

Three Tips for Mounting Hardware

Hinging a Jewelry Box

by Sam Bush

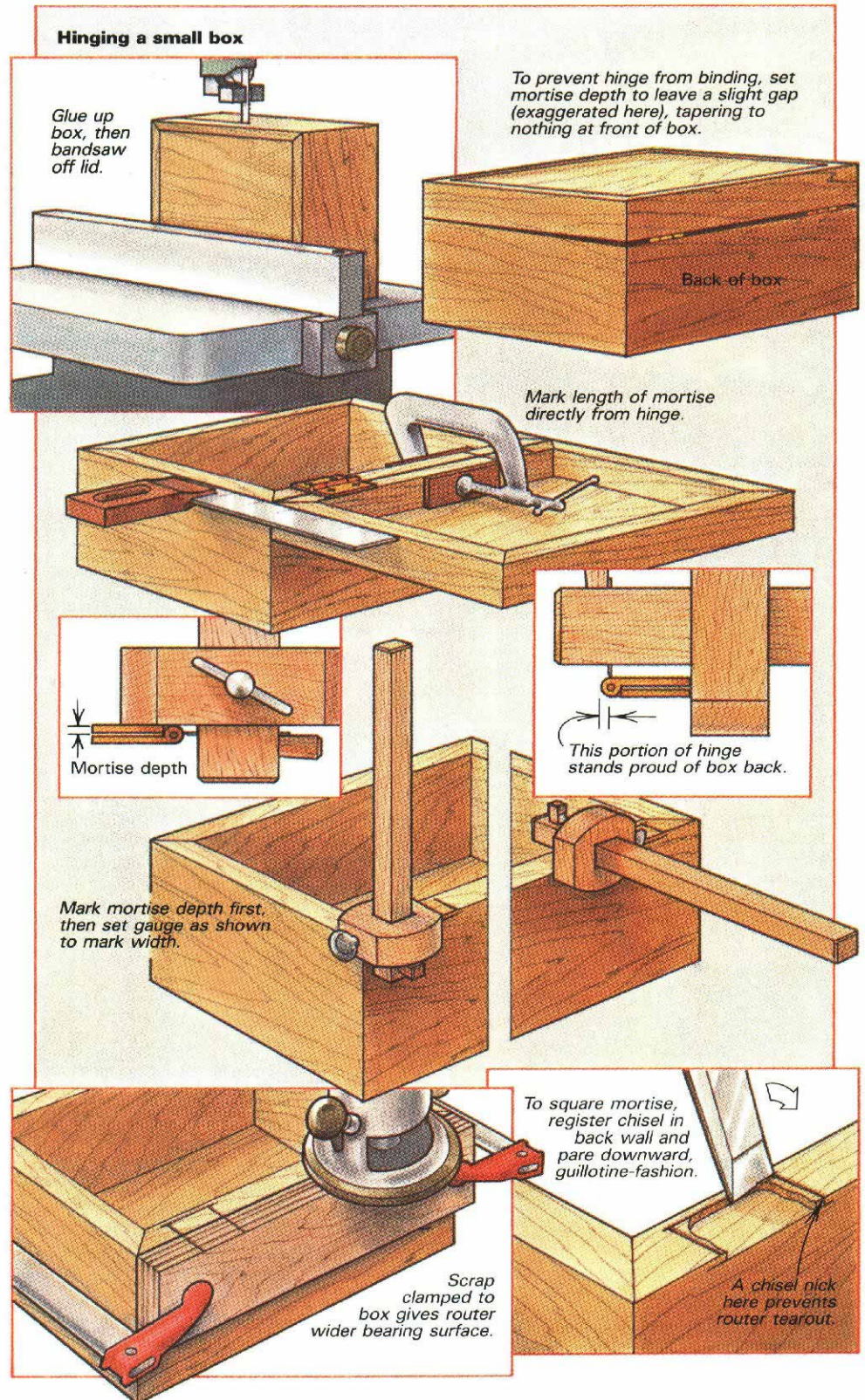
Mounting hinges on a small box can be frustrating. It's exacting work that comes at the end of the project, when you'd like to be done. Here are a few ideas I find helpful for hinging a box of the card-file type, where lid and box must align well.

I prefer using unswaged brass butt hinges because they're attractive and readily available. It's handy if the hinge-leaf width is the same as the box-side thickness, since this avoids having a closed mortise with a fragile back wall. Two hinges are enough for boxes up to 12 in. long; for longer boxes, I might use three.

