

Plane Like a



After milling with machines, nothing beats a handplane for smoothing wood and fitting furniture parts

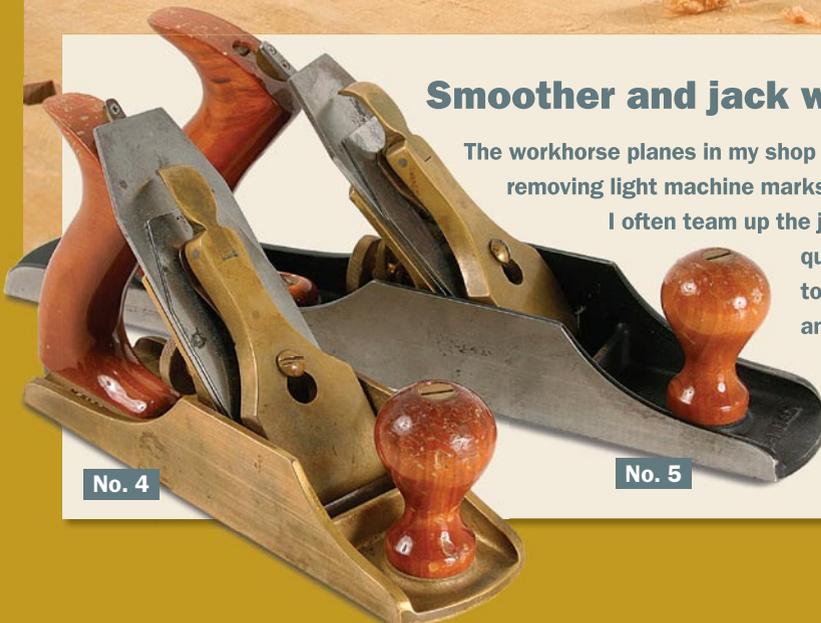
BY CHRIS GOCHNOUR

There's no denying my love of hand tools and the romantic notions I have about building furniture by hand. To my ear, the swoosh of a sharp plane gliding along the face of a board is music worthy of an iTunes track, or at least a ringtone.

But I don't turn a deaf ear to the need for woodworking machinery. When I'm building furniture on commission, time is money, and easy listening must give way to the heavy-metal roar of machinery. Fortunately, my hand tools, planes in particular, don't sit backstage for long.

Smoother and jack work as a team

The workhorse planes in my shop are the jack (No. 5) and the smoother (No. 4). If I'm simply removing light machine marks from a board, I typically can get by with the smoother alone. But I often team up the jack and smoother to surface a single board or a whole assembly quickly and efficiently. The jack, set with a mouth opening of $\frac{1}{16}$ in. to $\frac{1}{8}$ in., is used for stock removal. Its length allows the tool to span any dips in a board, creating a surface that's true and flat; a smaller plane will tend to ride the dips like waves, making them more pronounced. I follow the jack with the smoothing plane. With a fine mouth opening of $\frac{1}{64}$ in. to $\frac{1}{32}$ in., the smoother leaves a polished surface after just a few passes.



No. 4

No. 5

Photos: Thomas McKenna; drawings: John Tetreault

Pro

In my shop, machines tackle the rough work, with handplanes following to eliminate evidence of machine work. But planes are more than cleanup tools. No matter what piece of furniture you are building, whether a case or a table, a chair or a box, handplanes can step in to polish a surface with a sheen unmatched by machine or paper. And these tools excel at fine-tuning and trimming components, allowing you to creep up on the fit of parts in almost microscopic increments. Most of the time, I go straight from planing to finishing, but if I am dealing with tricky cross-grain situations, such as breadboard ends or some obstinate figured wood, I reach for a scraper or sandpaper to eliminate tearout.

The two bench planes I use most often are the jack and the smoother (see facing page). Here I'll show you where and how to incorporate these planes into your furniture making, not only for basic stock preparation but also for refining glued-up assemblies such as doors and drawers. Let's start with the basics.

Stuck at square one?

For the basics of setting up and using a bench plane, see Fundamentals, pp. 30-34.

Pick up where machines leave off

The most basic task of a handplane is to remove the ripples and ridges left by machines on the faces, edges, and ends of parts. In the Fundamentals on p. 30, I take you as far as planing the face of a board. So let's begin by planing the edges.

