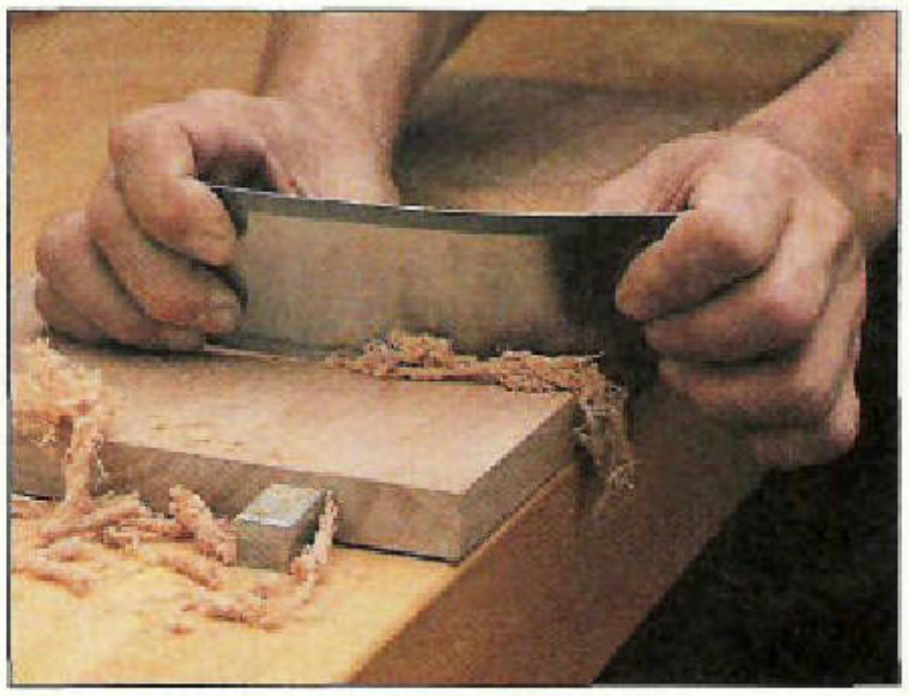
Hand Scrapers

Using and sharpening a scraper doesn't have to be a mystery. It's easy with the right technique.



A hand scraper is the simplest of tools — it's just a thin piece of rectangular steel. However, when it's sharpened and used correctly it can produce amazing results. A scraper can quickly remove burns and planer marks on a workpiece (see photos below). It's also great for smoothing out figured grain and burls.

THE BURR

How can a flat piece of steel be an effective cutting tool? The key is the "burr" you put on its edge. This burr resembles a small hook and runs along the length of the scraper, see drawing in the margin on the opposite page.

By holding a scraper at an angle and pushing or pulling it across a workpiece, this burr cuts a micro-thin shaving much like a hand plane. (For tips on using a scraper, see page 15.)

SHARPENING

For years I used the traditional method to sharpen a scraper to create the cutting burr. This involves three steps. First, file the edge of the scraper square to both sides. Then the edge is honed smooth with an oil or water stone. Finally, a burnisher is used to form the burr. (A burnisher is a hardened steel rod that's fitted into a handle, refer to Fig. 3.)

NO STONE. After wearing a groove in my stone and cleaning up messy honing oil for years, I decided to skip the second step — I stopped honing the edge of the scraper with a stone.

Granted, using the stone to hone the edge creates a slightly sharper burr — but only for the first couple of strokes of the scraper. Then things even out. And not using a stone makes the sharpening process *much* faster. (For instructions on this two-step method, see the next page.)

BEVELED EDGE. Just when I was feeling confident that I had found *the* way to sharpen a scraper, Ken Munkel (our design director) showed me another method he's been using for years.

With Ken's method, the edge of the scraper is beveled before it's burnished. This makes it easier to "roll" the edge and create the burr. And the angle of the burr lets you hold the scraper in a more vertical position (which some find more comfortable).

The problem with this method is the burr doesn't have as much steel to support it. Which means the burr tends to dull quicker. Also, this method limits you to one cutting edge on each side instead of two. (For more on Ken's sharpening method, see page 14.)

▲ **Burn Marks.** *A hand scraper is the tool I reach for most often to remove stubborn burn and saw marks.*

▲ **Planer Marks.** *Hand scrapers can be used to quickly remove the ridges or marks left by a planer.*

▲ **Highly-Figured Grain.** *Smoothing highly-figured grain and burls is one area where a scraper has no equal.*

Two-Step Sharpening

My two-step method is used on a scraper with a square edge (not beveled). The two steps to producing a sharp burr are filing and burnishing. Filing ensures a clean, straight edge on the scraper, and burnishing creates the cutting burr.

FILING

The first step is to file the edge square. To do this, I use a smooth mill file and clamp the *file* in a vise, see Fig. 1. (Note: If you're working with a metal vise, protect your file by clamping it between a pair of wood scraps.)

