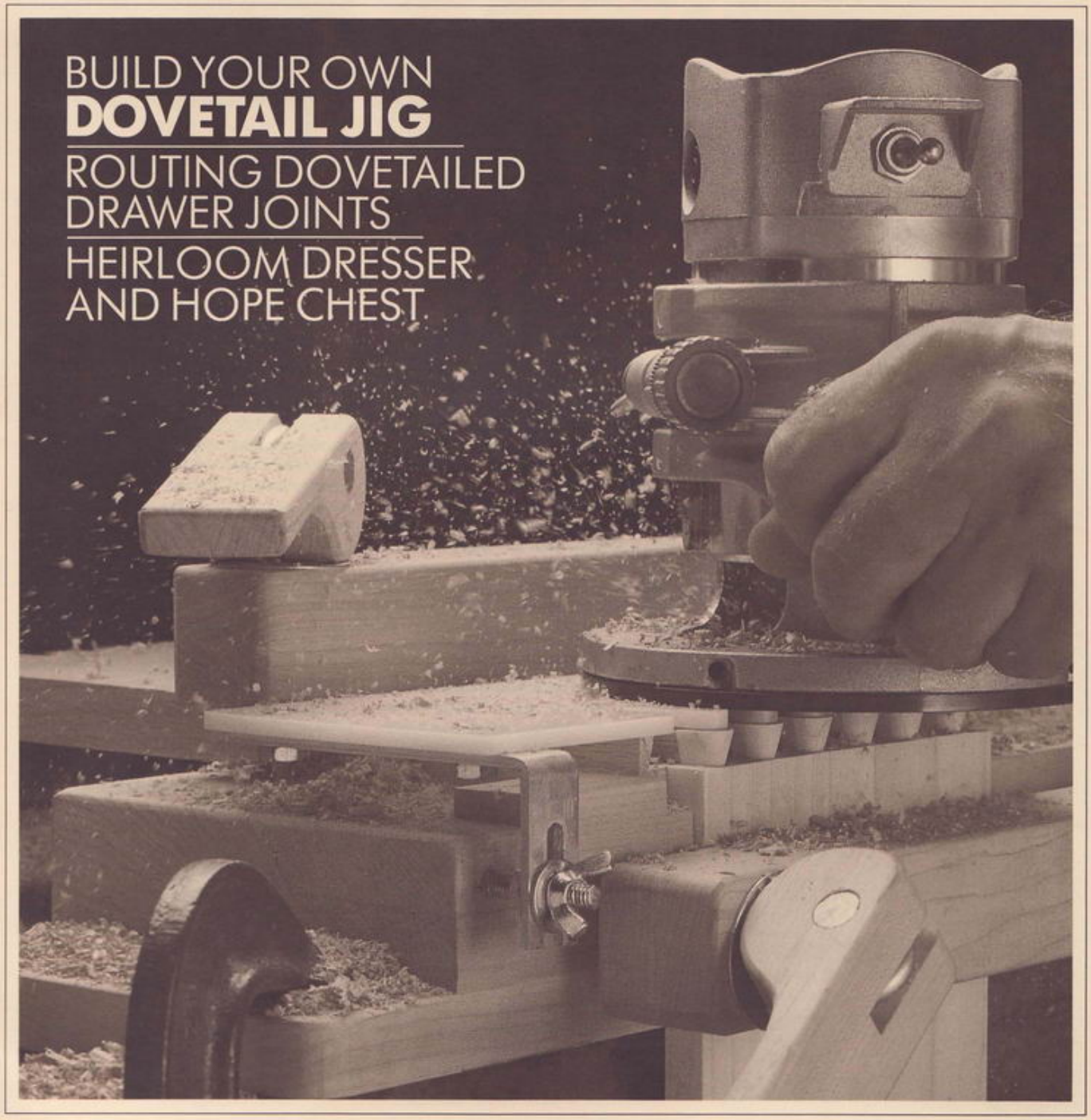
NO. 58 NOTES FROM THE SHOP $3.50

Woodsmith®



BUILD YOUR OWN
DOVETAIL JIG

ROUTING DOVETAILED DRAWER JOINTS

HEIRLOOM DRESSER AND HOPE CHEST

Woodsmith

Number 58 **August, 1988**

Editor	**Donald B. Peschke**
Design Director	**Ted Kralicek**
Managing Editor	**Douglas L. Hicks**
Assistant Editor	**Douglas M. Lidster**
Project Designer	**Ken Munkel**
Technical Illustrators	**David Kreyling** **Cary Christensen** **Rod Stoakes** **Chris Glowacki**
Customer Service	**Sandy Baum, Mgr.** **Jackie Stroud** **Pat Koob** **Lisa Thompson**
Computer Operations	**Ken Miner**
Administrative Assts.	**Cheryl Scott** **Jean Carey**
Building Maintenance	**Archie Krause**

The Woodsmith Store

Operations	**Steve Krohmer**
Marketing Manager	**Steve Dozier**
Store Managers:	
St. Louis, MO	**Jon Behrle**
Berkeley, CA	**Michael DeHaven**
Des Moines, IA	**Kent Welsh**

WOODSMITH (ISSN 0164-4114) is published bimonthly (February, April, June, August, October, December) by Woodsmith Publishing Co., 2200 Grand Ave., Des Moines, IA 50312.

Woodsmith is a registered trademark of Woodsmith Publishing Co.

Subscriptions: One year (6 issues) $12.95, Two Years (12 issues) $22.95. Canada and Foreign: add $2 per year, U.S. funds only. Single copy price, $3.50.

Second Class Postage Paid at Des Moines, Iowa.

Postmaster: Send change of address notice, to Woodsmith Publishing Co., 2200 Grand Ave., Des Moines, IA 50312.

BACK ISSUES: All back issues of *Woodsmith* are still available. For a free booklet describing the contents and prices of all back issues, just send us your name and address to the address above.

SAMPLE COPY: We will be happy to send a free sample copy of *Woodsmith* to anyone you think would enjoy it. Just send us his/her name and address.

Sawdust

ABOUT THIS ISSUE. How high should a chest of drawers be? That's a good question. And one that's actually very difficult to answer.

When you set out to build a chest of drawers, there are two major steps: building the chest itself, and then building the drawers to fit. So it would seem easy to say, "Well, I'd like to build a chest 30" high with four drawers."

But the design of any woodworking project is a combination of art and science. The art is the aesthetics of the design. The science is figuring out how to make all the pieces fit together.

Okay, Don, it sounds like you're about to get into a treatise on design. Let's skip all that and get down to the nitty gritty.

In a nutshell, I'm always amazed at the amount of basic planning required to build what I think should be a simple chest of drawers. It seems like a never-ending series of details and decisions.

About a year ago, we were building the seven-drawer lingerie dresser for issue No. 53. We wanted to use dovetails to join the drawers, but since there were so many, we decided to use a router and dovetail jig rather than cut them all by hand.

Just about that time we received a tip from William Schultz, a subscriber from Albuquerque, New Mexico. He had built a dovetail jig and made his own template using a box joint jig.

Doug Hicks decided to build the jig to see how it worked. In the middle of that process, Ken stopped by and mentioned that he always wanted to build a jig that used cams instead of wing nuts to hold the workpieces in place. Then Ted made a few comments and changes. Soon we had a new approach to a dovetail jig.

Unfortunately, we didn't have enough room in that issue to show the jig. So we waited until we began building the companion piece (the cherry dresser shown in this issue) to show the dovetail jig.

Since we had the dovetail jig, we wanted to build the drawers for the dresser with it. This automatically sets some parameters for the size of the drawers.

When you use a dovetail jig, the pins and sockets are cut with a template that's based on increments of 7/16". (This dimension actually comes from the 7/16"-dia. guide bushing that's used to guide the router.) But the layout of the dovetails has to be in multiples of 7/8" because at the minimum you need one socket and two half-pins (one on top, one on the bottom) to make a joint.

I'm getting a little sidetracked here. Back to the design of the dresser in this issue. What it gets down to is that the height of the case is actually determined by the drawers, which are multiples of 7/8". But it would be too easy if that were the only consideration.

In addition to the dovetail layout, you have to allow for the clearance above each drawer. More planning ahead. Also, since we wanted to use plastic glide strips (to help the drawer slide in and out easily), we had to allow for the thickness of the strips in determining the height of each opening.

There's one last detail: the thickness of the stock. We list the thickness of 4/4 stock as 13/16". (4/4 is the designation for lumber that's 1" thick when it's rough sawn. Then it's planed down to final thickness. The National Hardwood Lumber Association sets the standard of 13/16" thick for most hardwoods.)

But in reality, the stock you use may be a different *actual* thickness — usually it's somewhere between 3/4" and 13/16". You have to take this into account when adding in the thickness of the rails that are between each drawer.

So, determining the height of a dresser is not easy. The dimensions we show in the plans may seem odd. For example, the basic case for the dresser is 25 13/16" high, an odd dimension. But it's actually just the sum of all these details.

SOURCEBOOK. If you've been subscribing for awhile, you'll remember the *Woodsmith Sourcebook*. We began publishing it in 1984, (but it didn't come out last year).

The basic idea behind the *Sourcebook* is to provide information for woodworkers. Rather than add advertising to *Woodsmith*, we decided to publish the *Sourcebook*. It's a listing of companies who have mail-order catalogs, or offer information on tools and supplies for woodworkers.

This year's *Sourcebook* will be mailed free to all active *Woodsmith* subscribers (as of September 1988). I'd like to invite you to use the *Sourcebook* if you're looking for catalogs or other information. It's an easy way to order a lot of information.

PROTECTIVE COVER. For quite a few years we've added a protective cover to *Woodsmith*. It was a convenient way to show the covers of back issues.

But we got to the point that there were more back issues available than there was room to show them. With this issue, we've added an expanded version of the protective cover, and we were able to add an expanded order form and some information about the kits shown in the past issues.

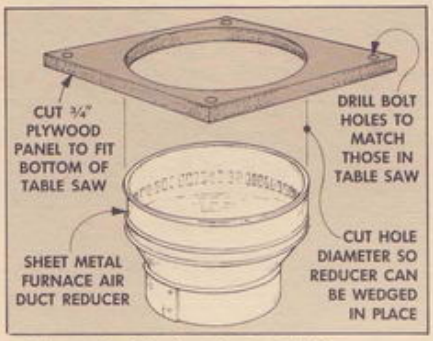
NEXT MAILING. The next issue of *Woodsmith* (No. 59) will be mailed during the week of October 31, 1988.

Tips & Techniques

TABLE SAW DUST BAG

In order to cut down on sawdust and chips blowing all over my shop, I added a dust bag to the bottom of my table saw.

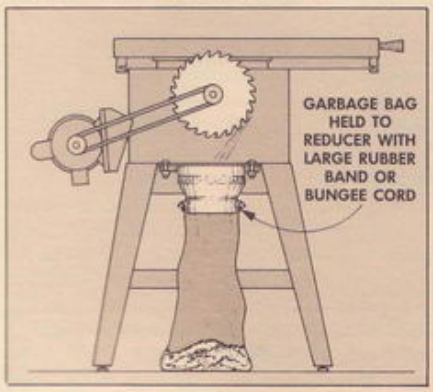
I started by cutting a piece of ¾" plywood to bolt to the bottom of my table saw cabinet.