Although some woodworkers use a block plane on an edge, I prefer the heft and control that bench planes offer. Whether you choose a jack or a smoother depends on the amount of work that's needed. If the machine work is not high-quality, start with a jack to remove heavy mill marks and finish with the smoother; otherwise, you can clean up marks with the smoother.

First, secure the board in a front vise, with the edge about 2 in. to 3 in. above



Make mill marks disappear

Even a well-tuned machine will leave its fingerprints on a board. But have no fear: The smoothing plane is usually all you need to remove the machine marks, leaving a glassy surface ready for finishing.

Lube the sole. Waxing the bottom of the plane with paraffin makes it easier to push. Reapply when resistance increases.



Just like mowing the lawn. The face of a board fresh from the jointer or planer can be polished with a smoothing plane, working with the grain. Skewing makes it easier to push the plane through the stroke. For heavy snipe or milling marks, start with the jack plane.

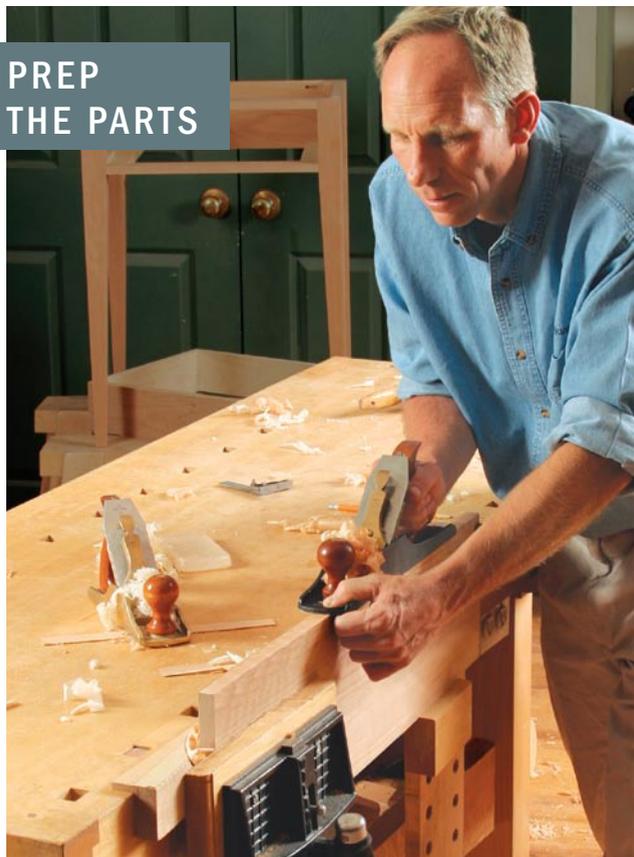


How to keep an edge square. Before planing the edge, make pencil marks across it every few inches (far left). Then use your fingertips to hold the plane square to the face of the board (left). Plane so that the marks disappear evenly across the edge.

Tame panel glue-ups

A glued-up panel often has surfaces that are not flush and edges that are marred from glue and clamps. The jack and smoother team up to remedy these flaws with precision.

PREP THE PARTS

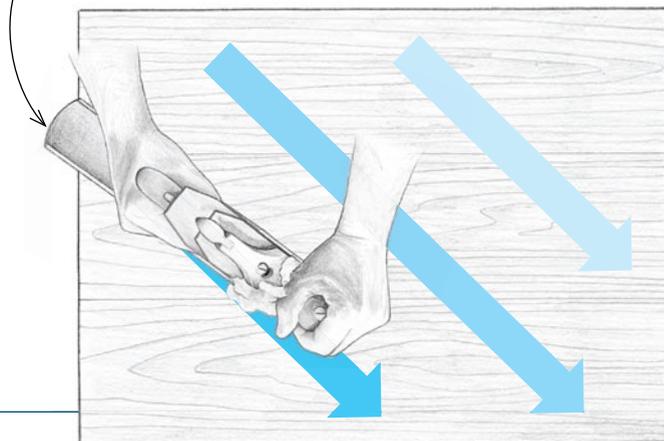


Use the jack and smoother to prep long boards for glue-up. When gluing up boards for a large panel, a tabletop for instance, Gochmour refines the machine edge with planes. To ensure that the edges are straight, he first takes a few passes with a jack plane; then he finishes with a swipe or two with the smoother.

