

Woodsmith **PLANS**

GRANDPA'S TOOL CHEST



grandpa's

Tool Chest

This old-school tool chest is still a great way to keep all your prized hand tools safe and secure. And basic joinery makes it a quick and easy build.

The signs of a practical tool chest are easy to spot. Dinged corners and edges and worn surfaces show it served its purpose with distinction — protecting the valuable tools stored within as the chest was carried from job to job. The well-traveled chest we used as the model for the one above proudly displays all this history.

Although the design follows a fairly standard pattern, the compact size of this chest gives it a leg up on

its larger counterparts. You get all the traditional features — solid-wood construction, a sliding inner till, and showy details — without the extra bulk.

And despite the chest's stylish appearance, you'll find the construction is very down to earth. The secret is to combine a few simple design tricks, some very basic joinery, and a small dose of careful craftsmanship. This is exactly the

kind of project I enjoy. And while it's always hard to beat an original, this true-to-detail reproduction is definitely the next best thing.

BUILD A BOX

Your opening task couldn't be much easier. All you have to do is build the sturdy box that forms the foundation of the chest. It can be assembled quickly with butt joints and a handful of nails.

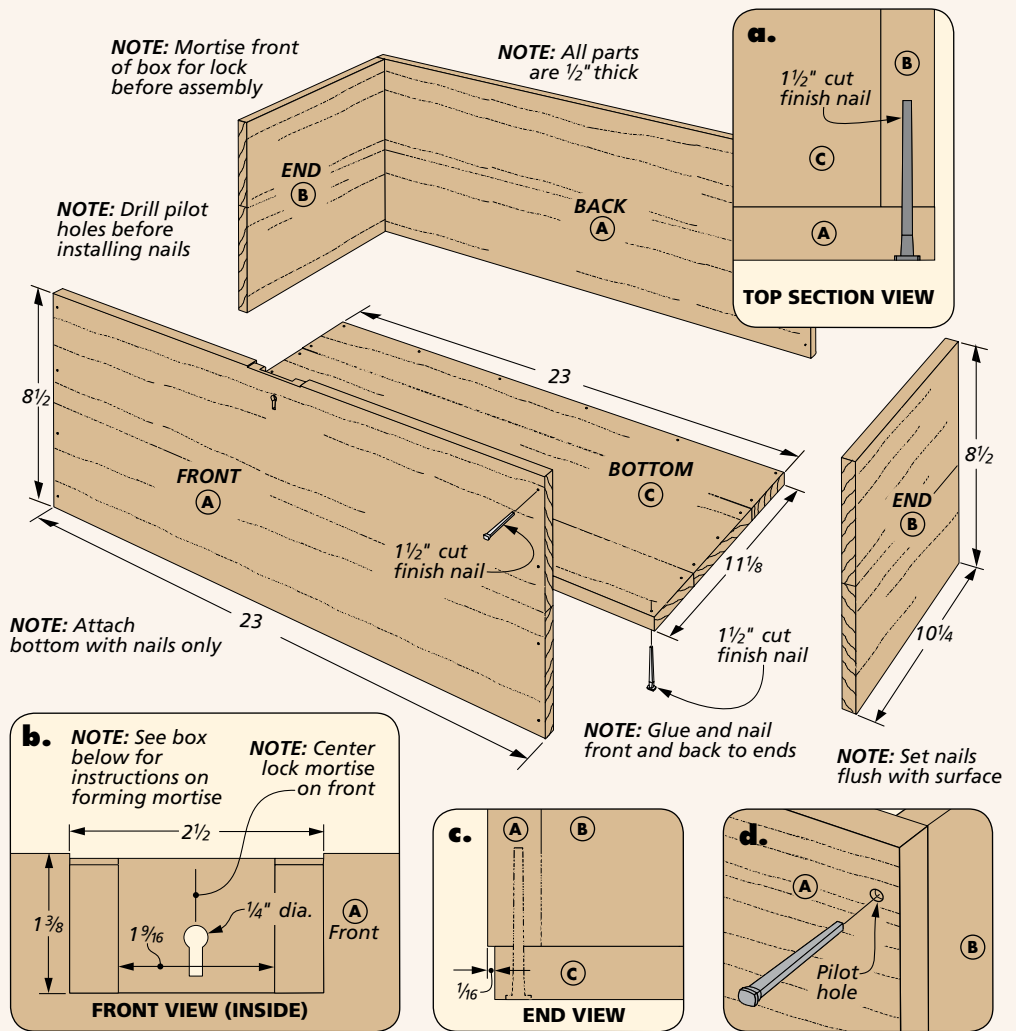
First, glue up panels for the front, back, ends, and bottom from $\frac{3}{4}$ "-thick stock and plane them down to $\frac{1}{2}$ " thick. Now, before you cut these parts to finished size, let me explain how the box goes together.

Take a close look at the drawing at right and you'll see that the ends are fit between the front and back. Square finish nails pin the butt joints (detail 'a'). The bottom is simply nailed to the underside of this assembly. However, the width of the bottom is dimensioned to create a small expansion gap with the base boards you'll add later (detail 'c'). It's simply good insurance.

LOCK MORTISE. With the parts cut to size, don't be in a hurry to reach for the hammer and nails. The chest's lid is held closed with a keyed lock. The lock mechanism is set into the inside front edge of the box. So before assembling the parts, I cut the mortise for the lock. This is easier to do while the front is still separate.

