



Furniture, Nailed

Old-fashioned cut nails make furniture that's strong, stylish, and a pleasure to build

BY ANDREW HUNTER

For me, joinery is right at the heart of furniture making. The type of joinery I choose determines not only the strength and appearance of a piece, but also the satisfaction I find in building it. And I like exploring all sorts of joinery. I often use traditional Chinese joints, which are beautiful and intricate and demand tight tolerances and extreme patience. But I'm also drawn to building with cut nails. I love the freedom and speed of working with nailed joinery, the great strength this time-tested approach delivers, and the



Nails through the years

From the time of Tutankhamun to Thomas Jefferson, all nails were hand forged, hammered out one at a time by blacksmiths. They were so precious that when a house burned down, the nails were salvaged. Forged nails were made from wrought-iron rod and their shanks tapered on all four sides to a point.

Then came cut nails, developed at the dawn of the 19th century. They were sheared by machine from sheets of iron and could be made quickly in large numbers. The same machine that sliced the tapered nail from the sheet also whacked the wide end of the nail to create the head. Economical and effective, cut nails soon displaced forged ones.

But by the late 1800s, wire nails appeared and almost immediately eclipsed cut nails. Wire nails, clipped from a spool of steel wire, suddenly made nails dirt cheap. They may have been somewhat less effective and aesthetic than cut nails, but no one seemed to notice.

rustic beauty of exposed iron nail heads against a gleaming, hand-planed wood surface. While complex joinery is always respected, using nails for furniture making got a bad rap somewhere along the line. We need to change that! In this article, I'll lay out what you need to know to get started working with cut nails.

Why cut nails?

When using nails in my furniture, I choose cut nails. They come in a wide array of interesting head shapes, and they easily

outperform wire nails. Their square tips cut through the wood instead of wedging it apart like the pointed tip of a wire nail. This reduces the risk of splitting. And the shanks of cut nails are tapered in one dimension—which you align with the grain—producing better grip. As cut nails puncture the wood, their taper bends the cut wood fibers like so many tiny fish hooks, locking the nail in place. As a bonus, the distinctive heads of cut nails add a historic character even to modern designs.

Driving lessons

We've all been hammering wire nails successfully since we were little, but driving cut nails properly for fine furniture might require some retraining. The most important difference is that before you drive a cut nail you need to align it with the grain of the wood. The tapered dimension of the shank should be parallel with the grain of the top board. That way, the wedging action is exerted against end grain, which can take substantial pressure without splitting. It's also best to pre-drill for cut nails,

HOW TO DRIVE A CUT NAIL

Cut nails are a different beast. Yes, you whack them with a hammer like ordinary wire nails, but all sorts of special tactics apply.

How much nail?

Hunter selects a cut nail long enough so two-thirds of it protrudes from the top board.



Align the taper with the grain

To avoid splitting the top board, turn the cut nail so that its wider, wedged face is parallel with the grain.



Well set

To set the cut nail's head just below flush, Hunter makes the last few hammer blows with the slightly convex face of his double-ended hammer.

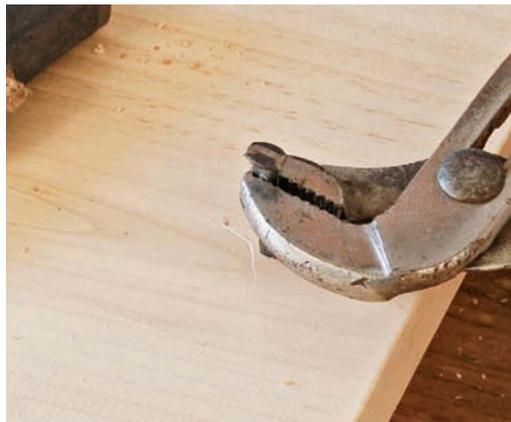


Drill before driving

Especially when nailing near the end of a board, drill pilot holes to prevent splitting. Select a bit whose diameter equals the thickness of the nail shaft's narrow, untapered side.

You can steer while driving

If the nail twists as you drive it in, use pliers to bring its wide face back into alignment with the grain.



Water does wonders

You can bring a shallow ding back to the surface by dabbing it with a wet rag.



The skinny on cut nails

There's just one company left in the United States that makes cut nails, and that's the Tremont Nail Co. in Mansfield, Mass. Founded in 1819, the firm was among the first anywhere to produce cut nails, and they make them now with machines they've been using since the 1860s. Tremont's cut nails come in dozens of sizes and styles. Some, such as flooring nails and masonry nails, are hardened, but most are made from softer lower-carbon steel, which makes them suitable for clinching. The many head shapes offer

options for aesthetic expression. Rose-head nails have a dome surrounded by a small flat fringe. Hinge nails have a head large enough that you can create your own shape by grinding and filing. Clout nails, with their large, flat heads, provide extra purchase when joining thin boards. Fine finish nails have the most discreet head. And forged-head nails replicate earlier wrought nails.

