How to File a Cross-Cut Saw

SIMONDS
SAW AND STEEL CO.

FITCHBURG, MASS.

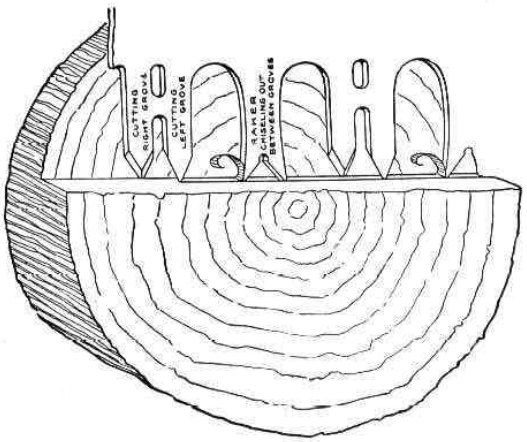
To Cross-Cut Saw Filers

As manufacturers of the universally popular SIMONDS CRESCENT GROUND CROSS-CUT SAWS we believe there is need for a booklet dealing with the correct method of filing and fitting cross-cut saw teeth. We realize that expert filers have worked out their own methods of handling cross-cut saws but they will readily see the help that inexperienced men or beginners can get from such a book and it is for them that this book has been prepared.

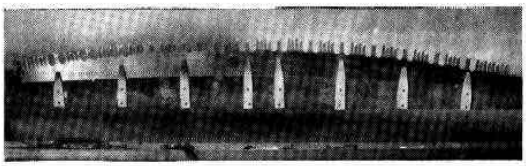
Cross-cut saw teeth must be kept in proper shape to cut the timber and rake out the sawdust. We have tried by picturing the different steps in fitting cross-cut saw teeth and by explaining these to make it possible for any man after a little practice to properly file and set a cross-cut saw.

HOW THE TEETH CUT

There are two kinds of teeth on a cross-cut saw, cutting teeth, and cleaning or raker teeth. Cutting teeth are like small knives. The blades of these knives are so filed that one tooth makes a cut from the right and the next from the left. The raker teeth, cutting like a plane, rake the chips and sawdust into the hollows or gullets between the cutting and raker teeth and carry them out of the cut.



FILING A CROSS-CUT SAW



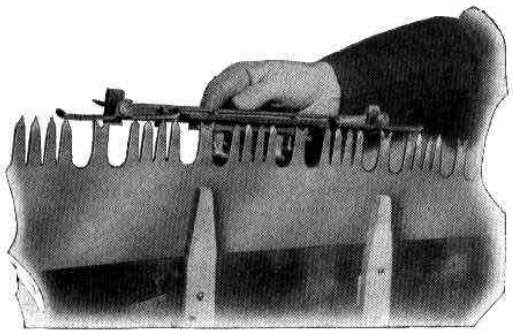
THE FILING RACK

Care should be taken in building a filing rack that it is perfectly straight. It is impossible to set a saw accurately if the rack throws the saw in a twist or kink while setting.

Take a 3 or 4 inch by 10 inch plank and dress one side with a jointer plane, using an 18 inch straight edge on the planed surface till the straight edge shows an exact straight surface from end to end of rack. Length of rack to be determined by length of saws to be filed. Use a drawing knife to trim off rack the same curve as circle on cutting edge of saw.

Take hardwood strips about 1¼ inches wide and ½ inch thick and fasten on rack at every second raker, using either screws or bolts. Put them exactly where raker is, and then they will not interfere with spider while setting saw. Put cardboard or something similar under each cleat just thick enough to let the saw fit snugly.

