

DISSTON

No. 10 Imperial Saw Tool

FOR REFITTING CROSS-CUT SAWS

Also Instructions for Sharpening Cross-Cut Saws

The Disston No. 10 Imperial Saw Tool (See Fig. 1) is a most practical and efficient tool for refitting cross-cut saws; easy to adjust, accurate, reliable, durable. Three operations are made with this one tool—jointing, filing rakers to proper length, and gauging height of rakers.

A set gauge and setting block are supplied with this tool. All are packed in a cardboard box, as is also a combination wrench and screwdriver for adjusting the Imperial Saw Tool.

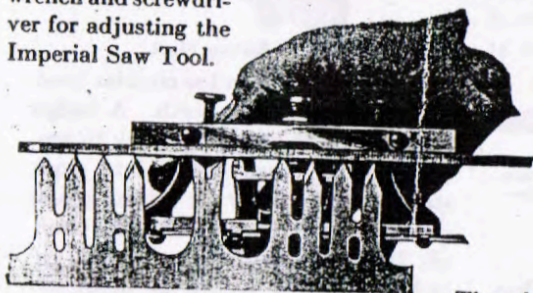


Fig. 2—Imperial Saw Tool Used for Jointing

The frame of the tool is cast iron, unusually light in weight, yet strong enough to meet any requirements in refitting cross-cut saws—just the right size for the hand to grasp comfortably. The slotted raker plate is made to fit over the rakers of any cross-cut saw without coming in contact with the cutting teeth (See Fig. 10, page 4).

The jointing file, which should be parallel in thickness, is placed on two supports, which project from the side of the frame. It is held in position by two knurled-head screws, (See Fig. 2)

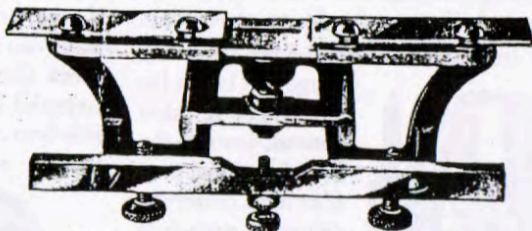


Fig. 1—Disston No. 10 Imperial Saw Tool

about three inches apart. By turning these screws, enough pressure can be put on the file to curve it slightly.

The plates that rest and slide on the cutting teeth of the saw while "cutting down rakers" are made of high-grade tool steel, hardened for durability. Each plate has two slots cut from edge to center to receive button-head screws, which hold the plates in position. Easy to remove and replace.

The raker filing plate is made of steel and hardened to such a degree that the best file will not cut it. This plate is attached to a stem with a screw and lock-nut adjustment (See Fig. 1), which can be raised and lowered easily, and locked firmly in position with wrench furnished.

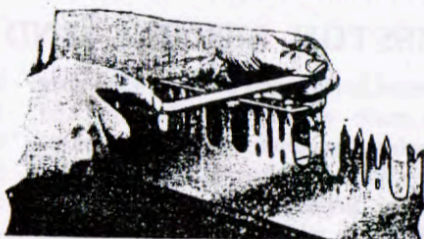


Fig. 3—Imperial Saw Tool Used for Filing Rakers

The raker tooth height gauge (See Fig. 4) comprises a knurled-head adjusting screw (which fits in a tapped hole in a hardened steel bar) and a lock nut. The bar runs the entire length of the tool. It is strong, fastened rigidly to the frame, and once the adjusting screw is set and locked, absolute uniformity in height of rakers is assured, if properly fit to the gauge.

By turning the knurled-head screw the gauge can be set for any height of raker desired, down to the least fractional part of an inch. No screw-driver or wrench is required.



Fig. 5—Keystone Set Gauge

The Disston Keystone Set Gauge (See Fig. 5), a unit of the Imperial Saw Tool, is made of cast iron $3\frac{3}{8}$ inches long, 2 inches at widest point. Weighs five ounces. Can be readily slipped over finger when reconditioning a saw, and hung up when not in use.



Fig. 7—Combination Wrench and Screw-driver

The gauge is furnished with four legs, or bearing points, of equal length, three to rest on blade, the fourth, at top of gauge, to rest on tooth. File enough off of the top leg to give necessary amount of set, from .003 to .008 is common practice.



Fig. 4—Imperial Saw Tool Used for Gauging Height of Raker

If more set is required the top bearing point can be filed shorter. The Setting Block (See Fig. 6), another unit of the Imperial Saw Tool, is made of malleable iron. It has a chilled anvil on one end for setting teeth with a setting



Fig. 6—Setting Block

hammer and a slot in the circular head for spring-setting saw teeth. A wedge projection is on bottom of block to prevent moving when driven into work stump. Very handy for setting cross-cut saws and drag saws. Length overall, $7\frac{1}{4}$ inches; height and width, $\frac{3}{4}$ inch; head, $1\frac{3}{8}$ inches in diameter. Weight, $\frac{3}{4}$ pound.

