makes a full line of these small saws, especially for workshop use. The Disston De Luxe Homework shop line is described on the next page.

ABOVE—Trimming inlay picture with "square board" made of plywood with a strip to fit table slot clinch-tacked to bottom. Disston hollow ground saw with No. 1 tooth, 8 points to inch, is used.

BELOW—Using same board to cut straight edge on piece of thin stock having no straight side.

De Luxe Combination Hollow Ground
D-3200

De Luxe Combination Flat Ground
D-320

De Luxe Cross-cut D-40

De Luxe Rip D-120, D-110

DISSTON DE LUXE

HOME WORKSHOP

CIRCULAR SAWS

•

The World's Finest Home Workshop Saw . . . made for the man who insists upon having the best

The kind of craftsmanship you wish to turn out has a good deal to do with the grade of saw you buy. Fine tools help fine work. In these new De Luxe Saws, you get Disston Steel and Disston workmanship of the same high standards, same guarantee, as the famous Disston Circular Saws used by the world's leading lumber mills.

De Luxe saws are made in four types: Cross-cut, Rip, Flat Ground Combination, Hollow Ground Combination. They have a high, smooth finish, keen teeth, accurate fitting.

These fine blades mean easier and more accurate cutting. You will want these better saws to help you to do better work.

Diameter	Number and Type	Gauge	Center Hole Inches
6 inches	D-40 Cross-cut D-120 Rip D-320 Combination	18	½
	D-3200 Hollow Ground	19/16	½
7 inches	D-40 Cross-cut D-120 Rip D-320 Combination	18	½
	D-3200 Hollow Ground	19/16	½
8 inches	D-40 Cross-cut D-120 Rip D-320 Combination	18	½, ⅝, ¾
	D-3200 Hollow Ground	18/15	½, ⅝, ¾
10 inches	D-40 Cross-cut D-110 Rip D-320 Combination	16	⅝, ¾
	D-3200 Hollow Ground	17/14	⅝, ¾

PUTTING SAW ON MACHINE

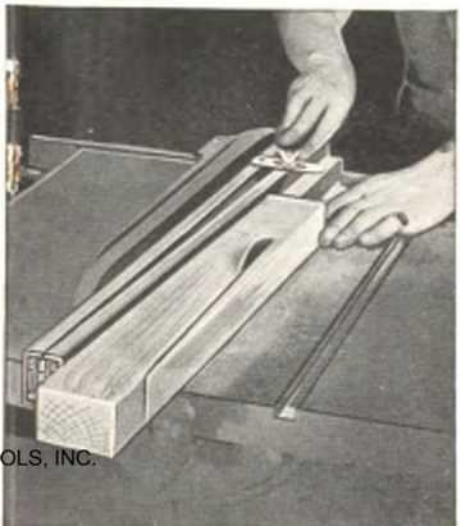
In putting the saw on the machine, make sure that the arbor hole in the saw fits the mandrel snugly and that the teeth of the saw point toward operator.

Tighten the collar and nut securely on the mandrel. See that the belt is sufficiently tight. Slipping causes loss of power and makes saw cut poorly. See that saw has ample clearance at sides and ends of table slot. To test this, rotate the saw by hand. If table can be moved up and down, set it so cut will come as near center of saw as possible.

Be sure you have enough speed and power to run the saw properly. The average small motor runs 1750 revolutions per minute, and is usually belted to run the saw 3500 r.p.m. or more. Disston small circular saws are tensioned to run at 3000 to 4500 r.p.m.

In operating the saw, stand to one side, not back of, material to be cut. Hold down work with one hand. Push work through with other hand. When gauge or fence is close to saw, use a push stick notched on the end. Do not crowd the saw; if it binds, ease up on the feed.

CUTTING TAPERS. A hinged jig with thumb-screw attachment for holding one end of the work the desired distance away from fence makes the cutting of tapers accurate and easy.



WHEN RIPPING or beveling narrow pieces, hold-downs like these insure accurate work without endangering the fingers.

REFITTING SMALL CIRCULAR SAWS

Jointing the Saw

The first step in refitting circular saws is jointing; getting all the teeth the same height. Joint the teeth by running the saw slowly backward by hand on the mandrel, while holding a piece of emery stone or a flat file, lightly against the tops of teeth. Continue until the tops of all the teeth show that they have been touched by the emery stone.

Shaping the Teeth

After jointing, put the saw in the filing clamp and shape the teeth as near to the original shape as possible. Have all the teeth of the same shape with gullets of even depth and width. Use a Disston 6″ or 7″ Taper file for fine tooth cross-cut saws and combination saws, and a Disston 6″ or 7″ Mill file, with one round edge, for rip saws and coarse tooth cross-cut saws.

Setting the Teeth

After the teeth have been shaped, they should be set with a Disston No. 18 Triumph Saw Set. The saw should project fairly well above the clamp jaws. Place the die and anvil of the saw set on the tooth to be set, taking care not to carry the set down too far on the tooth. If this is done the body of blade (below the gullets) will be distorted. Be sure each tooth is set in the same direction it was when the saw was new.

After setting, any teeth which are not in alignment with the others, should be corrected.

Some users prefer to set the teeth with a bevel-faced anvil and a hammer; but in all cases the principle is the same.

This method of setting applies to all saws except combination saws having raker teeth. The raker teeth of combination saws should not be set.

Filing Small Circular Saws

After setting, file the teeth as nearly as possible the same shape as they were when the saw was new. You probably noticed, when your saw was new, that the teeth were beveled alternately; one tooth was filed or sharpened with the bevel on the right hand side and the next tooth had the bevel on the left hand side. They are filed in this manner to sever the fibres of the wood more easily. In resharpening, bevel the teeth as they originally were beveled.

Saws usually are sharpened for all around cutting. If your work is mostly in soft wood, you may carry a wider bevel on the teeth. In filing, do not reduce the length of the teeth; simply bring them up to a sharp point. If the teeth are uneven, the saw cannot cut properly. Have all teeth of the same shape, with gullets of even depth and width.

Do not file sharp corners or nicks in the bottom of the gullets. This usually results in cracks in the gullets.

Bevel the teeth in cross-cut saws on both the face and back edges. More bevel, however, is filed on the face than on the back of the teeth.

Give a rip saw a very slight bevel on the back of the teeth. In filing any saws, take care that the bevel does not run down into the gullets. The bevel on both the face and back should be about one-third the length of the teeth. In filing a flat ground combination saw, which cross-cuts, rips and mitres, use the same method for beveling the scoring teeth as is used in sharpening a cross-cut saw. Some combination saws have rakers, or cleaner teeth, to remove the material left in the cut by the beveled cutting teeth, hence the points of these rakers or cleaner teeth should be filed 1/64" shorter than the points of the beveled cutting teeth. After filing to 1/64" shorter, then also file these rakers square across so they will act like a plane and present a chisel-like edge.

In sharpening a hollow ground combination saw, follow the same method as used with a flat ground combination saw, but do not set the teeth, as ample clearance is given by the hollow grinding.