Then, I visited a local building center and found a funnel-shaped furnace air duct reducer made from sheet metal. There are a variety of shapes and sizes, but get one with a flat shoulder that runs around the bottom.

Now cut an opening in the plywood panel with a sabre saw to accept the sheet metal reducer. By cutting carefully, you can get a snug enough fit so that the reducer can just be pushed into the opening and held without fasteners. (If necessary, it can be screwed in place with a couple of sheet metal screws from the inside.)

My wife sewed up a cloth bag with a drawstring to catch the chips, but a plastic garbage bag and a large rubber band or "bungee cord" would also work.



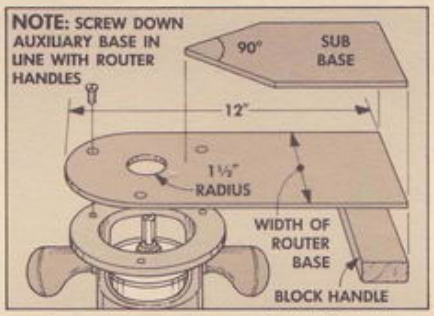
The bag doesn't catch all of the dust (there's still some that goes out the back of the saw), but it's a big improvement over what used to end up on my floor.

Morley H. Graham
Belleville, Ontario

TRIMMING SOLID EDGING

I've noticed that *Woodsmith* has printed a variety of techniques for trimming solid wood edging flush after it's purposely applied a little proud of the adjacent surface. This is often the case with table tops, countertops, and plywood panels.

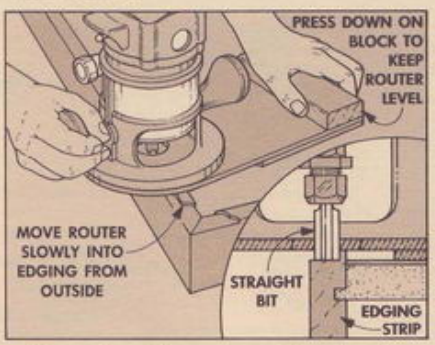
I use my router with an auxiliary base to trim off the extra edging. To do this, start by removing the plastic base plate from the router and mount a two-layer base made from ¼" Masonite.



The top layer follows the radius of the router on one end, but has a wing that sticks out about 6" beyond the router on the other end. After cutting this piece to size, I used the plastic router base as a template to mark the location of the bit hole and screw holes. Then I glued a block as a handle to the top of the wing.

Next, cut a sub base to shape with a 90° point and glue it to the top layer so that it stops short of the bit. By making the sub base come to a 90° point, you can easily work into the corner of a workpiece that has edging on two sides.

To use the jig, screw it to the bottom of the router and mount a straight bit. Then adjust the depth so the bit just touches the work surface.



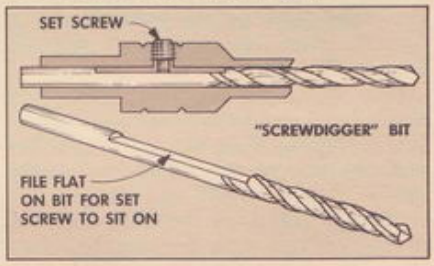
Now, place the router so the wing is on the work surface and the bit hangs slightly over the outside of the edging strip. Move the bit slowly into the strip keeping one hand securely pressed down on the block handle on the wing to keep the router from gouging the work. I've found the best technique to prevent chipout is to move the router laterally and take small bites.

Charles E. Brandner
Petaluma, California

MORE ON PILOT BITS

Editor's Note: In Woodsmith No. 56 we featured an article about pilot bit sets. After it appeared we received a couple tips:

I use the "screwdigger" bits all the time and have found a solution to the problem of the bits slipping up into the collar if the set screw isn't extremely tight.



Try filing a flat spot on the drill bit for the set screw to sit on. If the bit can't turn, it isn't as likely to slide out of position.

Kevin Pommier
Sioux Falls, South Dakota

I found some of the same problems with the "Scru-Drill" bits that *Woodsmith* mentioned in the article — the weakness and instability of the thin pilot bit section. Rather than trying to replace the broken or bent original pilot bits, I substituted twist drill bits.

The #6 "Scru-Drill" uses a 5/64" twist bit. The #8 bit accepts a 3/32" twist bit. And the #10 bit takes a 7/64" twist bit.

Using a twist bit means you have to stop occasionally and unclog the flutes since the exits are blocked by the shank section on one side. But it's a small disadvantage compared to the ease of one-step drilling.

Larry Albrecht
Lenexa, Kansas

SEND IN YOUR IDEAS

If you'd like to share a woodworking tip with other readers of *Woodsmith*, send your idea to: *Woodsmith*, Tips & Techniques, 2200 Grand Ave., Des Moines, Iowa 50312.

We pay a minimum of $10 for tips, and $15 or more for special techniques (that are accepted for publication). Please give a complete explanation of your idea. If a sketch is needed, send it along; we'll draw a new one.

Hope Chest

AN HEIRLOOM FOR THE FUTURE

Probably the most interesting part about building this hope chest is the corner joint. It's a variation of a tongue and groove, but the corners are beveled and shoulders are added to both ends of the bevel. It sounds complicated, but it's actually easy. And it produces a unique joint that adds a lot to the overall appearance of the chest.

END PANELS

I began work on the chest by edge-gluing enough 4/4 stock (13/16" actual thickness) to make two end panels (A) that were roughly 18" wide and 21" long. After the glue dries, plane or belt sand the panels flat. Then cut them to finished size: 17" wide by 20" long, see Fig. 1.

Shop Note: It's important that these panels be planed or sanded to a *uniform* thickness across their width. If they're not perfectly uniform, the shoulder cut on the outside of the joint will look wavy.

CUT DADOES. After the end panels are to size, you can begin work on the corner joint. Start by cutting ⅛"-wide dadoes on the inside face of the end panels. (Although this joint is traditionally called a tongue and *groove*, it's actually a tongue and *dado* since the groove runs *across* the grain.)

To cut the dadoes, set the rip fence so the distance from the fence to the *outside* of the saw blade equals the thickness of your stock, minus ⅛" (to allow for the shoulder), see Step 1 in Fig. 2. Since I used 13/16"-thick stock, I set the fence 11/16" from the outside of the blade. Then cut a 5/16"-deep dado at both ends of the panels.

ROUT DADO. Next, I used the router table to rout a ⅛"-deep dado on the other face of each panel (the outside face). This dado will later form a shoulder alongside the corner angle, see Corner Detail.

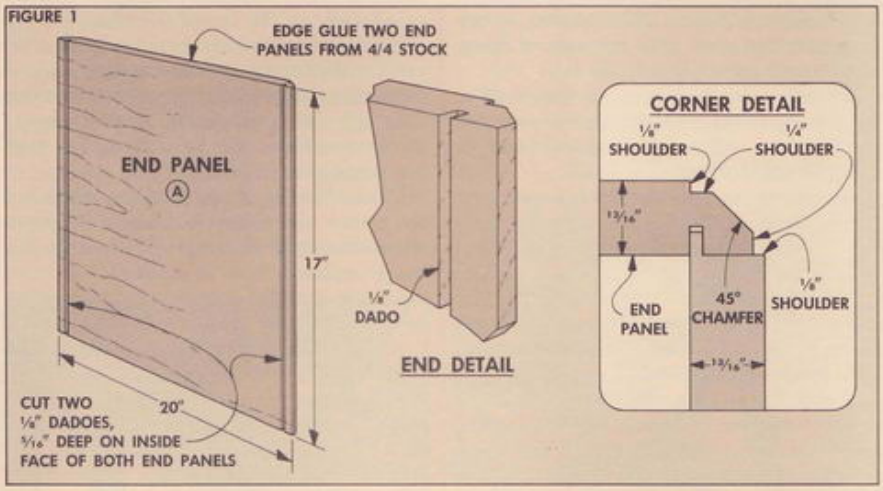
To rout this dado, mount a ⅜" straight bit in the router table and set the fence so the outside of the bit is in line with the dado you just cut on the saw, see Step 2.

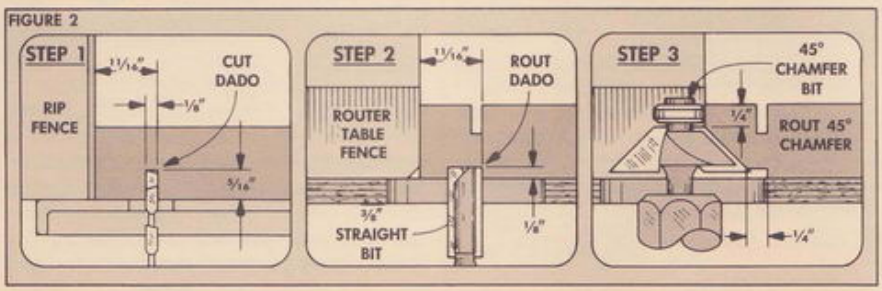
ROUT ANGLE. After the dadoes are cut, switch to a chamfer bit to rout a 45° angle along the outside end of the panels, see Step 3. To get uniform ¼" shoulders at both ends of the chamfer, sneak up on the final cut by raising the bit a little at a time until both shoulders equal ¼".

FRONT AND BACK

Next, work can begin on the front (B) and back (C) panels. Again, these panels are edge-glued from 4/4 stock, and planed to a uniform thickness.

CUT TO SIZE. The length of both panels is the same (35⅛"), but the width varies





since a drawer fits under the front panel (B). First, cut the back panel (C) to a width of 17", see Fig. 3.

Next, cut the front panel (B) 6⅛" less in width than the back panel, see Fig. 3. (This measurement takes into consideration the 5¼" drawer height, a 1/16" gap above the drawer, and a 13/16" filler strip below the drawer, refer to Fig. 10.)

TONGUE. After the panels are cut to size, cut a rabbet on the end of each piece to create a ¼"-long tongue to fit in the dadoes on the end panels. I cut this on the router table, see Corner Detail in Fig. 3. Sneak up on the cut until the tongue fits snugly into the dado.

RUNNER AND SHELF GROOVES. There's one more step on the front and back panels. Two ¼"-wide grooves have to be cut on the inside faces of these panels to hold tray runners and a shelf, see Fig. 3.

SHELF

Once the grooves are cut, a plywood shelf (D) can be made, see Fig. 4. To determine the width of the shelf (from front to back), dry-assemble the chest and measure the inside distance between the end panels. Then add ½" for the two ¼"-deep dadoes.

The length of the shelf is equal to the inside width of the case. (There aren't any tongues on the ends of the shelf.)

TONGUE. Now rout rabbets on the front and back edges to form tongues, see Detail in Fig. 4. Again, sneak up on this cut until the tongue just fits the groove.