PLANE THE FACE OF THE PANEL

Work diagonally first. Secure the glued-up panel between benchdogs in the tail vise and benchtop. To bring the boards into alignment, plane diagonally using a jack plane.

Work from corner to corner and back again.



the bench, and make pencil lines across the edge every 4 in. or 5 in. Grasp the tote (rear handle) of the plane in one hand and the front of the plane's side rail with the other (see bottom right photo, p. 47). Holding the tool this way will help your fingertips keep the plane level as you work the edge of the board.

As you plane, watch the pencil lines you made earlier. If the lines are removed along one side only, adjust the pressure on the tool to make a more uniform cut. Work until all pencil and mill marks are gone.

Once you've mastered the fundamental skills of planing, you can use those skills to refine furniture parts, giving them a fit

and finish that no machine can achieve. Let's begin with a glued-up panel.

Level and smooth glued-up panels

A glued-up panel, whether for a door or a tabletop, usually has high spots where the boards didn't align perfectly. A wide-belt sander will produce a flat surface, but these machines cost thousands of dollars yet still leave a lot of hand-sanding to be done. The most precise way to level and clean up those surfaces is with handplanes.

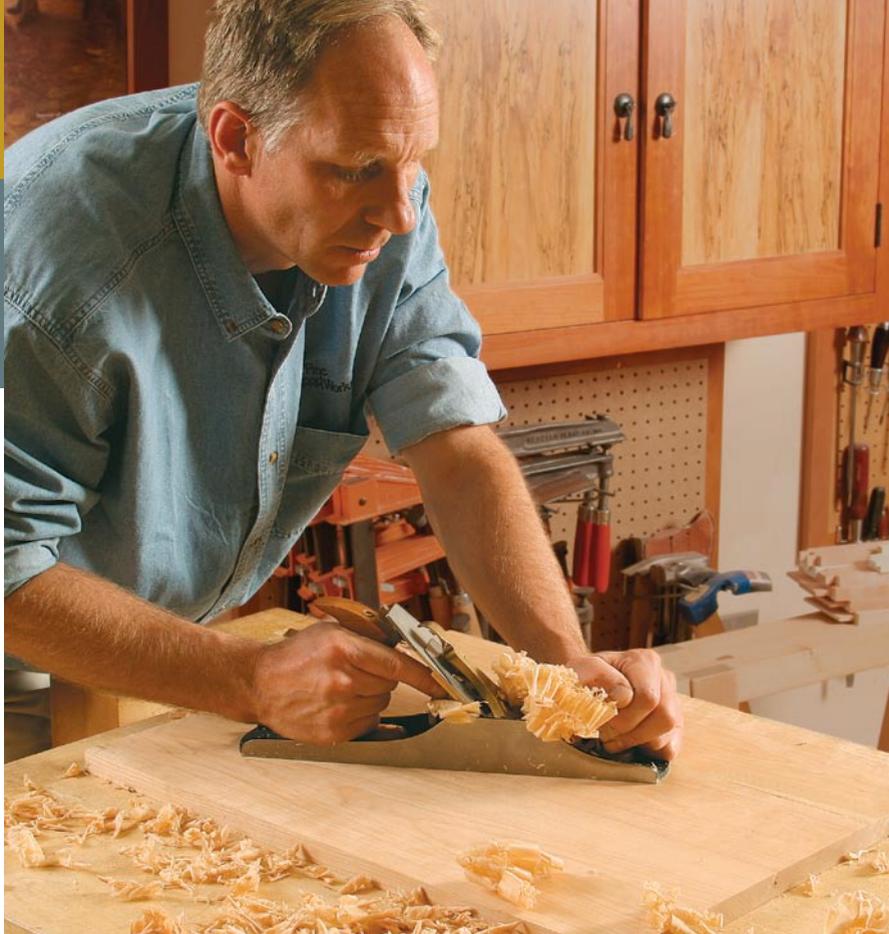
Secure the panel to the bench between benchdogs in the tail vise and benchtop. Mark surfaces with a pencil to show high and low spots. Make passes diagonally across the surface with the jack plane to

bring everything into alignment. Work corner to corner, using overlapping passes.

