

Concave Spokeshave

U.S. Des. Pat. No. D516,404

The Veritas® Concave Spokeshave has been designed for smooth, effective shaping of chair spindles, panel edges, paddle shafts, etc. The thick blade, carefully machined cap iron and blade bed all combine to produce chatterfree cutting in virtually all conditions. The 1/8" (0.125") thick blade is seated at 45° to the sole. The ductile cast iron body is fitted with hardwood handles that are shaped for comfort and control, offering several ways to grip the tool comfortably with no corners or edges to cause discomfort when either pulling or pushing and permitting an unusual degree of control for fine work. The twin adjustment thumb wheels quickly and accurately control the depth of cut. Together with the cast steel cap iron, the thumb wheels also ensure the blade may be easily removed for sharpening and other maintenance, then re-installed into the same position.

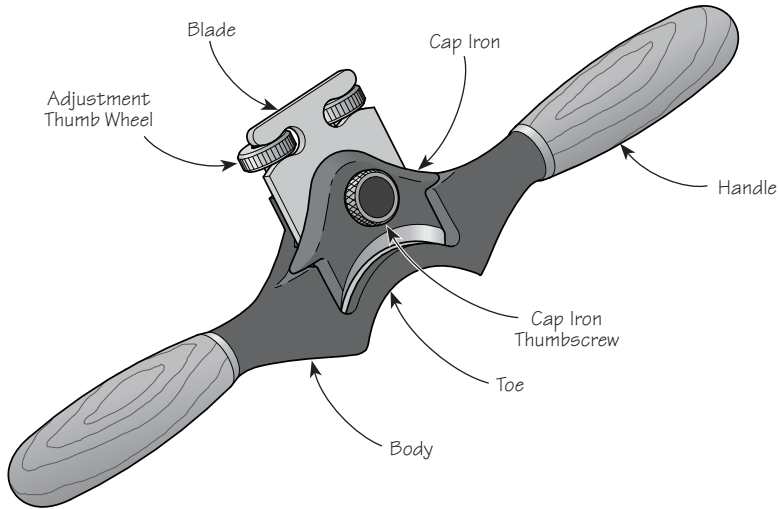


Figure 1: Spokeshave components.

Blade Adjustment

⚠ Caution: Be aware that the blade and cap iron are very sharp; careless handling can result in serious injury.

To increase or decrease the depth of cut, loosen the cap iron thumbscrew so that it just holds the blade in position. With thumb and forefinger, turn each adjustment thumb wheel in the same direction an equal amount, as shown in **Figure 2**, until the desired depth of cut is reached.

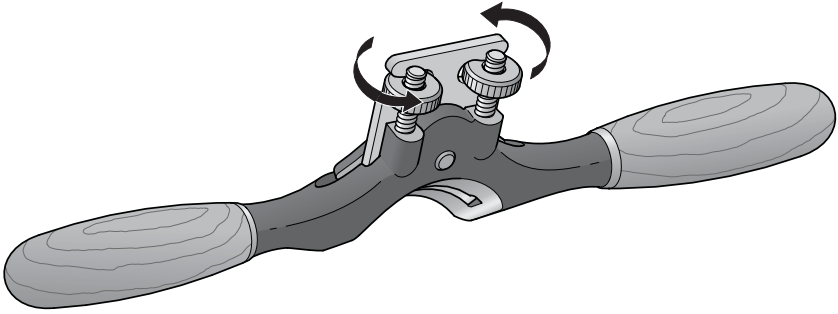


Figure 2: Turn thumb wheels to set the depth of cut.

Sight along the sole as shown in **Figure 3** to gauge the degree of blade projection before trying a test cut. For very light cuts, withdraw the blade completely until it does not project at all, then advance the blade by small increments, making a test cut on a piece of scrap each time.

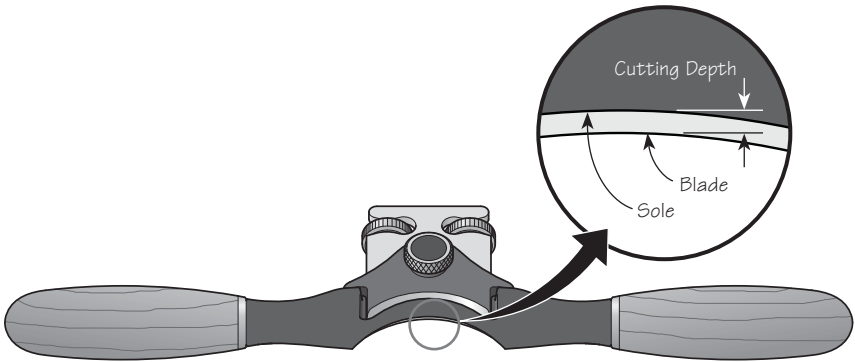


Figure 3: Checking the depth of cut.