Then, hold the scraper 90° to the file and slide it the length of the file, see Fig. 1. Repeat this until you get a straight edge the entire length of the scraper.

WIRE EDGE. After you've filed the edge straight, the next step is to remove the rough wire edge, see Fig. 1a. This is easy to do — just lay the scraper flat on the edge of your workbench, see Fig. 2. Then, place the file flat over the edge of the scraper and rub it back and forth.

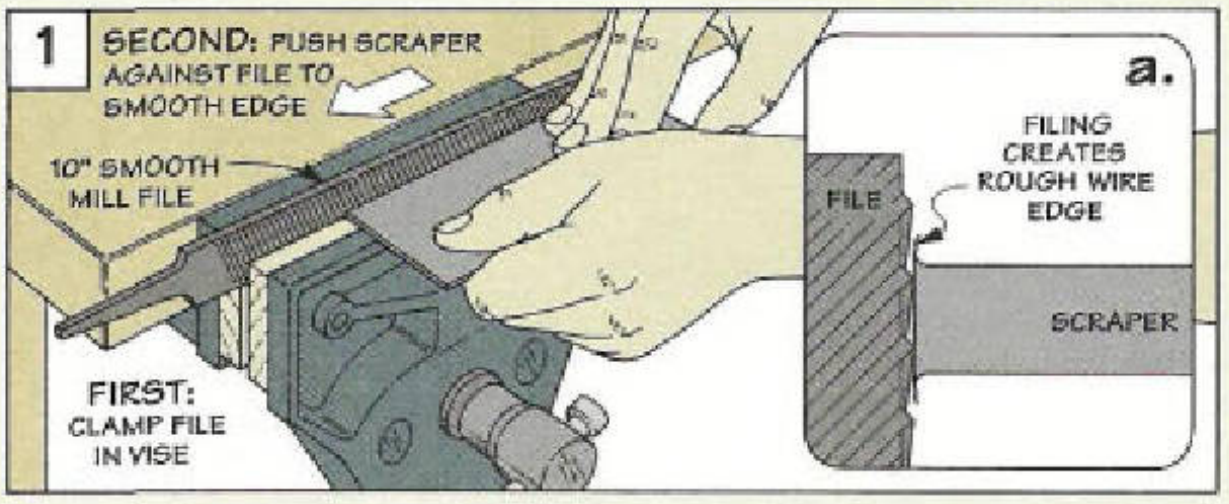
BURNISHING

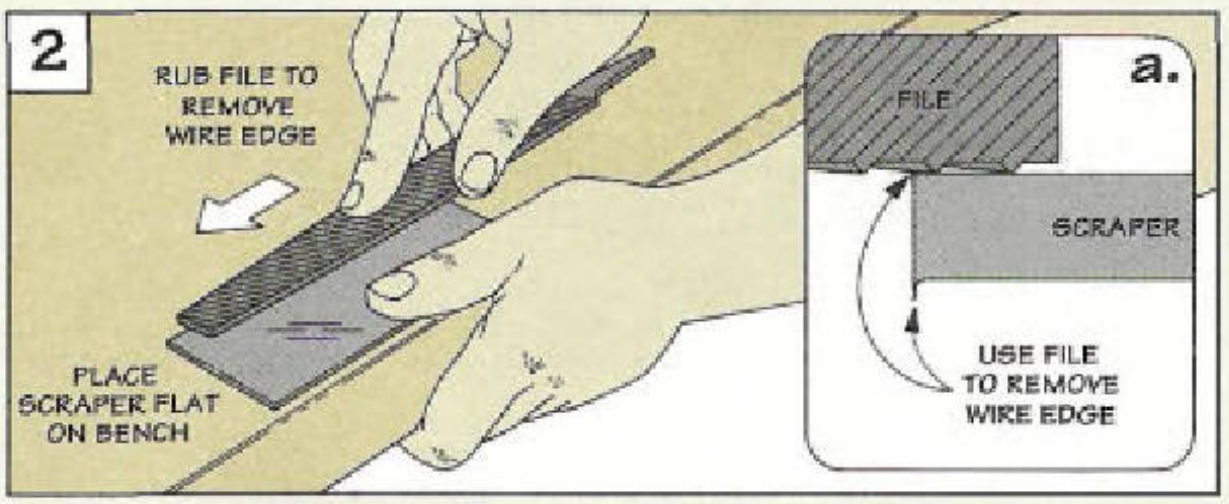
With the wire edge removed, the scraper can be burnished. Burnishing the edge of a scraper compresses the steel along the edge causing it to "flare out" slightly, see Step 1 in Fig. 3. This flare is then bent over to form the cutting burr. I do this with a burnisher, see Steps 2 and 3. (See page 31 for mail-order sources for burnishers and scrapers.)