The lock requires a two-part mortise (detail 'b'). A shallow recess accepts the mounting plate that wraps around the top edge. And a deeper mortise within this recess holds the lock mechanism. If you take a look at the box below, you'll see how I formed the lock mortise as well as the keyhole.

ASSEMBLY. Once the lock mortise is done, you can begin assembling



the box for the tool chest. I applied glue to the ends and clamped them between the sides while installing the nails. To prevent splitting the wood, you'll want to drill pilot holes for the nails. And also be sure

to orient the long axis of the nail heads parallel to the grain (detail 'd'). Finally, the bottom can be nailed in place with no glue and an even setback at the front and back, as you can see in detail 'c.'

How-To: Create the Lock Mortise

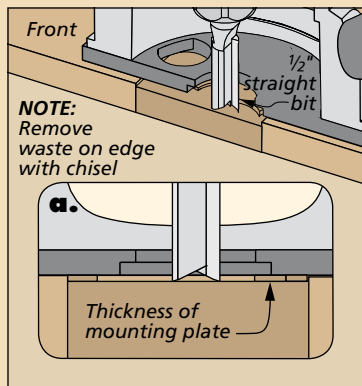
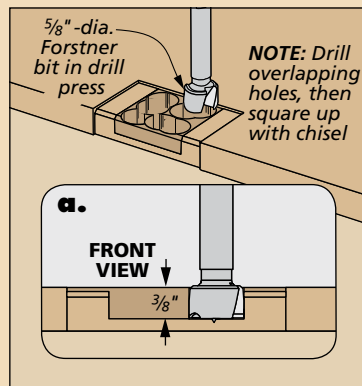
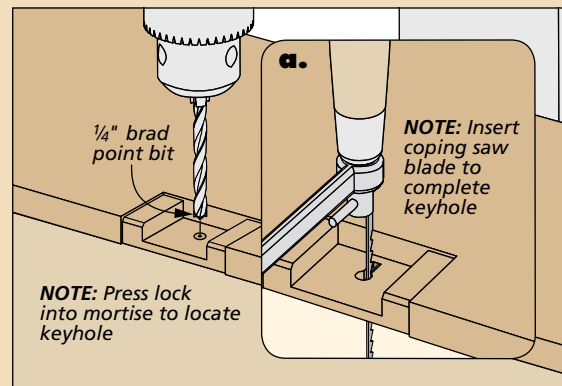


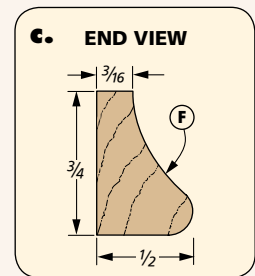
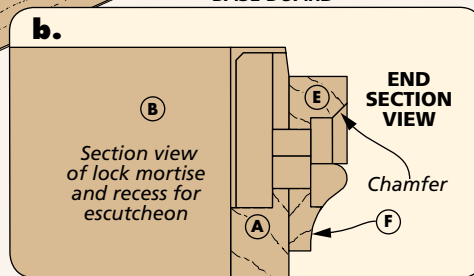
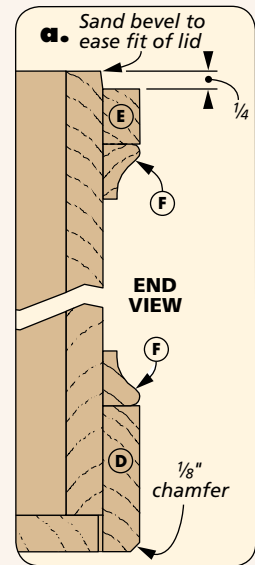
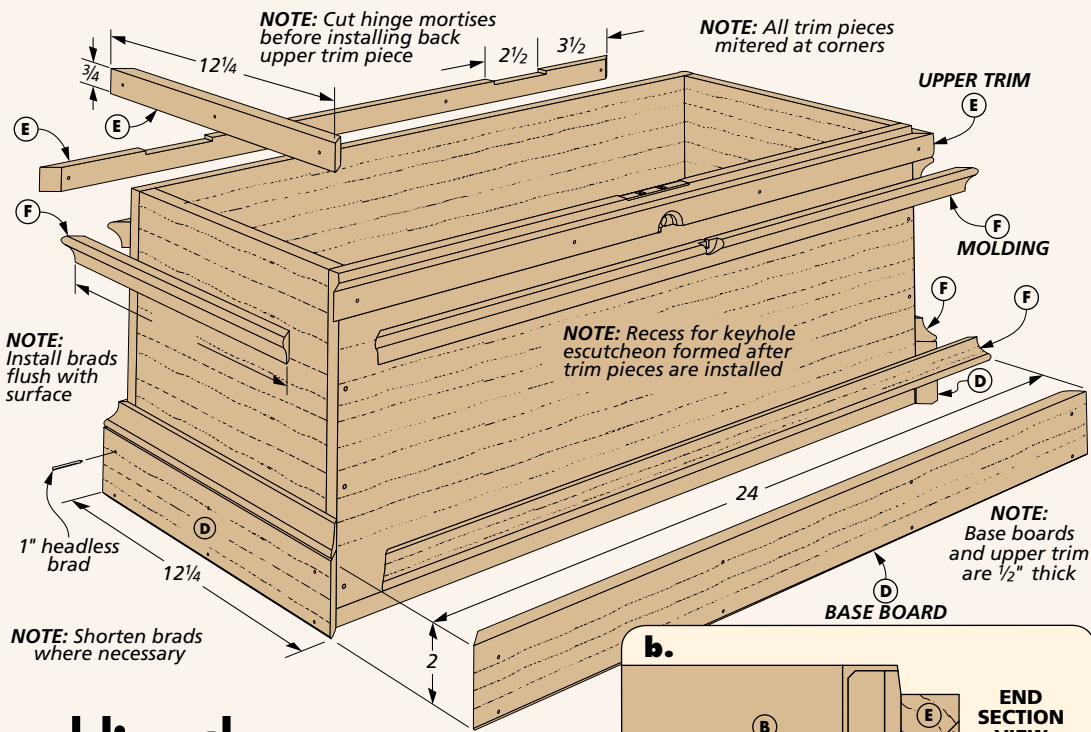
Plate Recess. I routed close to the scored layout lines and then completed the recess with a chisel.



