Don't Build a New Workbench

Improve any existing bench with a few inexpensive pieces of wood and steel

BY CHRISTOPHER SCHWARZ

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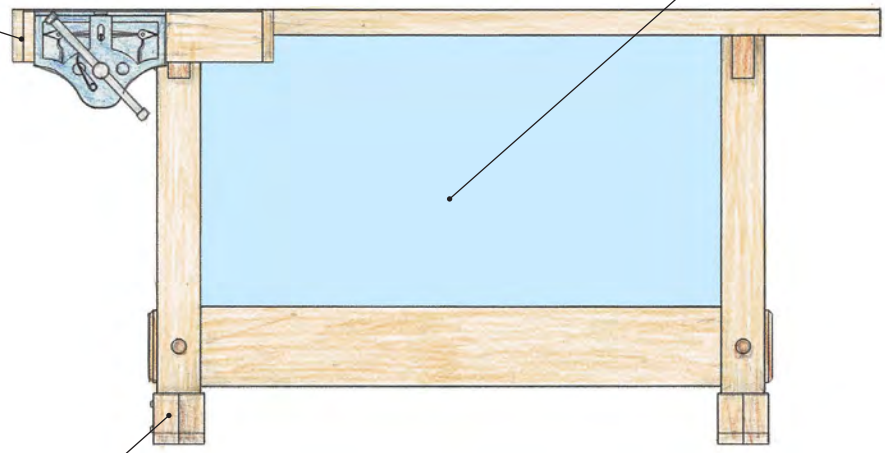
Create a sturdy stance

Address the top-to-base connection, eliminate racking, and immobilize the base.

Lock the top to the base. *Gravity isn't enough to hold the top to the base. Use carriage bolts for a strong connection between the two.*

Plywood panels stop the racking. *Instantly improve a lightweight bench by adding a plywood panel or two to the base, turning a frame into a solid box. A diagonal clamp squares the base for screwing.*



A new workbench—with tons of mass and new vises—is a tempting idea when you're struggling with an inherited or entry-level bench. If you love building workbenches, go ahead and build the bench of your dreams. But if you prefer building furniture, there are a dozen inexpensive or free ways to improve any existing bench.

Most of these improvements involve only a few scraps of wood and metal—and rethinking what a good working bench should look like.

End the wobble

Many entry-level benches sway during heavy planing or sawing. This swaying makes you work harder and reduces your accuracy when sawing. If the bench is bolted together, first tighten all its bolts. Then try these two improvements.

Improve the connection between the benchtop and its base. Usually the benchtop is held in place with gravity and maybe a couple of lag screws.

Eliminate slide. *Surround the feet with cleats that are nailed or screwed to the floor. The cleats can be positioned on the inside or outside of the workbench's legs. Cleats on the outside are easier to install; cleats on the inside are less likely to trip you.*

Bolt it down. *If cleats alone don't do the trick, drive lag screws up through the floorboards. If your workbench has sled feet, you can drive the screws from above.*

Photos: Christopher Schwarz; drawing: Kelly J. Dunton

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Put the legs to work

Remounting the benchtop or blocking out the legs flush with the front edge gives you options to add support for clamping large parts.

Move the base when you can. *On benches with straight legs, it's easy to reposition the base so that the front legs are flush with the front edge of the benchtop.*

Block out the legs if you have to. *On benches with trestle-style bases, you can still create a flush clamping surface by blocking out the front leg flush with the benchtop. The benefit of this method is that you can predrill the block before mounting it.*

Add holes for support pegs. *Drill holes through the legs for pegs or holdfasts, which are handy for supporting long boards or panels when clamped in the front vise.*

This is not enough. Bolt the top to the base using carriage bolts (two bolts at each end), washers, and nuts. Countersink the heads of the bolts into the benchtop well below the working surface. To stop the base from swaying, glue and screw a wide piece of ¾-in. plywood to the rear of the base. If that doesn't do the trick, add a similar piece to the front of the base.

Immobilize the base

Even the beefiest workbench can slide across the floor during heavy handplaning. Lock the bench in place on the floor with cleats. Screw or nail them to the floor on the inside or outside of the legs.

If cleats alone don't do the trick, drive lag screws up through the floorboards into the legs to immobilize a jumpy workbench. If your workbench has sled feet you can drive the lag screws from above.

Put the legs to work

The front legs of your workbench can become clamping surfaces if you bring them in line with the front edge of the benchtop. This is handy when planing the edges of large doors or panels.

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Big jobs aren't a problem. *With the front leg flush with the benchtop, you can use a round peg or holdfast to support the bottom of the workpiece. This allows you to work on big parts like tabletops or even full-size doors.*

TIP GIVE YOUR VISE MORE GRIP

Add a soft liner. *A leather or rubber liner adds grip while protecting the workpiece. Adhere the liner to one side at a time, using waxed paper to protect the opposite face from glue. A spacer block of soft pine helps distribute the clamping pressure evenly while the glue (contact adhesive or epoxy) cures.*

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Securing work

There are infinite ways to get creative about holding your work, from single-point stops to clamps and holdfasts. Figure out what you need to clamp. Then get your own system going.

SINGLE-POINT STOP

A stop with bite. *Very common in old benches, these planing stops have teeth that improve their grip. The points will mark the end grain of your boards, but tool marks like these are common on antiques. Embrace them.*

You can bring the legs in line with the benchtop by shifting the base forward and bolting it in place there, or you can glue blocks of wood to the front legs to fill the space and accomplish the same goal.