ASSEMBLY

When the shelf is complete, the basic case can be assembled. Start by gluing the front (B) and back (C) panels to one end panel (A). To help hold the assembly square, slide the shelf (D) into the grooves from the open end. After the glue dries, glue the other end panel in place.

RUNNERS AND TOP TRIM

After the case is assembled, two runners (E) are added to hold a sliding tray.

RUNNERS. Cut the runners to a width of ¾", see Runner Detail in Fig. 5. Then cut rabbets along each edge, forming a tongue centered on the runners that fits the ¼" grooves in the front and back panels.

After the tongues are formed, cut the runners to length to fit inside the case. Then glue the runners into the grooves.

Shop Note: It's difficult to clamp the runners. So I wedged a length of scrap between the runners to press them in place until the glue dried.

TOP TRIM. The final step is to add ¼"-thick trim strip (F) around the top edges, see Fig. 5. Cut the trim strip 1 1/16" wide and round over the bottom outside edge, see Trim Detail in Fig. 5. Then, miter the pieces to length, and glue and nail them to the top of the case.

FIGURE 3

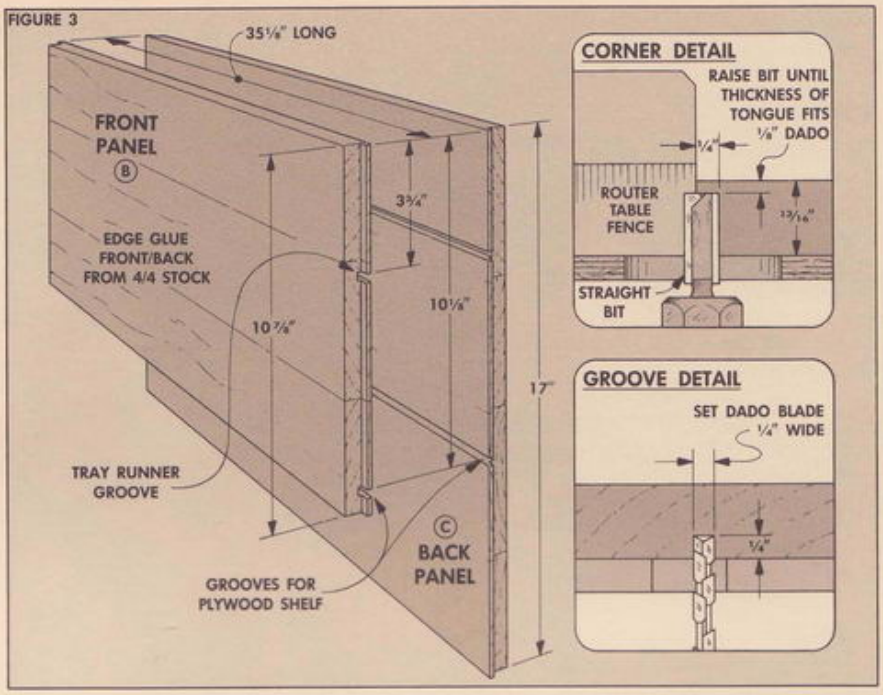


FIGURE 4

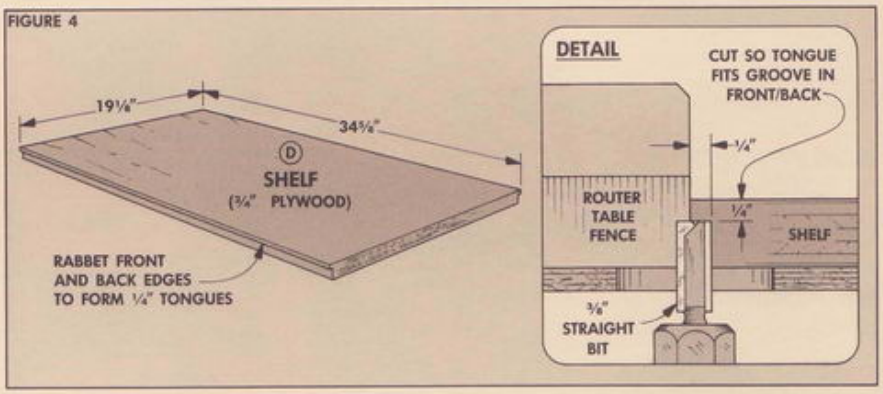
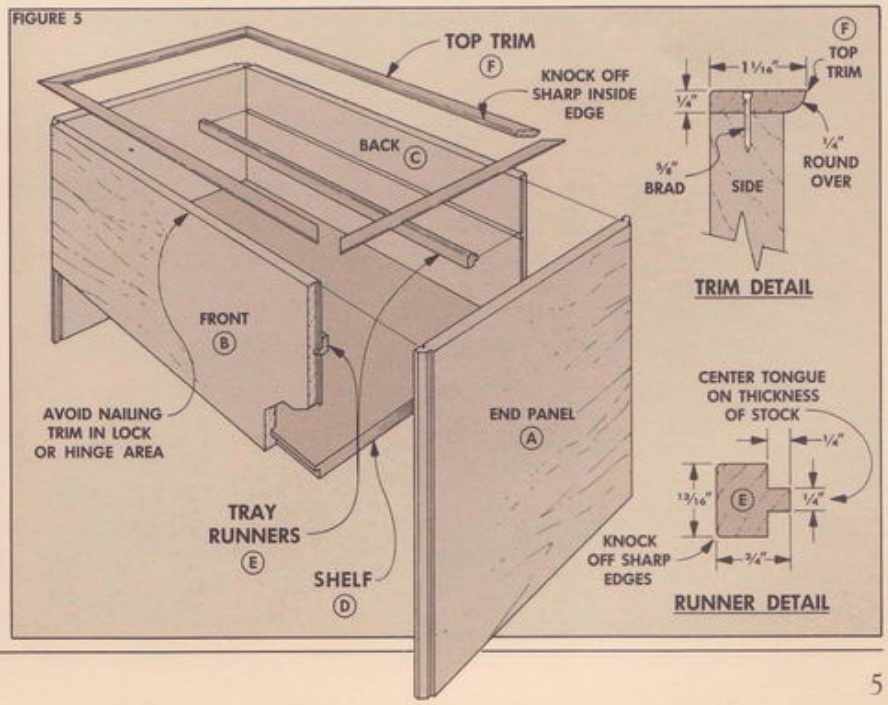
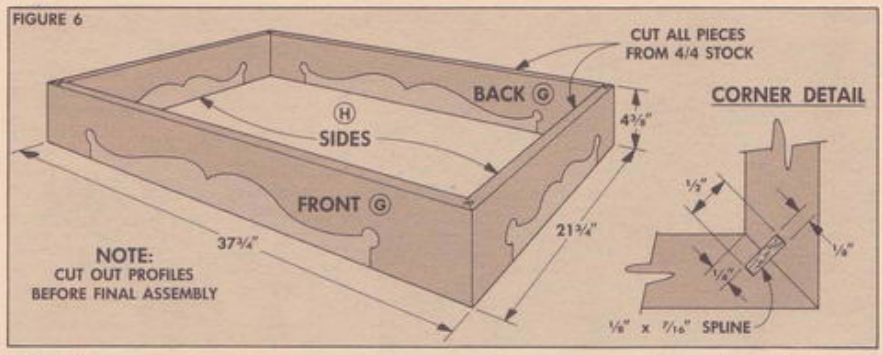
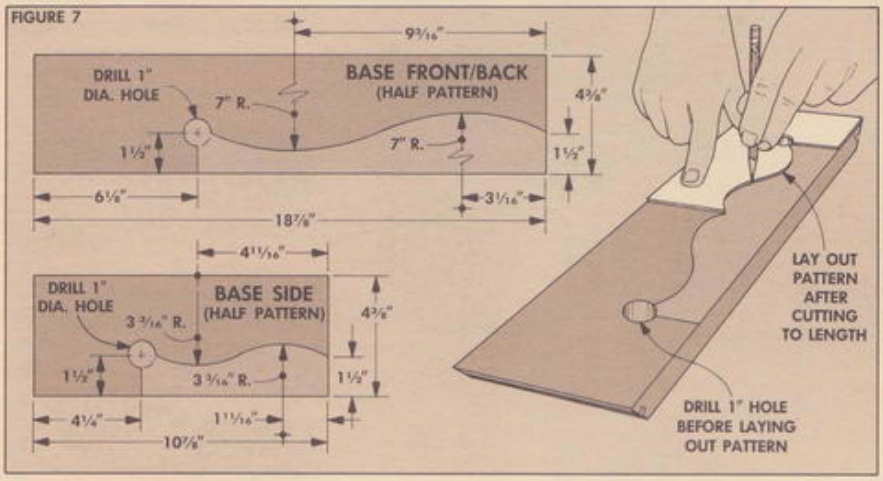
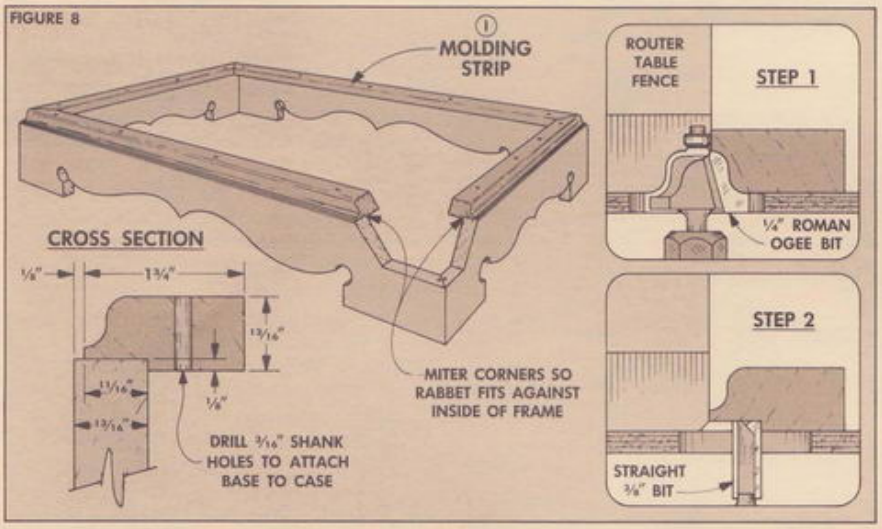


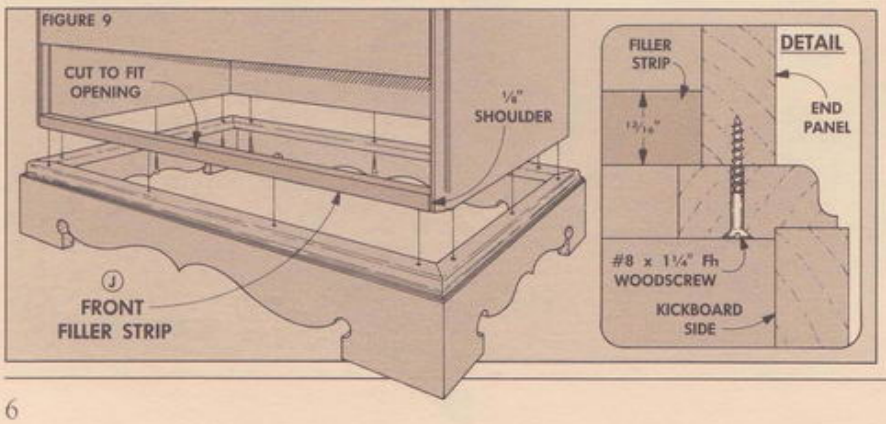
FIGURE 5











THE BASE FRAME

Once the case was complete, I began work on the base. The base consists of a scroll-cut kickboard frame with a molding strip glued on top of it, refer to Fig. 8.