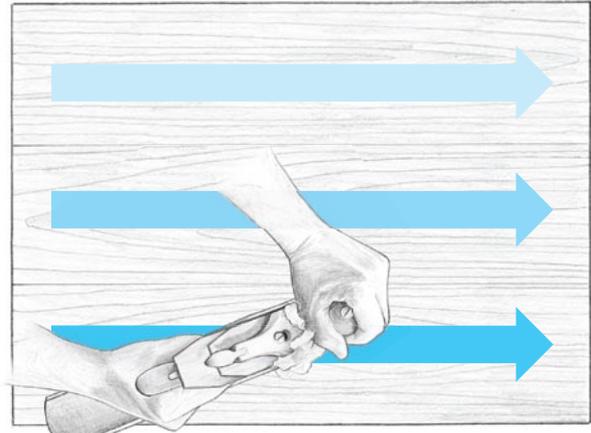
Next, plane with the grain from end to end, starting at one edge and working to the other using overlapping passes. Repeat the process until all remnants of the diagonal passes are eliminated.

Complete the surface preparation with a smoothing plane, working with the grain. After finishing the top and bottom, clean up the end grain and edges.

End grain is tough—End grain is prone to tearout and chatter, and it's murder on a plane iron. But you need to clean it up if the edges are to be exposed, as they often are on a tabletop. The smoothing plane, set for a very light cut (a mouth opening



Now plane with the grain. Once the boards are flush to one another, use the jack plane (left), going with the grain until marks from the diagonal passes are gone. Finish with the smoother. If the grain reverses direction from one board to the next and wants to tear out, stay between the gluelines and work on one board at a time.



Work from one side of the board and back again.

of about $\frac{1}{64}$ in. to $\frac{1}{32}$ in.), deftly handles the challenge.

Be sure to skew the plane throughout the cut. This not only makes the work easier but also produces a high-quality surface. Prevent chipout at the end of the cut by clamping a backer block to the far end (see photos, right). If needed, lubricate the end grain with paint thinner, which makes the ends slick and supple, reducing chatter and extending blade life. Use the sawmarks on the board end as a reference, planing until the marks just disappear.

The last step is to plane the edges (see the technique on p. 47). A smoother may be enough here, but if there's any damage from clamping, I'd recommend starting with a jack to handle the heavy planing.

Fix ill-fitting door parts

Glued-up door frames (and face frames) often have problems with misalignment of parts, such as a rail that's proud of a stile, and often have blemishes and scars from glue squeeze-out and clamps. Handplanes are the cure-all for these issues.

With the door secured to the benchtop, visually identify any high spots. If the rail or stile is high on one end and low on the other, use a tapering approach. Take the



TACKLE THE END GRAIN

Use the smoothing plane here. Set for a gossamer-thin cut, the smoothing plane deftly navigates end grain. To prevent chatter, lubricate the end grain with paint thinner (above left) and skew the plane (below left). To prevent tearout as the plane exits the cut, clamp a backer block to the far end of the panel.



Fine-tune frames

LEVEL RAILS AND STILES

During glue-ups, the rails and stiles of a door or other frame can become misaligned along their faces. Use the jack plane to level the surfaces and remove any squeeze-out and clamp marks. Save the smoother for the final passes.

Work uphill with the jack plane. If a rail is proud of the stile on one end and flush on the other, plane toward the high end. Begin the cut in the middle and gradually increase the length of the stroke until the members are flush.

