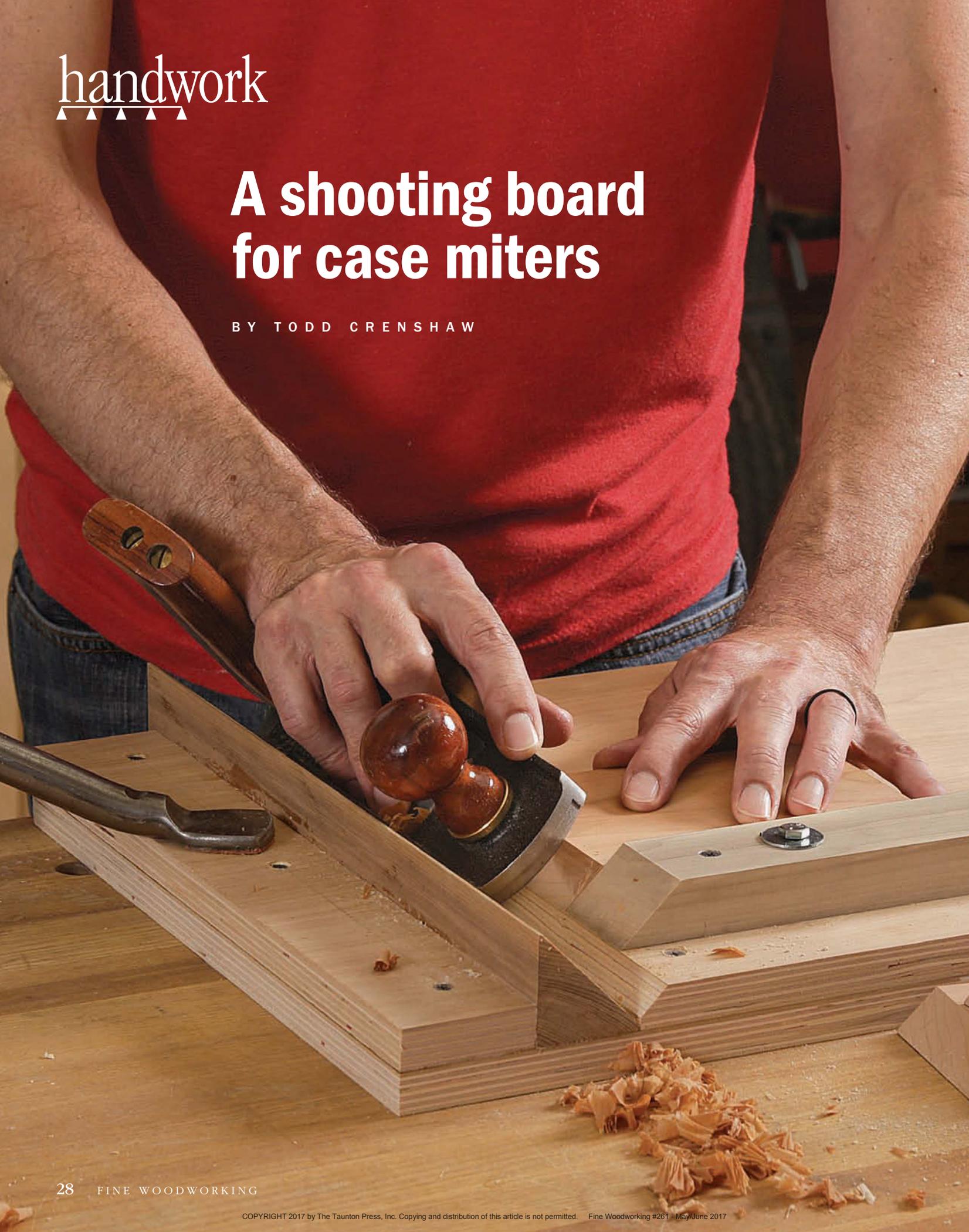
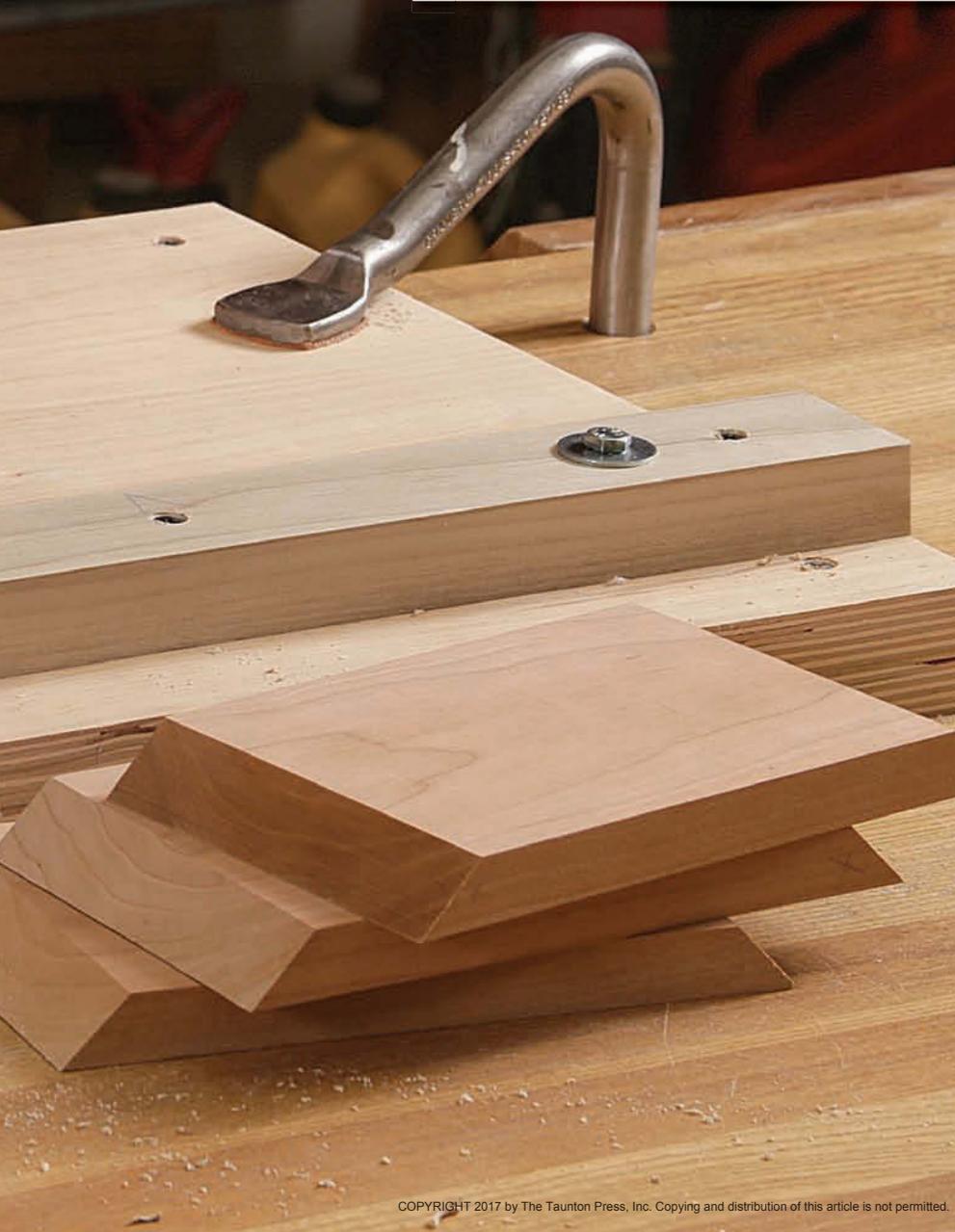