For high-quality work, mortise the hinge leaves into both the box and the lid. A little off the pace but still okay is to mortise the entire hinge into only the box, screwing the top leaf right to the lid so it stands proud of the surface. Either way, clamp the lid to the box as shown in the drawing so the ends accurately line up, and lay out the hinges by eye, adjusting so they're equidistant from the ends. Now mark the length of the mortises with a knife drawn against the ends of the hinges or by just nicking and then using a square.

If the mortises are to be cut with chisels, lay out the depth and width with the marking gauge set as shown. Depth lines should be inside and out if the mortise is open. Chisel cautiously, with the tool's bevel facing up so that the chisel's flat back will leave a flat mortise. Be careful not to go *too* deep, or you'll end up with bound hinges that spring the lid open at the front.

I prefer to cut the mortises with a mortise bit in a router and clean them up with a chisel. I set the router for depth and its fence for width right from the hinge, then test it on a scrap. If I'm making a double mortise, I cut the scrap in half and close it over the barrel of the hinge to test the



depth. Single or double, it's the barrel, not the leaf thickness, that governs depth. I make the mortise a touch shallow, which leaves a tiny gap at the back of the box but ensures that the front will close nicely.

When routing the mortises, be sure you're going *in between* the end lines, not off to one side. It's a good idea to nick the grain at the right end of each mortise with a diagonal chisel cut so the exiting router bit doesn't break it out. Generally, the router is well supported by the side and end of the box, but you could clamp on a piece of wood, parallel and straight-edged, to improve the bearing surface, at the expense of some clumsiness and having to reset the router fence. Squaring up the mortise with a chisel is easy if you lay the chisel against the routed back wall and pivot it down into the corners, guillotine-fashion. This cut is with the grain, so not too hard. Make a cut or two on the end knife lines, and the mortises are done.

At this point, the hinges theoretically fit right into the mortises and are ready for screws. Drill tiny lead holes for the screws, or you'll surely twist off a soft brass screw head—an incredible nuisance. The holes should be smaller than the screw diameter and as deep as the screw length. Also, they need to be *on-center*, since the tapered screw-head seating in the tapered hinge hole will otherwise pull the hinge off-location. An accurate center punch is nice for locating lead holes, but I prefer an awl, partly out of stubbornness but also so I can use the hinge's tapered seating to my advantage.

For example, when mounting the hinges on the box, which I do first, I mark the holes a *tiny* bit off-center to the inside to draw the hinge leaf in tight. Then I drill and install the top screws one at a time, closing the box after each one to check the alignment. If things aren't right, I influence the lid toward perfection by *slightly* off-centering the next screw. This is especially helpful on the lid of a single-mortise type box.

If, after all this, there's still an alignment problem, the addition of thin wooden liner strips, projecting only $\frac{1}{8}$ in. and rounded at the top, usually solves it and gives nice friction to the closure, too. Why didn't I say this in the beginning? I like this detail so well, I often make boxes with lift-off lids and skip the hinges altogether! □

A longtime instructor, Sam Bush runs a specialty woodwork business in Portland and is head of the Guild of Oregon Woodworkers.

Gauge Speeds Knife-Hinge Installation

by Larry Brusso

I think that knife hinges are the most attractive way to hang a fine cabinet door, and they're appropriate on any well-made piece of furniture, contemporary or traditional. I make straight knife hinges for overlay doors and L-shaped ones for flush doors. Installed properly, they give a door a satisfying, friction-free swing.