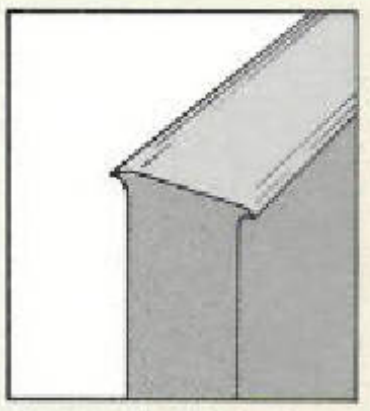
To burnish the scraper, start by clamping the scraper in a vise. Then, hold the burnisher square to the sides of the scraper and bear down. Now take a couple of strokes along the edge to compress the steel. Note: This takes considerable pressure. To make it easier, I use an auxiliary handle, see box below. Or use the jig shown on page 14.

ROLL THE BURR. Once the edge is compressed (Step 1), the next step is to roll the burr. To do this, hold the burnisher at a slight angle and bear down as you slide the burnisher along the edge, see Step 2 in Fig. 3. Then increase the angle a little and take another stroke, see Step 3 in Fig. 3.

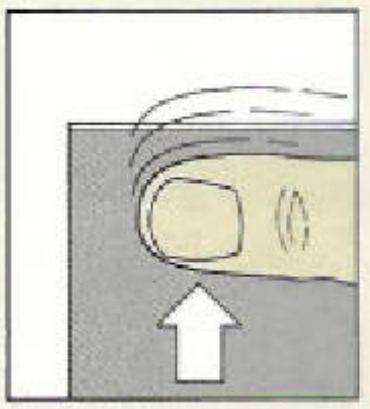
FEEL THE BURR. The burr is small, almost too small to see. So after a few strokes, *feel* along the edge to see if the burr is uniform. If it's not, take another stroke. With one edge rolled, you can now sharpen the other edges.