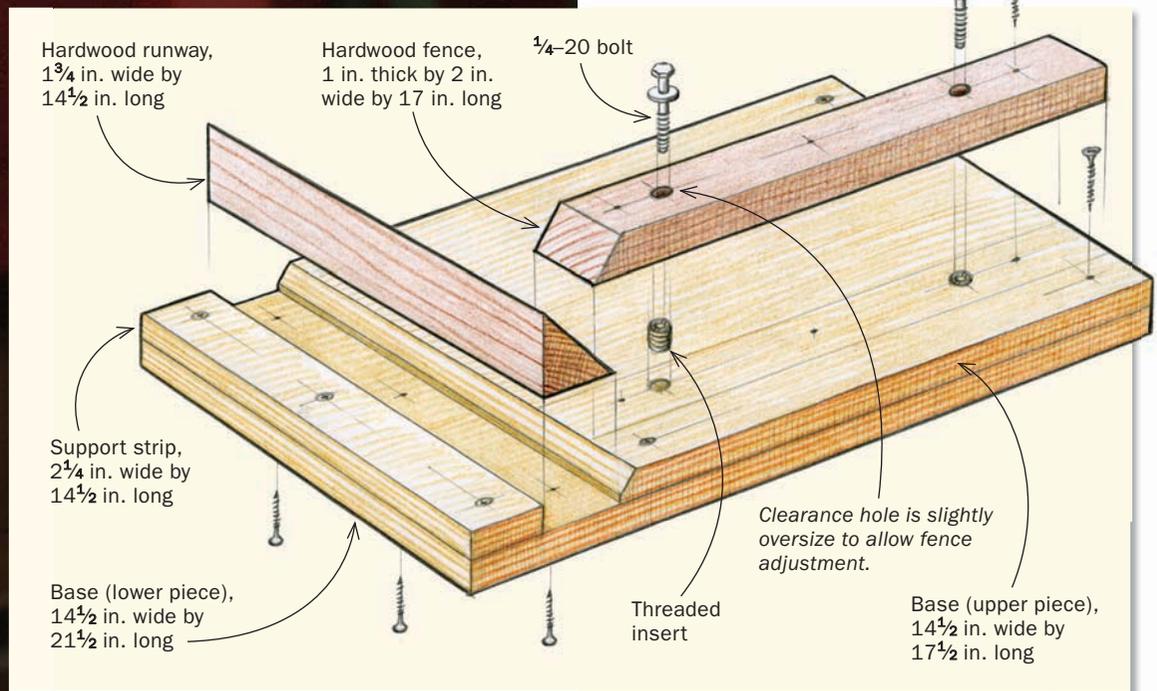