The combination wrench and screw-driver (See Fig. 7), which is furnished with the tool, is very convenient in making adjustments.

DISSTON SETTING AND SWAGING HAMMERS

Disston Setting and Swaging Hammers are made especially for setting and swaging the teeth of cross-cut saws. They have well shaped, nicely finished hickory handles, approximately $10\frac{1}{2}$ inches long, which are securely fastened

into hardened steel heads (See Figs. 14, 15, and 16). Head of swaging hammers is $\frac{5}{8}$ inch in diameter at ends; setting hammer is $\frac{9}{16}$ inch in diameter at rounded ends. Both are 4 in. long. They are not parts of the Imperial Saw Tool.

HOW TO SET AND FILE CROSS-CUT SAWS

We are well aware that most of the cross-cut saw filers of the large camps of this and foreign countries are very

file and set this saw lacked one, or more, or all of the following essentials: experience, proper tools, instructions and

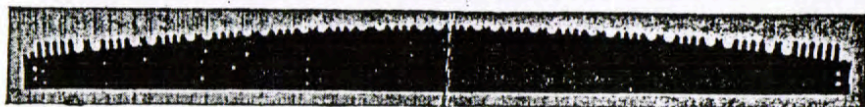


Fig. 8—A Cross-cut Saw sent to Disston for reconditioning after an inexperienced filer had bungled it

exacting mechanics. With them the proper height of rakers, set, swage, and cutting edge of each tooth must be just right. They have reduced cross-cut saw fitting to a science, and they all readily agree that the tools designed and made in the Disston factory have been a big aid to this end.

These filers study the nature of the wood to be cut, the type of saw, and shape of tooth best adapted to cut the wood, and know how to fit the saw accordingly before starting the job. Obviously, then these suggestions are not intended for this class of filers, but for those who have had little or no experience in refitting.

adaptability. The teeth are filed irregular, the set is uneven, rakers too high or too low, and several teeth broken.

We are convinced that there are other users of cross-cut saws, who would have a desperate battle should they try to recondition them. Our only reason for outlining the progressive steps in refitting cross-cut saws, in this leaflet is, to help the inexperienced saw sharpener. It should be borne in mind that saws that leave the Disston plant are set and sharpened for general use. The saw-makers have no way of telling what kind of timber the saws will cut, or under what conditions they will be used. So before buying a saw, make sure it is adapted to the par-

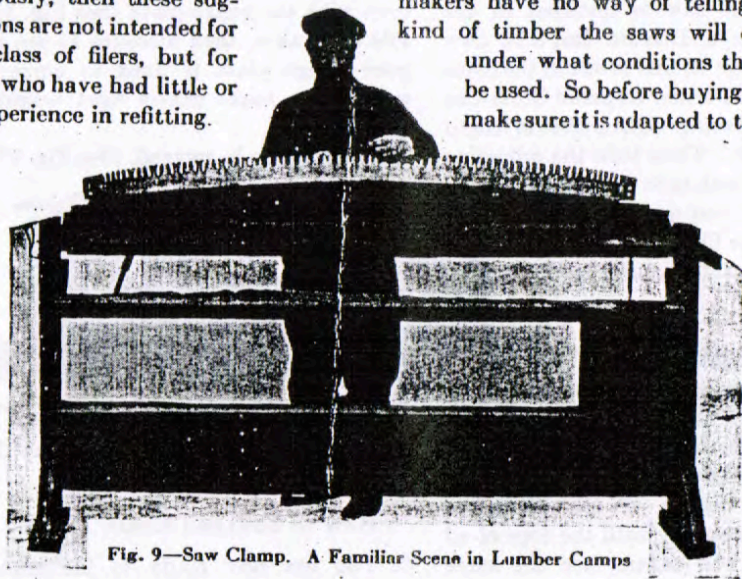


Fig. 9—Saw Clamp. A Familiar Scene in Lumber Camps

Above (See Fig. 8) is an exact reproduction of a cross-cut saw sent to the Disston plant to be reconditioned. It is evident that the person who tried to

ticular wood you are going to cut. If you have no close-hand information, write Disston the particulars. They will gladly advise.

But even though you should get the proper saw for your work, and should it be in the very best condition, constant use will dull it. In course of time it must be set and sharpened.

Cross-cut saws are made in two styles, some with and some without raker teeth. We will use the raker tooth style as a basis for our instructions.

These saws are made in sections of cutting teeth with rakers or cleaners between the sections. The cutting teeth score or sever the fibers of the wood and the rakers or cleaners clean the cut by taking the severed particles up into the gullets, from whence they are carried out of the kerf. Fig. 11, page 5, shows the cutters and rakers at work.