TOOLS FOR REFITTING SMALL CIRCULAR SAWS

Disston Taper File

Best adapted for filing teeth of cross-cut and combination saws. Use 6" or 7" size.

Disston Mill File
One Round Edge

Will give best service for filing rip saws. Use 6" or 7" size.

Disston Triumph Saw Set

The No. 18 Triumph Saw Set gives a perfect set on small circular saws. The best tool for the purpose.

Circular Saw Filing Vise No. 7

Saw in vise

Disston Circular Saw Filing Vise No. 7

Handy, well-built, tool for holding small circular saw when filing. Fastens to bench with thumbscrew; elbow joint tilts vise to any angle. Place saw on movable bracket. Thumb screw raises or lowers saw to correct position for filing. Curved jaws grip rim of saw.

How to choose and use Band Saws

Disston Narrow Band Saws for cutting wood, thin metal, fibre, etc. are made of the famous Disston Steel recognized by thousands of users for its toughness and temper. These saws are of sufficient resiliency to withstand the constant strain and bends to which they are subjected when operating.

The blades are straight and true; the teeth are set with proper pitch, size, space and depth to do good work. Disston Narrow Band Saws will cut fast, easy, smooth and true.

Thin Gauge Band Saws

Thin Gauge Band Saws are a special development of Disston, which are thinner than the standard narrow band saw. This type of band saw is capable of standing severe bending strain on small machines, having been made specially for use on wheels of small diameter—10, 12, 14 and 16 inch.

On wheels 10" to 16" in diameter Disston Thin Gauge Band Saws will give longer, better service.

How to use a Band Saw for Best Results

See that band saw is not too wide for the cut to be made. Use narrow saws for sharp curves and angles. Be sure your saw is sharp and has sufficient set to prevent binding.

Wheels should be clean and run true. Strain blade over wheels to give correct tension, so saw will not slip. Guide wheel must turn freely; it should not press against blade when saw is not cutting.

Close both guard doors. Set guides just high enough to clear work to be cut. Get full speed before starting cut. Follow outside of line marked on work; leave line on the finished piece.

In cutting curves, use one hand as pivot and turn work with other hand. Never try to pick pieces of wood out of the table slot while saw is running. In backing out of cut, do not twist saw.

Refitting Narrow Band Saws by Hand

Those who do not have an automatic filing machine may sharpen narrow band saws by hand. Disston's Adjustable Band Saw Clamp, No. 4 is used for hand sharpening.

Place the saw to be sharpened on a long bench so that it is supported throughout its length on the same level during filing. The clamp will hold a section of approximately 50 teeth at one setting. The saw is then moved so that one section after another is worked on until the entire length of the saw has been sharpened.

It is usual to joint the section slightly before beginning to file the teeth. This is done by lightly running a mill file over the tops of the teeth to make them all of a uniform height. Jointing will also assist as a guide in filing, as explained later.

Before starting to file, consider the shape of the teeth. Keep the teeth on your saw the same as when new. Use a 6" band saw taper file for all band saws of less than 6 points per inch; a band saw slim taper file for saws of 6 points or more per inch. Place the file in the gullet between the teeth and allow it to find its own bearing against the teeth it touches. Hold the file in a horizontal position. File straight across the saw at right angles to the blade, raising your file on the back stroke.

If the point of any tooth is not brought up sharp after the stroke of the file, do not do extra filing to sharpen this particular tooth. Instead, continue until you have filed the section you are working on. By this method, each section may require two or three goings-over.

Outline of properly shaped hand saw tooth showing position of set

Set too low and not parallel to length of saw

Teeth may be set with a Disston Triumph No. 28 Saw Set, in the same manner as hand saw teeth are set. When setting is necessary, it should be done before the teeth are filed. It should be remembered that if the saw is to do only straight line cutting, best results are obtained by the least set possible. In this connection, remember that sufficient set is necessary to clear the blade in the cut, particularly when cutting on curved lines. Study the illustration above. In setting band saw teeth keep these points in mind.

Dimensions Disston Narrow Band Saws for larger wheel machines

Width of Blade	Standard Points Per Inch	Gauge
¼ inch	7	22
⅜ inch	6	22
½ inch	5	21
¾ inch	4	21
1 inch	4	20

How to choose and use Hack Saws

Millions of Disston Hack Saws are used annually in metal working plants, vocational schools, and home workshops, for cutting metals of all kinds and materials other than wood. Disston makes a full line of hack saw frames and five kinds of hand blades; also three kinds of machine blades.

Here are four important suggestions on how to choose a hack saw:
1—Be sure the frame is strongly built, and suitable for the job.
2—Stretchers should be simply made, yet efficient, allowing for easy removal, replacement and straining of blades. Reversible stretchers are convenient.
3—Handle should have comfortable grip located on frame so as to bring pressure on the blade with least effort.
4—Blades should have correct number of teeth for material to be cut.

On the following pages instructions are given on how to use a hack saw, what blade to use for different metals, together with suggestions on holding work in the vise.

WHEN CUTTING off bolts, remember to screw nut all the way up on the threads first. Then when bolt is cut, unscrewing nut will straighten any battered threads.

DISSTON HACK SAW FRAMES

No. 36½—Nickel-plated

This is an ideal frame for all around use. Extension frame, adjustable by half inches for blades 8 to 12 inches. Made of Disston Steel, ¾ x 5/16 inch; rounded edges, nickel-plated. Depth, 3 5/16 inches from tooth edge to inside of back; eyes are riveted to frame; stretcher on front end, round; on handle end, square. Pin in stretcher holds blade in position.

Hardwood handle, black finish; large, comfortable, closed grip, fastened to frame with two saw screws.

Wing nut adjustment makes removal, replacing and straining of blade easy.

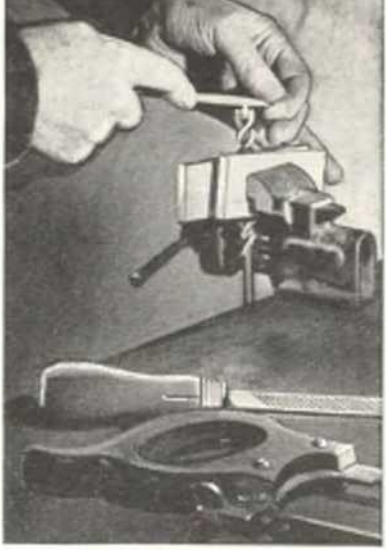
No. 110—Nickel-plated

The Disston No. 110 Hack Saw Frame is adjustable for blades 8 to 12 inches; stretchers are reversible to four positions.

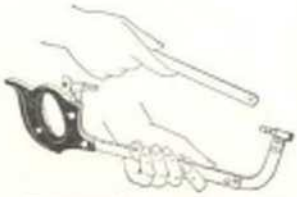
Frame of Disston Steel, ½ x 5/16 inch; rounded edges; depth 3 5/16 inches from tooth edge of blade to inside of back. Eyes are riveted to frame; square stretchers, cannot pull out; pin in each to engage hole in blade.

Hardwood handle, turned for comfortable grip; black finish; wing nut adjustment at front of frame makes removal, replacing and straining of blade easy.

