

An Ax to Grind: A Practical Ax Manual

Sharpening

"Putting your nose to the grindstone" implies tedious, repetitious, and unending work. You will find that sharpening a dull or abused ax is indeed tedious and repetitious, but to do it right you have to do it slowly [\(Figure 62\)](#). Along the way, you'll learn the value of patience, and appreciate the differences in steel tempering and ax quality as you sharpen different axes. Best of all, you will appreciate the usefulness of a razor-sharp ax, and the importance of doing everything you can to keep it sharp.

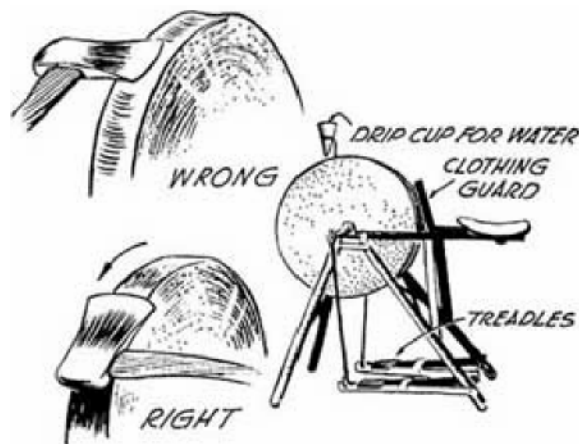


Figure 62-The right way and wrong way to use a grinding wheel (drawings by Frederic H. Kock).

Never use an electric high-speed dry bench grinder to sharpen your ax. That type of a grinder will almost certainly draw the temper from the ax and ruin it. Very few people have enough skill to use a high-speed grinder without drawing the temper from the steel, leaving the steel too soft to hold an edge. The only grindstone that I recommend is one of the old-style pedal grindstones that stay wet with a constant application of water to the stone. If you draw the temper from your ax with a high-speed grinder, you may have ruined the ax for good. At the minimum, you've drawn the temper for at least 3/16 of an inch back from the edge. You can always tell when the temper is drawn because the color of the steel at the edge turns blue. If this happens to your ax, you've got to remove a lot of steel to reshape the edge back to where it still is tempered. If you use a pedal grindstone, keep it wet, and always rotate the grindstone toward you and into the ax, not away from it.

If you don't have a pedal grindstone, your options are limited to a file and whetstone. This is how most quality ax sharpening is done today. Few stores carry pedal grindstones. Wear leather gloves [\(Figure 63\)](#) throughout the sharpening process, as the ax will become razor-sharp.



Figure 63-Tools for sharpening (clockwise from top left) include leather gloves; ax-bit width gauges; 8-inch, 10-inch, and 12-inch mill bastard files; Carborundum scythe stone; Carborundum ax stone; file card; and grooved Carborundum sharpening stone. Natural Arkansas sharpening stones also work.

Fit your file with a guard to protect your hands ([Figure 64](#)). The guards, which keep your fingers away from the sharpened ax blade, can be made from leather, wood, or a piece of fire hose.



Figure 64--File guards help keep your fingers away from the sharpened ax blade.

Clamp the ax to the bench at a comfortable height ([Figure 65](#)). Put on gloves to protect your hands. Hold the file as shown. Because you file into the edge of the ax, not away from it, you need gloves in case of a minor slip. Always file into the edge, toward the center of the ax handle, because this creates the least amount of burr to remove on the other side. The single-cut file sharpens only on the push stroke. Lift it away from the ax head on the return stroke. If you "saw" with your file, it will fill with metal particles. It will not cut well and it can also be ruined as the file edges are peened over. Occasionally brush the metal particles from the file with a file card. Always store and transport your files so they are protected from each other and other metal tools. Banging them together will dull their edges.



Figure 65--Clamp the ax to the bench at a comfortable height for sharpening.

When sharpening, always try for a fan-shaped effect on the cheek of the ax ([Figure 66](#)). File back for a distance of approximately 2 to 3 inches from the cutting edge right at the middle point of the ax. Work your way from the cheek down to the actual edge, keeping a rounded profile. Stop filing once you have filed one side so that a burr of metal can be felt on the back side. Turn the ax over and repeat the process on the other side of the ax. Continue filing on the opposite side until the burr goes back over to the first side of the ax where you started. Stop at this point.



Figure 66--When sharpening, try for a fan-shaped effect on the cheek of the ax (drawing by Frederic H. Kock).

It is time to check the shape of the edge with a sharpening gauge ([Figure 67](#)). This gauge can be handmade from a piece of cardboard, a small piece of brass, or even a piece of wood. See the illustration for the proper shape of your edge. The angle is about 25 degrees, but is slightly convex. The gauge is exactly to scale and can serve as a template ([Figure 68](#)).



Figure 67--Use a sharpening gauge to check the shape of the edge.