Lock Mortise. Drill out the bulk of the waste in the deeper mortise before squaring it up.



Keyhole. If you press the lock into the mortise, the pin will leave a dimple locating the keyhole. Drill the hole, then use a coping saw to form the slot.



adding the TRIM

The next step is to add the trim pieces that turn the plain box into an attractive chest. The bottom is wrapped with a base board topped with a cove molding.

A similar treatment is given to the top of the box. Only here, the trim pieces are set below the top edge of the box to form a lip for the lid. And then identical molding is applied beneath this trim.

TRIM PIECES. Your first task is to make and install the base board

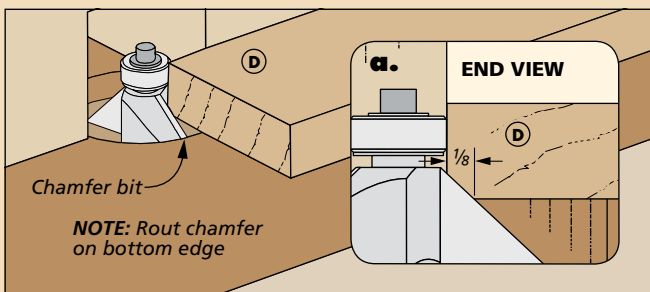
and upper trim pieces. Both are made from 1/2"-thick stock. I started by cutting blanks to finished width and rough length.

The lower edges of the base board may be subject to inevitable wear and tear as the box is shuffled from place to place. So before fitting these pieces, I took them to the router table and added a small chamfer as preventive medicine. You'll find more details on completing the trim details in the How-To box below.

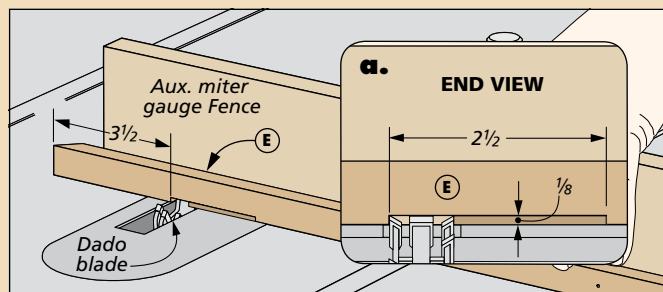
MITERS. Once the base board is ready, you can begin mitering the pieces to fit around the box. The easiest way to do this is to install each piece in order while working your way around the box. The pieces should be glued and nailed flush with the bottom (detail 'a').

UPPER TRIM. The upper trim pieces are fit and installed similarly. But before you get started on them, let me give you a heads up on several important points.

How-To: Complete the Trim Details



Base Board Chamfer. I installed a chamfering bit and then used the fence to rout a chamfer on the lower edges of the base boards. The small chamfer can be cut in a single pass.



Hinge Mortises. Since the hinge mortises extend across the width of the trim piece, I cut them with a dado blade. Adjust the height to 1/8" and remove the waste with multiple passes.

First off, you'll find that when the front trim piece and later the molding are installed, you hide the keyhole. That's okay. Once these pieces are in place, you'll inset a keyhole escutcheon and complete the keyhole through the pieces (detail 'b,' previous page).

However, to do this you'll need a way to locate and drill the recess for the escutcheon. So before going any further, I made a simple drilling guide based off of the location of the keyhole in the box. The details are explained on page 8.

SPACING. Next, as I mentioned, the trim pieces are recessed $\frac{1}{4}$ " below the top edge. So to ensure the spacing was consistent, I used the blade of a combination square as a gauge to position the pieces. Then you can apply clamps while the glue sets and you drive the nails.

HINGE MORTISES. There is one other thing that needs attention while you are installing the trim. The hinges for the lid are mounted on the upper edge of the back piece and they require shallow mortises. It's best to tackle this part before the piece is attached.

In order to position the mortises, you'll need to miter the piece to fit before laying them out. The box on the previous page shows how these "through" mortises can be cut using a wide dado blade in the table saw.