A shooting board for case miters

BY TODD CRENSHAW





I've always had trouble cutting long case miters accurately with a tablesaw. But I've had success roughing out square cuts and frame miters with the tablesaw and then refining them with a shooting board, so I thought the same process would work for case miters. After a few sleepless nights working out the details, I made this shooting board. I'm happy to say that it works perfectly.

This shooting board is easy to make, easy to store, and easy to adjust. I rough out case miters at the tablesaw and then plane them to perfection with the shooting board. I use a smoother, but a jack plane would do a great job, too. Here I'll give you the plans and instructions for building it, and show you how to dial it in for perfect miters.

Accurate runway is the key to success

There is no doubt that the most challenging step in building this shooting board is making a runway with a perfect 45° reference face. The best way is to first rough-cut the angled face with the tablesaw and then perfect it with a handplane.

Start with a hardwood blank that's much wider than the runway's final width. This way, you can recut the face on the tablesaw if you make a mistake. When planing the face, check your work with a combination square. You want the face to be 45° and the

Start with the base

To create accurate miters, the base must provide a flat, stable surface and the runway must be a true 45°.

RUNWAY HOLDS THE PLANE AT 45°

Start with a wide blank. This affords you plenty of material to work with when planing the runway's 45° face.

Rough out the miter. This cut is meant to remove the waste quickly, not to produce a perfect miter. Crenshaw uses a push stick to ensure that the offcut clears the underside of the blade.



Refine it with a plane. Hold the runway in a clamp so that its face is parallel to the benchtop, and then pinch the clamp between benchdogs. Check your progress with a combination square.



Cut the runway free. Make the cut just behind the spot where the 45° face meets the blank's top face.



ASSEMBLE THE BASE AND RUNWAY

Made from two pieces of plywood screwed together, the base provides a big, stable platform to hold workpieces.



Miter the base. This cut is not critical because it doesn't affect the angle at which the plane cuts.



Screw the base together. One screw at each corner is all it takes, but drill a pilot hole and countersink before driving them in.



Attach the runway. After placing the runway on the base and setting it against the base's 45° edge, glue and screw a piece of plywood behind it to act as a support (left). Then, working from under the base, use three screws to secure the runway in place on the shooting board (below).