KICKBOARD FRAME. To make the kickboard frame, cut the front/back pieces (G), and two sides (H) from 4/4 stock to a width of 4⅜", see Fig. 6. Then miter both ends of the front/back pieces so the length of each piece (from long point to long point) is 1½" longer than the width of the assembled case. Next miter the side pieces so they're 1½" longer than the depth of the case. (This creates a frame that is ¾" larger than the case on all four sides.)

KERF AND SPLINE. To help keep the miters aligned while clamping, I cut a kerf in each miter and added a spline, see Corner Detail in Fig. 6.

SCROLLWORK. Before gluing the frame together, I cut a scroll design along the bottom edges. Start by drilling 1"-diameter holes near the end of each piece, 1½" up from the bottom edge, see Fig. 7.

Next, make a poster board half-pattern following the dimensions in Fig. 7. (Or send for the patterns, see page 24.) Then trace the pattern on the workpiece and cut it out with a sabre saw or band saw.

ASSEMBLY. When the scrollwork has been cut and sanded, glue the kickboard frame together.

MOLDING STRIP. To complete the base frame, I made a molding strip (I) that's glued to the top edge of the frame, see Fig. 8. Start by cutting two pieces of 4/4 stock for the sides to a rough length of 22". Then cut the front and back pieces to a rough length of 38".

Before cutting the pieces to final length, I routed a Roman ogee profile along the top edge, see Step 1 in Fig. 8. Then cut a rabbet along the bottom edge, see Step 2.

Shop Note: This rabbet should be ⅛" less in width than the thickness of your stock to create a ⅛" shoulder (¹¹⁄₁₆" in my case), see Cross Section in Fig. 8.

MITER MOLDING. After the rabbets are cut, miter the pieces so the shoulder of the rabbet fits against the inside edges of the kickboard frame, see Fig. 8. Then glue the molding strips in place.

ASSEMBLY. To attach the case to the kickboard frame, drill ³⁄₁₆" shank holes completely through the base molding, see Fig. 8. Then turn the case upside down and position the base on top of it. Now drill pilot holes, and screw the base to the case, see Fig. 9.

FILLER STRIP. After the base frame was screwed to the case, I added a front filler strip (J) to the bottom of the drawer opening, see Fig. 9. It's positioned to create an ⅛" shoulder where the ends of the strip meet the end panels (A). (This corresponds with the ⅛" shoulder on the corner joint.)

DRAWER GUIDES

There are a few more details to take care of. First, drawer guides are mounted inside the case to a lip created by the molding strips (I), see Fig. 10. These guides consist of a runner and a side guide.

To make the drawer guides, first cut the runners (L) 2" wide and the side guides (M) 1" wide. Then cut both to length to fit between the back edge of the filler strip (J) and the cabinet back (C), see Fig. 10.

Now glue the runner (L) to the top edge of the molding strips (I) on the inside of the kickboard frame, see Fig. 10. Then glue a side guide (M) on top of the runner. Make sure both the runner and side guide are glued tight against the end panel.

FILLER STRIP. To complete the drawer opening, I glued a vertical filler strip (K) at each end of the opening, see Fig. 10. (Note that the grain on this strip runs the same direction as the front of the case.) Glue the strips to the ends of the opening so they're flush with the front panel (B).

THE LID AND TOP FRAME

The lid for the chest is made from solid stock, and topped with a scrolled frame.

THE LID. Start by edge-gluing enough 4/4 stock to make a lid blank (N) that's roughly 23" wide and 39" long. When the blank is dry and planed flat, cut it 1¼" larger (in both directions) than the case, see Fig. 11.

ROUT PROFILE. Next, rout a Roman ogee profile around all four edges leaving a ⅛" shoulder, see Edge Detail in Fig. 11.

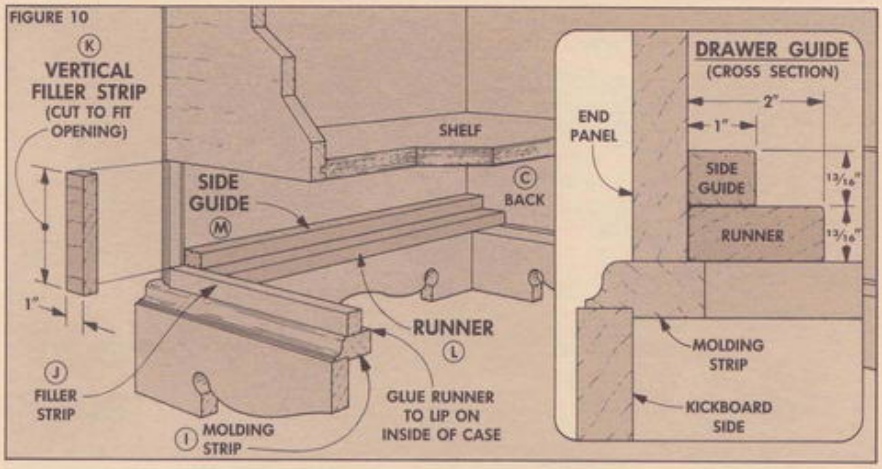
SCROLLED FRAME. The scrolled frame on top of the lid consists of three pieces that are mitered at the back corners. The back piece (P) is cut to a width of 5" and then mitered to length (from long point to long point) so it's 1¼" *less* than the length of the lid, see Fig. 11.

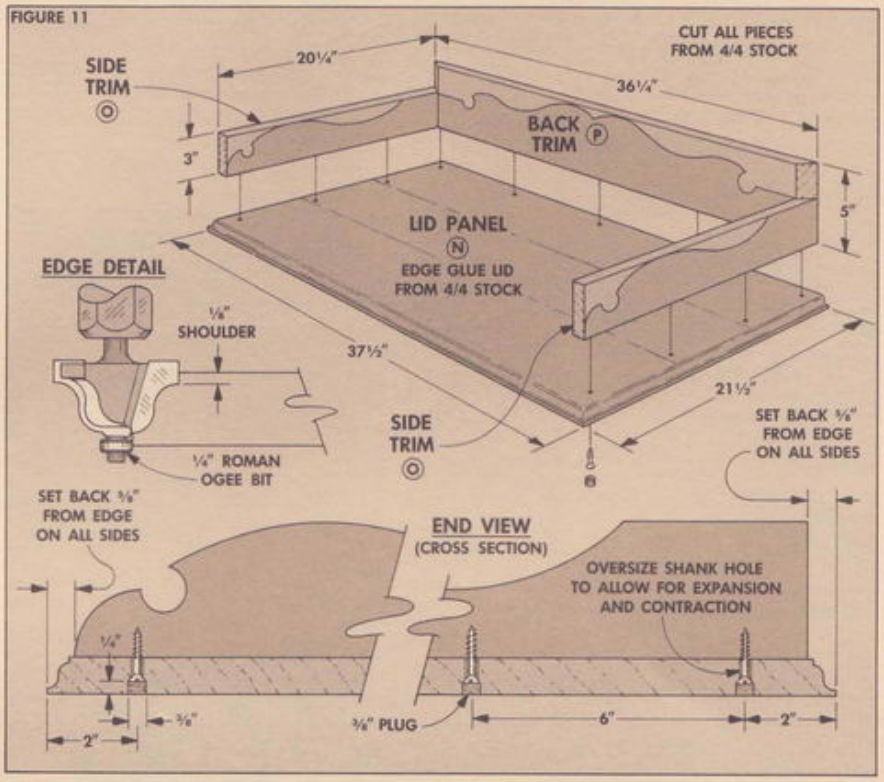
The two side pieces (O) are cut to a width of 3". Since these pieces are only mitered on the back corner, first cut a miter on one end of each piece. Then trim the other end straight so the distance from the long point on the miter to the front edge is 1¼" less than the width of the lid, see Fig. 11.

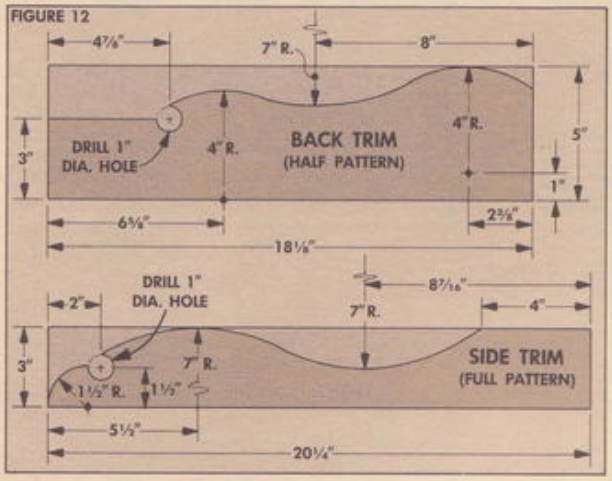
SCROLLWORK. After the pieces are cut to size, the scroll design can be cut as was done on the kickboard. Drill out the 1" holes, make a pattern (see Fig. 12) and transfer it to the workpiece. Then cut out and sand the design.

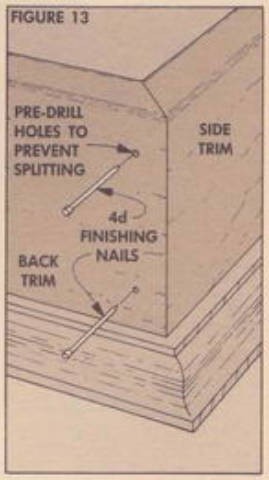
ASSEMBLE FRAME. After the design is cut out, glue the mitered ends together and screw the three-sided frame down to the lid with oversized shank holes, see Fig. 11. (Note: Don't glue the frame down. The lid must be allowed to expand and contract with changes in humidity.)