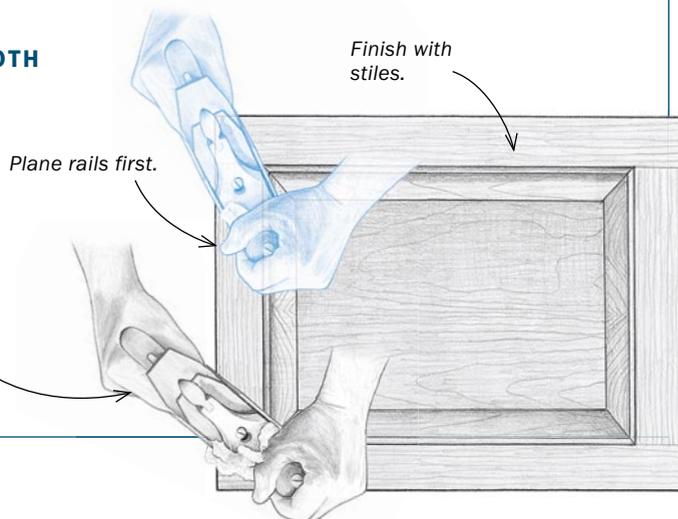


Clean up marks from the jack using the smoother. Start with the rails. Skew the plane throughout the stroke (left) and increase the angle as you approach and cross the stile (right). Finish with the stiles.

SKEW TO SMOOTH

Increasing the skew of the plane as you near the stile decreases the cutting angle and reduces the chances of tearout across the grain.

Increase skew here.



first couple of passes with a jack plane in the vicinity of the high spots. Gradually extend the length of each successive stroke toward the flush end until both ends are flush with the mating parts (to get the idea, see the drawing on the facing page). If the rail or stile is offset equally on both ends, simply plane uniformly with the jack plane until everything is flush.

Finally, take a few final passes with a smoothing plane, starting with the rails. Be sure to skew the plane to reduce the chances of tearout across the grain of the stile. If you get a few catches, don't worry—you'll clean up the stiles in the next step. Also, lift the plane on the return strokes so that its heel doesn't accidentally bruise the stile. When the rails are smooth and blemish-free, plane the stiles.

Once you have the surface of the door planed smooth and even, use handplanes to dial in the reveal, or gap, around the door (see top photos, facing page).

Level face-frame parts

Frequently, a woodworker applies a solid-wood face frame to a plywood case to conceal the plywood edges. The frame often is left proud of the case and must

FIT DOORS

Ideally, you want an even reveal, or gap, around a door. It's easiest to make the door fit snug and then take incremental cuts with a handplane to achieve that uniform reveal.

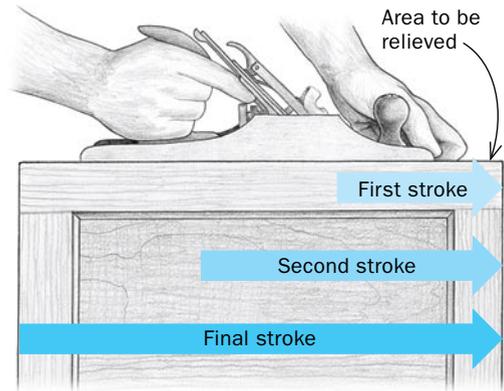


Mark tight spots. Mount the door and wedge it closed with shims. Highlight tight areas with a pencil.



TAPERED CUTS REMOVE HIGH SPOTS

Sometimes you have to taper the edge of a door for a consistent reveal. The first stroke starts close to the spot that needs to be taken down. Gradually increase the stroke with each pass.



Jack and smoother again. Use the jack plane for the heavy work, removing the marked areas in steps. After the jack's work is done, a full stroke with the smoother is the final touch.

be trimmed flush later without damaging the veneer. The safest tool for the job is a handplane.

Start by making a series of pencil marks every 3 in. to 4 in. across the face frame edge and onto the veneered surface to serve as reference lines to gauge your progress. Use the jack plane to begin working the solid wood flush. Watch the pencil lines and use your fingertips to feel the surfaces for misalignment to determine where and how much material must be removed. Skew the plane so that its heel references on the veneered panel, and work with care until you have planed to within $\frac{1}{64}$ in. of the veneer.

Now switch to the smoothing plane and work until the pencil marks on the veneer just begin to disappear. Stop at this point and, if necessary, blend things in with a scraper or a sanding block.

Trim dovetails perfectly flush

The easiest way to get perfectly flush joints in a dovetailed drawer is to leave the tails proud and then take a few skilled swipes with a handplane to trim them flush after assembly. The ideal tool for the job is the smoothing plane, set for a very light

TRIM FACE FRAMES

A handplane takes controlled, even cuts to bring a face frame flush to the side of a plywood case, with no chance of the damage that can be inflicted in a flash by a router or power sander.