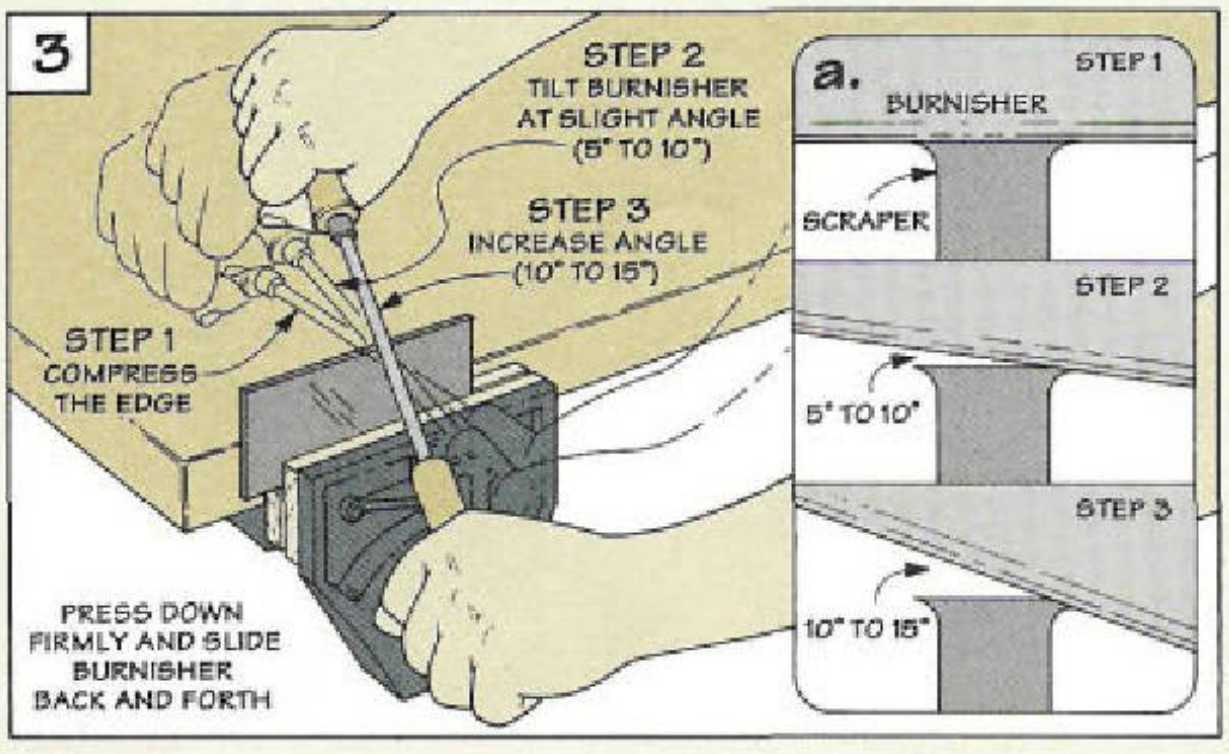




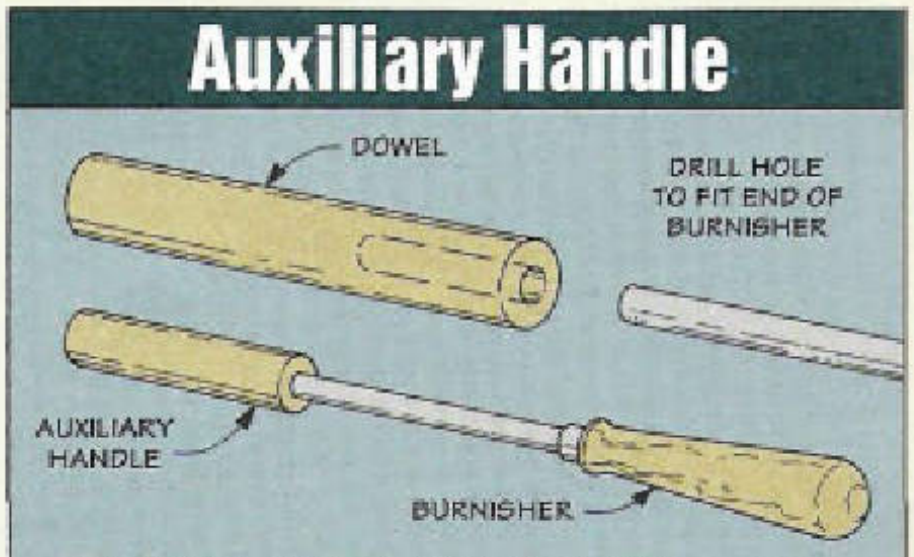
The rolled burr on a square edge scraper provides the cutting action. One advantage to this method is you can roll a burr on both edges.



To feel for the burr, move your thumb perpendicular to the edge.

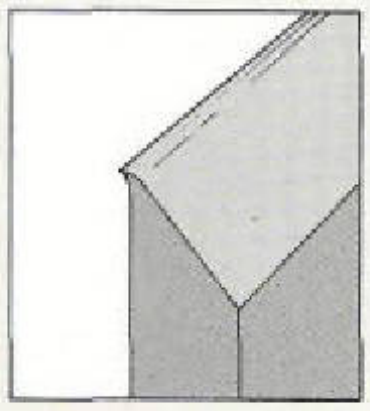


Auxiliary Handle



For better control when burnishing, use an auxiliary handle cut from a dowel with a hole in it to fit over the rod on the burnisher.

Bevel Edge



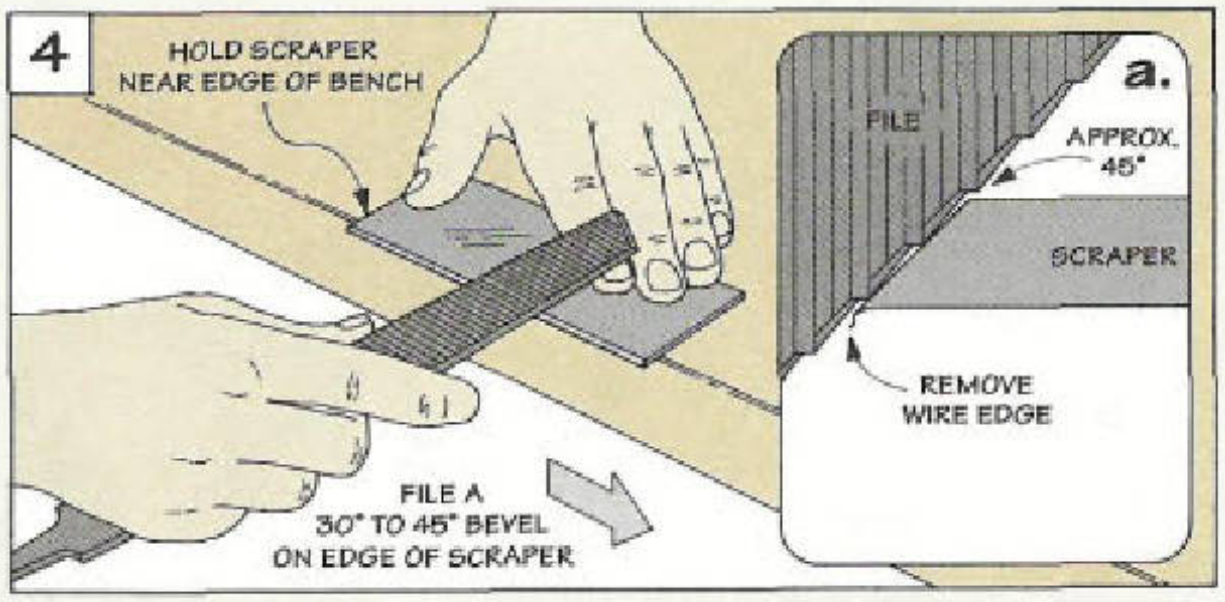
A burr is easier to roll on a beveled edge than on a square edge. The acute angle creates a burr that's sharp, but fragile.