Be aware that the concave configuration of the tool makes the side-to-side position of the blade quite important. It may seem that the blade has been advanced more on one side than the other, when actually it has just shifted off center in relation to the sole. You may easily center the blade when the cap iron is loose by sighting down the sole and using your fingers or a small brass hammer to adjust as required. Re-tighten the cap iron thumbscrew when adjustment is complete. With practice, you will find the cap iron thumbscrew can be tightened just enough to clamp the blade securely without preventing depth of cut adjustment. The depth of cut should always be reached by **advancing** the blade to prevent it from creeping in use.

Instructions for Use

This spokeshave is designed for use with either a pulling or pushing action. This allows you to always work with the grain. This may involve frequent changes of direction, flipping the tool and pulling or pushing as required.

As shown in **Figures 4 to 7**, the tool accommodates several different hand positions, depending on the task. These hand positions are only suggestions; the correct grip is always the one that yields the desired results on your workpiece with the least fatigue and the most comfort.

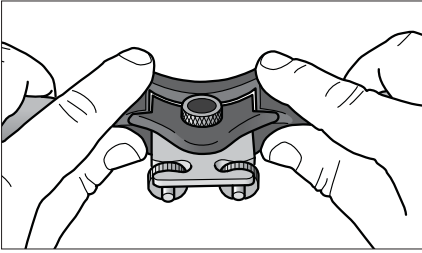


Figure 4: Pushing grip.

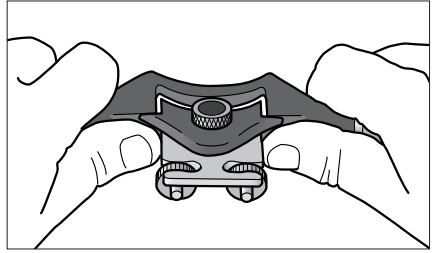


Figure 5: Alternative pushing grip.

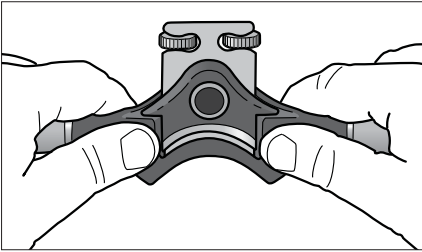


Figure 6: Pulling grip.

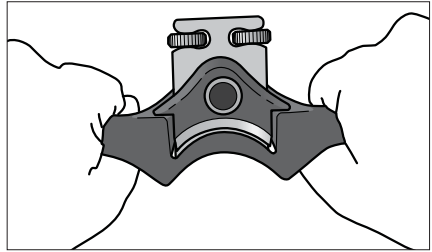


Figure 7: Power grip.

While not necessarily a frequent occurrence, most spokeshave users have had a shaving curl up around and back into the mouth, thereby clogging the tool. If you find your workpiece seems to be regularly producing such shavings, place a $\frac{1}{2}'' \times \frac{1}{8}''$ rare-earth magnet (not included) where shown in **Figure 8**. This should deflect the shavings so they are unable to curl around and clog the tool.

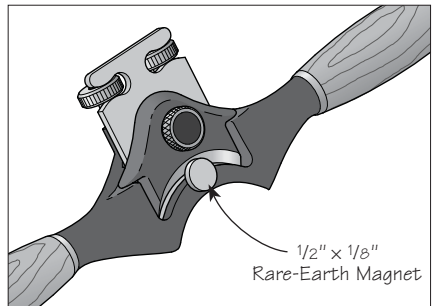


Figure 8: Clog prevention.