Online Extra

Head on over to FineWoodworking.com/263 to get a 360° view of the Tremont Nail Co. factory.



FLOORING

ROSE HEAD

HINGE

CLOUT

FINE FINISH

FORGED HEAD

using a bit sized to the nail shank's untapered dimension. Not only does this help prevent splitting, especially when nailing close to the end of a board, but it also helps you drive the nail straight.

I swing the hammer differently when nailing furniture. Rather than using a wrist action as with carpentry, swinging the hammer in an arc, I involve more of my arm in the swing and aim for an action that takes the hammer head nearly straight up and down over the nail. I also use a Japanese hammer. It has a flat striking surface on one end of the head and a crowned striking surface on the other end. I use the flat side to drive the nail, since it gives me more control. When the nail is nearly home, I switch to the crowned surface, allowing me to drive the nail slightly below the surface of the wood without damaging the surrounding material.

For nailed furniture I often use white pine, which is historically appropriate, a breeze to work, and simply beautiful with cut nails. To keep it beautiful I wipe my hands often as I work so the iron in the nails reacting with the oils in my skin doesn't stain the wood; you could also wear thin cotton gloves to keep things clean.

Proper support of the workpiece is critical when nailing. Whenever possible I align the work so that the force of the hammer blow is directly over a leg of my workbench. If I'm nailing up a large cabinet, I'll lay it down on the bench or on horses and push it up against a wall, using the wall to back up the hammer blows.

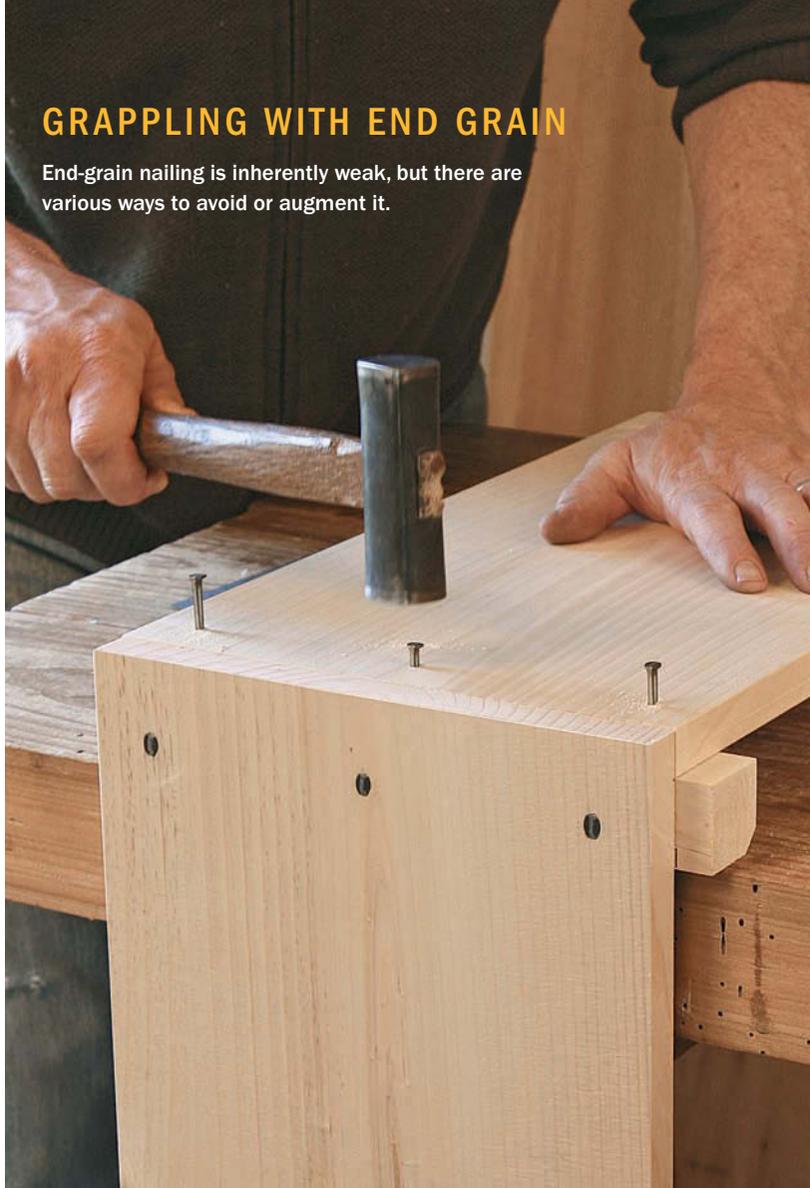
If I have a number of nails to drive across a single joint, I tap the nails at each end partway in before driving home the rest. This prevents the workpieces from shifting as I drive the nails. Sometimes I glue and nail a joint. If so, I'll glue it first and do the nailing after the glue has dried.