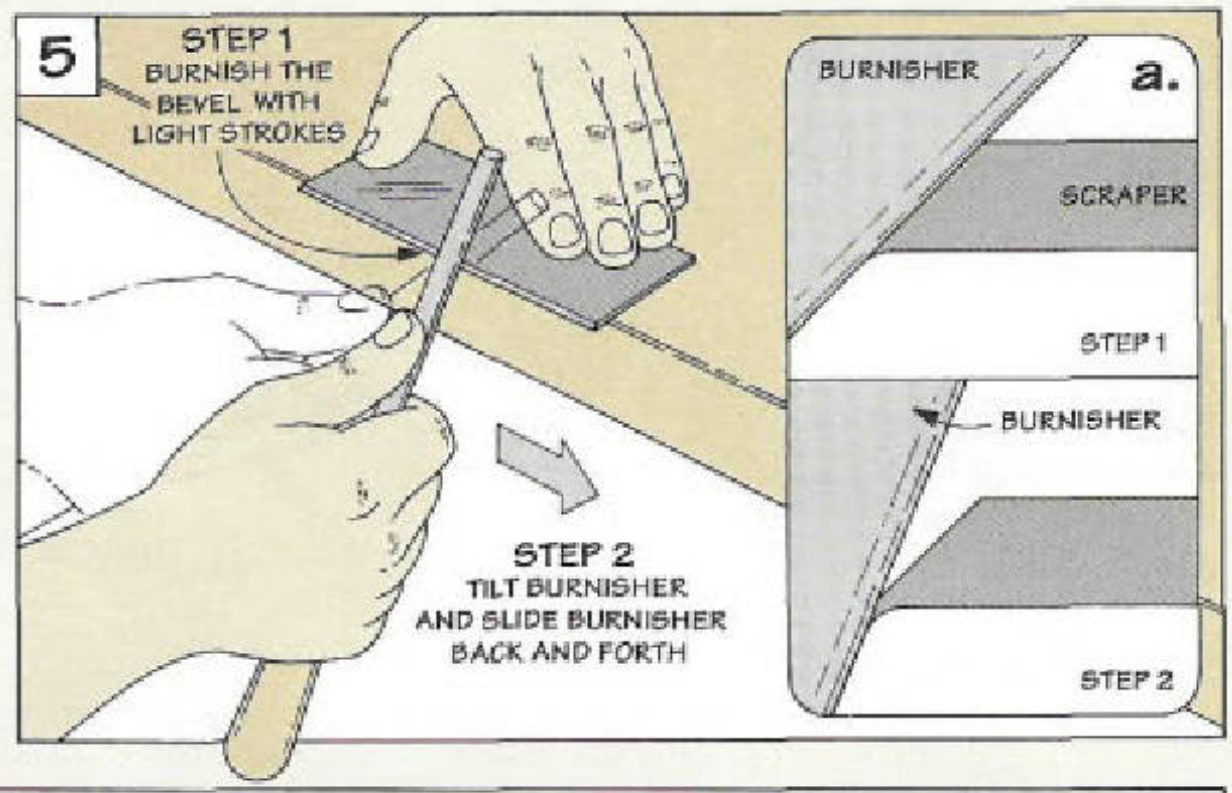
I have to admit that I was a bit skeptical when Ken first showed me his sharpening method. But then I watched him sharpen a scraper in just a few minutes. And when he used it to cut delicate shavings, I was impressed.

BEVEL THE EDGE. Ken starts by filing a bevel on the edge of the scraper. The trick is to hold the file at about 45° and use firm strokes to create the bevel, see Fig. 4. (Note: The angle isn't critical as long as it's consistent and you file the edge to a point.) After the bevel is filed, flip the scraper over and remove the wire edge.

BURNISH THE EDGE. To remove the marks from filing, take a few light strokes with the burnisher held at the same angle as the bevel, see Step 1 in Fig. 5.

Then roll the burr with the burnisher held at about 15° to the bevel, see Step 2 in Fig. 5. Note: Since it's very easy to roll a burr on a beveled edge, check the burr after making a single stroke.