A 30° ROD of steel or brass, substituted for short mitre gauge slot piece, will enable owner of small table saw to handle wide boards.



AN AUGER bit can be made to work on a drill press by cutting off square shank and carefully filing away the threads on the spur. An auger bit file with safe edges is needed.



To insert blade in hack saw frame

To tension blade

Proper way to hold hack saw frame when sawing

USE THE RIGHT HACK SAW BLADE

Hack saw blades are made for both hand and machine use. They are used to cut a wide variety of materials—mostly metal—which varies in size, shape, hardness and structure. Disston Blades are accurate cutting tools, made in a plant internationally known as makers of tools of quality.

STEELS

DISSTON Hack Saw Blades are made of three kinds of steel:

1. Tungsten Alloy
2. Molybdenum Steel
3. Full High Speed Steel (18% Tungsten)

The cutting which a hack saw blade will do depends on the steel out of which it is made and its proper heat treatment. The steel must be good to begin with and it must be heat treated to proper hardness and uniform structure.

Disston Blades are made of the finest steels. They are properly heat treated in automatically controlled furnaces. They are uniform and of proper hardness.

The hardness of Disston Blades is left down at the holes in order to prevent their snapping when the blades are strained in the frame or a machine. Teeth remain unset on each end to assure rigidity and proper alignment in machine and frame.

Teeth and set: For straight, accurate and fast cutting, the teeth must be correctly and accurately shaped and set. This means that each tooth is exactly the same in shape and size as every other tooth. The setting is done in a machine which does this work automatically and accurately.

The shape of the teeth in Disston Blades and the amount of set are correct. They have proved to be the best through years of research and test.

Every third tooth in Disston Hack Saw Blades (except Double-Flex) is straight. This is the raker tooth which clears the chips from the kerf. It makes an easier cutting blade than one with only right and left set teeth.

Disston High Speed Steel Hand Blades are made 10 and 12 inches; teeth 14, 18, 24, 32 to inch.

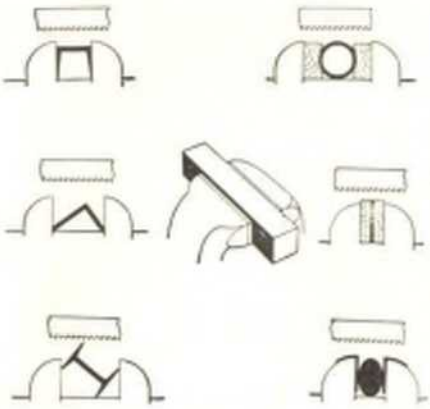
Disston Di-Mol Hand Blades are made 10 and 12 inches; teeth 14, 18, 24, 32 to the inch.

Disston Chromol Hand Blades are made 8, 10 and 12 inches; 14, 18, 24, 32 teeth to inch.

Disston Duraflex Blades are made 8, 10 and 12 inches; teeth 14, 18, 24, 32 to inch.

Disston Double-Flex Blades are made 8, 10 and 12 inches; teeth 18, 24, 32 to inch.

HOLDING WORK IN VISE



Above are suggestions for clamping irregular shapes. To hold oval or circular work in square jaw vise, use wood, leather or copper filler pieces to grip work and to prevent scarring.

•

It should be borne in mind that in general the coarser tooth blades cut faster and the finer tooth blades cut slower with less risk of tooth breakage.

How to use a Hack Saw

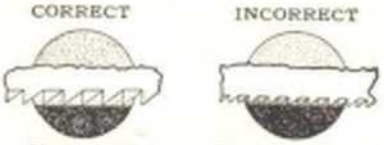
To use a hack saw correctly, a few points are important. Be sure to strain the blade tight in the frame and when cutting do not twist or bend the blade. Make slow strokes with even pressure, putting the greatest amount of pressure on the forward stroke and lifting slightly on the back stroke. Make each stroke do its full amount of work.

If the blade is not tight in the frame, breakage will result, as may also occur when undue strain is placed on the blade by twisting the frame sideways while cutting. It is also important that the correct number of teeth per inch be used on the specific metal for which it is intended. Using the wrong blade will only shorten the life of the blade and cause undue breakage.

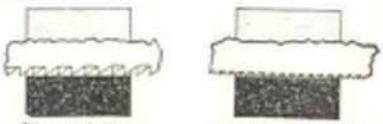
PROPER NUMBER OF TEETH

Importance of selecting hand hack saw blades with proper number of teeth for cutting various kinds of work of different metals is shown in the following:

Use 14 teeth for cutting material thicker than $\frac{3}{64}$" in sections of cast iron, machine steel, brass, copper, aluminum, bronze, slate.



Use 18 teeth for cutting materials thicker than $\frac{3}{64}$" in sections of annealed tool steel, high speed steel, rail, bronze, aluminum, light structural shapes, copper.



Use 24 teeth for cutting material thicker than $\frac{1}{16}$" in sections of iron, steel, brass and copper tubing, wrought iron pipe, drill rod, conduit, light structural shapes, metal trim.

Use 32 teeth for cutting material similar to recommendations for 24 tooth blades but thinner than $\frac{1}{16}$".

How to choose and use Files

Disston Files are made of tough, high grade steel to enable them to cut faster and last longer than ordinary files. They are correct in pattern, have clean, sharp teeth cut uniformly in width and depth. Improved heat treatment gives them unusually long life; rigid tests and inspection follow them through every operation to assure the user a good file—always!

Files are classified in types according to shape, cut and length.

The shapes are flat, hand, round, half round, mill, square, three square and many other special shapes, such as regular taper, slim taper, etc. All have a very definite use.

The cut means the kind or character of teeth in the file—single cut, double cut, rasp cut, and the degree of coarseness or fineness of the teeth—bastard, second cut and smooth cut.

The length of a file is measured from the heel to the point, which does not include the tang.

FILING a ⅛-inch bevel on the front under edge of a mitre gauge will prevent it from catching on edge of the saw table when wide boards are cut.

CUTS OF FILES

DOUBLE CUT

Bastard cut

Second cut

Smooth cut

Double cut file—has two courses of teeth or chisel cuts crossing each other, one course being finer than the other. Double cut is used on all machinists' files, such as Flat, Hand, Square, Round, Half Round, etc.

SINGLE CUT

Bastard cut

Second cut

Smooth cut

Single cut file—has one unbroken course of teeth or chisel cuts across its surface, parallel with each other, but at an oblique angle to the length of the file. The single cut is used on Mill files, on the Taper files and on special types of some saw files.

RASP CUT

Bastard wood rasp

Second cut cabinet rasp

Smooth cabinet rasp

Rasp cut—differs from both single cut and double cut in that the teeth are not placed in parallel rows across the file, but each tooth is put in separately by a single pointed tool or punch. Rasp cut files are used by blacksmiths, plumbers, cabinet-makers, wood-workers and others, for rough work.

●

NOTE—All regular files have a standard character of tooth; for instance, all regular Flat, Half Round, Round, Square and other machine shop files, are double cut. Most Mill files, all Tapers and certain special types of saw files, are single cut.