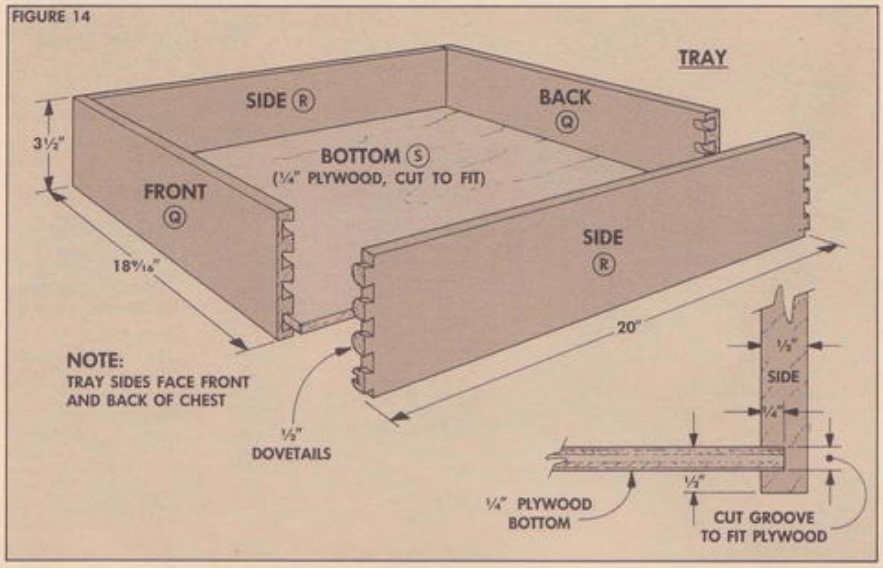
To keep the back miter from opening, I pre-drilled holes and drove two 4d finishing nails through each joint, see Fig. 13.

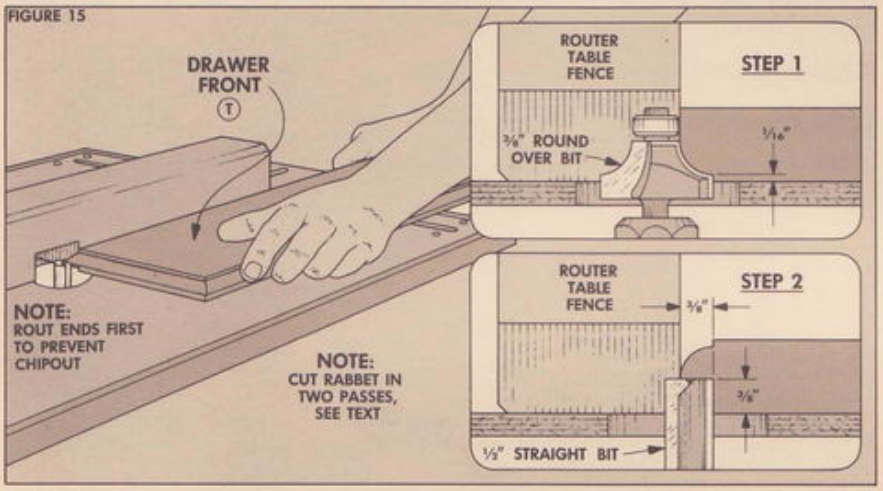


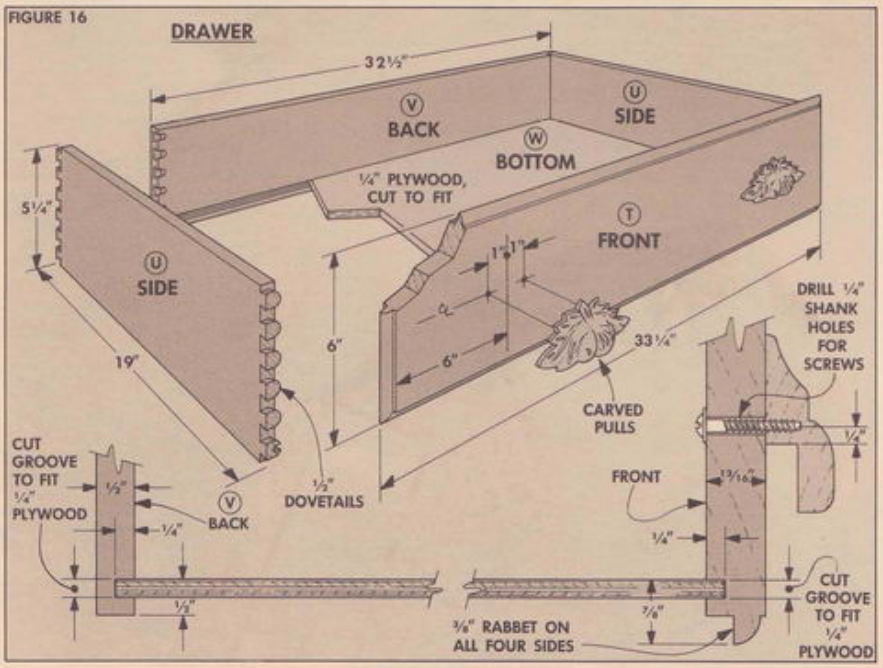












THE TRAY

All that's left on the chest are the tray and the drawer. I started on the tray.

DESIGN. The tray is actually a traditional dovetailed drawer, but with a twist. On a typical drawer, the front faces the front of the case. But on this tray, I had to construct it so the front actually faced the side.

The critical measurement on the tray is its depth (from front to back inside the case). Since it's easier to cut a drawer front to a precise length than it is to make the overall drawer length a precise fit, I just turned the drawer sideways in the case.

CUT THE PIECES. Start building the tray by cutting a tray front and back (Q) (which are really on the sides) and two tray sides (R). All four pieces are cut from ½" stock to a width of 3½", see Fig. 14.

To determine the exact length of the front/back pieces (Q), measure the *inside* depth of the cabinet (front to back) and cut the tray's front/back ⅛" less. Then cut the tray's side pieces to a length of 20".

ROUT DOVETAILS. After the pieces are cut to size, rout ½" dovetails to join the four pieces, see pages 20 to 21.

BOTTOM. Now, cut grooves for the ¼" plywood bottom (S) and then cut the bottom (S) to fit, see Detail in Fig. 14.

THE DRAWER

Next, I built the drawer. This time, it's oriented in the traditional direction.

I started by making a rabbeted drawer front (T) from 4/4 stock. To determine the width of the front, measure the height of the opening and add ¾" (for two ⅜" rabbets), and subtract ⅛" (for clearance).

As for the length of the drawer front, first measure the width of the opening. Then add ¾" for the rabbets and subtract ⅛" (for ⅛" clearance on both sides).

PROFILE EDGE. After the drawer front is cut to size, rout a shouldered round-over on all four edges, see Step 1 in Fig. 15. Then rout a ⅜" rabbet around the back.

Shop Note: I routed the rabbet in two passes. First, set the fence for a shallow *backwards* (left to right) scoring pass to prevent chipout. Then move the fence and make a full ⅜"-wide cut.

CUT OTHER PIECES. When the drawer front is complete, cut the sides (U) and back (V) to size from ½"-thick stock.

JOINERY. When all the pieces are cut, rout dovetail joints on the corners (see page 22). Then cut grooves for the drawer bottom (W), and cut the bottom to fit.

PULLS. Before assembly, I drilled shank holes to mount the carved (or brass) pulls, see Fig. 16.

If you're using carved pulls, you have to drill corresponding holes in the back of the pull. To do this, clamp the pull in place and mark the pilot holes on the pull with an awl. Then drill the pilot holes in each pull.

HARDWARE

The only thing left to complete the chest is to add the hinges, lid support, and lock.

HINGES. To mount the hinges, first rout mortises in the top edge of the chest, see Fig. 17. Then screw the hinge down so the pin is centered on the edge of the trim.

Next, center the lid (N) on the case and mark where the hinge is located. After outlining the flap on the bottom of the lid, rout an enclosed mortise to accept the hinge.

LID SUPPORTS. After the hinges are mounted, you can add the lid supports at each end of the chest, see Fig. 17.

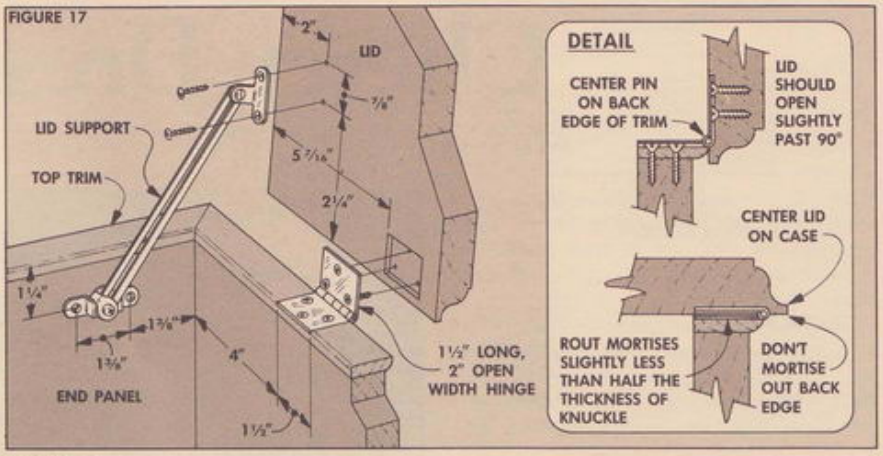
LOCK. Finally, I added a lock. The lock mechanism is mounted so the *keyhole* is centered on the width of the chest. (Note: The keyhole is actually *off center* on the lock mechanism, see Fig. 18.)

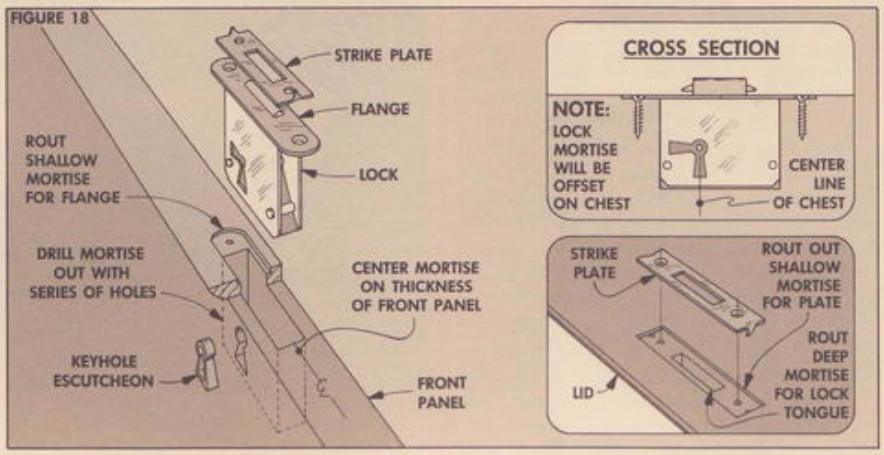
To mount the lock, cut a deep mortise in the front panel, see Fig. 18. Then, with the lock in place, mark the outline of the flange and rout a shallow mortise for it.

Now, locate the postion of the keyhole in the front panel, drill and clean out the opening, and press the escutcheon in place.

To locate the strike plate, tape it on top of the lock and close the lid. There are two prongs that will leave marks on the lid. After outlining the strike plate, rout two mortises (one for the plate and a deep one for the lock tongue).

FINISH. I finished the hope chest with General Finishes' Two-Step Sealacell.