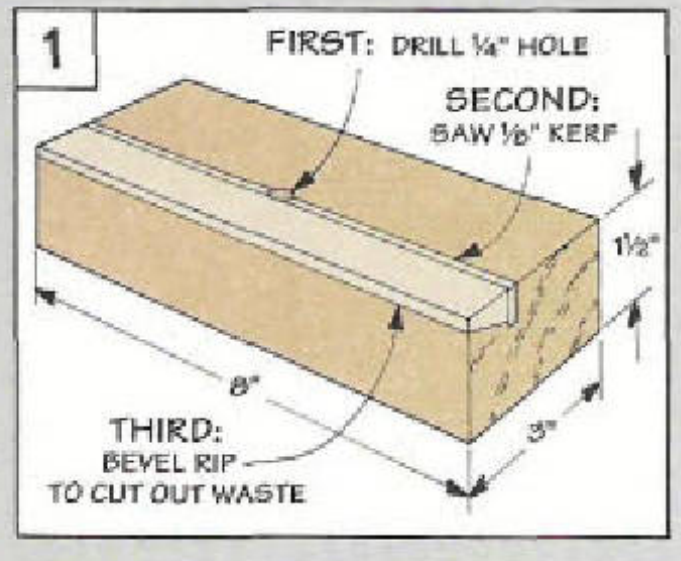


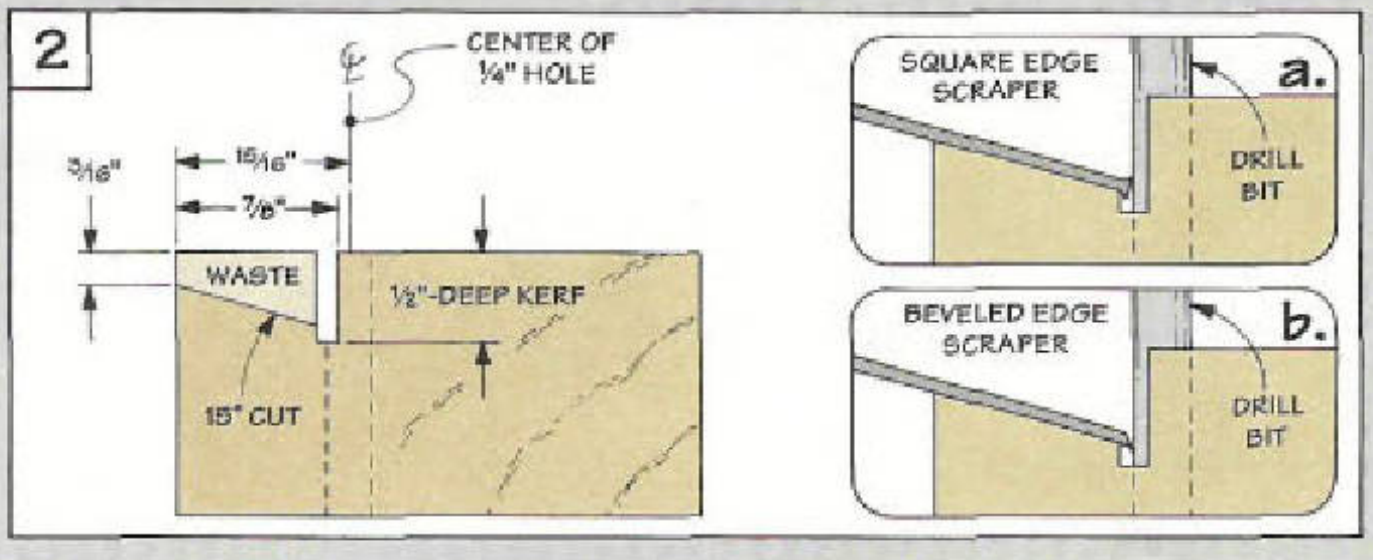
Burnishing Jig

The hardest part of creating a burr on the edge of a scraper is holding the burnisher at a consistent and correct angle. One solution is a simple jig made from a piece of scrap wood and a drill bit, see photo.

To make the jig, start by drilling a ¼" hole in a piece of 1½"-thick stock. (The hardened steel drill bit will also serve as the burnisher.) Then cut an angled rabbet so the drill bit protrudes slightly.

To use the jig, simply run the edge of the scraper over the drill bit to produce a uniform burr. Note: This jig works equally well on either square edge or beveled edge scrapers, see Figs. 2a and 2b.





Using a Scraper

No matter which method of sharpening you prefer, it also requires a little finesse to get a scraper to cut shavings rather than just scrape up sawdust. It's just a matter of flexing the scraper into a slight bow while pushing or pulling it across the workpiece, see Fig. 6.

The bow prevents the sharp corners of the scraper from digging into the workpiece, see Fig. 6a. And it also allows you to take a "feathered cut" — one that's *slightly* deeper in the center. This is particularly useful on wide boards where cuts overlap.

PUSH OR PULL

Whether you push or pull is really a matter of personal preference. Pushing a scraper allows you to use your body weight which helps remove stock quickly. And some people find it easier to keep the scraper flexed to a uniform bow when they push a scraper.