JOINTING A CROSS-CUT SAW



JOINTING A CROSS-CUT SAW

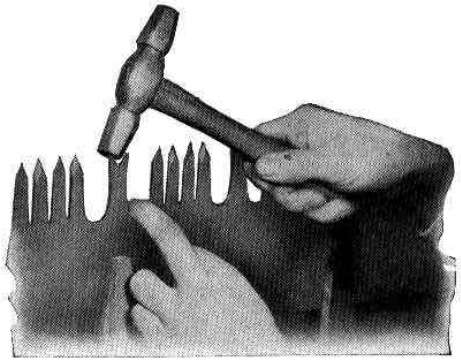
In jointing a cross-cut saw use a Gibbs Jointer, if possible. Simonds dealers handle them, but if one cannot be obtained at a dealer send to any branch house of the Simonds Saw and Steel Co. It is very necessary to use this tool in jointing as it is the only way to keep the circle of the saw uniform. A saw will never run smooth or cut as evenly if there are high and low places on the cutting circle.

When using Gibbs jointer, place jointer on highest place on breast of saw. Loosen thumb screws and let shoes and file rest on teeth. Tighten thumb screws and pass jointer back and forth over full length of saw until file touches all teeth.

This will give an absolutely true joint from end to end of saw.

You will find full instructions enclosed with this tool when purchased.

FITTING RAKER TEETH

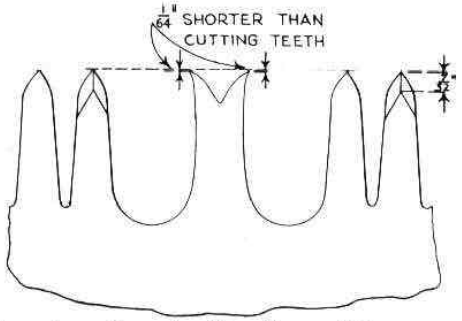


FITTING THE RAKERS

Now take a Simonds 7 inch or 8 inch Slim Taper File, cut down the center of each raker, and file each point (bit) to a good keen edge. Take swaging hammer and swage rakers as illustrated, being careful when striking that raker hammer is held at an angle that will insure a rounded surface on under side of swage. If hammer is held too high a square

kink will appear on outside surface, which is very apt to cause raker point to break off.

If considerable swaging is necessary the rakers should be partially swaged then thinned by using 7 inch or 8 inch slim taper file, rolling file from bottom of raker fork to points, then swaging continued until pin on raker gauge indicates desired length, or rakers may be swaged nearly to pin, and slot on other side of gauge used to finish. If slot is used for desired length file should again be used, rolling file all the way up from bottom of raker fork to a good keen edge.



Have slot adjusted so file will cut off just enough to clear the pin, and no more.

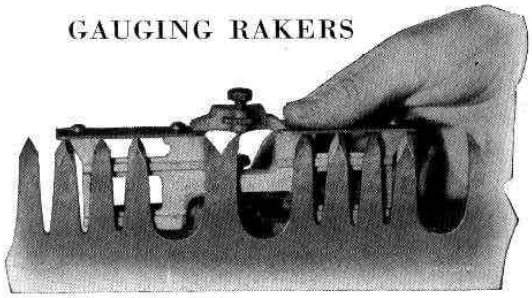
Pin should be set to finish rakers about 1/64 inch shorter than cutting teeth. Be sure rakers are not swaged too flat or they will ride on the heel and not cut out the shavings.

Rakers work exactly the same as a bit on a plane. Therefore if they are too flat or too straight they will not do their work properly.

FILING RAKERS

In filing these teeth, place the adjustable slide in such position on the body of the tool that the raker teeth will project thru the groove in the slide the amount desired, and then file the points even with the hardened surface of the slide.

GAUGING RAKERS

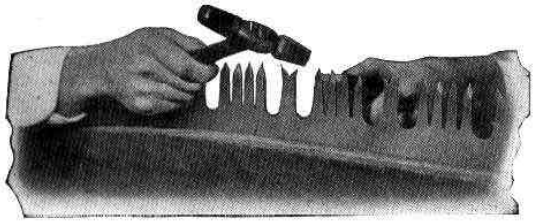


The gauge screw for gauging the length of raker teeth can be set, and by tightening the lock nut can be held in the desired position so that all raker teeth can be made the same length.