ADD THE MOLDING. I described the molding that completes the trim as a cove, but that's not quite an

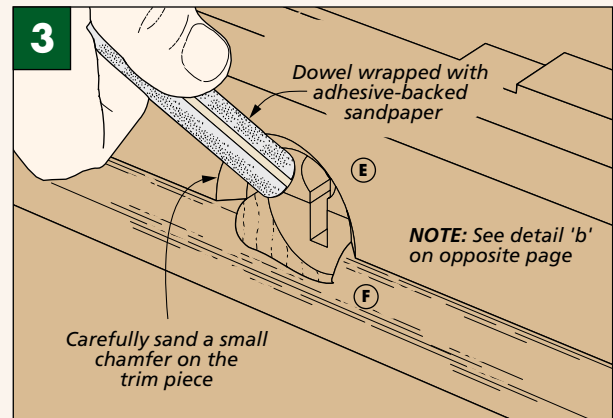
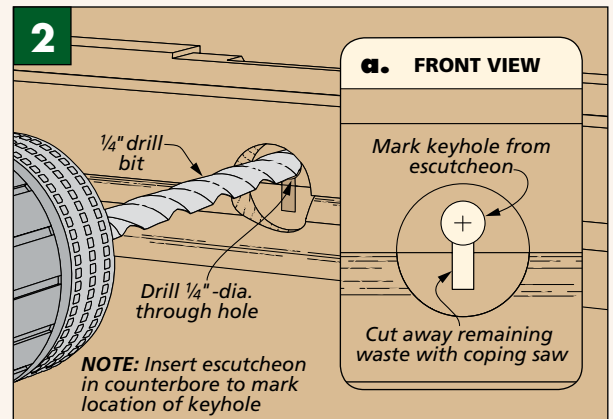
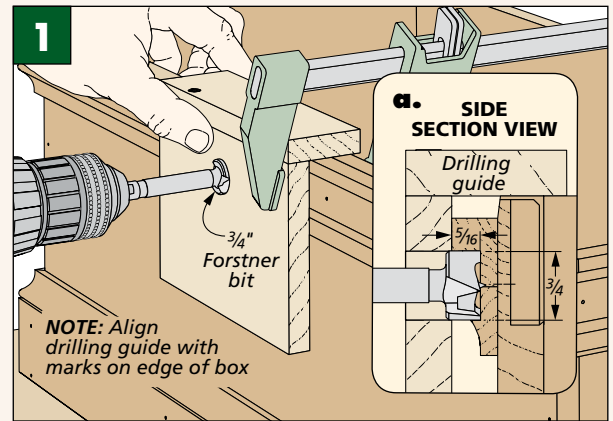
accurate description. It's actually a cove that transitions into a small roundover or bead, as you can see in detail 'c' on the previous page. The catch is that you won't find a router bit that will make this shape. However, it's easy to make the molding with a combination of cuts followed by a little hand sanding.

The multi-step process for making the molding on the router table is shown below. (You'll need identical molding when building the top, so I suggest you make it all at once.) In a nutshell, you'll rout the profile on both edges of wide $\frac{3}{4}$ "-thick blanks and then cut each piece free.

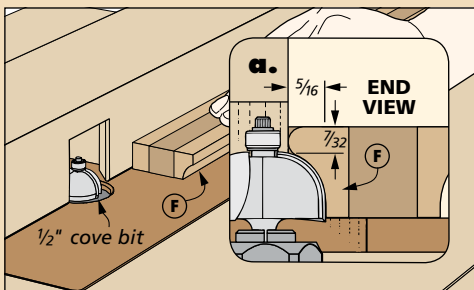
When hand shaping the upper roundover, try to be consistent. But also keep in mind that once the molding is in place, it will be easy to fine-tune minor differences at the corners.

MORE MITERS. By the time the molding has all been added, you'll be well-practiced at cutting and fitting miters. Again, you can put it on one piece at a time.

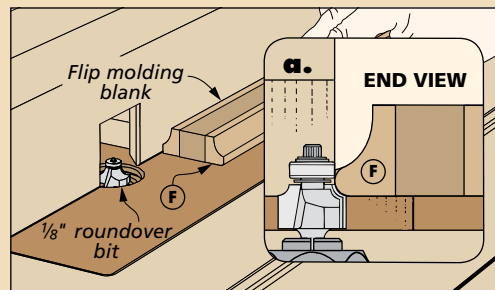
THE KEYHOLE. Now it's time to uncover the hidden keyhole. As I explained, you're going to start by creating a shallow recess or counterbore in the trim piece and molding for a keyhole escutcheon. Then, you'll cut the keyhole through the remaining thickness of trim and molding. Finally I softened the sharp edges of the trim piece with a small chamfer. The illustrations at right guide you through the steps.



