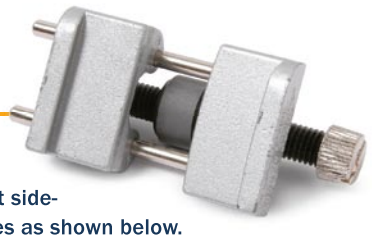
Get Sharp—*Fast*

Lie-Nielsen's sharpening expert shares a surefire method for getting a keen edge every time

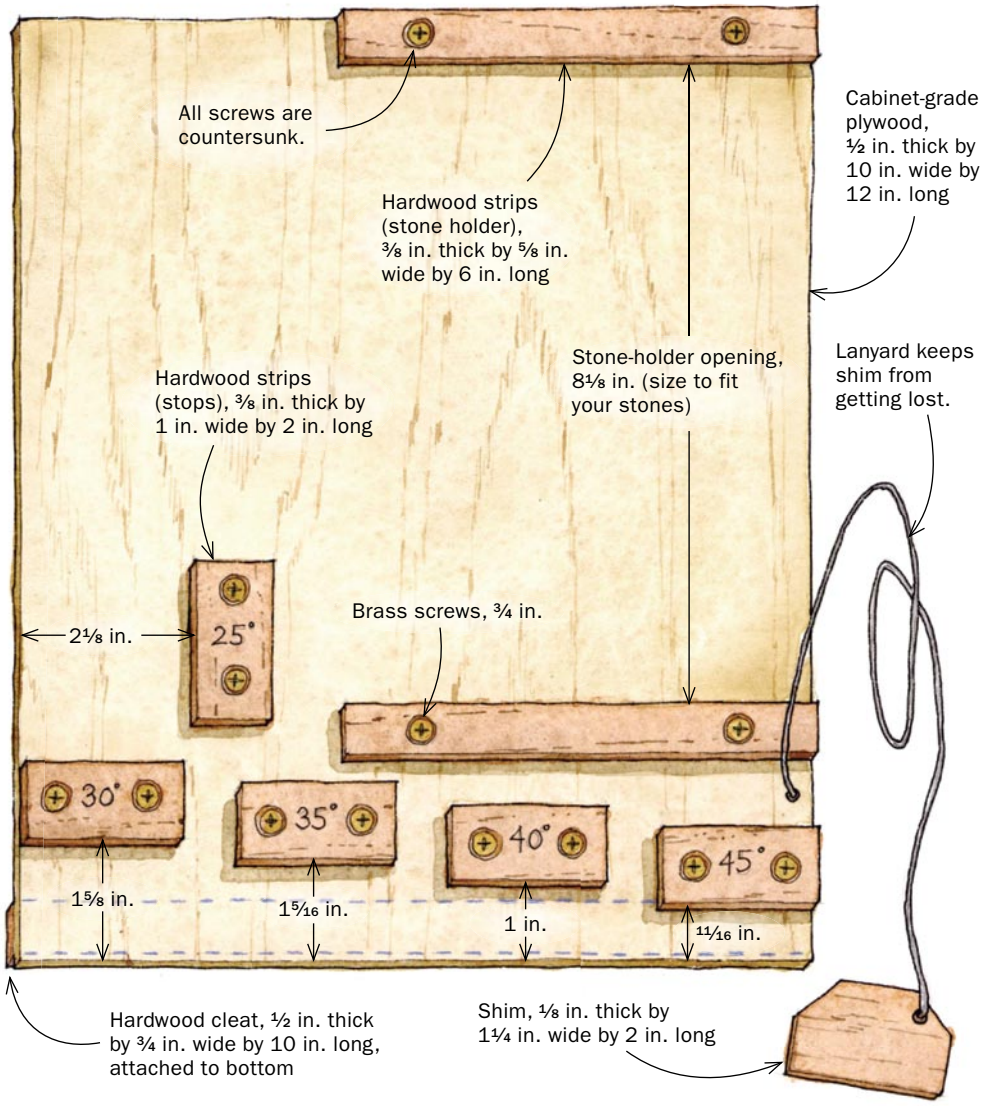
BY DENEB PUCHALSKI

Photos: Steve Scott; drawings: Jim Richey

AN ALL-IN-ONE HONING STATION



A board with multiple reference stops is a great way to set honing angles reliably. This compact jig also supports your sharpening stones. The measurements shown give approximate angles for most side-clamping honing guides. For best results, set your own stop distances as shown below.