Blade Bed Shims

A small envelope with two colored shims has been included with the spokeshave. These may be placed under the blade to modify the mouth opening for very fine work with minimum tear-out. Before installing the shims, use a feeler gauge set to determine the size of the mouth opening. The shims themselves may be used to get a rough idea of the size. Plain bond paper (typically 0.0035" to 0.004" thick) can also be used. Before checking, adjust the blade so the cutting edge is aligned with the sole. The purple shim is 0.005" thick while the blue shim is 0.010" thick. The 0.005" shim will close the mouth by 0.007", the 0.010" shim will close the mouth by 0.014", and both together will close the mouth by 0.021". To install the shims, remove the blade by first unscrewing the cap iron thumbscrew and removing the cap iron. Then, taking care not to damage the cutting edge by bumping it against any part of the spokeshave, remove the blade and set it aside. Put the desired shim(s) in place and replace the blade, cap iron and cap iron thumbscrew screw as shown in **Figure 9**.

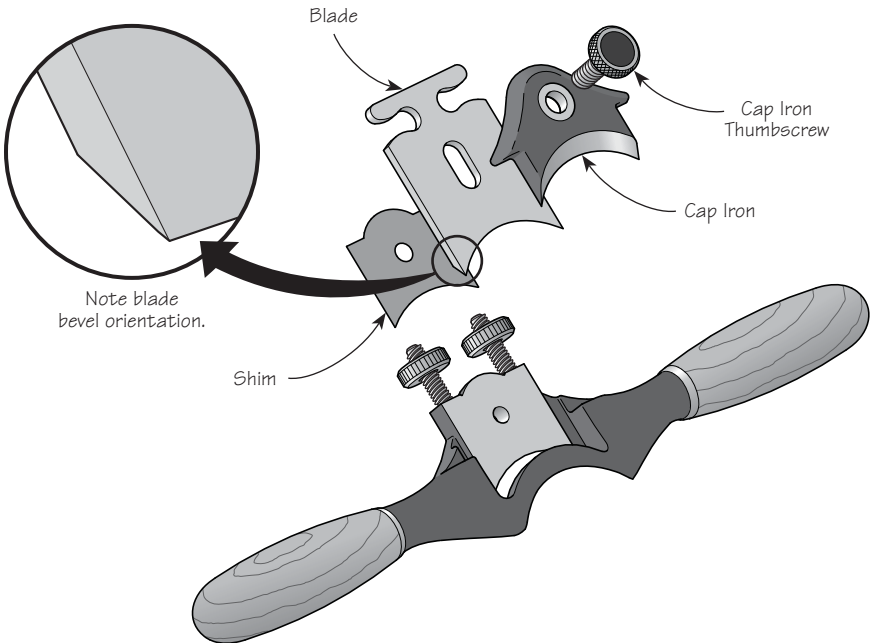


Figure 9: Using shims to adjust the mouth.

Sharpening

The blade for the Veritas Concave Spokeshave comes with a finely ground 35° primary bevel. This provides a strong, long-wearing edge and a 10° relief angle, more than adequate to accommodate the springback of the wood fibers. Additional honing will improve performance. The finely ground blade face can be readily lapped to a mirror finish.

Honing

Use a 1000x round stone¹, carver's slip or a sheet of 600x (20μ) sandpaper wrapped around a large dowel (about 1") to hone a small micro-bevel on the edge. Hone only until a fine wire edge develops over the full width of the edge. Lap the back on a series of at least two stones, starting at 1000x or coarser and finishing with 4000x or finer. This will create a good working edge, but you may further refine the edge with honing compound.

A piece of clear, soft, even-grained wood such as white pine or basswood (at least 1" × 2" × 6") is an excellent substrate for honing compound. One of the 2" × 6" surfaces may be left flat to lap the back and one of the 1" edges may be radiused with your (assembled) concave spokeshave to create a good form to hone the bevel.

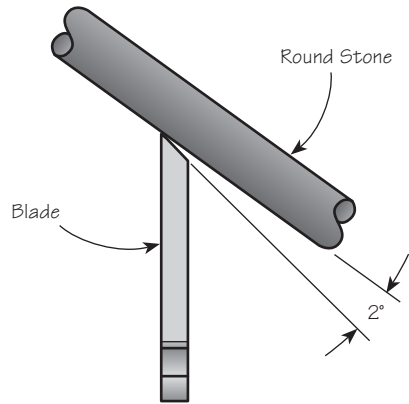


Figure 10: Honing.

Grinding

The blade of your concave spokeshave is precision ground to match the profile of the sole. To maintain its proper shape, do not regrind the blade until absolutely necessary (i.e., when you can no longer create an acceptable cutting edge by honing). The best way to accurately regrind the bevel is with a simple homemade blade holder and grinding disc driven in a drill press. This will ensure that you maintain the blade's original profile and bevel angle.