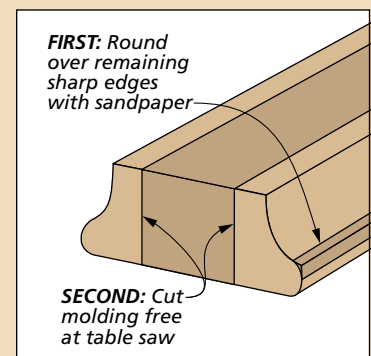
Make the Molding



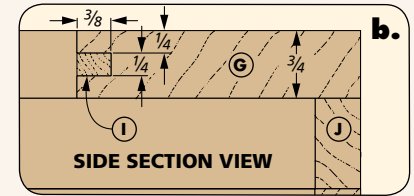
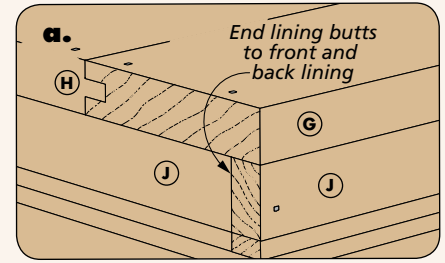
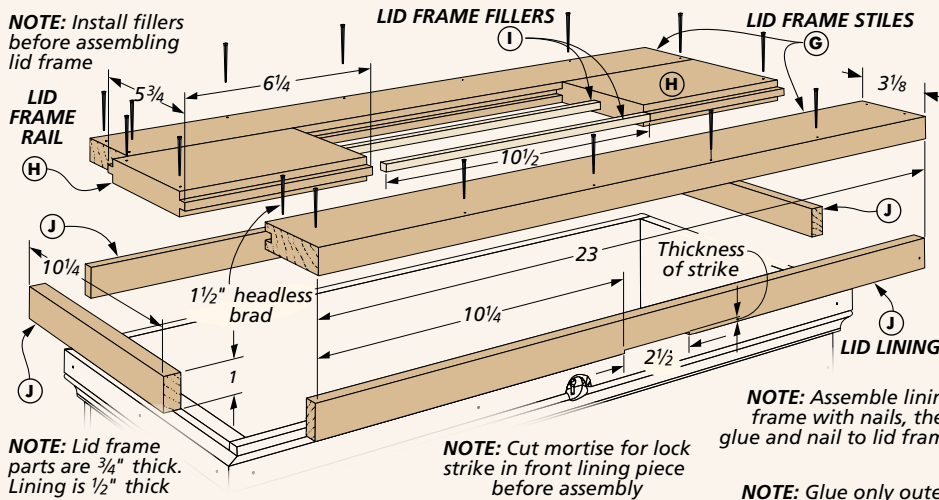
First, a Cove. I adjusted the fence to expose $\frac{5}{16}$ " of the cove bit and then raised it between passes to cut to the final height.



Next, a Roundover. Now switch to a $\frac{1}{8}$ " roundover bit to form the lower edge of the profile. I made the cuts in a single pass.



A Little Sanding. Some careful sanding is all it takes to round over the remaining sharp edge.



adding the CHEST LID

With work on the box completed, your next chore is to make a lid for it. The lid is built around a frame and panel assembly with a traditional twist. Rather than being held in grooves in the stiles and rails, the panel is applied over the frame opening. This adds an appealing depth to the appearance of the lid. To round out the lid, you'll add a lining frame and then trim boards, and finally some interior panel molding.

LID FRAME. The first step is to assemble the lid frame. It's built using simple stub tenon and groove joinery and is sized to match the dimensions of the basic box without the trim.

When you cut the stiles and rails to size, be precise. This will help guarantee that the lid is a good fit.

The joinery details are shown below. Since the panel is not inset, only the stiles need grooves. But don't worry about cutting stopped grooves in the stiles. I simply fit filler strips to the unused sections before assembling the frame.

ASSEMBLY. Once the tongues are cut on the rails and the groove fillers installed, the frame can be glued up. The frame and panel design of the top helps control wood movement and guarantee a long-term fit. However, expansion and contraction of the frame parts, especially the wide rails, could still create problems.

The answer is strategic assembly. I glued only the outer half of the joints. This limits any movement of the rails to the inside, and the outside dimensions of the frame should remain constant.

INNER LINING. The next chore is to build and attach the lining frame.

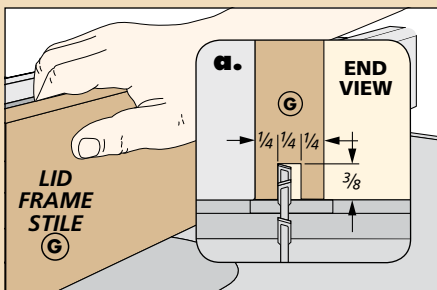
It's made from 1/2"-thick stock and is sized to match the dimensions of the lid frame. And since it will be glued and nailed to the lid frame, the pieces are assembled with butt joints and nails.

STRIKE RECESS. There is one minor task to complete before assembling the frame. A shallow recess for the lock strike needs to be cut into the front piece. After cutting the lining piece to length, I positioned the lock in its mortise with the strike plate attached and then used it to mark the recess.

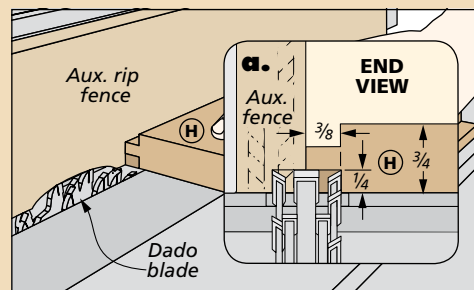
LID TRIM. Once the lining is added to the lid frame, the trim boards that wrap this assembly can be mitered to fit and installed. This is very similar to adding the base boards and the trim to the box.

But again, there are a couple of things to take care of before and during the installation.

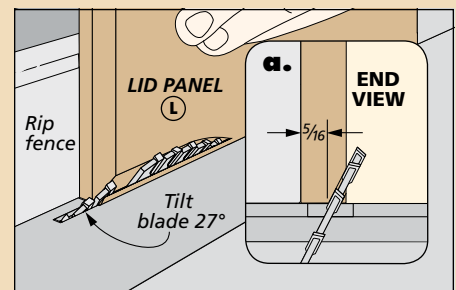
How-To: Frame Joinery & Panel Bevels



Grooves First. I flipped the stiles end-for-end between passes across a single blade to cut the centered grooves.



Stub Tenons. Switch to a dado blade and bury it in an auxiliary rip fence to cut the tenons. Sneak up on a snug fit to the grooves.