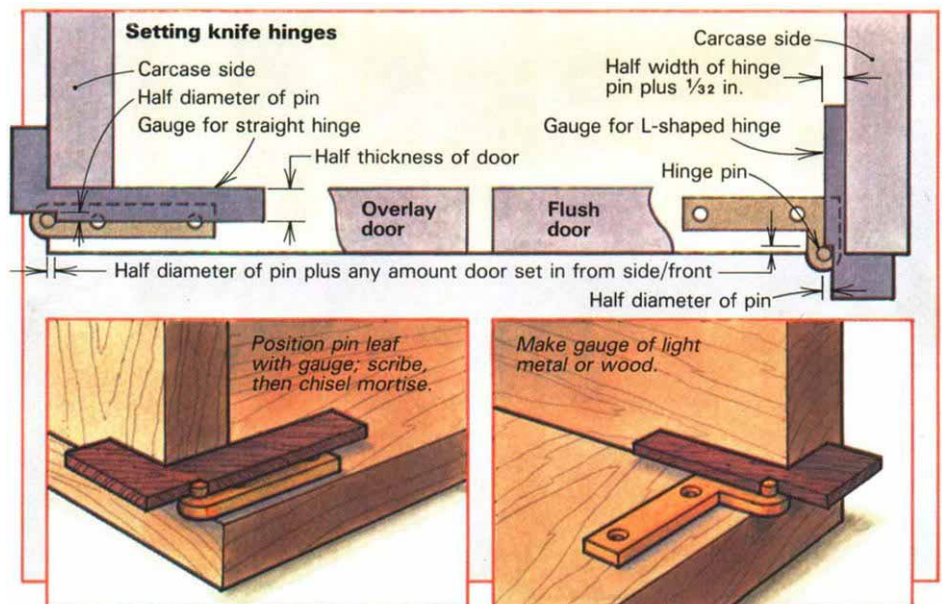
Unlike most commercial knife hinges, which have leaves riveted together by the pin, mine separate into two parts. This lets me use a simple gauge to position them precisely. Knife hinges look best if they're mortised into both the cabinet and the door and positioned so the pin is half covered by the door's edge. The pin leaf of the hinge is mortised into the top and bottom of the carcass. It's extremely important to get the pins in the top and bottom in the same plane and in the same relationship to the carcass sides. If you don't, the door on which you lavished so much attention will hang like an old garden gate. I find it inconvenient to cut mortises in an already assembled cabinet, so I clamp up the case dry and use the gauge shown to position the pin leaves. Then I knife their outlines, disassemble the case and chisel the mortises. The case can be glued up with the pin leaves in place.

To fit an overlay door once the pin leaves are installed, first trim the door about $\frac{1}{4}$ in. shorter than the opening and position it so its hinge edge, with the door in the closed position, butts against the pins. Then mark each pin location on the door's edge by knifing a line on each side of it. Set the bottom door leaf first by lining up its hole with the two knife marks. Position the leaf lengthwise so the hole is half covered by the door's bottom corner, then knife around the leaf and cut its mortise. Install the top door leaf similarly, but position it lengthwise so the hole is slightly less than half covered. That way, you can lengthen the mortise a little at a time until the edge of the door lines up with the edge of the carcass.

To hang the door, screw the bottom door leaf in place, but leave the top one off. Slip the bottom leaf over its pin, holding the door as if it were open. Tilt the door toward you slightly and hold the top door leaf on its pin with your fingertip. Now tilt the door back, carefully sliding the leaf into the mortise. Check the door's alignment and lengthen the mortise as necessary before driving the screws.

The same procedure works for flush doors hung on L-shaped hinges, save for two differences. To mark for the door leaves, you have to snake the door inside the cabinet and position it such that its front edge butts against the pins. And both hinges have to be set correctly on the first try because you can't adjust the mortise length to move an L-shaped hinge.

Larry Brusso, of Pontiac, Mich., makes and sells knife hinges. FWW #41, p. 67, shows how to make knife hinges. (continued on next page)