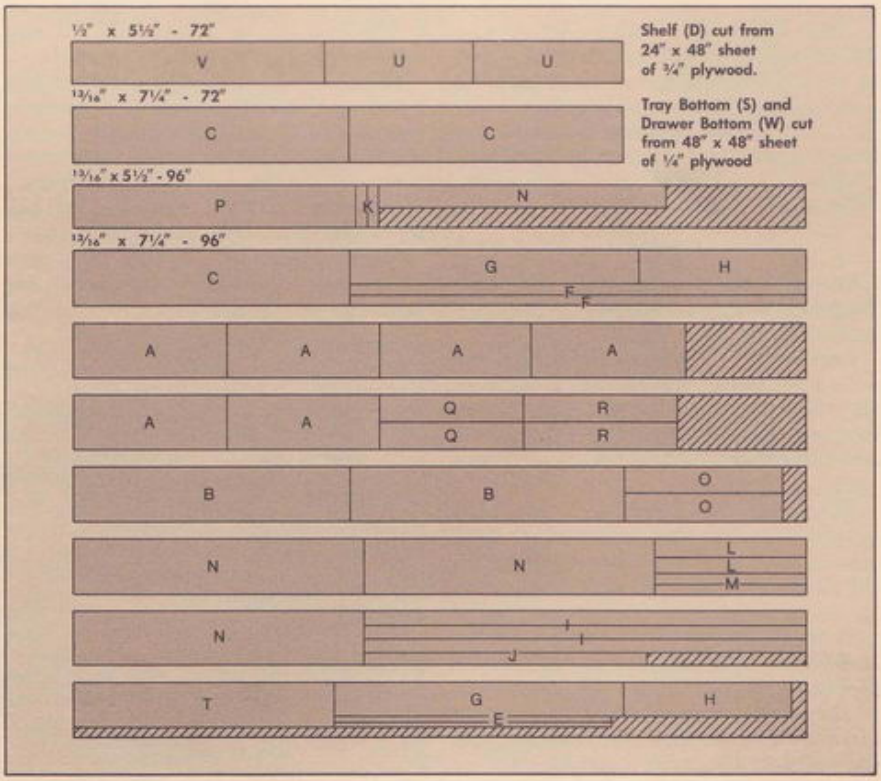


MATERIALS LIST

Overall Dim.: 37¾"w x 21¾"d x 27⅞"h

CASE		
A	End Panels (2)	¾" ply. 17 — 20
B	Front Panel (1)	¾" ply. 10⅞ — 35⅛
C	Back Panel (1)	¾" ply. 17 — 35⅛
D	Shelf (1)	¾" ply. 19⅛ x 34⅝
E	Tray Runners (2)	¾" x ¾ — 34⅝
F	Top Trim	¼ x 1 1/16 — 10 ft.
BASE		
G	Front/Back (2)	¾" x 4⅜ — 37¾
H	Sides (2)	¾" x 4⅜ — 21¾
I	Molding	¾" x 1¾ — 10 ft.
J	Front Filler Strip (1)	¾" x ¾" — 34⅝
K	Vert. Filler Strip (2)	¾" x 5⅝" — 1
L	Drawer Runners (2)	¾" x 2 — 18⅝
M	Side Guides (2)	¾" x 1 — 18⅝
LID		
N	Lid (1)	¾" x 21½ — 37½
O	Side Trim (2)	¾" x 3 — 20¼
P	Back Trim (1)	¾" x 5 — 36¼
DRAWER/TRAY		
Q	Tray Front/Back (2)	½ x 3½ — 18⅝"
R	Tray Sides (2)	½ x 3½ — 20
S	Tray Bottom (1)	¼" ply. 18⅛" x 19¾
T	Drawer Front (1)	¾" x 6 — 33¼
U	Drawer Sides (2)	½ x 5¼ — 19
V	Drawer Back (1)	½ x 5¼ — 32½
W	Drawer Bottom (1)	¼" ply. 18¾ x 32

CUTTING DIAGRAM



Cherry Dresser

AN HEIRLOOM FOUR-DRAWER CHEST

About a year ago (in *Woodsmith* No. 53), we featured plans for a seven-drawer lingerie dresser. Since that time we've received many requests for another project of the same design.

This cherry four-drawer dresser is designed with the same heirloom quality. And as with the lingerie dresser it's also built with frame and panel construction, dovetailed drawers, and a solid-wood top.

SIDE FRAMES

I began building the dresser by assembling the two frame and panel side frames. Each side frame consists of a top and bottom rail, two stiles, and a ¼" plywood panel.

Start work by cutting four rails from 4/4 stock (¾" to 13/16" actual thickness). Cut the top rails (A) 3" wide and the bottom rails (B) 3⅜" wide. Then cut all four rails to a common length of 14⅞", see Fig. 1.

CORNERS. While cutting the side frame stiles (C), I also cut the front and back face stiles (D and E). These face stiles are joined to the side stiles to form an L-shaped corner assembly, refer to Fig. 6.

STILES. All of these stiles are cut from 4/4 stock. Rip the four side stiles (C) 2⅝" wide, and the four face stiles (D, E) 1¾" wide, see Fig. 1. Then cut all eight pieces to a common length of 25 13/16".

Note: This length depends on the number and size of the drawers. Since I wanted to use a dovetail jig to make the drawers, I had to make the drawer heights a multiple of ⅞", refer to page 20. Once the drawers, rails, and clearance between each drawer were added up, the length of the stiles came to 25 13/16".

JOINERY

After all of the rails and stiles are cut to finished size, the joints that hold them together can be cut.

GROOVE FOR PANELS. Start by cutting a ½"-deep groove on the *inside* edges of the rails (A, B) and the side stiles (C) to hold the plywood panels, see Fig. 1. Center this groove on the thickness of the workpiece.

Shop Note: The panels are made from ¼" plywood. But most hardwood plywood actually measures less than ¼" thick. So cut the grooves just wide enough to accept the actual thickness of the plywood panels.

TENONS. After cutting the grooves, I cut stub tenons on the ends of all four rails to fit into the grooves in the stiles. The length of the tenons matches the depth of the grooves (½") and the thickness matches the width of the grooves, see Fig. 4.

DADOES. Before assembling the frames, I switched over to work on the front and back face stiles (D, E). The first step here is to lay out the position of the four ¼" dadoes that are needed to hold the rails and runners that support the drawers.

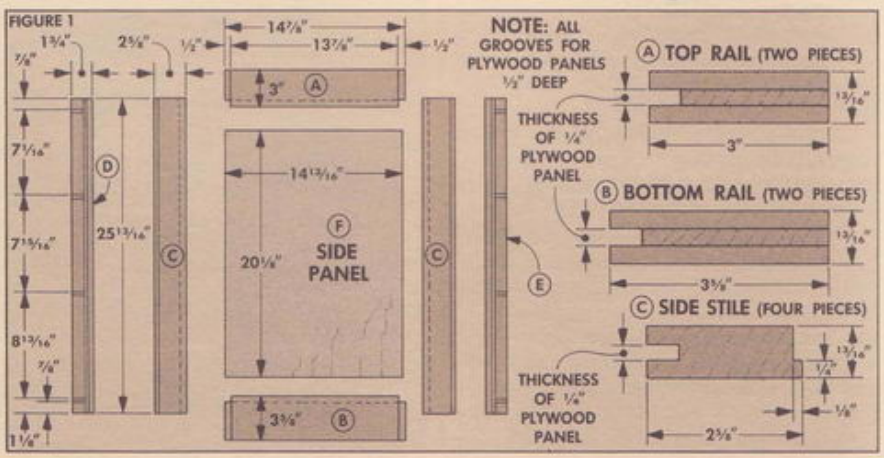
Shop Note: At this point, things can get a little confusing since you need mirrored sets of pieces. To avoid confusion, I stood the four face stiles on end as they would appear in the dresser, see Fig. 2. Then I marked the "TOP" of each piece and put an "X" on the *outside* edge of each piece.

Once the pieces are oriented, the dadoes can be laid out. The first dado on all four face stiles is located ⅞" down from the top end. Then three more dadoes are laid out to accommodate the three different drawer sizes, see the layout shown in Fig. 1.

After laying out the dadoes, raise the dado blade to a height of ¼" and set the rip fence as a stop ⅞" from the inside of the blade, see Fig. 3. Now check that the blade matches the layout line and then cut the dado.

Next, turn the workpiece end for end, check the layout line on that end, and cut a dado on the bottom end.

After cutting the dadoes on both ends of all four pieces, move the fence until the dado blade matches the other layout lines and cut the remaining dadoes.



CORNER JOINT. When all the dadoes are cut, you can begin work on the joint that holds the face stiles (D, E) to the side stiles (C). This is a combination of a rabbet with a tongue and groove joint, see Fig. 4.

The first step is to cut a groove on the inside face of the face stiles (D, E). Position the rip fence so the distance to the outside of the blade equals the thickness of the side stile (C), see Step 1 in Fig. 5. (Note: Be sure this groove is cut on the face with the four dadoes.)

RABBET NEEDED. The next step is to cut a rabbet next to the groove. This rabbet is not really part of the joint, it's to hide part of the joint. That is, without the rabbet, the dadoes (in the face stiles) would be exposed on the sides of the dresser.

To prevent this, I cut a rabbet the same depth as the dadoes on the inside face of each face stile (D, E). The side stile (C) then fits into this rabbet and hides the dadoes, see Fig. 4.

CUT RABBET. To cut the rabbet, raise the dado blade ⅝" high, see Step 2 in Fig. 5. Then adjust the fence so the inside edge of the blade is aligned with the bottom of the dado. (You may want to sneak up on the cut, using a test piece.) Now stand each face stile on edge with the outside ("X") edge down, and cut the rabbet. After the cut is made, the dadoes should have disappeared up to the groove.

BACK RABBET. To complete the back face stiles, cut a rabbet on the back edge for the plywood back, see Step 3. (Note the rabbet position in relation to the "X".)

TONGUE. The last step is to make a tongue on the side stiles (C) to fit the groove in the face stiles (D, E). To make this cut, lay the stile flat on the saw and raise the blade high enough to produce a tongue that fits the groove, see Step 4.

ASSEMBLY

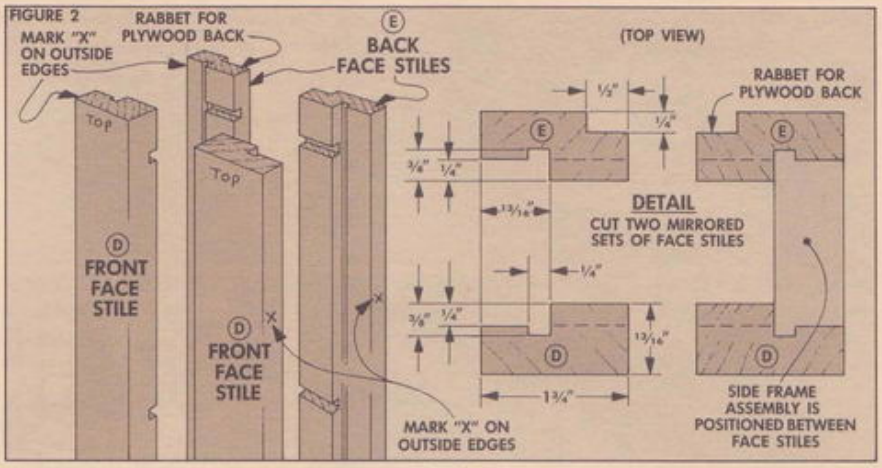
Now that all the corner joints are cut, dry-assemble a frame to take measurements for the plywood panels (F). (Cut the panels so there's a 1/16" clearance on the height and width, see Fig. 1.)

