

## Hand-tool cabinetmaking

HOW I KEEP THE PROCESS FUN, AND FAST ENOUGH

BY ISRAEL MARTIN

I build furniture in a small workshop attached to my house in northern Spain, and I try to use only hand tools in every piece I make. I really do like machines; it's just that I prefer to work without them. Over the years, I've discovered that working completely by hand requires not only a different set of skills but a different way of thinking as well. Like anyone making custom furniture, I need to consider where a piece is going to live, what its purpose will be, and of course the aesthetics of it. But because I'm providing the horsepower, there are extra dimensions to consider: How long will the build take? How complex is it? How can I make sure that I will have the same energy and enthusiasm at the end that I had at the beginning?





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In preindustrial workshops, where furniture had to be made by hand, there were apprentices to take on the hard, repetitive jobs like jointing, planing, and ripping that today are routinely done in a snap with machines. Having apprentices enabled master craftsmen to keep focused on design, joinery, fine details, and finishing. As a maker who uses only hand tools, I have to be the apprentice as well as the master, and I plan each piece with that in mind. Knowing I'll be doing all the jobs myself, and by hand, has led me to develop a specialized approach to design.

#### **The satisfactions of simplicity**

I firmly believe that the more you enjoy building a piece, the better it will be. Because complex projects done by hand can drag on and become tedious, I simplify my designs, mostly using straight lines and square corners. If I incorporate a curve, it might be a slight bend on the top or bottom of a chest. I avoid curved panels or drawer fronts that would involve lamination and require me to hand-dimension a lot of thin elements—a complicated and taxing process. To make my pieces catch the eye, I prefer to include details like small side drawers or inlays that are not just visually interesting but fun to make by hand.

I don't draw measured plans, and I rarely build mock-ups. I rely on rough drawings and begin work on the piece with a quick sketch noting its overall height, width, and depth and the size of its doors and drawers. This gives me the leeway to change a piece as I go. It's a little like working on a sculpture. If I make a mistake, or if the wood presents unexpected problems or opportunities, I can respond by slightly changing course.



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### **The question of structure in casework**

Most of what I build is casework, and one of the first things I consider when designing a new piece is whether it should have a slab carcass or a frame-and-panel. Slab construction involves fewer parts and fewer joints, but dimensioning the pieces by hand is more exacting and therefore more time-consuming. To make for good joinery, the parts of a slab carcass must be precisely milled on both faces and all edges. A frame-and-panel structure, by contrast, is more complex, with more parts and more joints to lay out and cut. But milling the parts is faster, because only the frame parts need to be milled precisely. The panels can be flattened on one side and just smoothed on the other.

With these variables in mind, I normally pick slab carcass construction for boxes

and small case pieces. But for larger casework, such as a big chest of drawers or a hunt board, I use frame-and-panel construction, which breaks up the milling over a long build and makes the process more enjoyable.

### **About milling by hand**

It's common for a furniture maker who uses machines to begin a piece by milling all the parts. Some parts might be left a little oversize and set aside for final milling later, but most of the dimensioning is often completed in a single session. Because dimensioning by hand is difficult—and too much of it at once can get boring—I mill parts in small batches, preparing for one phase of the build at a time. This approach also gives me the flexibility to change my design as I go. If it turns out along

the way that I have some leftover material I had milled for another job, I might be able to use it in the new piece even if its thickness, for instance, is slightly different.

I start preparing the wood with a handsaw, normally ripping with an old Disston D-8, then using a new D-8 crosscut panel saw. Next, with my jack plane I start making a reference face and a reference edge for each of the frame pieces, and then I work on the parallel faces and edges. Once I have the main frame pieces done (legs and aprons, for example), I start working on the frame joinery. And once the joinery is done, I go back and dimension the panels. I take the same approach with each part of the piece: milling the frame, cutting the frame joinery, milling the panels. Breaking the work up this way is much more enjoyable.

### **Find your ideal speed for handwork**

When I was learning to dimension pieces by hand, I followed David Charlesworth's method for doing super-precise work. On each part, I aimed to create a dead flat reference face, a perfectly square reference edge, and an opposite face and edges that were perfectly flat and parallel; I worked to the tightest possible tolerances. But working that way was too slow for me, and I realized that to enjoy my work I needed to find the right balance between precision and speed. If I want precision, I have to go slow; if I want to be faster (in a slow job), I have to be less precise. So now I focus my effort on achieving excellent reference faces and reference edges and give less attention to the other face and edges. I'm not too concerned about having perfectly parallel opposite faces and edges; I won't use them for joint layout, and they'll be on the outside of the piece and can be cleaned up later. With this approach I won't have everything perfect, but I'll have it done. I decrease the precision a little bit in order to make things faster. Working this way is especially well suited to frame-and-panel construction, since all the precision goes into the frame, where the joinery is, and the panel milling is less critical.



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In frame-and-panel construction, I have to produce lots of mortises and tenons, and so I've developed ways of making them with that same balance of speed and precision. After marking mortises out, I drill them with the hand brace to remove as much of the waste as I can very quickly, leaving just a bit of wood at the end of every mortise. Then I slow up and finish them carefully with a chisel.

Another way I sometimes speed up the joinery process is by using sliding dovetails. In some places—for example,

when joining drawer sides and backs—sliding dovetails are faster for me to make than crisp through-dovetails, and perfectly adequate. I use Garrett Hack's sliding dovetail method for joining drawer sides with the drawer's back. Not only is it quicker to make these than through-dovetails, but they involve less chance of a fatal error or a bad joint. I make the sliding dovetail's tail on the drawer back, eyeballing the correct angle. Then I use a shopmade angle block to guide the chisel as I make





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the socket for it in the drawer side. Sometimes they don't match perfectly, but the result is normally just fine.

### **The importance of scraps**

In working by hand, I've developed a keen eye for scraps from previous projects. Because of all the labor involved in milling, any leftover part that's been milled by hand is precious. I typically use leftovers for less visible parts, such as drawer guides, kickers, runners, and drawer backs. Sometimes all the kickers in a piece are made in beech and the guides in maple. However, I try to maintain symmetry in using those offcuts. I particularly prize long, thin offcuts, because those pieces are difficult to make

by hand. Whenever I'm dimensioning a drawer side, for example, and I rip-cut a thin piece from it, I'm sure to keep it. Shorter offcuts of thin stock can make perfect backs for smaller drawers.

Sometimes (as with the box in the photo at right), I find I have enough hand-milled scrap to make a whole new piece. That's a good feeling.

Probably there are faster and better methods to work by hand, but these are some of my techniques. As I say to my students, don't simply do what I do. Try another method, and if it works for you, that's the way to do it.

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