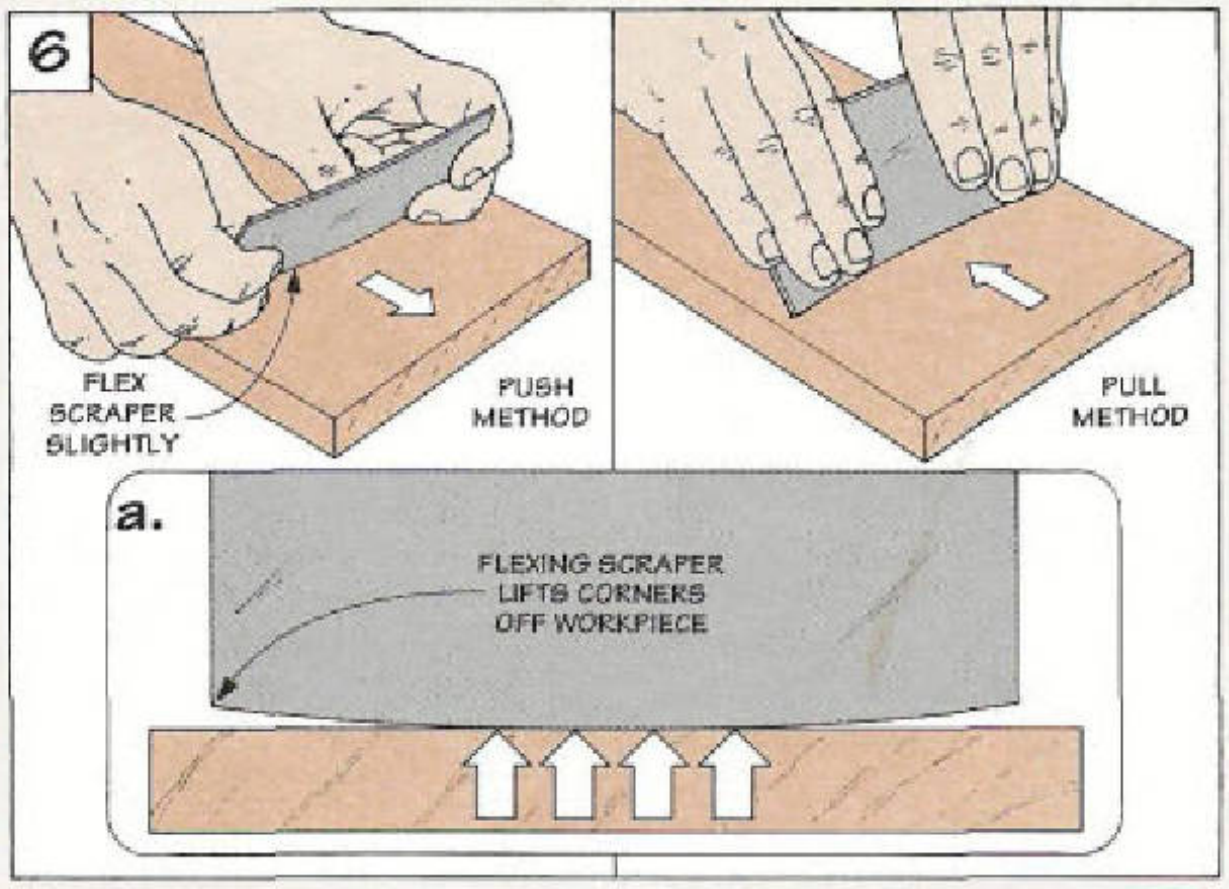
But I've found that pulling a scraper offers more control of the cut. That's because you can pull the burr gradually into the surface of the workpiece. Granted, it doesn't remove the stock as quickly, but I'd rather take a shallow cut and be in control.