TO CUT circular discs on jig saw: clamp plywood board to table; use sharpened brad placed at one side of saw as center of disc. Pivot work on brad and revolve against saw.

ROSE TO

A FEW TYPES OF DISSTON FILES

Disston makes more than 250 styles, and more than 1000 different cuts and sizes, including Superfine files.

●

Taper (Single cut)

The principal use for taper files is for filing saws. Made in 3, 3½, 4, 4½, 5, 5½, 6, 7, 8, 10, 12-inch lengths. Disston also makes Slim, Extra Slim and Double Extra Slim Taper Files for the same purpose.

Special Extra Slim Blunt (Single cut)

This file is made blunt to assist the unskilled filer in making a level, uniform stroke. Designed especially for filing saws. Has unusually long sweep for its length; made in 5, 5½, 6 and 7 inch lengths.

Mill (Single cut)

The Mill file is made in bastard, second and smooth cut. It is tapered in both width and thickness. Used for lathe work and draw filing by mechanics and for sharpening one and two-man cross-cut saws, lawn mower blades, garden tools and other edged tools.

Made with square edges, one round edge, and two round edges. Also made blunt in bastard and second cut. The Mill file, bastard cut, is made 3, 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18 inches in length.

Round (Double cut)

Round files are made both tapered, and blunt. Used mostly for making round holes larger. Made in bastard, second and smooth cut, in 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18-inch lengths; also 20-inch length in bastard.

Flat (Double cut)

For wood; for metal

Flat files are tapered both in width and thickness. One of the most frequently used files for many kinds of work. Some flat files are cut for wood filing and others are cut for metal filing. Made bastard, second cut and smooth in 4, 5, 6, 7, 8, 9, 10, 12, 14, 16, 18-inch lengths, and also 20-inch in bastard.

Square (Double cut)

Square files are made both tapered and blunt. Used principally by mechanics for enlarging rectangular holes. Made in bastard, second cut and smooth, in 4, 5, 6, 7, 8, 10, 12, 14, 16, 18-inch lengths, and also in 20-inch length in bastard cut.

Half Round (Double cut)

For wood; for metal

Half Round files are made for both wood and metal filing. The Half Round cabinet file is made in second cut in 6, 8, 10, 12, 14-inch lengths. Half Round wood file is made, bastard cut, in 4, 5, 6, 7, 8, 10, 12, 14, 16, 18 inch lengths.

Half Round files for metal are made in 4, 5, 6, 7, 8, 10, 12, 14, 16, 18-inch lengths in bastard, second, and smooth cut.

The Half Round cabinet rasp, for coarse filing, is made in second and smooth cuts, 6, 8, 10, 12, 14, and 16-inch lengths.

WHEN USING A FILE—

1—Be sure the material to be filed is held securely. Loose work permits the file to chatter, which dulls the teeth.

2—In placing the handle on the tang of the file, do not hit the end of the file to drive it into the handle. Push the handle on, and holding the point of the file up, tap the butt end of the handle on the bench to drive the tang into place.

3—Do not exert undue pressure but keep the file cutting—do not allow it to slip over work, as this dulls the teeth.

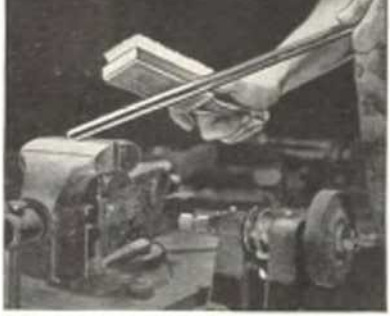
4—Be sure to raise the file slightly during the return stroke in order to clear the work and prevent dulling by wearing away the back of the teeth, thus destroying the cutting edges. This does not hold true in the filing of soft metals, such as lead, aluminum, etc. The correct procedure in this case is to draw the file back along the metal on the return stroke as an aid in cleaning the teeth.

5—If the file is not cutting and you find that the spaces between the teeth are choked, you should use a Disston File Card and Brush. Never tap the file to clear its gullets of clogged material. This may break the teeth.

6—On completing your work, do not throw the file on the bench. Lay it down with all the respect due a quality tool. Remember that to do their work effectively, files must be made as hard as fire and water can make them. Consequently the teeth are easily chipped and dulled by rough handling.

Disston File Card and Brush

Lengthens life of file; assures faster, better work. When a file is clogged a few strokes across its surface with a Disston File Card and Brush will clean out the gullets and allow the file to cut into the metal. The card wire is fine enough to enter a fine-tooth file and loosen clogged chips; brush cleans it out. Strongly built, light in weight; comfortable handle—face of card and brush, 5" x 1½", overall 9½".



A FILE card and brush is fine for cleaning off rust and renewing polish on small shafts, wrenches and other metal pieces.

Disston Stronghold File Handles

Made from selected wood, in five sizes. Shaped for comfortable grip; smooth, sanded surface. Ferrule end is slit to allow for expansion and contraction when tang is inserted or removed.

The outstanding feature of the Stronghold Handle is the coiled spring-steel ferrule. It expands to allow the tang of file to enter the handle, and then holds it rigidly. No more loose file handles.

The coiled spring-steel ferrule and slit-end handle permit the use of several sizes of files to one handle. Tap lightly with hammer at ferrule end to remove handle from file.

Number of Handle	Length of Handle	Lengths of Files used in Handle
No. 1	4 inches	3 to 6 inches
No. 2	4¾ inches	6 to 10 inches
No. 3	4⅝ inches	10 to 12 inches
No. 4	5⅛ inches	14 inches
No. 0	6 inches	3 to 7 inches Taper Files

The No. 0 is a special shape used in the Disston Works by expert mechanics for filing hand saws.

How to choose and use Hand Tools

The careful craftsman will find many uses for Disston Squares and Bevels. They are absolutely true, accurately ruled on square blade, graduated to eighths of an inch. Durable stocks. Sliding T-bevels have a positive locking device.

Squares must be perfectly square. A Disston Square is made to give the best service in accuracy and wear.

The Try Square is a laying out and testing tool. It serves as a guide in marking lines at right angles to any straight edge or flat surface. It determines whether surfaces or edges are square with adjoining surfaces, or edges; serves as a straight edge to test surfaces.

The Disston Mitre Square is made with an L-shaped piece of Disston Steel. The upper end of stock is cut at a 45 degree angle for mitre work. The mitre ends and sides of the stock are reinforced with brass for strength, accuracy and long life.

FOR ACCURATE marking, use a knife instead of pencil. Place point of knife on exact spot and move try square up to knife, then mark.

SQUARING END FROM EDGE

The material to be tested should be held in one hand, and the stock of square held against the edge to be tested so the blade will show squareness.

Bevels are closely related to squares. They are sometimes called bevel squares.

In laying out work, these hand tools provide a reliable means of duplicating any angle, by locking the blade on stock at angle desired.

Blades on Disston Bevels are made of Disston Steel. They are perfectly true on both edges, and slotted to move to and fro on bolt of locking device in end of stock, for setting at any desired angle. Some of the Disston Bevels are made with rosewood stocks, others with metal stocks. They will give excellent service.