On Edge. The bevels on the lid panel can be cut by holding the panel on edge against the rip fence. Sand them smooth.

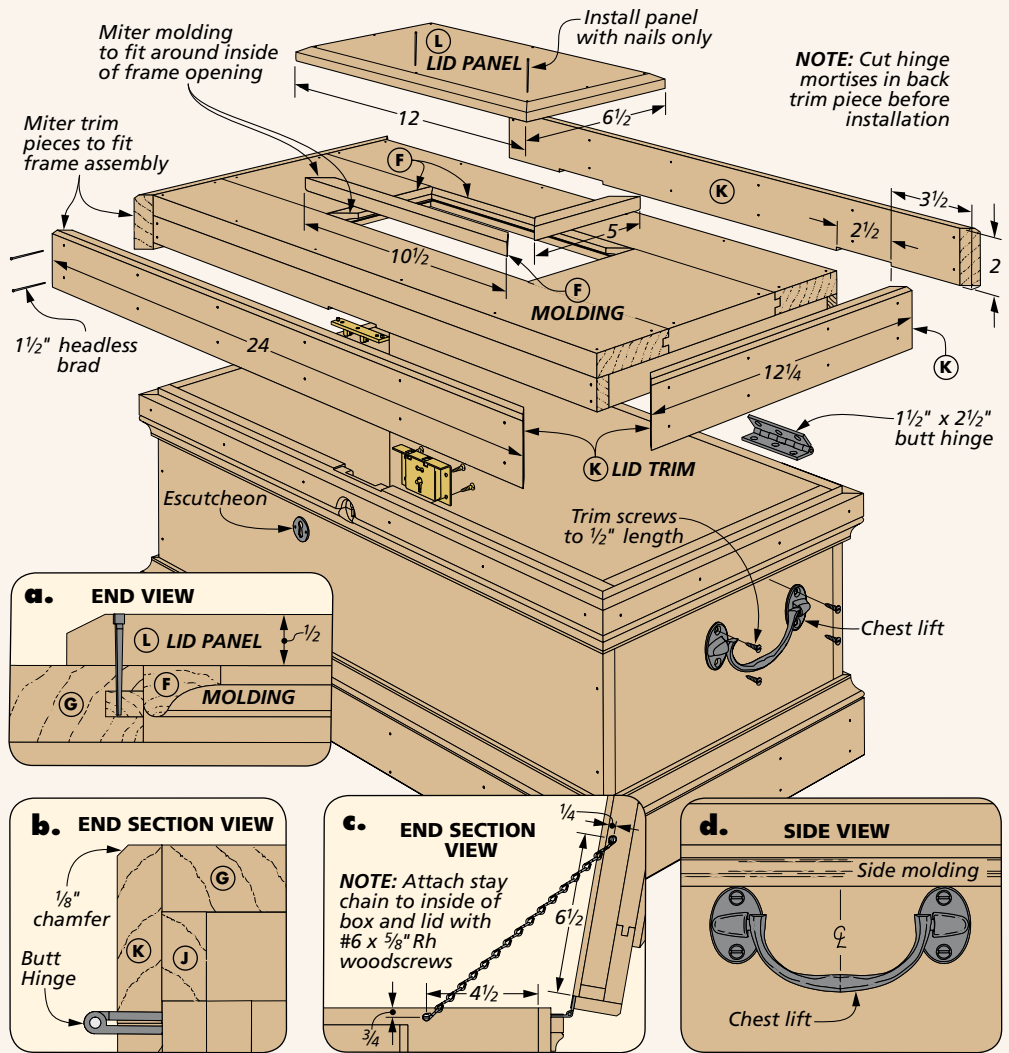
First, the upper edge of each piece is chamfered. Second, the back piece needs to be mortised for the hinges. You know this routine.

PANEL. Now you can top off the lid with the beveled panel. It's a quick job. After cutting the panel to size, I tilted the saw blade, set the rip fence, and made the four bevel cuts, as shown in the box on the previous page. A little sanding will clean up the cuts.

The panel is held in place with nails alone. This will allow for a small amount of wood movement.

PANEL MOLDING. It's time to finish up the inside of the lid. All you need to do is miter molding to fit around the panel opening and nail it in place, as shown in detail 'a.'

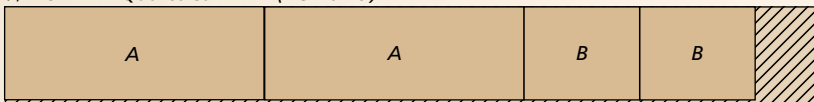
FINALLY, HARDWARE. Your "prep" work for the hardware makes installing the hinges and lock a quick task. I also added a stay chain to the left side of box and lid and a chest lift to each end — equally easy. Now, if I were you, I'd stick with this theme and start work on the simple till. You can find how to do this on page 7. It's easy to put together and provides a little extra storage.