Improve the grip of vises

Most vises grip the work with contact surfaces that are metal, which can mar the workpiece, or wood, which is slippery. I prefer to line vise jaws with a grippy material, which can make any old vise work like new.

I've tried different materials, from suede to cork to neoprene. My favorite material is Crubber, a durable and grippy mix of rubber and cork available from Benchcrafted.

Workholding with no end vise

Until the 14th century, most woodworking benches didn't

Add a batten for wide stock. *Sometimes a screw or two can solve the trickiest workholding problem. If you don't have a holdfast, just screw the batten in place. You won't be the first—or the last—to do it. (It's a workbench, not an altar.)*

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HOLDFASTS

While you can do without a holdfast, they are very handy and versatile.

Just the holdfast. *A quick whack on the top of the crook tightens it in place. Then a whack on the back of the crook loosens it.*

A holdfast's helper. *A notched board, called a doe's foot, can stop spinning and control the back end of your work, allowing you to plane wide boards against a planing stop.*

Holdfasts, a planing stop, and a sticking board. *When planing thin moldings, the work wants to bend. A sticking board against a planing stop, secured to the benchtop with holdfasts, fixes that problem.*

use vises, and you don't need them, either.

You can use a single-point planing stop. This square stick of wood (3 in. square by 12 in. long is a typical size) is friction-fitted into a mortise right through the benchtop. Adjust the stop up and down with mallet taps. To improve its grip, many stops have a blacksmith-made fitting that's toothed across the front. But it's also common to find planing stops that have teeth made from old nails driven through the stop.

Once you have a planing stop, you can make a couple of additions that will eliminate the need for an end vise or tail vise and solve the problem of pinching a workpiece between dogs, which can slow your work and, worse, bend your workpiece.

First you need a pair of holdfasts. The Gramercy Tools holdfasts are inexpensive (around $31 at Tools for Working Wood) and work well.

In addition to holding your work directly to the benchtop, holdfasts can secure sticking boards, battens, and a "doe's foot" to eliminate the need for an end vise.

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VISE ALTERNATIVES

Clamps, hooks, and notches are excellent vise alternatives. Even without vises you can dovetail, cut tenons, and shape your work.

Bar clamps for dovetails. *Use bar clamps across the top of your bench to hold workpieces vertically against the front of the bench. It's not much slower than a dedicated vise.*

Crochet, or hook, is an effective end stop. *With the workpiece resting on pegs in the legs and the front end nestled into the crochet, you don't need clamps to edge-plane a long board.*

The doe's foot is the simplest and most ingenious of these devices. Press the end of your work hard into the teeth in your planing stop. Put the notch of the doe's foot on the back corner of your work. Fasten the doe's foot with a holdfast.

Holdfasts are also useful for securing a batten across the end of the benchtop for planing (or sanding) wide carcase sides. Place one end of the batten against the planing stop. Secure the other end with a holdfast. Now you can easily plane the side of a carcase without vises or additional clamps.

If you aren't willing to buy holdfasts, there's a cheaper solution: Screw the doe's foot, sticking board, or batten to the benchtop. I use drywall screws.

No front vise?

If you don't have a front vise, or one that holds well, there are several ways around the problem. If you need to dovetail a drawer or a case side, clamp it to the front edge of the benchtop with bar clamps.

Hand-sawing tenons can be tricky without a front vise, but there is a workaround for this problem, too. Some old benches had a large square notch cut into the edge or end of the benchtop, and work was secured in the notch with the help of a softwood wedge.

For edge-planing long boards, you can use a crochet. In France in particular, woodworkers would use the

An almost-forgotten way to cut tenons. *These notches show up on lots of old benches, with origins from Italy to an Ohio Shaker community. Rest the workpiece in the notch, and tap in a wedge (only 1° or 2° slope is necessary) to lock it in place. It helps to have a selection of wedges for different sizes of work.*

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HAND SCREWS

A pair of heavy hand-screw clamps are as useful as a holdfast. Hand screws are a valuable yet often forgotten tool in the modern workshop.

Hand screws as a dovetail vise. *With your workpiece against the front of the bench, use hand screws on both sides to hold the piece. Then clamp the hand screws to the top of the bench with bar clamps.*

crochet—French for "hook"—to secure work against the front edge of the benchtop. The crochet is indeed a hook, and you can push work into it to plane boards on edge with the help of a clamp or holdfast to hold the board's far end.

Never underestimate the power of hand screws

These early clamps can be pressed into service for many operations: to make a face vise, to make a vise for dovetailing, as a planing stop, or as a small vise to hold odd-shaped things.

In fact, whenever I get stuck trying to hold a weird piece of work, I think: Could a hand screw fix this intractable problem? I'm surprised by how often the answer is yes.

And that's the funny thing about workholding. Throwing money at the problem doesn't always win the day. Most things can be held at any workbench by investing in only gravity, friction, wedges—and the occasional hand screw. □

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Hand screw holds little pieces. *Use the hand screw to grab a small workpiece, and then clamp the hand screw to the front of the bench to keep it all in place.*

Two ways to edge-joint with a hand screw. *For short pieces (top) clamp the workpiece in the hand screw, and then clamp the hand screw to the bench. For longer pieces, butt the front of the workpiece up to a stop and stabilize the back end with a hand screw.*

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