Metal stock bevels are made so that blade is locked through a special device that holds blade rigid and is readily released with half-turn of screw in end of stock. Wood stock bevels are held with bolt and nut through top end of stock.

MITRE SQUARES

Disston No. 10 Mitre Square

The Disston No. 10 Mitre Square is a very substantial tool. Blade is one piece of steel, L-shaped, one arm of which extends through slotted rosewood stock, and securely fastened with heavy rivets, making it practically impossible for the square to get out of true. Square inside and out.

The Disston Steel blade, bright finished, is machined parallel; graduated eighths of an inch from end to end of blade.

Rosewood stock, inside edge brass plated; blade end cut at an angle of 45 degrees for mitreing purpose.

Lengths of blade, 6, 7½ and 9 inches.

Disston No. 11 Mitre Square

The Disston No. 11 Mitre Square has a metal stock, cadmium-plated, cut at an angle of 45 degrees on blade end, for mitreing purposes. Square inside and out.

Bright Disston Steel blade—edges of blade machined parallel; graduated eighths of an inch, both sides, from end to inside of stock; also made with metric graduations on both sides; or graduated inches on one side and metric graduations on other side.

Lengths of blade, 4, 6, 8, 10, 12 inches.

For accurate cutting of grooves: FIRST, mark deeply three or four times with knife.

SECOND, cut away material at side on an angle with point of knife.

THIRD, place saw flush against edge of groove for further cutting.

USING MITRE SQUARE

Hold the mitre square so that the mitre lies along the edge of the material that is being mitred. For accurate work, a sharp knife is better for marking than a pencil.

TRY SQUARES

Disston No. 1 Try Square

The Disston No. 1 Try Square is a favorite with mechanics who prefer fine tools. The rosewood stock has heavy brass face, fastened with round head counter-sunk screws. Grooved to form comfortable grip.

Disston Steel blade, blued; machined parallel, is graduated eighths of an inch on both sides from stock to end of blade.

The Disston No. 1 Try Square is made also with metric graduations both sides, or with metric graduations one side and graduated inches on other side of blade.

Lengths of blade, 4½, 6, 7½, 8, 9, 10 and 12 inches.

Disston No. 5½ Try Square

The Disston No. 5½ Try Square has a cadmium-plated, metal stock. Its strength and durability make it popular with many users. Square inside and out.

Disston Steel blade, bright; machined parallel. Graduated in eighths of an inch, both sides, from stock to end of blade; also made with metric graduations both sides, or with metric graduations one side and inch graduations other side.

Lengths of blade, 4, 6, 8, 10, 12 inches.

TESTING SURFACE

In testing a surface to determine if it is a true plane, hold stock of gauge upright and slide the back of the blade along the surface.

BEVELS

SETTING ANGLES WITH T-BEVEL

After the angle is determined, hold the stock against the edge and adjust it so the lower edge of the blade meets the line, then tighten the wing-nut and the bevel is set.

Disston No. 2 Bevel

The Disston No. 2 Bevel has a genuine rosewood handle, grooved to form comfortable grip; fitted with heavy brass face plates, tapered toward blade on lever side, bringing the lever in line with handle, permitting bevel to lay flat on either of its sides.

Disston Steel blade, blued finish. Half of blade has slot to move on tightener bolt; is adjustable to any desired angle; one end of blade rounded; other end has a 45 degree angle.

Lengths of blade, 6, 8, 10 and 12 inches.

Disston No. 3 Bevel

The Disston No. 3 Bevel is strong, durable; has metal stock, cadmium - plated; blade flush on both sides.

The blade is tightened or released by a patented ball-bearing mechanism controlled by a thumb screw at butt of stock; a quarter turn of the thumb screw locks the blade in place, will not work loose or slip.

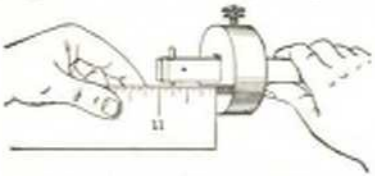
Blade of Disston Steel, bright finish. Slot practically ½ the length of the blade, permits placing blade at any angle desired. One end of blade is rounded, other end cut at an angle of 45 degrees.

Lengths of blade, 6, 8 and 10 inches.

GAUGES

For craftsmen who work regularly in wood, a gauge is a necessary tool for his kit. For marking lines parallel to straight working surfaces and to provide a straight line to guide planing or sawing, or to lay out mortises, tenons, etc., a gauge is the tool to use.

Disston Marking or Mortise Gauges are made from hardwoods, beautifully finished, and built for wear and accuracy in marking. The heads are oval shaped for comfortable grip. Some of the beams have graduated inches, others are plain. Some are adjusted with knurled set screws, others with wing nut screws—a variety of styles.



Plain beam can easily be set with rule

When gauge does not have rule on beam, set and test with a foot rule. (See illustration). Hold the head of the gauge firmly against the front edge of the stock to be marked and score it on the face, pushing the gauge away from you. Keep the spur and line always visible.

No. 83 Cutting Gauge and No. 90 Mortise Gauge are the most popular among craftsmen.

Disston No. 83 Cutting Gauge

The Disston No. 83 Cutting Gauge is made from hardwood, weatherproof finish, oval-shaped head for comfort-

able grip. The stem is plain, not graduated. The cutting pin, through stem, is adjustable and so shaped as not

Scribing with a marking gauge

to follow grain of wood when used; held in position by a flat-head, countersunk screw. The head of a brass screw, placed on end of stem, prevents head from sliding off.

A knurled-head adjustable screw bears against a brass plate in the beam and prevents wear. A brass plate, ¼ inch wide, placed across the face of the head, also prevents wear.

Dimensions of stem, 8⅛x¹¹⁄₁₆x¹¹⁄₁₆ inches. Dimensions of head, 2⅝x2⅜x1 inches.

Disston No. 90 Mortise Gauge

Side view of stem

Stem showing brass plates with movable and stationary pins

The Disston No. 90 Mortise Gauge is made of hardwood, lacquered. A fine, well made tool. The head is oval-shaped for a comfortable grip.

Stem is not graduated. Knurled head thumb screw in end of stem adjusts the scoring pins. The head is adjusted on stem by a knurled-head thumb screw which bears against brass plate in head.

Dimensions of stem, 6⅛x¹¹⁄₁₆x¹¹⁄₁₆ inches. Dimensions of head, 2⅝x2⅜x1 inches.

LEVELS

Carpenters, masons, farmers, mechanics and the handy man around the home will find many uses for a good plumb and level.

Disston makes just the style of plumb and level suited to your particular job —all styles and sizes, and they are accurate and dependable in every respect.

The wooden levels are made from straight-grained hardwoods, carefully selected, air and kiln dried. Some of them have the fixed or locked-type level and plumb glasses, others have the adjustable type, which may be adjusted should rough usage or climatic conditions alter their accuracy. All glasses are proved—have two lines scored on the glass. When the bubble in the glass is in center of these lines the work is perfectly true or plumb. All Disston Levels made from wood have both sides corrugated to afford sure grip.