For many woodworkers, sharpening plane irons and chisels is an intimidating and frustrating task. I've traveled the country teaching and demonstrating sharpening and hand-tool techniques for Lie-Nielsen Toolworks for the past nine years, and I've met plenty of woodworkers who struggle to get a consistently sharp edge on their tools and are convinced that sharpening is beyond their reach.

Sharpening doesn't have to be difficult and mysterious. The method I'll show you combines ideas I've picked up over 25 years of working with hand tools. I've demonstrated it countless times.

The heart of this approach is a collection of simple tools: a $15 side-clamping honing guide, a supply of sandpaper in several grits, 1,000- and 8,000-grit waterstones (or a combination stone if you like), a thin metal ruler, and a shopmade stop board that will help you quickly and reliably set the correct honing angle every time. With these tools, you can handle the most common sharpening tasks—honing, grinding, and repairs—for every kind of blade.

Using this method, you'll get a truly sharp edge, allowing your tools to cut more cleanly and efficiently with less effort.

Start with a time-saver: The ruler trick

Many woodworkers buy a high-end handplane with the idea that their woodworking will get better. It's true that a better tool

SET YOUR OWN ANGLES

To locate a stop at the correct distance for a given angle, place an iron in the honing guide and use a protractor to set the angle. Then, butt the guide against the board and place the stop against the iron's edge. Use brass screws to secure the stop parallel to the edge.

Shim adjusts angles. *The ⅛-in.-thick shim adds about 2° to shallower angles and up to 5° to steeper ones.*

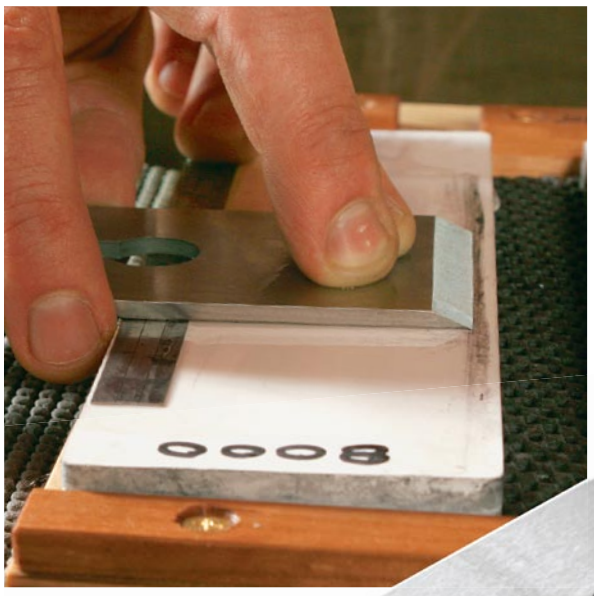
Why I like waterstones

You can use this technique with any abrasive. I like waterstones, 1,000 and 8,000 grit, specifically the new Shapton glass-backed stones. These stones cut aggressively but have a ceramic binder holding the stone together, so they only need to be spritzed with water. Don't soak them as you would a regular waterstone; they will soften and can be ruined. You may also want a 4,000-grit stone for occasionally lapping the back of a plane iron or chisel. Keep your stones flat for consistent results. This is easily done by lapping frequently with a coarse wet-or-dry paper (150 to 220 grit) on a flat reference plate, granite or glass, or a coarse diamond lapping plate (45 to 55 micron). Also, be sure to wipe off the roller of your honing guide before switching stones, to avoid transferring grit from one to another.

