

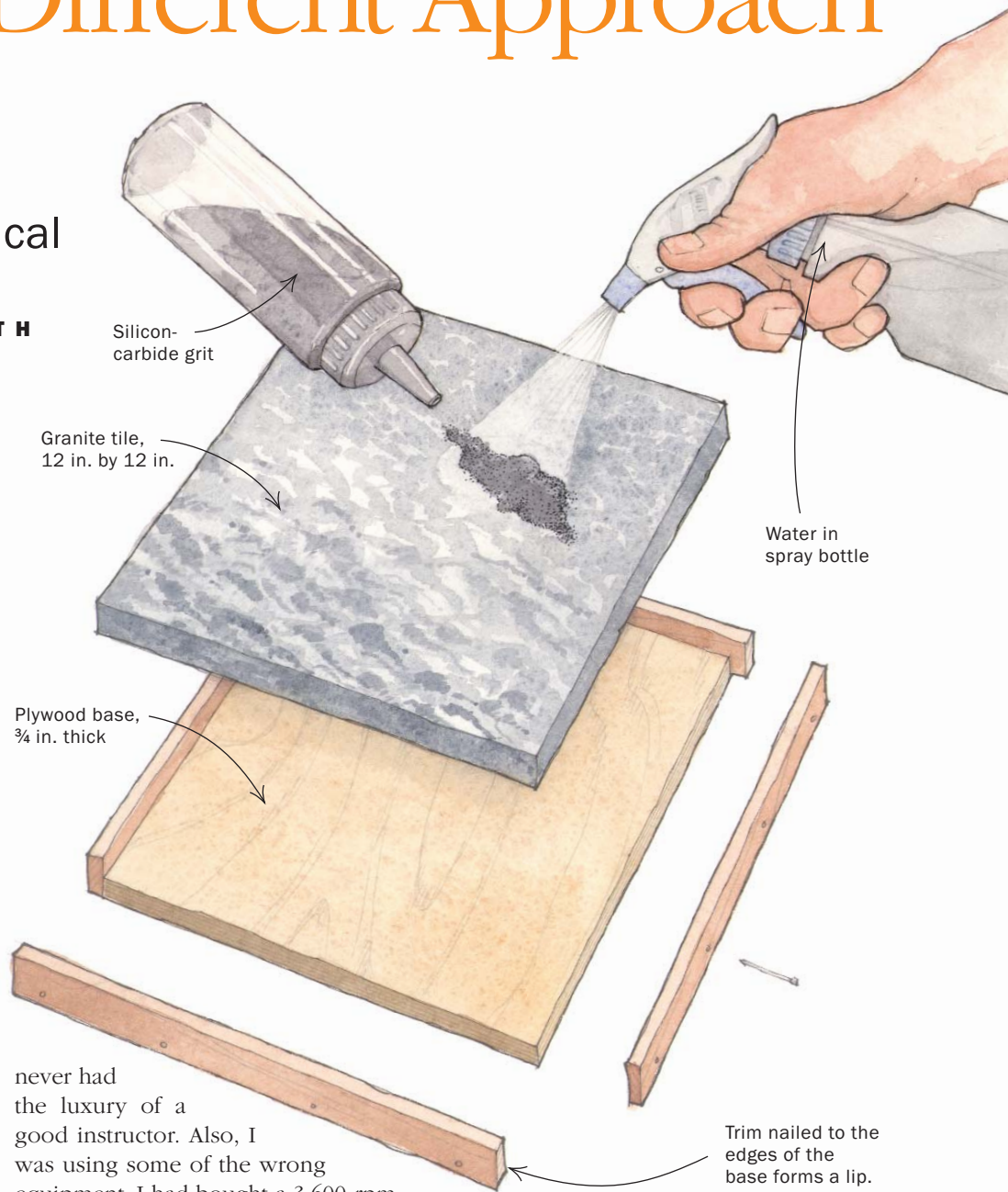
Sharpening— A Different Approach

Powdered abrasives on granite are quick, efficient, and economical

BY WILLIAM DUCKWORTH

I've accumulated a motley collection of handplanes and chisels over the years. Some are decent tools (a set of Stanley chisels made in the 1940s), some are strictly utilitarian (solid-steel Klein chisels made for electricians who need to chop out floor joists), and until recently, none of them were razor sharp. As a matter of fact, I confess that I've used those chisels to open paint cans rather than walk the length of the shop to retrieve a screwdriver. In the never-ending debate of hand tools versus machine tools, I've always leaned heavily toward the latter. On an average day, you'd find my jointer knives in a lot better shape than my handplane blades.

To me, sharpening always seemed to be a dreadful chore—in part, I think, because I



never had the luxury of a good instructor. Also, I was using some of the wrong equipment. I had bought a 3,600-rpm grinder that came with two silicon-carbide wheels. If I were buying a new grinder now, I'd get an 1,800-rpm machine. For stones I owned a cheap oilstone with a medium grit on one side and a fine grit on the other. I destroyed a chisel by overheating it the first time I used the grinder, and it wasn't long before the oilstone, which sat out on a workbench, got clogged with fine sawdust and dished in the center on both sides. In no time and out of desperation, I

turned to my 6-in. edge sander to sharpen the edges of chisels and plane blades. Call it overkill, but a worn 120-grit belt on the edge sander worked well enough to bring a really dull edge back to a point where it could at least cut wood.