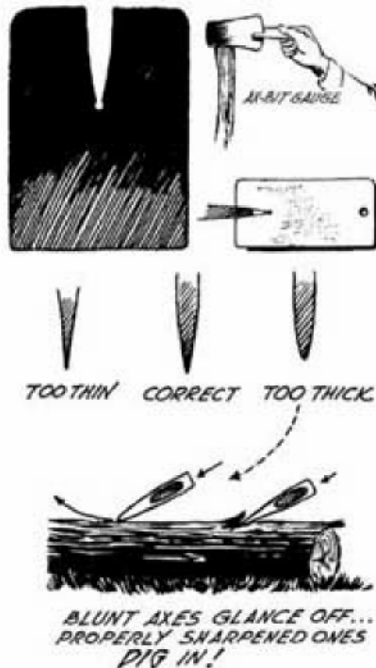


Figure 68--A template for a sharpening gauge (reproduced to exact size) and illustrations showing its use (drawings by Frederic H. Kock).

Continue to file equally on both sides of the ax until the sharpening gauge pattern fits exactly over the edge. If you are sharpening a double-bit ax, keep one blade slightly thicker for rough work and grubbing near the ground, and the other blade shaped according to the sharpening gauge. Use the properly shaped edge for fast, clean cutting. Next, hone the edge with a whetstone. The honing process polishes the edge and removes the burr. Honing should be done after reshaping with a file. It should also be done in the field during use and every morning before starting the day's ax work. My favorites are Arkansas stones, which come in different grades. The Washita is my favorite for fast cutting and the Hard Arkansas is my favorite for finishing. One of the finest finishing oil stones is called a Hard Black Hard Arkansas. This stone will put a razor edge on your ax. Manmade stones are usually oil stones of Carborundum.. Other whetstones are called water stones. Always use oil with an oil stone or water with a water stone to float the metal particles away.

Wipe the stone clean of these metal particles periodically and apply more oil or water. Water stones are quite a bit softer than oil stones and tend to cup and wear faster. The advantage of the water stone is that it rapidly puts a fine polished edge on your ax.

Round artificial ax stones ([Figure 69](#)) are sometimes called pocket stones. I know of two types. The traditional type has both a coarse and a fine side and is about 1/2 inch thick. This traditional ax stone can be dangerous to use, because your fingertips are always in jeopardy. Another type of ax stone has a finger groove in the center to keep your fingertips out of jeopardy. Both of these round ax stones are of Carborundum and require oil ([Figure 70](#)) to float the metal particles off of the stone.



Figure 69--Round ax stones, sometimes called pocket stones.



Figure 70--Use oil to float metal particles off ax stones made of Carborundum.

Use the ax stone in a circular motion, working into the edge, toward the middle of the ax head ([Figure 71](#)). Work one side of the ax with the coarse stone until it creates a metal burr, then flip the ax over and use the coarse stone until it pushes the burr back. Switch to the fine side of the ax stone and repeat the process until there's a very fine burr and both sides of the ax edge have been honed. Honing the edge removes very small particles of metal from the blade and causes the remaining ax metal to burr slightly. This is sometimes known as a wire edge or a feather edge. At this point you may want to move to one of the Arkansas stones like the Hard Arkansas finishing stone and work the burr back and forth until it breaks off or becomes very fine. I recommend stropping the edge by drawing the ax toward the edge (opposite the direction used during sharpening) on a piece of finished leather or a piece of soft, clear wood like pine. This stropping will remove the final burr or wire edge.



Figure 71--Use the ax stone in a circular motion, working into the edge, toward the middle of the ax head (drawings by Frederic H. Kock).

The last step is to apply a protective coating to the ax head itself [\(Figure 72\)](#). You can clean the rust and pitch from the metal with an abrasive impregnated rubber eraser block called the Wonderbar. Wipe light machine oil over all the metal on both sides of the ax, and then carefully rub a beeswax and oil mixture into the steel. The mixture will cling to the steel and protect it from rust. The ax head should be warm to ensure better coverage of the mixture.



Figure 72--Protective coatings for the ax head.

Always check the ax for sharpness. A honed ax will cut faster, be safer to use, and stay sharp longer. If you look directly into the edge of your ax with the light over your shoulder (either sunlight or artificial light), the edge that you've just honed will reflect no light. If you see any light reflected from the edge, you need to go back and hone the ax with the stone. Occasionally, a ding or a nick in the edge will reflect light just at one point. It is not always necessary to remove these dings as they will disappear through repeated filings. A correctly honed edge is sharp with no wire edge. It reflects no light. If you followed procedures, your edge should be sharp enough to shave with [\(Figure 73\)](#). I sometimes check the sharpness by carefully dry shaving the hair on the back of my hand. This is a traditional method used in the woods for years. A safer and equally effective test is to carefully put your fingernail (not your finger) against the sharpened edge. The edge should bite into your fingernail and not slide down it.