Keep your stones flat. *Lap your sharpening stones often with a diamond plate or coarse wet/dry sandpaper on a flat surface. Do this often and it will be less work each time.*

A new blade only needs honing

HONE JUST THE TIP OF THE BACK



Tiny ruler is a huge time saver. *Lifting the iron's back off the stone lets you polish only a thin band at the cutting edge, instead of the entire back. The work is done with just 10 to 20 passes on an 8,000-grit stone.*

makes for a less frustrating experience. But although you may think a new plane is ready to go right out of the box, think again. Even a new tool should be sharpened before you put it to wood.

A brand new, high-quality plane iron should have a flat back. If it doesn't, or if you're working with an older iron, flattening is a must. Fortunately, this should take no more than 5 or 10 minutes using the sandpaper technique shown on p. 46. Your goal is not a high polish but simply a flat back with no heavy milling marks running to the cutting edge. This is because, once I have the back flat, I use David Charlesworth's ruler trick to create a subtle bevel on the blade's back. The ruler trick puts the honed surface at the cutting edge where it belongs and eliminates the tedium of polishing the entire back.

Here's how it works: Place a thin metal ruler (0.020 in. thick or less) on one side of the 8,000-grit stone. Now place the back of the blade on the ruler and lower the blade's tip onto the stone. Work it up and down until you can see an even mirror polish about 1⁄32 in. wide, from corner to corner, at the edge of the blade. Now you're ready to hone the bevel.

The typical bevel-down smoothing plane blade comes with a primary bevel of about 25°. There's no need to hone the entire primary bevel to get a sharp edge, though. It's more efficient to create a small, steeper secondary bevel right at the cutting edge. For the most common primary bevel of 25°, a secondary bevel of 30° works well.

I use steeper angles with scraper planes, as well as bevel-up tools for working in hard, highly figured woods. The harder the wood, the higher the angle.

How to find and hold the right angle

To hone the secondary bevel, I use a honing guide. Some woodworkers call this cheating. As someone who learned long ago to sharpen freehand, I say it's not. A honing guide holds the blade at a consistent angle as you work the edge and move from stone to stone. The secondary bevel remains flat, and each successive grit reaches all the way to the tip of the edge.

SAME GOES FOR THE BEVEL

Honing on the 1,000-grit stone removes a narrow band of metal near the cutting edge. A few passes on the 8,000-grit stone creates the highly polished surface needed for a sharp edge.

I use a simple, side-clamping honing guide. To set the angle consistently, I constructed a stop board (see drawing, p. 43), which consists of a plywood base and several stops to set the blade a certain distance from the front of the guide. The shorter the distance, the steeper the honing angle. My board has stops for five common angles: 25°, 30°, 35°, 40°, and 45°. I also use a ⅛-in. shim to increase an angle at any of the stops. With a long projection like 25° to 30°, ⅛ in. represents roughly a 2° increase in angle. With a short projection like 45°, the same ⅛ in. represents about 5°.

Honing takes less than a minute

Set the blade to the correct angle and tighten the guide so the blade won't shift. Begin with the 1,000-grit stone, working back and forth and applying even pressure. After four or five passes, you should be able to see and feel a burr or "wire edge" on the back of the blade. This burr indicates that you have removed the dulled edge and it's time to change stones.

Before sharpening on the 8,000-grit stone, wipe off the roller wheel of the honing guide so that you don't transfer grit from stone to stone. To ease off some of the burr, take one pass on the blade's back, drawing the blade toward you. Now work the bevel side, taking another four or five passes. When you see a clean and brightly polished parallel line right at the blade's tip, you are done. However, if you applied uneven pressure on the blade, the polish line will be wider at one corner than the other. This can be corrected easily on the 8,000-grit stone by placing extra pressure on the narrower side with just a few more strokes. As a final step, remove the blade from the honing guide and touch up the back using the ruler trick to fully remove any burr that is still present.