The Disston aluminum alloy Featherweight Levels are the lightest weight levels on the market, yet exceptionally strong.

Disston No. A-10 Level

The Disston No. A-10 Featherweight Level is a very handy tool for all kinds of leveling. Can be carried in pocket; will not rust or corrode. Made from an aluminum alloy, same material as used in airplane construction; light in weight, but strong. Tapers from center to both ends; glasses are proved; top plate polished, lower plate, edge and center of frame natural finish aluminum alloy.

Length	Width at Center	Depth	Weight Each
9 inches	9/16 inch	1 1/8 inch	2 ounces

The Disston No. A-12 Featherweight Level is the same as the No. A-10, except it is 12 inches long.

Leveling shelf with Disston A-10 Level

Disston No. 255 Plumb and Level

The Disston No. 255 Plumb and Level will be a credit to any mechanic's kit. Rosewood stock, nicely finished, showing the beautiful grain of the wood. Sides are grooved for sure grip. The top plate is nickel-plated. Both plumb and level glasses are proved.

Length, 10 inches; depth, 1⅛ inches; width, 1 5/16 inch.

Disston No. 16 Plumb and Level

The Disston No. 16 Plumb and Level is very popular. It has given complete satisfaction to carpenters and mechanics for years. Both plumb and level glasses are proved, and adjustable. The stock is thoroughly seasoned cherrywood, stained and lacquered; arch top plate; side views. Solid brass ends protect it against rough usage; corrugated sides to afford sure grip.

Made in the following dimensions:

Lengths	Depths	Widths
24 inches	3 inches	1 5/16 inches
26 inches	3 inches	1 5/16 inches
28 inches	3¼ inches	1 5/16 inches
30 inches	3¼ inches	1 5/16 inches

SCRAPERS

Cabinet scrapers play a much more important part in cabinet-making, hardwood floor finishing and in smoothing wood surfaces in general, than their plain appearance would indicate.

Scrapers are used, principally, for smoothing a surface after it has been planed; or smoothing a surface that cannot be planed readily. In refinishing furniture, scrapers are about the only tool that will give satisfactory results. Veneers, generally, are not planed, but are scraped.

A mistaken idea prevails that scrapers should remove only fine dust. If properly sharpened and skilfully operated they will actually plane—remove a fine shaving.

In use, the scraper may be either pushed or pulled. When pushed, the scraper is held firmly in both hands, the fingers on the forward and the thumbs on the back side. It is tilted forward, away from the operator, far enough to prevent chattering. When pulled, the angle of blade is reversed.

The Disston Line of Cabinet Scrapers comprises various styles and sizes, all made from the famous Disston Saw Steel, even gauge throughout, and ground to a perfectly smooth surface. They can be used by hand, in holders, and in scraper planes. The blades are edge holding, made with either straight cut edges, or with edges dressed and ground, ready to be burnished.

Disston No. 120 Acme Cabinet Scraper

The Disston No. 120 Acme Cabinet Scraper is made of extra high-tempered hand saw steel with dressed edges and true flat surface. It is the finest and best scraper made. Used by hand, in holders and in scraper planes. Made 19 gauges thick for regular work; for floor layers, cabinet-makers, golf professionals, etc. Sizes, inches, 2 x 4, 5, 6; 2½ x 5, 6; 3 x 4, 5, 6; 2⅞ x 5, 6.

Disston No. 20 Cabinet Scraper

The Disston No. 20 Cabinet Scraper is similar in shape to the No. 120. It is made of hardened and tempered Disston Steel; plain edges; easy to burnish; 20 gauges thick; for use by hand or scraper planes. Sizes, inches: 2x4, 5, 6; 2½x4, 5, 6; 3x4, 5, 6; 3½x6; 4x5, 6.

Disston No. 50 Cabinet Scraper

Known as the "French pattern". Made of Disston Steel—two straight edges, also concave and convex curves for joinery, cabinet-making and pattern work. 19 gauges thick. 2½" x 5". Edges dressed. Uniformly hardened and capable of taking a smooth cutting edge when properly burnished.

Disston No. 40 Cabinet Scraper

Known as the "Swan Neck pattern", this scraper is very handy and efficient for concave curves in pattern and cabinet-making. The peculiar shape adapts it for use on curved surfaces of varying degrees. Made of Disston Steel, uniformly hardened and edges dressed. 19 gauges thick. Size 3" x 5".

Disston Cabinet Burnishers

Disston Cabinet Burnishers are made in four different patterns. All blades are of highly polished Disston Steel; will turn the edge of cabinet scrapers and other edged tools without defacing the burnisher.

Round hardwood handle, shaped for comfortable grip, varnished; nickel-plated ferrule.

	Blade Length
No. 0 Oval—heavy	6 inches
No. 1 Oval—light	4½ inches
No. 2 Round	4½ inches
No. 4 Square—rd. pt., not cut	4½ inches

Proper way to hold cabinet scraper

SHARPENING SCRAPERS

For Square Edge Scraping

Some cabinet scrapers are supplied with dressed edges, ready for use; others with plain edges which must be dressed before using. In dressing an edge:

1—Place scraper in vise and draw-file on all edges at right angles to face of scraper. This operation will give you a perfectly square but rough edge.

2—Run smooth-cut file backward and forward along the edge of scraper (holding the file at right angles to the scraper's face), until the edge is smooth.

3—Lay scraper flat on oil stone and rub until all edges are sharp.

NOTE: In refitting dressed edged scrapers, follow these instructions also.

For Fast Cutting

To put a fast-cutting edge on a cabinet scraper it must be filed to a 30-degree bevel, similar to a bevel on a chisel. Next, place scraper in a vise and run a burnisher along the keen edge, first at an angle of about 8 degrees and finally at about a 15 degree angle.

Draw-filing edge of cabinet scraper

Then an oil stone should be run along the edge to make it smooth. This puts a hook on the edge which cuts, or shears off the fiber ends that project from the wood after square scraping, and makes a very smooth surface.

The following illustration and accompanying legend will make clear how to put a faster cutting edge on your scraper.

Turning the edge of a cabinet scraper, using a 4½-inch No. 1 Oval Burnisher.
In this manner the steel is first pressed out from the edge, then tipped over slightly, and finally bent at about 15 degrees from the edge.

OTHER DISSTON TOOLS

No. 10 Plumbers' Saw

The Disston No. 10 Plumbers' Saw is a handy tool for plumbers, carpenters and electricians. Specially tempered to cut joists, rafters, flooring, etc., in which nails are embedded; will also cut soil pipe, gas pipe, etc.

Blade of Disston Steel. Reversible and adjustable handle, weather proof finish; carved; nickel-plated cluster bolt and wing nut. Lengths of blade 18 and 20 ins.

No. D-19 Flooring Saw

The Disston No. D-19 Flooring Saw is for general repair work. A favorite with electricians, plumbers and carpenters.

Blade of Disston Steel; 18-inch length; 9 points to the inch; 3⅝ inches at butt. Beginning at about the center of the back, the blade is toothed and curved to the point. Teeth on curved edge are shaped to enter a flat surface.