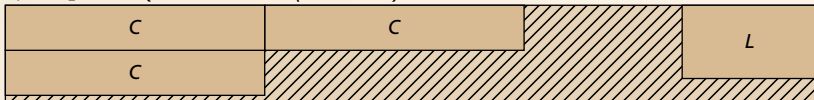
Materials, Supplies, & Cutting Diagram

- | | | | | |
|-------------------------|---|--------------------------------|---|---|
| A Front/Back (2) | $\frac{1}{2} \times 8\frac{1}{2} - 23$ | G Lid Frame Stiles (2) | $\frac{3}{4} \times 3\frac{1}{8} - 23$ | <ul style="list-style-type: none"> • (1/4 lb.) 1 1/2" Cut Finish Nails • (1/4 lb.) 1 1/2" Cut Brads • (1/4 lb.) 1" Cut Brads • (2) 1 1/2" x 2 1/2" Butt Hinges w/ Screws • (1) Half-Mortise Lock (2 1/2" x 1 3/8") • (1) 3/4"-dia. Keyhole Escutcheon • (2) 4 1/2" Chest Lifts w/ Screws • (1) 10" Single Jack Chain (Black) • (2) #6 x 5/8" Rh Woodscrews |
| B Ends (2) | $\frac{1}{2} \times 8\frac{1}{2} - 10\frac{1}{4}$ | H Lid Frame Rails (2) | $\frac{3}{4} \times 6\frac{1}{4} - 5\frac{3}{4}$ | |
| C Bottom (1) | $\frac{1}{2} \times 11\frac{1}{8} - 23$ | I Lid Frame Fillers (2) | $\frac{1}{4} \times 3\frac{3}{8} - 10\frac{1}{2}$ | |
| D Base Board (1) | $\frac{1}{2} \times 2 - 78$ rgh. | J Lid Lining (1) | $\frac{1}{2} \times 1 - 72$ rgh. | |
| E Upper Trim (1) | $\frac{1}{2} \times \frac{3}{4} - 78$ rgh. | K Lid Trim (1) | $\frac{1}{2} \times 2 - 78$ rgh. | |
| F Molding (1) | $\frac{3}{4} \times \frac{1}{2} - 192$ rgh. | L Lid Panel (1) | $\frac{1}{2} \times 6\frac{1}{2} - 12$ | |
| | | | | |

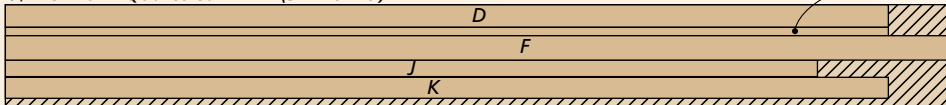
$\frac{3}{4}$ " x 9" - 72" Quartersawn Fir (4.5 Bd Ft.)



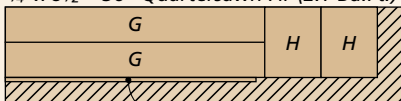
$\frac{3}{4}$ " x 8 1/2" - 72" Quartersawn Fir (4.2 Bd. Ft.)



$\frac{3}{4}$ " x 9" - 84" Quartersawn Fir (5.2 Bd. Ft.)



$\frac{3}{4}$ " x 8 1/2" - 36" Quartersawn Fir (2.1 Bd.Ft.)



NOTE: Plane parts to thickness as necessary

NOTE: Part F (molding) made on extra-wide blanks

Tool Chest Till



The traditional sliding till is a convenient addition to the tool chest. It provides a place to store your small, often-used tools while still allowing easy access to the space below.

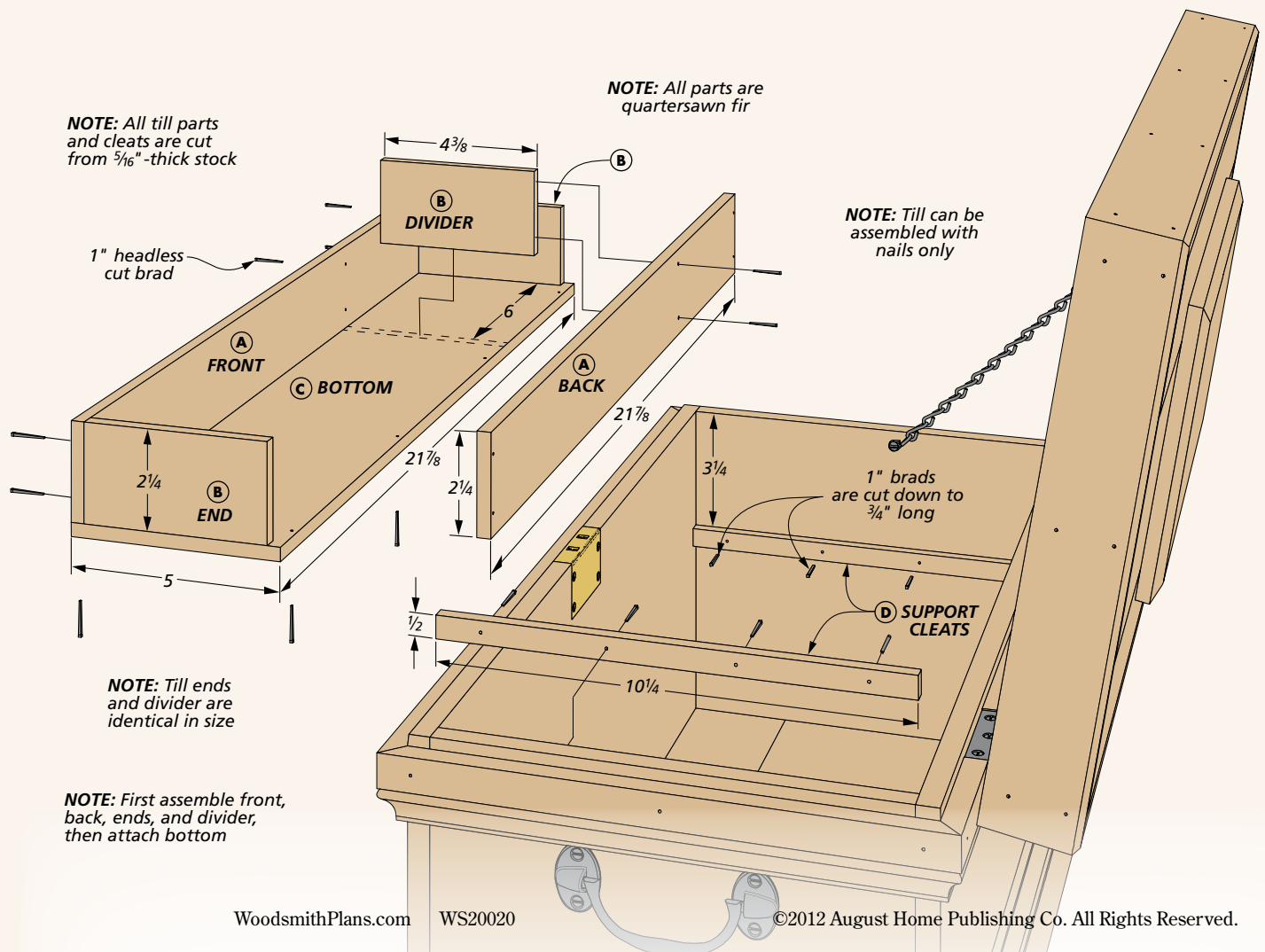
THE BASICS. Construction of the till is very simple. The drawings below show the details. I'll just give you a brief overview.