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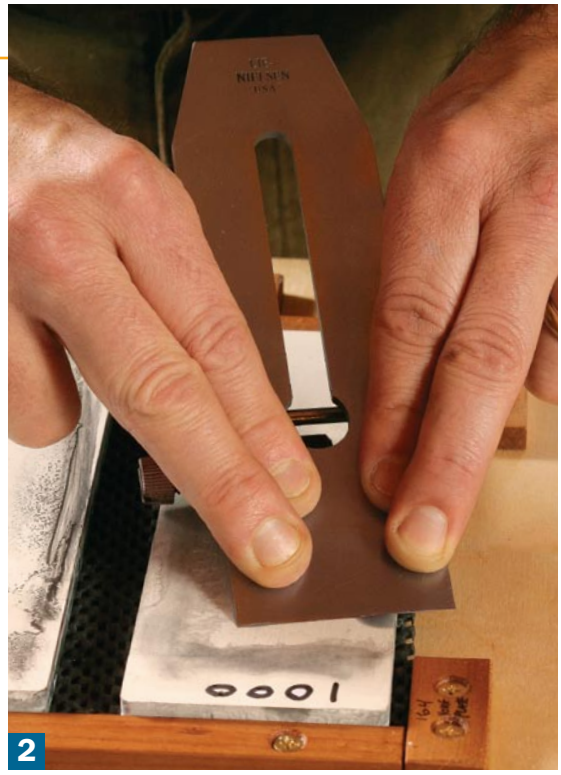

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This should take only a minute. *Use the 30° stop on the board to set the iron in the honing guide (1). Four or five passes on the 1,000-grit stone should be enough to raise a burr on the iron's back (2). Take a handful of passes on the 8,000-grit stone to create a highly polished narrow band at the tip (3). Finally, repeat the ruler trick to remove any remaining burr on the back (4).*

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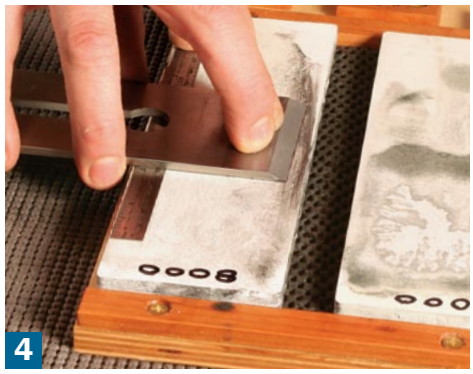