INSTRUCTIONS

(Saws should be refitted, operation after operation, in the order given here.)

1. A clamp, the length of the saw, is essential. If you do not have a clamp one can be made easily of two boards, shaped to conform with the tooth edge of the saw (See Fig. 9), fastened with hinges to the work bench or stand. This clamp should be so arranged as to hold the saw clamped in an upright position, or also, when desired, at an angle of about 30 degrees.

2. After the saw is fastened in the clamp take a Disston Imperial Saw Tool (See Fig. 2) and insert in the place provided, a Disston Imperial Cross-Cut Saw File, seven or eight inches in length (See Fig. 2). Then turn the adjusting screws, on both ends of the Saw Tool, until you notice a slight curve in the file. You are now ready for what is known as the

Jointing Operation

3. With the Imperial Saw Tool in hand (See Fig. 2), file resting on teeth and the lower edge of saw tool resting against the side of blade, pass it over the top of the teeth, the entire length of the blade, as often as necessary, until the tops of all the teeth, and rakers, are the same height. Be sure to hold the saw tool in position indicated, as it is the only way to file tops of teeth level. It is impossible to get good results otherwise.

How to Get Proper Height of Raker Teeth

4. A knurled head screw and lock-nut on the saw tool adjusts the raker height gauge (See Fig. 4). If for unswaged raker (See Fig. 12), set it so that points of raker extend through raker gauge plate (See Fig. 10), $\frac{1}{64}$ -inch if hardwood is to be sawed, and $\frac{1}{32}$ -inch if softwood is to be sawed. Then file the points down even with the gauge plate (See Fig. 3). File one raker, then measure to see if your gauge plate is fixed at correct position to make rakers right height. (See Fig. 4.)

If rakers are to be swaged, (See Fig. 13)



Fig. 10—Rakers Showing Above Gauge Plate in Saw Tool

file them down only $\frac{1}{125}$ " for hardwood, and $\frac{1}{64}$ " for softwood.

How to Sharpen Raker Teeth

5. You are now ready to file raker edges sharp. Lay aside the saw tool and file both sides of rakers from the center to the cutting edges. It is quite important that the face or edge of

the rakers are filed true, level, and square across and that they are not reduced in height. File only to a sharp edge. After being filed, the V in the rakers should have an approximate angle of 45 degrees from center of raker to both cutting edges. Follow instructions carefully or the saw will not run true and there will be difficulty in clearing the "dust" from the kerf.

How to Set the Raker Gauge

There is a raker height gauge on the Imperial Saw Tool, which makes easy the task of getting proper and uniform heights of rakers (Fig. 4 illustrates this gauge).

By turning the head of screw the gauge can be set for any height of raker.



Fig. 12
Unswaged Raker



Fig. 13
Swaged Raker

desired, down to the least fractional part of an inch. A nut securely locks the gauge in position. It does not require a screw driver or wrench to adjust the gauge.

Swaging Rakers

6. The rakers are now ready to be swaged (if swage rakers are to be used). (See Unswaged Raker Fig. 12.) Take the Disston Hammer and strike lightly each edge of the raker. The hammer should cover only about $\frac{1}{8}$ -inch from the cutting edge of the raker back. (See Fig. 14, "Swaging Rakers".)

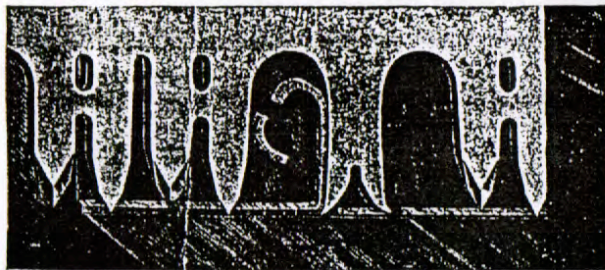


Fig. 11—Cutters and Rakers of a Disston Cross-Cut Saw at Work

The slight strokes will bend the edges downward a trifle. By resting the finger on the tooth you can feel the "hook" being made when the tooth is tapped with the hammer. This hook puts the rakers in proper shape to plane out the kerf. (See Fig. 13). After swaging they should be filed lightly in order to make faces square.

(If the cross-cut to be sharpened has no rakers, disregard what has been said in these instructions about rakers.)

Setting Cutting Teeth

7. When setting the cutting teeth it is necessary to give all of them exactly the same set so each tooth will follow in the same line. For instance, should several teeth have too much set and several teeth have too little set, it means that unnecessary wood is being cut, and useless energy is being expended in pulling the saw through the cut.

How to Use Set Gauge or Spider

It is not difficult to get an even set if the Keystone Set Gauge, or Spider, is adjusted to about .008 inch for



Fig. 14—Swaging Rakers