Like the box, the till is put together with butt joints and nails. All the pieces are cut from $\frac{5}{16}$ "-thick stock. The ends and divider are sized to fit between the front and back, and the bottom is nailed to the underside of this assembly. I allowed for a total $\frac{1}{8}$ " clearance between the ends of the box and the till. Once the pieces are ready, you can carefully nail them together. A couple of clamps applied across the ends will make the job easier.

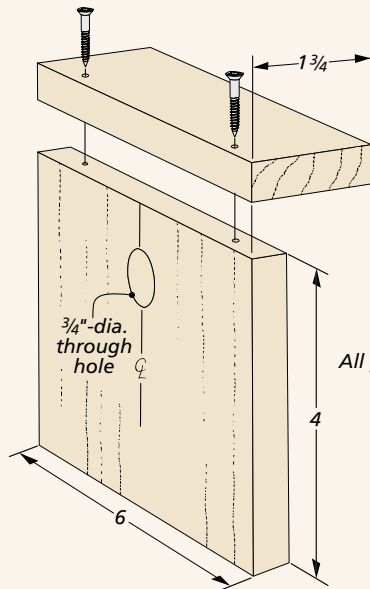
CLEATS. The till is supported by a pair of cleats attached to the ends of the box. I cut the cleats to fit snug and then used a combination square as a gauge to position them from the top edge of the box. After nailing the cleats in place, the till is ready for duty.

Materials & Supplies

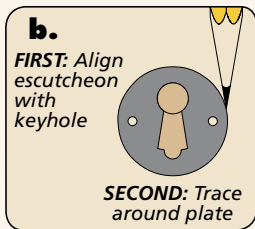
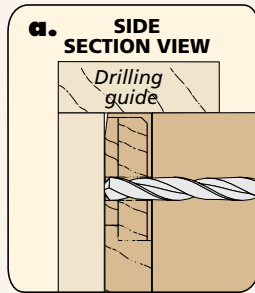
A	Front/Back (2)	$\frac{5}{16} \times 2\frac{1}{4} - 21\frac{7}{8}$
B	Ends/Divider (3)	$\frac{5}{16} \times 2\frac{1}{4} - 4\frac{3}{8}$
C	Bottom (1)	$\frac{5}{16} \times 5 - 21\frac{7}{8}$
D	Support Cleats (2)	$\frac{5}{16} \times \frac{1}{2} - 10\frac{1}{4}$
•	1" Headless Cut Brads	



SHOP NOTEBOOK



NOTE:
All parts are
1/2" thick



Drilling Guide

When the upper trim and molding are installed on the tool chest project, the keyhole is covered over. This fact, along with the uneven surface, makes locating and drilling a recess for the escutcheon a challenge. To get around this, I made a simple drilling guide before installing these pieces, as shown at left.

Locating the hole in the guide accurately is the key. After assembling the L-shaped guide, I centered it over the lock mortise and marked the top edge of the box at both sides. Then I pushed a drill bit through the keyhole "hole" to mark its location on the guide (detail 'a'). After drilling a 1/4"-dia. hole from the inside, you can align the escutcheon over it on the outside of the guide and mark around it (detail 'b'). Finally, I used this layout to drill the 3/4"-dia. hole in the guide.

**MAIL
ORDER
SOURCES**

Woodsmith Store
800-444-7527

Horton Brasses, Inc.
800-754-9127
horton-brasses.com

Project Sources

To make the tool chest project, you're going to need some hardware, including 1½" finish nails (N-5), 1½" headless cut brads, 1" headless cut brads, butt hinges (PB-409), and a keyhole escutcheon (FE-6). You'll also need a lock (LK-6) and chest lifts (H-558L). All of these items were found at *Horton Brasses*.

The chest was finished with three coats of *General Finishes Seal-A-Cell* wiping varnish.