Locking Up a Chest

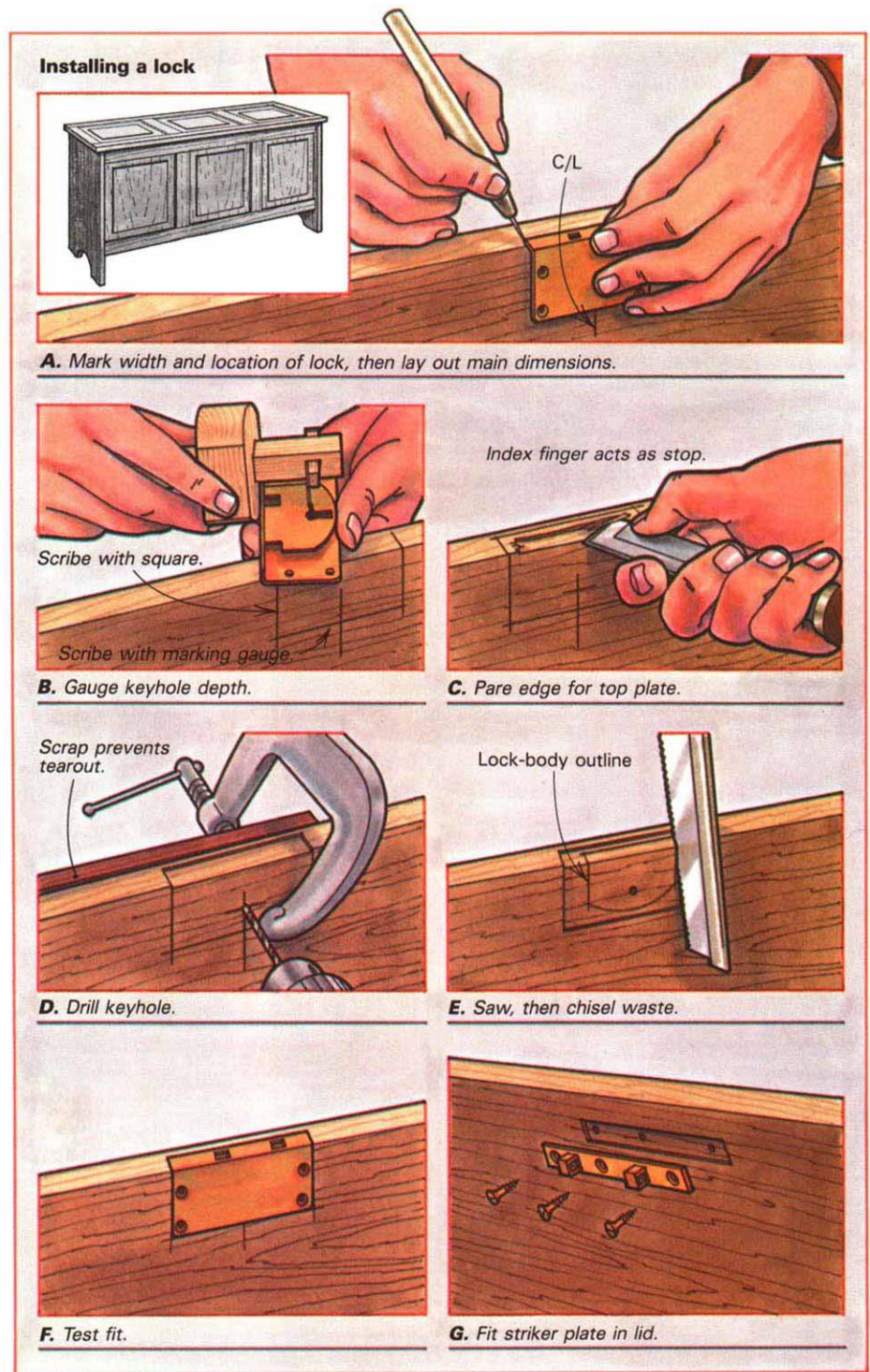
by Simon Watts

In olden days when chests doubled as strongboxes, a sturdy lock was essential. Some chests were even fitted with multiple locks whose keys were guarded by different people, ensuring that the case could not be opened without witnesses. Although you may not need *quite* that much security, locks are still handy for keeping chests, jewelry boxes and toolboxes from being casually explored. This series of drawings shows how to mark out and set a chest lock.

Begin by marking the centerline of the top front edge of the chest with a pencil. Square this line across, continuing it down the inside face. Place the lock on this centerline and mark the wood on both sides with a knife (A). Knife these lines square across the edge and down the inside of the chest. Now set a marking gauge to the width of the top plate of the lock and gauge a line along the upper edge of the chest to show where wood must be removed. Reset the gauge and mark the lower edge of the lock plate on the inside of the chest. Mark also the center of the keyhole by setting a gauge to the vertical distance between the center of the keyhole and the top surface of the lock plate (B).

Now deepen the gauge marks with a chisel and pare the waste for the top plate, using your thumb and index finger as a stop to prevent the chisel from slipping and cutting too far (C). Drill out the keyhole a fraction bigger than the key, using a wood backing to prevent tearout (D). Set a gauge to the thickness of the back plate and scribe a line on the top-plate mortise, then chisel to the scribed line to mortise the back plate.

Mark the outline of the body of the lock with a pencil (no great accuracy is required here since the lock's plates hide this part) and remove the waste with saw and chisel (E). Try the lock in place (F) and chisel where needed to fit the body so the lock plates are snug in their mortises. If necessary, shape the keyhole with a small rattail file to fit the key. I screw the lock in place, engage the striker plate in it and turn the key to lock it in place. Some plates have projecting tangs that position



the striker in the lid when it is gently closed (G). If yours doesn't, put the screws in the striker points-up, close the lid and bear down lightly. When you mortise the striker into the lid, leave it a fraction proud so the lid contacts the chest at this point only.

The final step is to attach the pierced brass escutcheon plate. This is either screwed or nailed with escutcheon pins to the face of the chest over the keyhole

insert set into the face). Fit this type of lock only to a chest with a lid that's of frame-and-panel, plywood or veneer construction. Otherwise the wood's seasonal shrinking and swelling will move the striker out of alignment and the lock will fit properly only during the season in which you installed it. □

Simon Watts is a woodworker and author of Building a Houseful of Furniture (Taunton Press, 1983).