Pencil marks guide the way. Make a series of marks across the edge of the frame and onto the case side (above). To avoid biting through the plywood's thin veneer, plane just until the pencil marks disappear on the case side (left). Unless the frame is proud by more than $\frac{1}{16}$ in., the smoother is the best tool for the job.

Clean up dovetails

For perfect dovetails on a drawer or case, leave the pins and tails proud, and hand-plane them flush after the glue dries. Use a smoothing plane set for a feather cut.



Simple way to support a drawer for planing. Clamp two long boards so that they overhang one side of the bench. Slide the drawer over the boards and then prop a short length of hardwood between the boards to wedge them against the inside of the drawer.



No-tearout zone. Chamfer the corners of through-dovetails before planing.



Skew for best results. When planing pins or tails flush, skew the plane to lessen the chances of tearing out the cross-grain surfaces that lie below the end grain.

cut. Before planing, it's a good idea to protect the fragile edges of the dovetails by chamfering the corners.

Plane parallel to the row of dovetails (across the drawer) until the surfaces are just flush. Skewing the plane (with the toe facing into the drawer) makes end grain easier to handle and gives the tool sure footing on the workpiece. Finish by planing from the end of the drawer toward the center.

The top and bottom rims often need a touch—When you glue up a drawer, edges don't always align perfectly; typically one edge is proud. On a small drawer, you can use a smoothing plane to level the parts, but a large drawer (or case) requires the longer jack plane, which will help keep the edges straight.

Plane uphill (toward the high end) near the high spot and gradually extend the length of the stroke until the parts are flush. Finish by going around the rim with the smoother. □

Chris Gochmour is a furniture maker and hand-tool expert near Salt Lake City.



Finish with the grain. Once the joint is flush, plane from each corner to the center to even things out.



Trim the rim, too. Plane high spots first (see top of p. 51), then take a final pass around the edge with a smoother. Skew the plane throughout, but increase the angle as you turn the corner.

Board too wide for your jointer? Flatten it by hand

With the proliferation of jointers and planers in most shops, the skill of flattening a board by hand has become a lost art. After all, it's hard to argue against the efficiency and speed of these machines. But what if your board is too wide for your jointer? Well, you can flatten one face with a jack plane and then send it through a power planer to do the rest.

First, work diagonally, taking heavy cuts. Once the high spots have been leveled, reset the jack plane for a lighter cut and go with the grain. You don't have to touch every inch with the jack plane; just create a good reference surface for the next step. You can tell if the wood is flat by using winding sticks and a straightedge, or you can lay the planed face on top of a reliably flat surface, such as a tablesaw top, and see if it rocks.

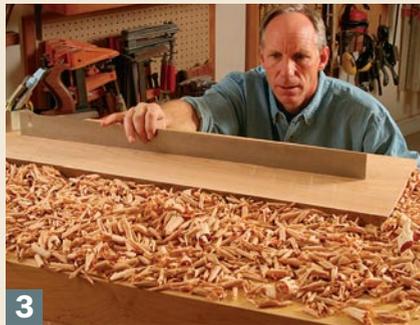
When you have the surface flattened, send the board through the planer with its handplaned face down.



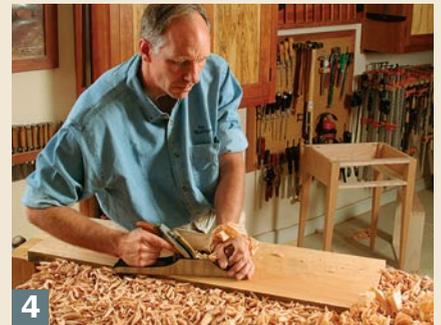
1 **Wedges won't wobble.** Secure the board between dogs and add wedges to prevent it from rocking as you plane.



2 **Coarse work.** With the jack plane set for a heavy cut, plane diagonally across the board from corner to corner. Shavings will pile up quickly.



3 **Status report.** Use winding sticks and a straightedge (shown) to find the remaining high spots.



4 **Go with the grain.** After taking down the high spots, use a jack plane to even out the surfaces. Skew the plane as needed.