Nail joint strategies

Just like glue, nails hold best in face grain. If all you have is end grain to nail into, you can add boards that offer face-grain nailing. If you do so, it may still be worth driving a few nails into the end grain; they will add some strength to the joint and through triangulation with the other nails provide racking resistance.

GRAPPLING WITH END GRAIN

End-grain nailing is inherently weak, but there are various ways to avoid or augment it.



Employ corner blocks. When building boxes, one way to avoid end-grain nailing is by adding interior corner blocks to provide face-grain surfaces.



Battens for side grain. Battens added to the end panels provide side-grain nailing. For extra grip, he also drove some nails into the end grain.



Squeeze me. If you need to nail close to the end of a board, applying clamp pressure while you nail can help avoid splitting.



Trim after nailing. To keep from splitting a top board when nailing near its end, leave it overlong and trim it afterward.

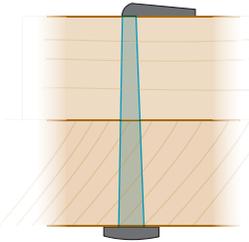
THE SINGLE CLINCH

When face-nailing two thin boards, you can maximize strength by driving a long nail through both boards and clinching its end.

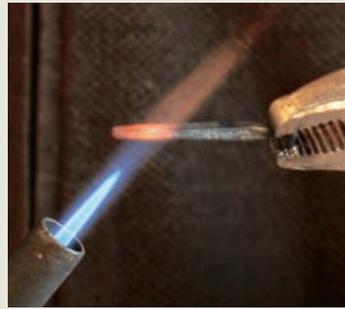


Start the clinch. Hammer extralong nails through both workpieces and into a sacrificial backer board below.

Clinch time. After flipping the workpiece and prying off the backer board, hammer over the tips to create the clinched joint.



Cinch the clinch. If necessary, Hunter tightens the clinched nails by resting the bent tip on an anvil and hammering on the head.



Fired up

Most cut nails are soft enough for clinching. If yours aren't, you can quickly anneal their tips with a baptism in a gas flame. Let them cool slowly; quenching them in water will reharden them.

In situations where you must rely on end-grain nailing alone—as with shelves nailed through a case side—it's best to house the shelf in a dado for extra support, and to drive the nails in at opposing angles to resist withdrawal. You can also add great rigidity to such a case piece by nailing on the back boards.

Clinch nailing is used to secure two face-nailed boards as tightly as possible. Select a nail long enough to go through both boards and protrude about $\frac{1}{4}$ in. If the nail is too long, snip it with linesman pliers. Using a backer board, predrill through the top board, and drive the nails all the way. Then pry off the backer board and hammer the protruding tips over. For a cleaner look, try a double bend. Using slightly longer nails, drive them in and pry off the backer board as before. Next, use pliers to bend the very tips at 90° . Then clinch the nails, burying the tips below the surface.

When it comes to cross-grain joinery, nails are more forgiving than glue, allowing the wood to give slightly under the pressure of seasonal movement. For joining wide boards across the grain, however, you might enlarge your predrilled holes. Alternately, you can reduce movement issues by using multiple narrow boards instead of a single wide board or glued-up panel.

Hardware can be attached with nails, and if possible I clinch the nails. Not only is clinching extremely strong, but the nails can always be tightened in the future if necessary. If it's not possible to clinch-nail the hardware, I angle the nails slightly in different directions to make pulling them out together nearly impossible. When I use this technique, I pre-bend the heads of the nails so that they sit flat when driven home against the hardware. □

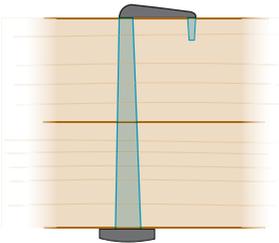
Andrew Hunter builds furniture in Accord, N.Y.

THE DOUBLE CLINCH

For a cleaner-looking clinch, add a second bend.



Bend the tip. After driving the nail, bend a short section at the very tip with pliers (above). Hammer the protruding portion down until the bent tip punctures the surface (right), then hammer the whole thing flush.

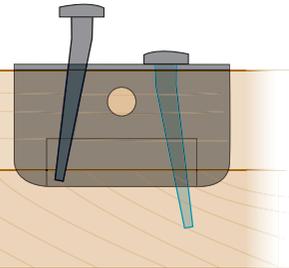


A NAILED HINGE

Bend the heads and angle the nails.



Angle power. When nailing hardware, Hunter drives the nails in at contrasting angles for extra resistance to pulling out. Before driving a nail he cocks the head (above) so it will lie flat when driven home against the hardware. For maximum strength, hinges can be clinch nailed.



Nail salon

Hunter often touches up the heads of cut nails with a grinding wheel and a file. Then he darkens them with a torch and finishes them, after cooling, with a dab of tung oil.