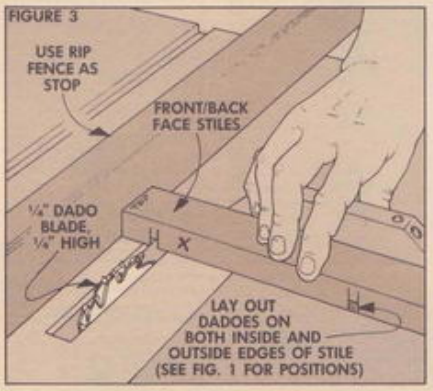
Next, the frames can be assembled in two steps. First, I glued the corners.

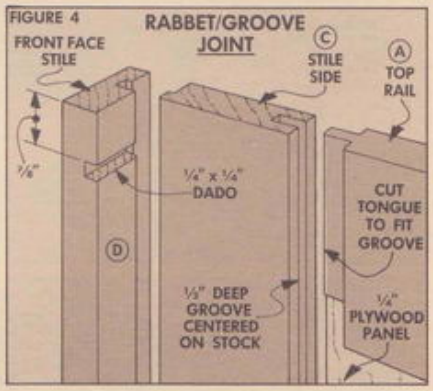
STILE TO STILE. Start by gluing a side stile (C) to a face stile (D, E) to form the four corners, see Fig. 6. Make sure the dadoes face in, and check that the corners are perfectly square.

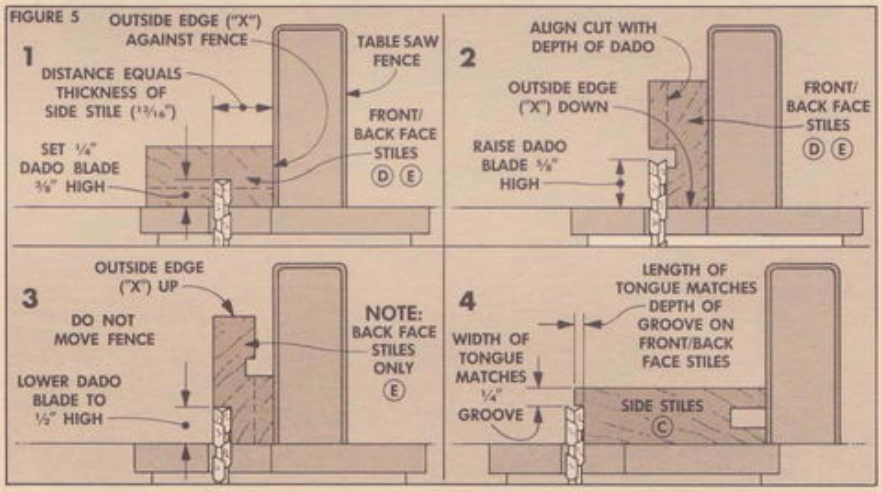
FRAMES. After all four corners are assembled, glue and clamp them to the rails (A and B) and the plywood panel (F) to form a side frame, see Fig. 6.

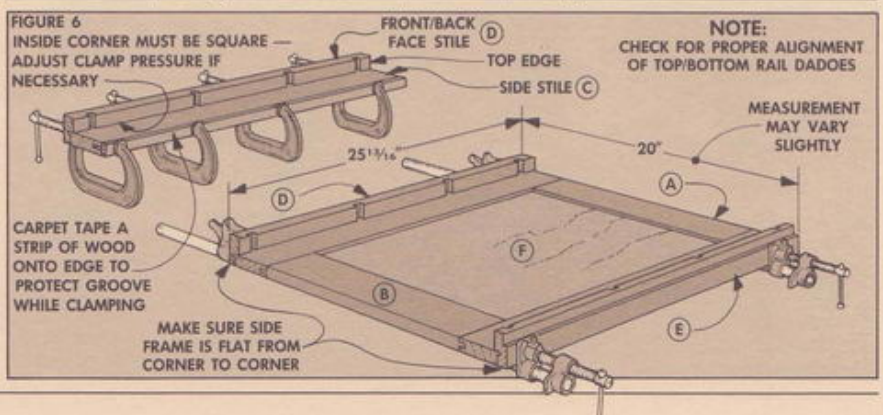
Shop Note: Before gluing these frames, double-check to make sure you have two mirrored sides and the "TOP" label on all four stiles is actually on the top. Once everything is lined up, glue each side assembly together with the pieces flat against the clamps and the ends flush.

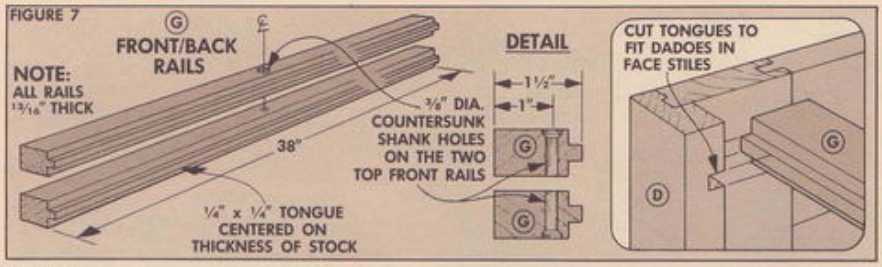


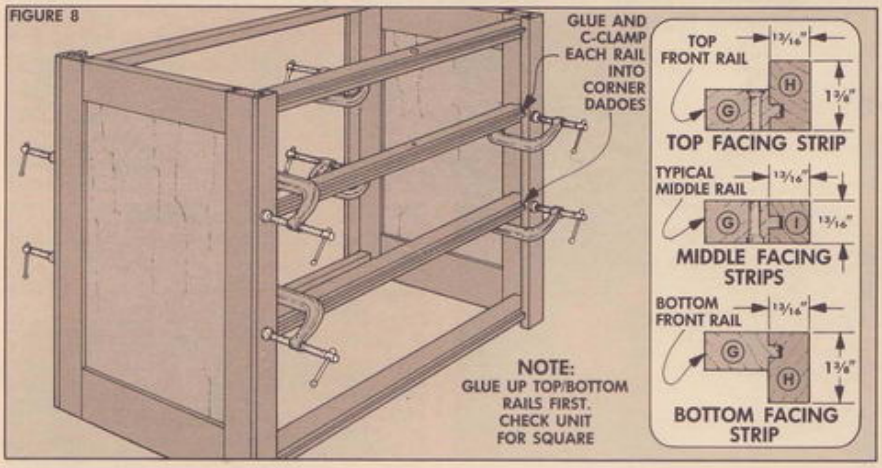


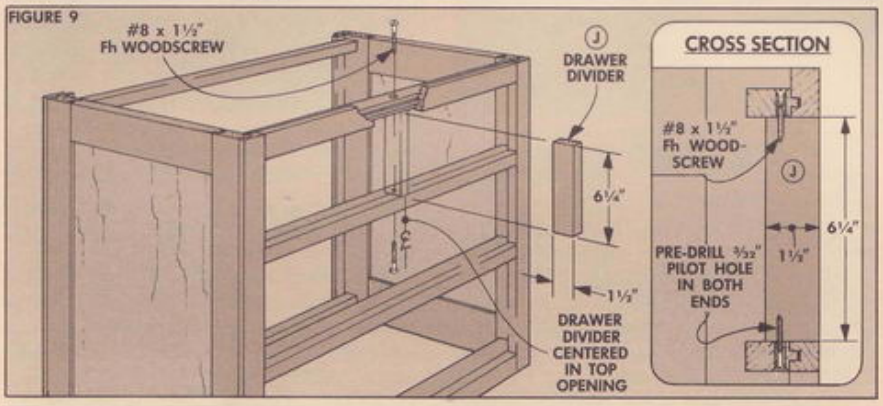


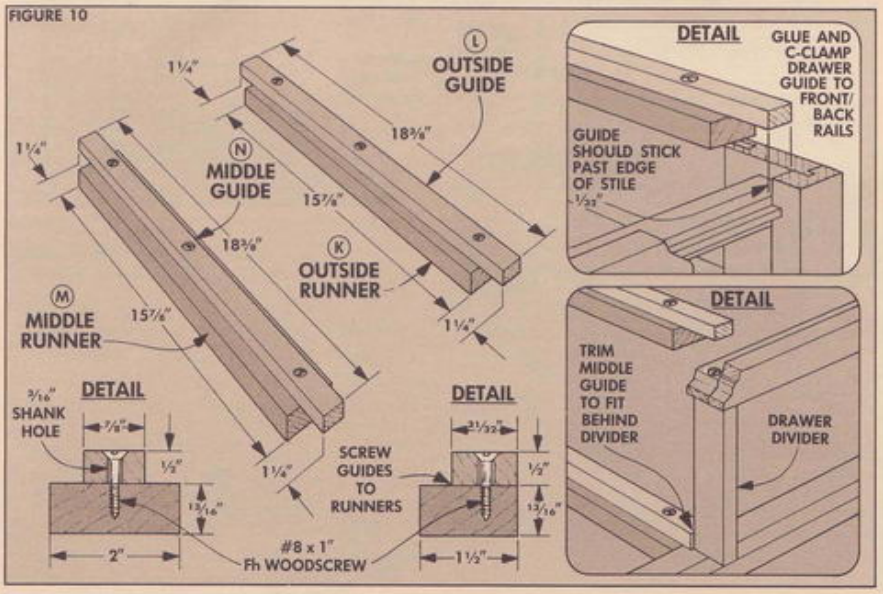












FRONT/BACK RAILS

Once the side frames were complete, I began work on the drawer support pieces.

CUT RAILS. Start by cutting eight front and back rails (G) to size from 4/4 stock, see Fig. 7. Then cut two rabbets on the front edge of each rail to create a tongue that fits into the dadoes that were cut on the face stiles (D, E), see Detail in Fig. 7.

Next, drill a countersunk shank hole in the two top front rails, see Fig. 7. These holes are used later to screw the drawer divider (J) in place, refer to Fig. 9.

ASSEMBLY. Now glue and clamp the rails into the dadoes on the front and back face stiles, see Fig. 8.

FACING STRIPS

After the rails are glued in place, facing strips can be added to the front edge of the front rails. There are two different sizes of facing strips, see Fig. 8. The top and bottom strips (H) are wider (1⅜") than the two middle strips (I) (13/16").

CUT GROOVES. After cutting the strips to rough length, cut a groove on the back face of each strip to fit onto the tongue on the front rails, see Fig. 8. The groove on the top and bottom strips (H) is offset on the width. The groove on the two middle strips (I) is centered on the width.