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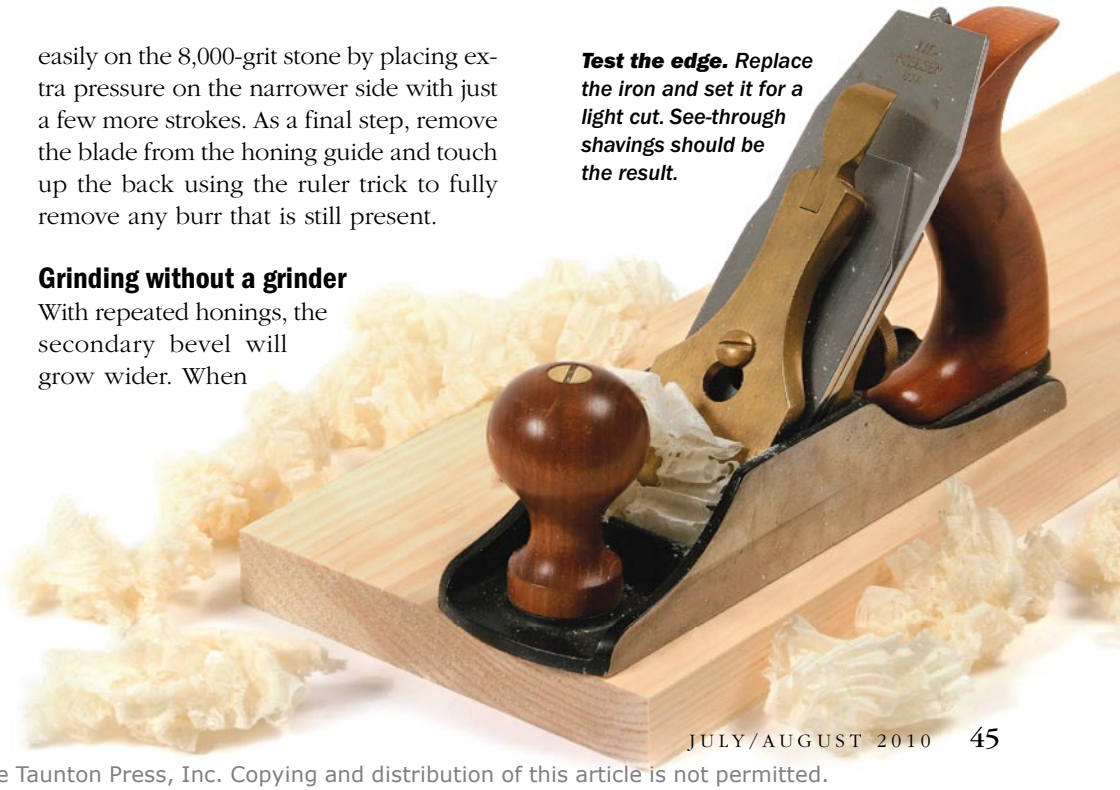
Grinding without a grinder

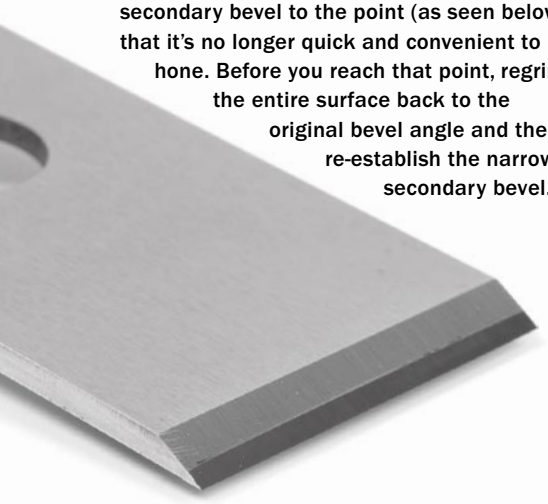
With repeated honings, the secondary bevel will grow wider. When



Test the edge. *Replace the iron and set it for a light cut. See-through shavings should be the result.*

Ready to regrind? Sandpaper is safer

Repeated honings will eventually widen the secondary bevel to the point (as seen below) that it's no longer quick and convenient to hone. Before you reach that point, regrind the entire surface back to the original bevel angle and then re-establish the narrow secondary bevel.



Set the angle. *Most primary bevels are ground at or near 25°. Puchalski uses sandpaper in grits ranging from P80 to P400. He attaches the paper to a flat slab of granite and repeatedly works through the grits, taking about 10 to 15 passes over each grit.*

it becomes too large, and you're spending 20 to 30 passes honing on the 8,000-grit stone, you need to re-establish the primary bevel. A lot of woodworkers use a grinder for this, but I've found that working by hand on sandpaper is just as fast, won't burn the tip and soften the steel, and gives me more control. You need a flat, hard substrate to attach the sandpaper to. I use granite, but plate glass works too.