FILING THE CUTTING TEETH

When filing teeth special care should be taken that all are brought to a good keen point and no points filed off. It is not necessary to file the points as thin as some may imagine. A point that is too thin may break off or bend when hitting a knot or extra hard wood. The file should be rolled slightly as the tooth is brought to a point. This will give a much stronger cutting edge and saw will run smoother and stay in good cutting order much longer than if a needle point is used.

SETTING A CROSS-CUT SAW



Take a fine Abrasive stone, pass lightly along each side of teeth to take off wire edge. Never use a spring set as you are more likely to spring the whole tooth than near the point where set should be. Place set block firmly against tooth with bevel on set block not lower than ¼ inch from point of tooth. Strike a good firm blow with hammer exactly where two bevels come together on back of tooth. Repeat blow if not set enough until spider fits exactly on all four

legs. If spider shows too much set raise set block above bevel and strike lightly. This will take set out to desired amount.

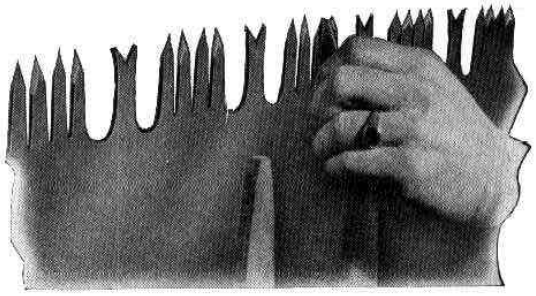
Amount of set must be determined by thickness of back of saw and kind of timber to be cut. A set of about 1/64 inch wider than saw on each side is enough clearance under ordinary circumstances. Set must be absolutely even to keep saw from jumping or scratching.

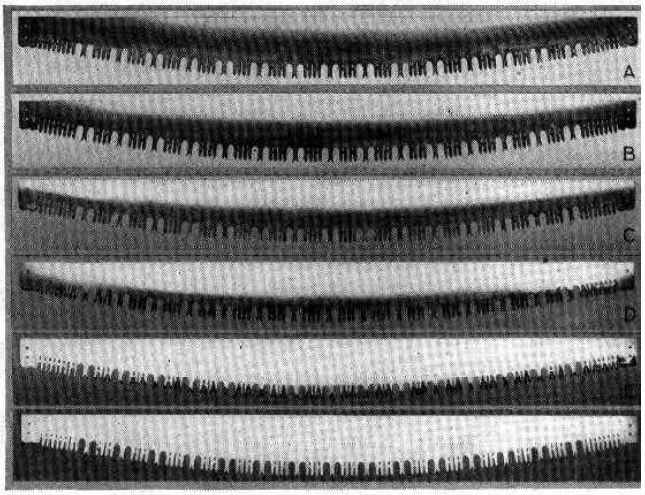
After saw is set go over all rakers again with gauge to be sure they are all even.

Saw should be jointed about every third filing to keep circle true and teeth all a uniform length.

In storing saws that have been in use, use a mixture of one part of cylinder oil to four parts gasoline or kerosene. Apply to the entire surface of saws. Gasoline or kerosene will soon evaporate leaving a thin coating of oil that will keep saws from rusting indefinitely.

REGULATING THE SET





HOW CRESCENT CROSS-CUTS ARE GROUND

Method of Securing Uniform Taper

These six pictures show different stages in grinding a saw. At the top, the process begins. Each picture down the line shows more bright surface, indicating the grinding stone action. The high spots are gradually and uniformly removed from the hardened plate and with each pass over the stones a little more is ground off clear to the back edge.

Thus the taper increases until it extends to the cutting edges, which remain the thickest part of the plate.

As a result:

—teeth and rakers have clean sharp edges.