A search that yielded results

In the process of organizing a new basement shop and fed up with dull tools, I de-

cided to improve my sharpening setup. Of all the articles about sharpening that this magazine has published over the years, the one that intrigued me most was in *FWW* #140, and it documented Mike Dunbar's system of sandpaper glued to a 3/8-in.-thick by 40-in.-long piece of glass. I liked his no-nonsense approach toward keeping tools sharp. But considering some of the obvious consequences, even Dunbar's method had its drawbacks for me. My new basement shop is small and has a concrete floor—40 in. of bench space is a lot of dedicated real estate in a small shop, and it's

not hard to envision a future of sweeping up shards of broken glass.

I tried the method of placing wet-or-dry sandpaper onto a smaller piece of wetted glass but got mixed results. More often than not, I'd end up ripping the wet sandpaper, or else I couldn't get it to stay put. And then, quite by chance, I happened to have a conversation with a friend who had made his own telescope, including grinding the lenses himself. He told me that the same abrasives used to make that sandpaper are available in more affordable quantities from astronomical-supply businesses, such as Willmann-Bell Inc. (804-320-7016; www.willbell.com). I ordered an assortment of silicon-carbide and aluminum-oxide powders, tried them on a flat piece of granite, and was pleased with the results.

For the abrasive powders I ordered (120-, 220-, 320-, and 500-grit silicon carbide, plus some aluminum-oxide lapping pow-

ders in 12-micron and 5-micron sizes), I needed a hard and flat surface. I found a granite floor tile for \$12 at a local home center, then made a plywood base for the granite with some scraps of Spanish cedar to frame the outside edges and to hold the granite in place on the workbench.

The abrasive powders came from the supplier packed in plastic bags. Available in 8-oz. or 1-lb. quantities and in various grits, the powders cost from \$8 to \$12 per pound. It's worth spending another few dollars for some plastic storage bottles with tapered-nozzle tops because they're much more convenient and less messy to use when dispensing the tiny amounts of powders needed for each sharpening.

A little powder and a spritz of water go a long way

For blades that are in wretched shape, such as the mortise chisel shown at left, start



Before. This mortise chisel, covered with glue globs and rust and as dull as a butter knife, has seen better days.



Clean up the bevel first. With new aluminum-oxide wheels (60/80 grit and 100/120 grit) installed on an old grinder (above), Duckworth removes the crud from the bevel (right). Aluminum-oxide wheels are better for grinding woodworking tools because they don't overheat and ruin the steel, which can happen easily with silicon-carbide wheels.



Getting there. With rust and dried glue ground away, this bevel is ready for abrading on the stone.

Rescue a dull, rusty chisel at the grinder

Many grinders come equipped with silicon-carbide wheels, which are not the best kind for sharpening woodworking tools. Silicon carbide is good for hogging out a lot of metal fast, but it's too easy to overheat a cutting edge and ruin the tool. Aluminum-oxide grinding wheels are the preferred alternative. They're slower cutting, so they're much less likely to overheat the edge. Aluminum-oxide wheels often are sold in white and pink, but they also come in gray. The color is essentially a marketing gimmick and has nothing to do with the way the material will perform. I bought a 60/80-grit wheel and a 100/120-grit wheel for my 25-year-old grinder. I use the grinder only as a first step for reshaping edges that are in really bad condition. Get the thickest wheel your grinder will handle, and buy a dressing tool to replenish the surface of the wheel when it becomes worn from use. A 36-grit diamond-wheel dresser costs about \$10. Grinding and polishing metal is like sanding wood: You start with the coarsest grit you need to do the job, and then move through progressively finer grits.

SANDPAPER IN A BOTTLE

Silicon-carbide abrasives come from the supplier packed in resealable plastic bags that are cumbersome and messy. Transferring the abrasives to small plastic bottles makes it easier to mete out the small amounts needed.



Spritz and sprinkle a small amount of water and powder. Wet the granite tile first with a spray of water, and then dole out dabs of abrasive as needed. Wipe the stone after each grit with a wet paper towel.

with the 120-grit silicon carbide. Otherwise, 220 or even 320 grit may be all you need to start the sharpening process. I begin by spraying a light mist of water onto the stone, and then sprinkle over that a dab of powder. It's easy to use too much, and you'll quickly get a sense of how little you really need to create a sufficient slurry to sharpen steel edges.

With the flat of the blade down, hold the tool in one hand and keep it flat against the stone with your other hand. Move the blade first in a figure-eight motion, making at least a dozen passes. Follow that by moving the blade in circular patterns and then side to side. The friction created by rubbing steel against stone evaporates the water fairly quickly. Spray on more water as you need it; you'll want to keep the slurry wet to maximize its cutting action.

Turn over the blade, press the beveled edge flat against the stone with one finger, and strop it a few times in a backward motion through the wet slurry to remove any burr created by sharpening the flat side.

Paper towels come in handy to wipe off the slurry of each grade of abrasive before you move on to the next grit. A regimen of 220-, 320-, and 500-grit silicon carbide followed by polishing the edge with the 12-micron and 5-micron aluminum oxide was enough for me. You certainly could carry the process further, if you're so inclined, with some red rouge (also called jeweler's rouge) on leather or a cloth wheel on the grinder. But as far as I'm concerned, you don't need a mirrored polish on steel before it will cut wood just fine. □

William Duckworth is an associate editor.



Work the flat of the chisel on the stone. Press the blade flat to the stone and move it vigorously in figure-eight, circular, and side-to-side motions. The water and abrasive powder quickly form a slurry, and you can hear it do its work. When the slurry begins to dry out, wet it again with another spray of water.



Pull the bevel toward you. After working the flat of the blade with each successive grit, turn it over, place the bevel in the slurry at the desired angle, and move it toward you in straight lines.