Weatherproof finished handle; carved, reversible and adjustable to various positions; nickel-plated cluster bolt and wing nut.

No. 166 Pruning Saw

The Disston No. 166 Pruning Saw has taper ground, crescent-shaped blade; reverse teeth. Most popular saw of its type made. Cuts fast. Blade tapers to point for use in close quarters. Disston Steel blade; 8 points to the inch; 1½ inches wide at handle. Hardwood handle; lacquered orange color; three rivets fasten blade in handle. Made in 12 and 14 inch lengths.

No. 38 Pruning Saw

The Disston No. 38 Pruning Saw has crescent-shaped blade, tapering to the point, for work in close quarters. Can be folded and carried in pocket when not in use. Blade of Disston Steel. Taper ground; long, slender, needle teeth. Beechwood handle, lacquered orange color; wing nut and bolt adjustment. Butt end of blade rests firmly against rivet when pruning. Made in 10, 12 and 14 inch lengths.

No. 4 Pruning Saw

The Disston No. 4 Pruning Saw has tapering blade with teeth on both edges. Made for general pruning. Blade of Disston Steel; one edge has plain cross-cut teeth, 8 points to the inch; other edge has patent teeth, known as Lumberman or Lightning pattern, for heavier work. Beechwood handle, weatherproof finish; large handhold for gloved hand. Three rivets fasten blade in handle. Made in 16, 18 and 20 inch lengths.

No. 5 Lopping Shear

The Disston No. 5 Lopping Shear has ample leverage for easy operation. Made in 15-inch size; adapted to light pruning of trees, shrubbery, etc., in close quarters. Arms, blade and hook are forged from Disston Steel. Blade and hook are hardened and tempered. Blade concave ground. Blade and hook held by fine threaded bolt and nut, which permits accurate tension adjustment. Arm and blade and arm and hook are each one piece of steel. Stop lug forged on arm.

Hardwood handles, 8 inches long, lacquered orange and reinforced with one inch ferrules. Ferrules and arms lacquered black. Dimensions: Length of blade, 3 inches; handles, 15 inches.

No. 7 Lopping Shear

Blade and hook are made of Disston Steel, hardened and tempered. Blade is concave ground and takes a keen cutting edge.

The Disston No. 7 Lopping Shear is designed to make a shearing cut. Has long, strong handles. Blade and hook are held in place by a fine thread bolt and fastened with a nut. This permits fine tension adjustment. A stop lug, forged on the hook arm, prevents arms from closing on fingers. The tang on arms pass through handle and washer, then are riveted on ends.

Handles 8 inches long, reinforced by ferrule, orange lacquer finish. Dimensions: hook 2½ inches; arms 26 inches; length overall 28½ inches.

No. 30 Hedge Shear

The Disston No. 30 Hedge Shear is made of best materials, finely finished. Properly balanced; easy leverage.

Blades of Disston Steel, 1⅝ inches wide, half oval, hardened and tempered, hollow ground, full polished; one blade notched for heavier cutting. Tang extends through handle and washer, then riveted at extreme end; nickel-plated ferrule. A bolt screwed into threaded hole in blade tightens blade to proper tension. Bolt is then locked in place by nut.

Handles of natural hardwood, clear lacquer; black lacquer band at ferrule end. DISSTON U. S. A., number and size of shear stamped on handle in gold. Made in 8, 9 and 10-inch lengths.

No. 40 Hedge Shear

The Disston No. 40 Hedge Shear is the most durable, lightweight hedge shear made; easy action, cuts clean. Blades made flat, 1¼ inches wide, Disston Steel, hardened and tempered; full polished, hollow ground. The blade, shank, and tang of this shear is one piece forged steel. Tang extends through handle and gradually widens toward handle end. Handles hardwood, natural finish, nine inches long, fastened to the tangs with three solid brass rivets. 1⅜ inches wide at grip end; taper gradually toward the blades. A bolt screwed into threaded hole in blade is tightened until proper tension is secured, then locked in place by a lock nut. Made in 8 and 9 inch lengths.

No. 156 Professional Pruner

The Disston No. 156 Professional Pruner is one of the finest pruners made. The hook and cutter levers are drop forged from high carbon tool steel. Hook specially heat treated, ground and polished. Blade is of special alloy steel, hardened, tempered, finely ground and highly polished; securely attached to cutter handle with double blind rivets. Equipped with the Disston patented tension adjustment. Drop forged, snap-action, end latch. Shear will not pinch hand. Handles knurled and highly polished. Blued volute spring 8½ inches overall.

No. 127 Home Garden Pruner

The Disston No. 127 Home Garden Pruner is a blade-on-anvil type. Cutter blade cuts against a brass anvil. Anvil can be replaced. Entire pruner nickel-plated, not buffed. Pivot bolt is placed to give extra leverage. Thread and locknut tension adjustment. Spring clip. Handles knurled; blued volute spring. 8½ inches overall.

No. 1105 Grass Shear

The Disston No. 1105 Grass Shear is made from one piece of Disston Steel, full polished, hardened and tempered to retain cutting edge. Ground and set to cut evenly from heel to toe.

Length of blade, 5½, 6½ inches; overall, 12¼, 13½ inches.

No. 47 Garden Trowel

Disston No. 47 Garden Trowel. Blade, post and tang forged from one-piece Disston Steel; concaved the length of blade and tapered to a sharp point; hardened and tempered. 6-inch blade.

No. 545 Wood Saw

The Disston No. 545 Wood Saw is a combination of the No. 500 Frame and the No. 45 Disston Blade. Selected hardwood, stained walnut and varnished; double braced stretcher; double rivet.

Blade has thin back; plain teeth; round breast; blued; 1¾ inches wide; 4½ points to inch. Rustproof Jumbo Rod. Lengths of blade, 30 and 32 inches.

TROWELS

No. 28 Finishing Trowel

The Disston No. 28 Finishing Trowel has improved mounting of specially treated metal that gives perfect balance. Disston Steel blade, hardened and tempered; specially ground. Lacquer finish blade 24 gauges thick. Long mounting securely fastened to blade with ten countersunk rivets; flat thumb rest. Basswood handle, smooth finish. Tang through handle, threaded to receive steel hexagon barrel nut.

Lengths	10½	11	11½	12	inches
Widths	4½	4¾	4¾	5	inches
Mounting	9	9½	10	10	inches

No. 338 Flexolite Finishing Trowel

The Disston No. 338 Flexolite Finishing Trowel is a modern trowel to meet the needs of modern plastering. It has the "California Pattern" handle. Disston Steel blade, hardened and tempered; lacquer finish, 24 gauges thick. Long aluminum mounting, with flat thumb rest, is fastened to the blade with ten rivets. Hardwood handle, smooth finish. Tang extends through handle—end threaded to receive steel hexagon barrel nut and washer.

Lengths	10½	11	11½	inches
Widths	4½	4¾	4¾	inches
Mounting	9	9½	10	inches

No. 15 Pointing Trowel

The only pointing trowel made with a spiral tang for locking the hickory handle to the trowel. Blade, post, and tang are forged from one piece of Disston Steel; hardened and tempered; lacquered.