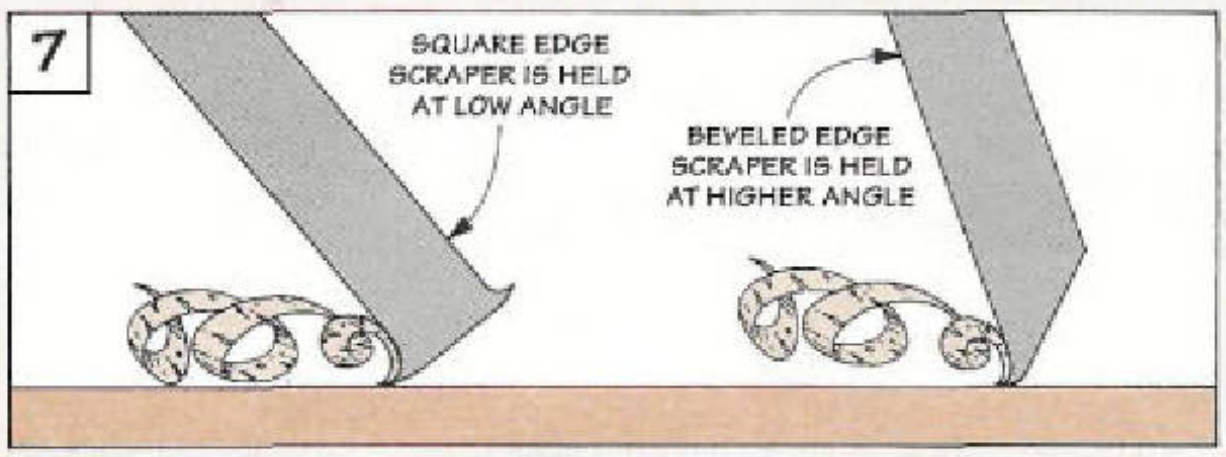
FIND THE ANGLE

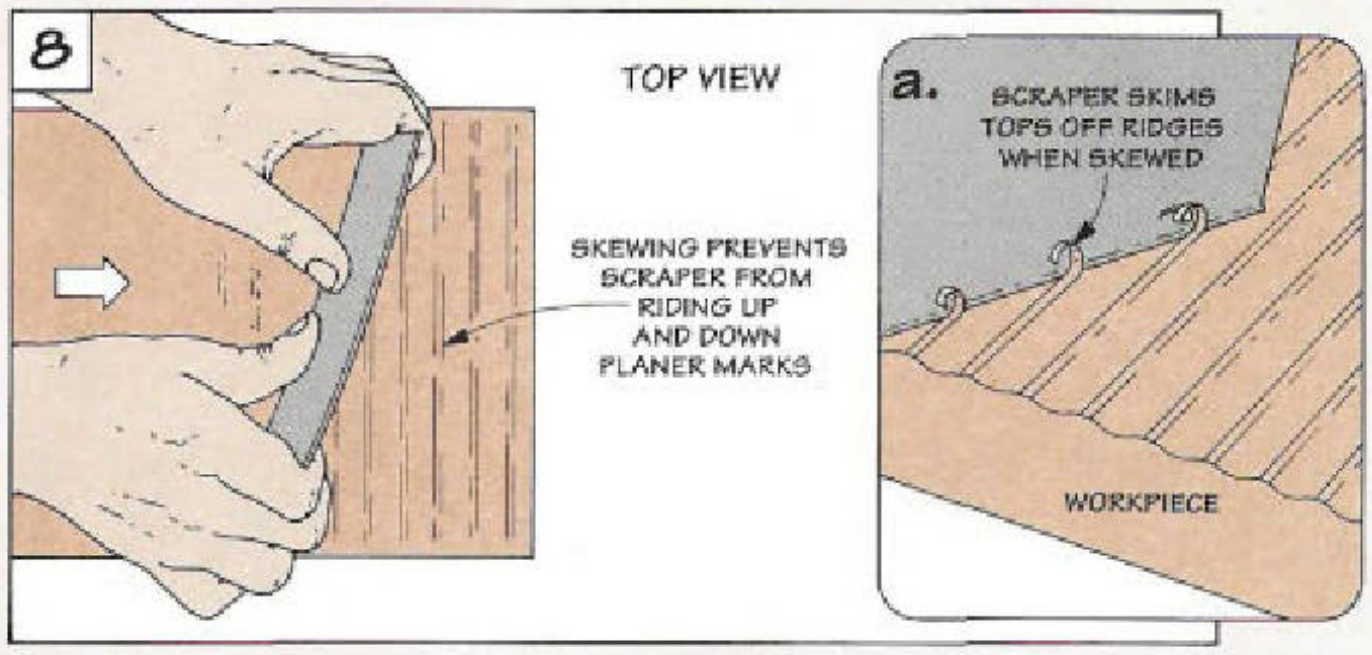
What matters the most is finding the angle where the scraper will produce delicate shavings instead of dust. And finding this angle is simply a matter of trial and error.

The angle that you use will depend on the burr on *your* scraper. Since the burrs are formed differently, a scraper with square edges is held lower to the workpiece than one with beveled edges, see Fig. 7.

Note: Whenever you resharpen a scraper, you'll need to find the new holding angle where it will produce shavings.







Don't be misled by the name. A properly sharpened scraper cuts a shaving rather than scraping up sawdust.

SKEWING THE SCRAPER

One last trick that I use is to "skew" the scraper to the workpiece. This works especially well when removing planer marks, see Fig. 8.

If you hold the scraper parallel to the planer marks, it tends to ride up and down the marks like a roller coaster, leaving a surface that's smooth but uneven.

Skewing the scraper cuts down the peaks and leaves a smooth, even surface. The skewed angle also creates less friction when you're scraping. Which means a cooler cut with less effort. And skewing a scraper helps prevent the burr from clogging up with shavings. The shavings curl and slide out the end of the scraper.