Re-establishing the primary bevel— Use the stop board to set the blade in the guide to the correct primary bevel. Attach three or four grits of 3-in.-wide adhesive-backed paper to the substrate. Take 10 to 15 passes on each grit, switching from a coarse (P80 to P180 grit) to a medium (P220), to a fine grit (P400). Switching grits often avoids working too long in the same scratch pattern. It also helps prevent unintentionally crowning the blade, which makes honing difficult. Continue cycling through the grits until you achieve a consistent and straight bevel at the desired angle. Do not work the edge down to a point. Stop just short of creating a burr. You are done when you can see a very thin, flat line on the tip of the blade, about 0.01 in. or 0.02 in. thick. A jeweler's loupe can help you see this line. If you are having trouble, you can work down until you feel a very slight burr. With the primary bevel re-established, rework the secondary bevel, starting with the ruler trick. □

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The primary bevel is re-established. *At this point, you're ready to hone the back using the ruler trick and then hone the bevel.*

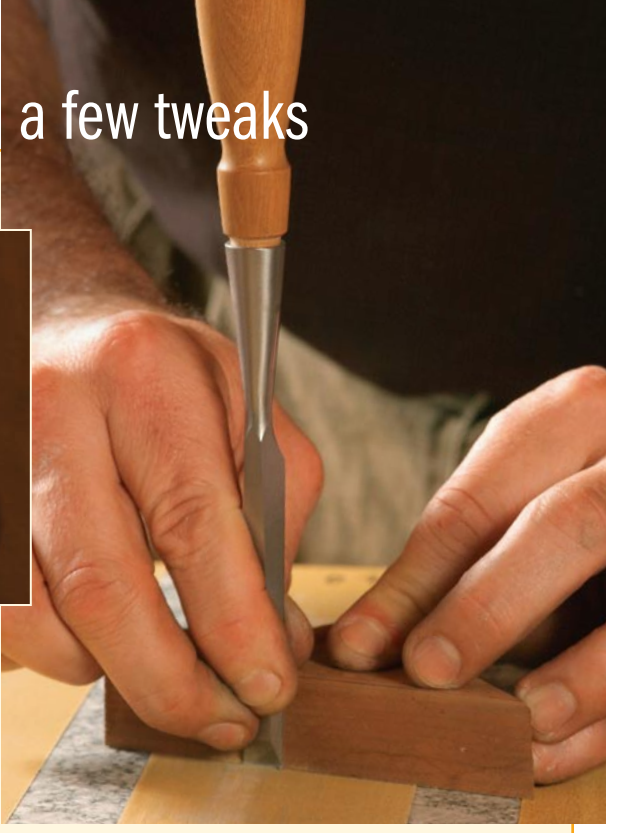
Same method for chisels, with a few tweaks

Like new plane blades, chisels aren't ready to go right out of the box. The good news is that this sharpening method works for chisels, too. The bad news is that the ruler trick won't work. You need to flatten (on sandpaper) and polish (on stones) the entire back because it serves as a reference for paring and other fine work.

Once the back is flat, mount the chisel in the honing guide. Its lower position in the guide creates a honing angle that is about 5° shallower than the marked angles on your board. So your 30° stop becomes 25° and so on.

Because I can control the angle and am not removing much material, I work the entire face of the primary bevel on the 1,000-grit stone, then hone a secondary bevel a few degrees steeper on the 8,000-grit stone. Use the ⅛-in. shim to increase the angle. I avoid sandpaper grinding unless I get a heavy nick in the edge.

Fix the nicks first. *There's no point in honing this edge until the nicks have been removed. Puchalski uses a block of wood to hold the chisel perpendicular to the sandpaper as he grinds the edge back to remove the nicks. Then he regrinds the primary bevel with the chisel in a honing guide. The same method works for plane blades.*



Fitting the chisel in the honing guide. *The chisel rides in the lower set of jaws. The lower jaws also hold narrow plane blades.*

The angles are different. *Chisels ride lower in the honing guide and project farther out of it. To compensate, choose a stop that is 5° steeper than your desired angle.*

Honing in two steps. *Puchalski works the entire face of the bevel on the 1,000-grit stone, then hones a secondary bevel a few degrees steeper on the 8,000-grit stone.*

IMPORTANT NOTE!

Avoid the ruler trick with chisels. *Once you're done honing, take a couple of passes on the back to remove the burr. Keep the back flat on the stone.*