Lengths	4	4½	5	5½	6	inches
Widths	2⅛	2¼	2⅜	2⅝	2¾	inches

Disston Steel insures the flexibility and durability of Disston Trowels

No. 5 Brick Trowel

The Disston No. 5 "London Pattern" Brick Trowel is true taper ground from heel to point and from center to edges for flexibility; post at right angles to the blade; handle set for proper lift and balance; edges shaped for striking brick. A favorite for brick laying when small mortar joints are required. Blade, post and tang are forged from one piece of Disston Steel; hardened and tempered; lacquered. Hickory handle, lacquered, shaped to hand; strong steel ferrule, 1⅝ inches long. Spiral tang locks handle securely.

Lgths.	9	9½	10	10½	11	11½ 12 ins.
Widths	4⅛	4⅜	4¾	4½	4⅝	4⅞ 5 ins.

No. 10 Brick Trowel

The Disston No. 10 "Philadelphia Pattern" Brick Trowel is true taper ground from heel to point and from center to edges. Post at right angles to the blade; handle set for proper lift and balance; edges shaped for striking brick. This pattern trowel is more universally used than any other pattern. Blade, post and tang are forged from one piece of Disston Steel; hardened and tempered; polished and lacquered. Hickory handle, lacquered, shaped to hand; spiral tang locks handle on trowel; heavy steel ferrule 1⅝ inches long.

Lgths.	9	9½	10	10½	11	11½ 12 ins.
Widths	4⅛	4⅜	4⅝	5	5⅛	5½ 5½ ins.

DISSTON CROSS-CUT SAWS

with Curved Taper Grinding

The Disston Line of Cross-cut Saws has many advantages over ordinary cross-cut saws: New teeth; Curved Taper Grinding; Full Polished Finish—better saws than ever before!

Add to these features, the tough steel, the temper and tension of Disston Saws and you have an unbeatable saw.

NEW TEETH: Long, strong, beveled teeth, with deep wide gullets to prevent choking or binding! Improved filing methods give them a sharp, keen edge which they hold for a long time.

CURVED TAPER GRINDING: In Wide and One-man Saws. Perfected by Disston. Blade is ground so that it not only tapers from tooth edge to back, but also tapers from both ends towards center. This two-way taper adds stiffness where most needed and insures a free-running, fast-cutting saw.

FULL POLISHED: Every saw is polished to a high luster which adds much to its beauty.

The Disston Line of Cross-cut Saws is made in the various standard patterns of teeth. Here are shown some of the popular patterns.

No. 114 Lance Perforated

14-18 Gauge. Made in 4, 4½, 5, 5½, 6, 6½, 7 foot lengths.

No. 152 Champion

14-16 Gauge. Made in 4, 4½, 5, 5½, 6, 6½, 7, 8 foot lengths.

No. 214 Triumph Lance Perforated

Taper Ground 2 Gauges. 3¾" wide. Made in 4½, 5, 5½, 6 foot lengths.

No. 554 Champion One-man

Made in 2½, 3, 3½, 4, 4½, 5, 6 foot lengths.

THE DISSTON Taper Ground line of Cross-cut Saws contains all popular patterns of teeth and lengths.

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CANADIAN FACTORY, HENRY DISSTON & SONS, LTD.

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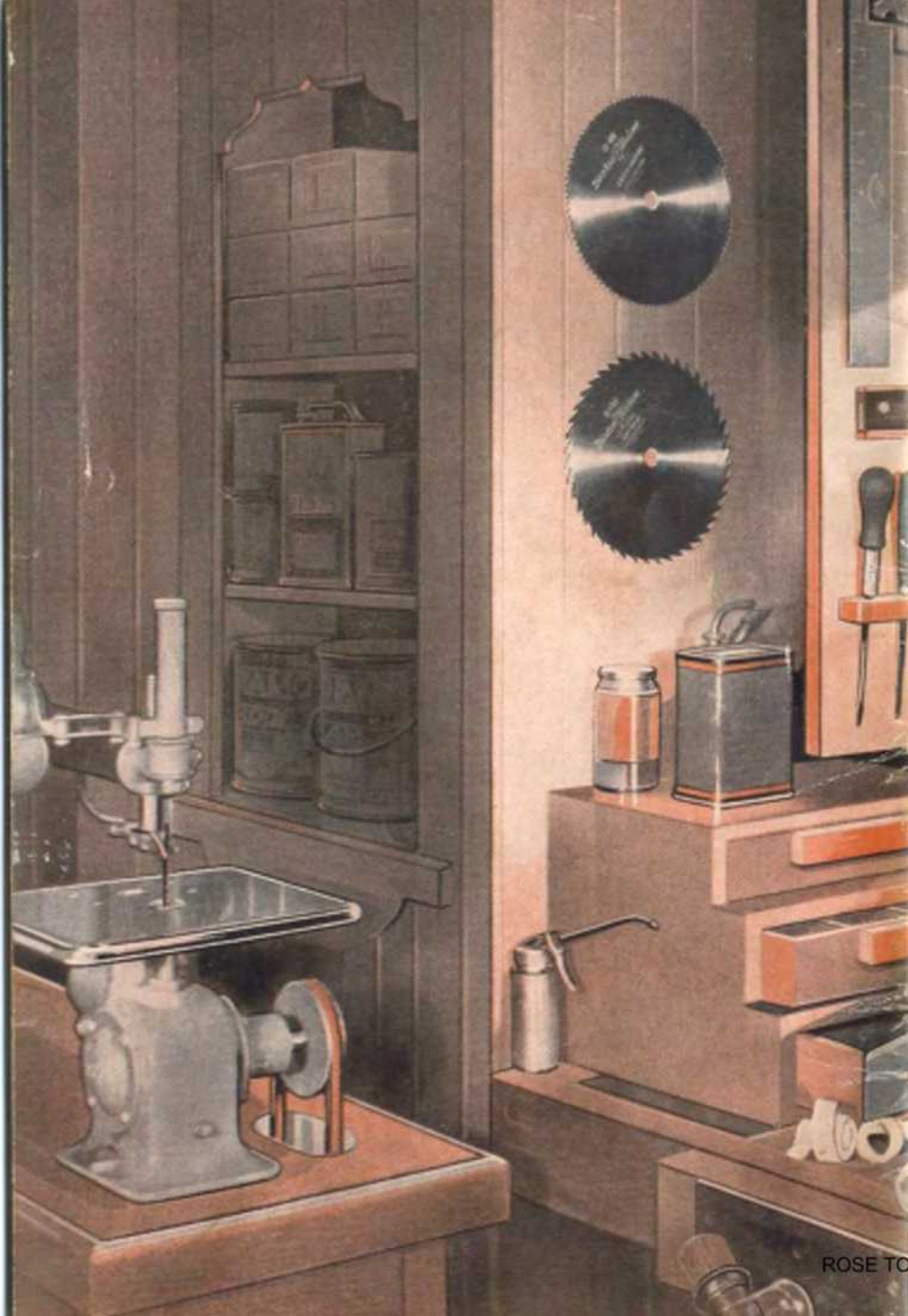
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