Attach the fence

The fence must be exactly 90° to the runway. The first step to getting it there is to bolt it to the base. Oversize holes allow for small adjustments.



Clamp the fence down square. Check it against the runway using a drafting square. The two long sides work better here than the rule and head of a combination square.



Make room for the threaded insert. Drill where the bit dimpled the base when drilling clearance holes in the fence. Use a square to help keep the drill square to the base.



Drill a clearance hole. Make the hole a bit oversize so that you can adjust the fence after bolting it to the base. Use a depth stop so that the tip of the brad point just makes it through and marks the base beneath it.



Drive the insert. Put a short bolt in the insert. A washer beneath its head makes it easier to back it out after seating the insert (inset). It's easier to keep the insert square with a screw driver than with a ratchet.

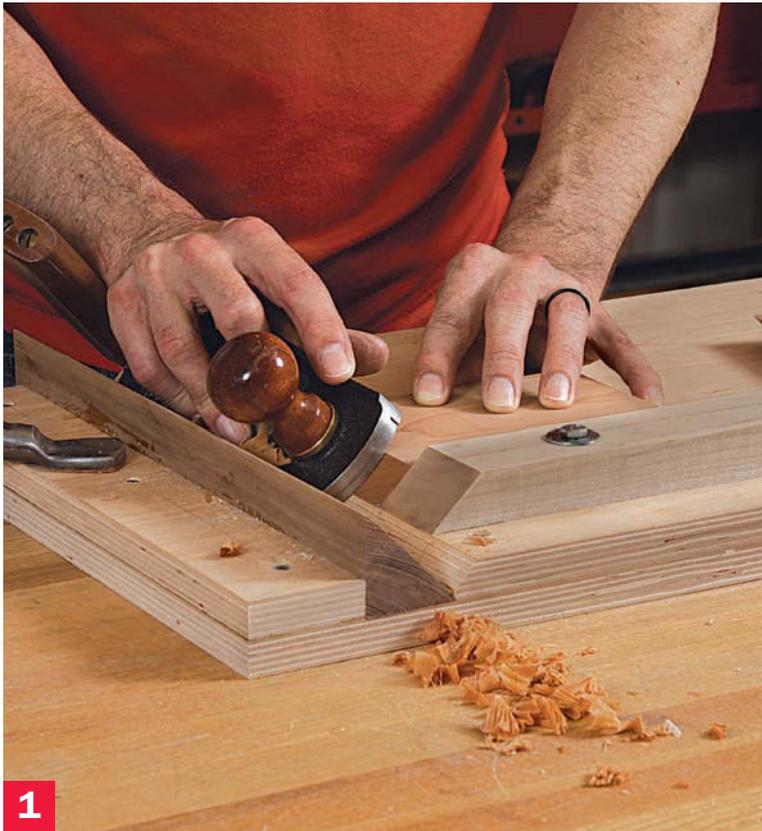


Bolt down the fence. Drive in the two bolts, check that the fence is square to the runway, and then tighten them down.

Square the fence and lock it down

The drafting square gets you close, but you won't truly know if the shooting board is accurate until after you've made a few miter joints.

Shoot two miters to check for square. After roughing them with the tablesaw, use the shooting board to refine them (1). Set the edges against the fence and then bring the miters up to one another. There should not be a gap between them (2). If there is, you'll need to adjust the fence, and then retest it. When the fence is dead accurate, lock it in place with three screws (3).



runway to be flat along its length. After you've planed the runway's mitered face to 45°, rip it free from the blank.

Dial it in for perfect joints

After you've made the runway, the rest of the shooting board will seem like a walk in the park, but you do need to spend some time ensuring that the fence is exactly 90° to the runway. I do this by making a series of test joints. If the fence isn't square, I adjust it and try again.

Here's how I do it. Start with two workpieces that are at least 6 in. wide. Rough out a miter on the end of each one, then use the shooting board. When all of the sawmarks are gone and the plane takes a full-length and full-width shaving from the miter, place the two workpieces flat on the shooting board and pressed against the fence. The points of the two miters should touch with absolutely no gap between them. If there is a gap, adjust the fence. Repeat this process until the two miters align with no gaps. □

Todd Crenshaw, who lives in Durham, N.C., produces furniture and accessories for his own home. See what Todd is up to at toddswoodwork.org.