¹ Abrasive grading is often misunderstood. Many people assume water stones and sandpaper are graded on the same scale. In fact, abrasives sold in the USA and Canada are mostly graded on the CAMI (Coated Abrasives Manufacturers Institute) system, whereas water stone grades follow the JIS (Japanese Industrial Standards) grading system. These two grades have similar values in the coarse range (240 JIS ≈ 220 CAMI) but diverge widely in the fine range. Consequently, a 1000x water stone is not equivalent to 1000x sandpaper, but rather to 600x. A further source of confusion is the micron grading system used for newer abrasive products. Unlike all other methods of abrasive grading, micron grades (μ) are expressed as smaller numbers as the abrasive grade gets finer; consequently, 9μ ≈ 1200x CAMI ≈ 2000x JIS.

- **Disc:** Make a $3\frac{1}{8}$ " diameter disc from $\frac{5}{8}$ " or $\frac{3}{4}$ " thick plywood, as shown in **Figure 11**. This can be done on the lathe, bandsaw, or by hand. Once roughed out, assemble the disc and mount the assembly in a drill press to sand the edges. This will ensure concentricity. Then wrap the rim with a strip of 120x PSA sandpaper (preferably blue zirconia).

Note: Although the $3\frac{1}{8}$ " disc diameter does not match the curvature of the sole, when the blade with a 35° bevel is mounted on the 45° bed, the arcs will match and provide a 10° relief angle.

- **Holder:** Cut a 35° bevel on one end of a $6" \times 1\frac{1}{2}" \times 1\frac{1}{2}"$ piece of wood. Drill a pilot hole for a #12 wood screw into the bevelled end as shown in **Figure 12**. Fix the blade to the holder with a $\#12 \times \frac{1}{2}"$ round-head wood screw and washer.

Mount the disc in a drill press and turn at approximately 1200 rpm. Take care not to catch a corner of the blade on the disc. Grind until a wire edge develops on the back of the blade, being careful not to overheat the blade. Hone as described above.

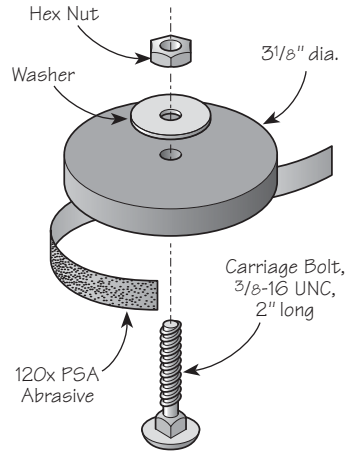


Figure 11: Homemade grinding disc.

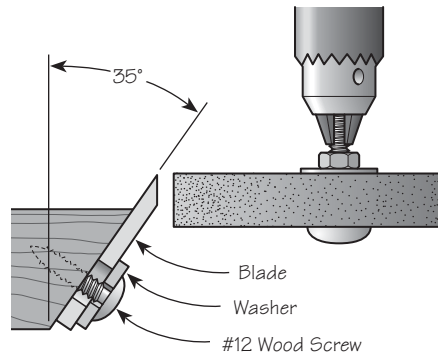


Figure 12: Blade holder.

Care and Maintenance

Keeping your spokeshave working and looking like new is straightforward. The body of your Veritas spokeshave is ductile cast iron and comes treated with rust preventative. Remove this using a rag dampened with mineral spirits. Clean all machined surfaces, including the area under the blade.

We recommend that you initially, then periodically, apply a light coat of silicone-free paste wax to the sole to seal out moisture and prevent rusting (as well as act as a lubricant for smoother shaving). Wipe off any wood dust from the sole, apply a light wax coating, let dry, then buff with a clean soft cloth. At the same time, the solvents in the wax will remove any harmful oils left from your fingers that can lead to corrosion.

If storage conditions are damp or humid, your spokeshave should, in addition to the treatment outlined above, be wrapped in a cloth or stored in a plane sack. This precaution will also guard against dings and scratches.

Accessories

05P33.12 A2 Concave Blade

05P32.62 O1 Concave Blade

05P33.75 PM-V11[®] Concave Blade

05P33.20 Hardware Kit for Spokeshave Handles