—the teeth need be set only slightly.

—the kerf is less.

—the power required for pulling is less.

—there is less resistance and therefore more cutting can be done with less work.

The Simonds Crescent Ground Saw is the quickest and easiest cutting cross-cut saw that has ever been made.

SIMONDS ABRASIVE GRINDING WHEELS

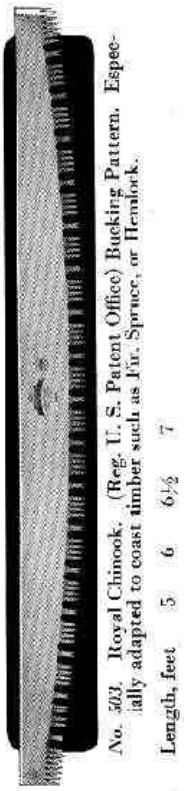
have met with unequalled success in machine shop grinding where cool cutting wheels are required.

There's a Simonds Abrasive Wheel for every class of grinding. Write us about your grinding wheel needs.

(See Addresses Inside Back Cover)

SIMONDS CRESCENT GROUND CROSS-CUT SAWS

(Pacific Coast Pattern)



No. 503. Royal Chinook. (Reg. U. S. Patent Office) Bucking Pattern. Especially adapted to coast timber such as Fir, Spruce, or Hemlock.

Length, feet	5	6	6½	7

No. 513. Royal Chinook. (Reg. U. S. Patent Office) Falling pattern. Used in coast timber. Also suitable and used extensively in Pine timber both for falling and bucking.

Length, feet	5½	6	6½	7	7½	8	10

SIMONDS CRESCENT GROUND CROSS-CUT SAWS

(Pacific Coast Pattern)

No. 507. Redwood Pattern Bucking Saw.

Length, feet 7 7½ 8 only

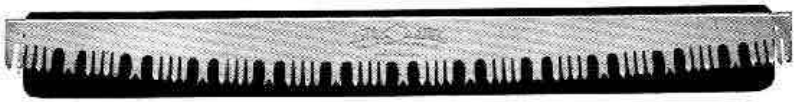
[14]

No. 517. Redwood Pattern Falling Saw.

Length, feet 8 10 12 14

SIMONDS CRESCENT GROUND CROSS-CUT SAWS

(Pacific Coast Pattern)



No. 519. Especially designed for cutting ties, poles, and small timber. The narrow blade and wide gullets make this an easy running and fast cutting saw.

Length, feet 4 4½ 5

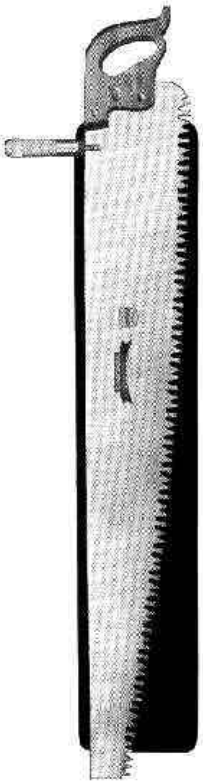
[15]

No. 520. Bucking Saw. General utility medium priced saw. Used extensively on construction work.

Length, feet 5 6 6½ 7

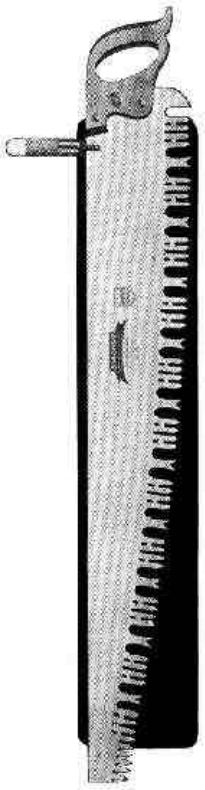
No. 541. Especially designed for use in Pine timber. For either bucking or falling.

SIMONDS ONE MAN CROSS-CUT SAWS



No. 111. Straight Taper Ground. Tuttle Tooth.

Length, feet	3	3½	4	4½



No. 222. Straight Taper Ground. Lance Tooth.

Length, feet	3½	4	4½

SIMONDS
CROSS-CUT SAW HANDLES

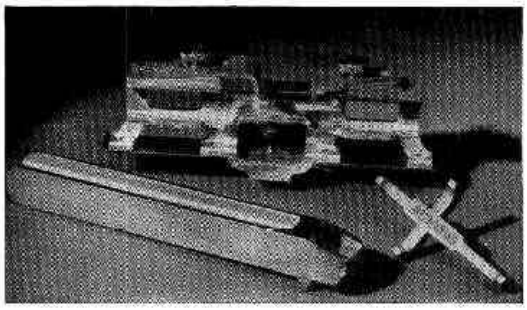
No. 395

Adjustable handle with reversible guard. Weight per case of 50 pairs, 180 lbs.

No. 541

Short Guard Handle

A sturdy handle with short guard for general use.

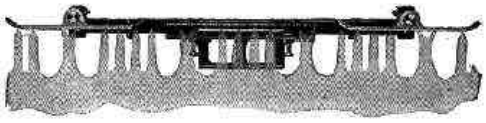


No. 342 SAW TOOL

Here is a saw tool that combines jointer, raker gauge and raker swage pin. A special feature of this tool is the calibrated scale which shows directly each four one-thousandths of an inch raising or lowering of the raker filing rack. All adjustments are easily and quickly made by thumb screws—no tools necessary.

Wearing parts are made of glass-hard steel plates. Packed complete with setting stake, spider gauge and directions for use.

GIBBS CROSS-CUT SAW JOINTER



Can be quickly adjusted to the curvature of any cross-cut saw. Guide shoes cause the jointing file to pass over low spots uniformly, evening off the high spots. Frame is of malleable iron. Shoes are of full hardend tool steel.

No. 333 SETTING HAMMER

Designed by woodsmen for woodsmen, has the balance and just the right weight for easy setting. Hardened faces, shaped so as to set tooth without injuring it. Also an excellent hammer for swaging rakers.

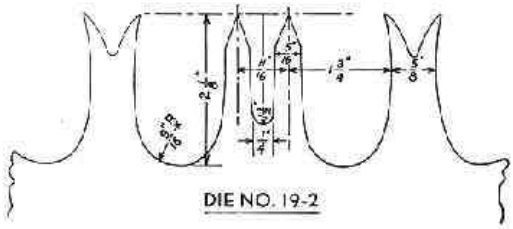
No. 344

Machined Tool Steel Setting Block

Is compact, yet has plenty of weight so that it will back up a good solid blow from setting hammer. Fits naturally in the hand. Beveled faces are hardened to last a lifetime.

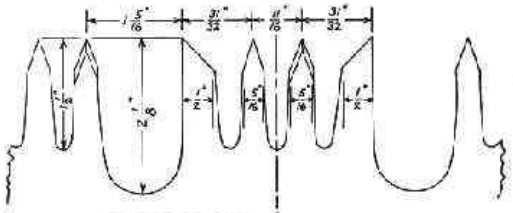
A large percentage of the complaints on cross-cut saws can be traced to improper fitting. You can make sure of doing a better job if you use the proper tools.

SIMONDS DRAG SAWS



DIE NO. 19-2

(Four cutting teeth and raker-Die No. 19-4)



DIE NO.20

FITTING DRAG SAWS

When fitting a Drag Saw, use same method as on Cross-cut Saws, the only difference being, set should be widened to approximately $\frac{3}{64}$ of an inch full and rakers should be cut to about $\frac{1}{32}$" shorter than cutting teeth.

On extra wide blades as used on pond or log deck machines it is necessary to use a wider set and slightly shorter rakers.