Then cut all the facing strips to length to fit between the front stiles and glue them in place, see Fig. 9.

DRAWER DIVIDER. A vertical divider (J) is added to divide the two top drawers, see Fig. 9. Cut the divider 1½" wide and to length to fit the opening between the top two facing strips. (Measure at one end rather than the middle in case the rails are bowed.) Then screw it in place so it's centered on the opening.

DRAWER GUIDES

Next, drawer guides are mounted to the rails. There are two types of guides — those along the outside of the cabinet and those behind the drawer divider (J), see Fig. 10. Both types consist of a runner (K, M) and a side guide (L, N).

OUTSIDE GUIDES. To make the outside guides, first cut eight runners (K) 1½" wide. Then cut them to length to fit between the front and back rails, see Fig. 10.

Next, cut eight side guides (L) from ½" stock. To determine their width, measure from the inside corner to the edge of the front stile and add 1/32", see Detail. Then cut them 2½" longer than the runners so they hang over 1¼" on each end.

Now screw a side guide to the top of a runner (to make a complete outside drawer guide), and glue this unit to the front and back rails, see Fig. 10.

MIDDLE DRAWER GUIDES. The middle two drawer runners (M) are cut 2" wide, and the guides (N) are cut 1/16" wider than

the thickness of the drawer divider. Center these guides on the runners and screw them down. Then mount these units behind the divider, see Detail in Fig. 10.

CHAMFERS

When all of the drawer guides were glued in place, I routed stopped chamfers on the four corners of the cabinet using a chamfer bit with a pilot. To stop the chamfers at the top and bottom, clamp a stop block flush with each end of the stile, see Fig. 11. (Option: You can also rout a chamfer around the *inside* of the frame by using a V-groove bit and a special guide on the router, see *Woodsmith* No. 49, page 23.)

BASE

After routing the chamfers, I began work on the base. The base is a bullnose frame glued on top of a kickboard frame.

BULLNOSE FRAME. To make the bullnose frame, cut a frame front (O) and two frame sides (P) to a width of 2⅜", see Fig. 12. Then rough cut the front 43" long and the sides 23" long.

Before cutting the pieces to final length, rout a bullnose edge on the pieces. First, rout a ½" round-over on the top edge, see Step 1 in Fig. 12. Then, to rout the bottom edge, switch to a ¼" round-over bit raised 3/16" above the table, see Step 2.

After the pieces are routed, miter the front piece (O) on both ends so the length is 2¼" longer (from long point to long point) than the cabinet's width. Then miter each side piece (P) on one end and cut them 1¼" longer than the cabinet's depth.

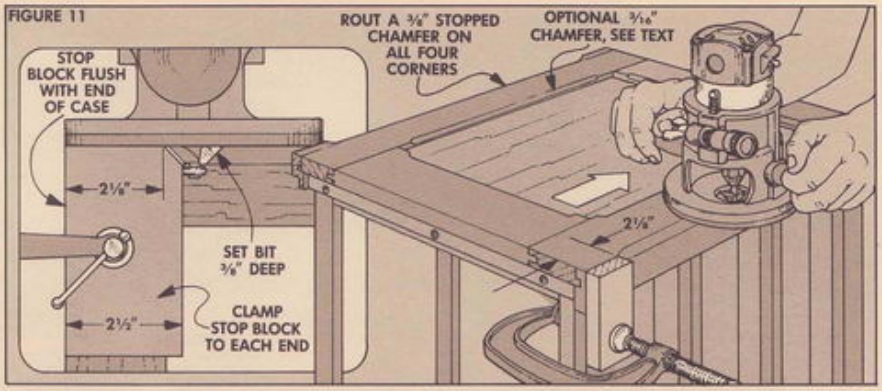
Now glue the miters together to form the three-sided frame. (Hold the pieces on a flat surface until the glue sets.)

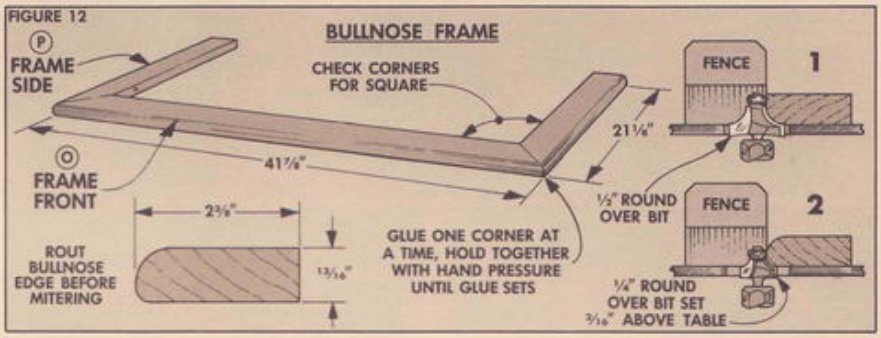
KICKBOARD. The rest of the base consists of a kickboard front, back, and two sides. Cut these pieces to a width of 3½", see Fig. 13. Then miter both ends of the kickboard front and back (Q) so the length of each piece is ½" shorter than the bullnose frame. Next, miter both ends of each kickboard side (R) so the length is ¼" shorter than the bullnose frame sides.

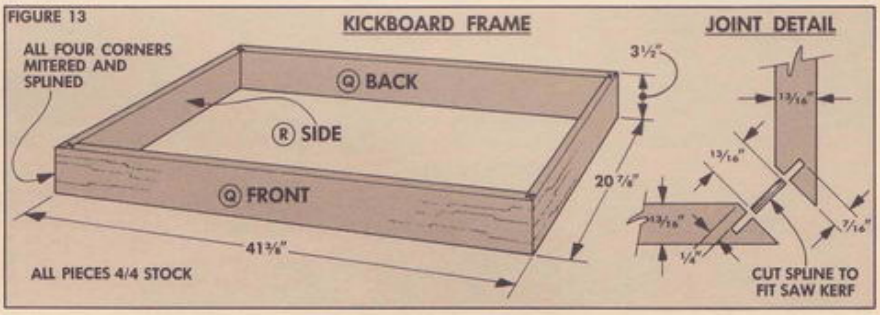
KERF AND SPLINE. To help keep the miters aligned while clamping, cut a kerf in each miter. Then cut a spline to fit the kerf, see Joint Detail in Fig. 13.

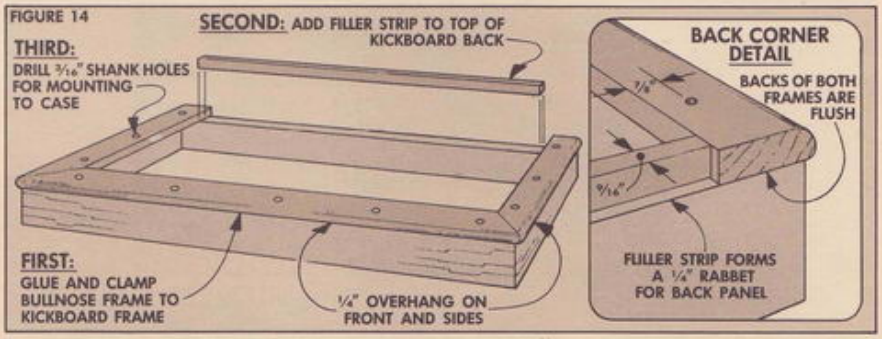
ASSEMBLY. After the joints are cut, glue the kickboard frame together. Then glue the bullnose frame to the top of the kickboard, see Fig. 14. One final step is to glue a filler strip to the top of the kickboard back, see Detail in Fig. 14. This strip creates a ¼" rabbet for the cabinet back.

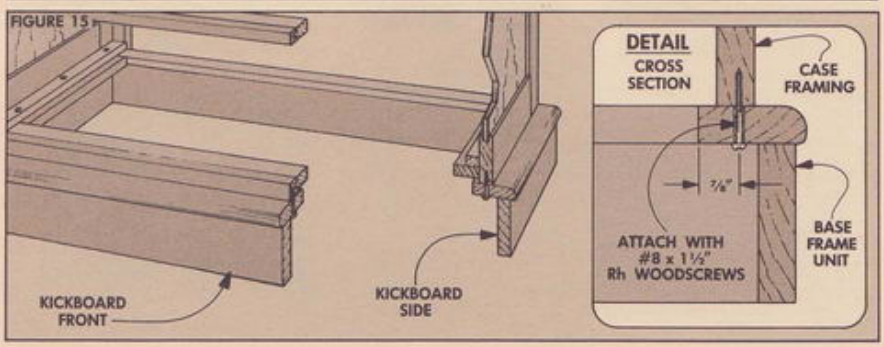
BASE TO CASE. To attach this base assembly to the cabinet, drill shank holes completely through the bullnose frame, see Fig. 14. Next, turn the cabinet upside down and position it on the base. Then drill pilot holes, and screw the base to the cabinet, see Fig. 15.

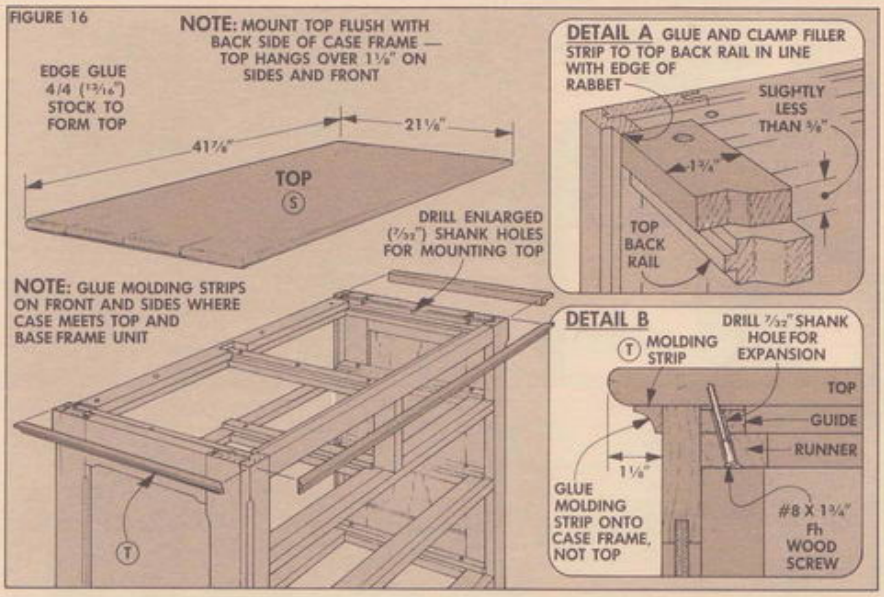


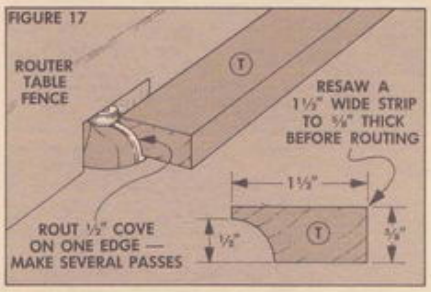


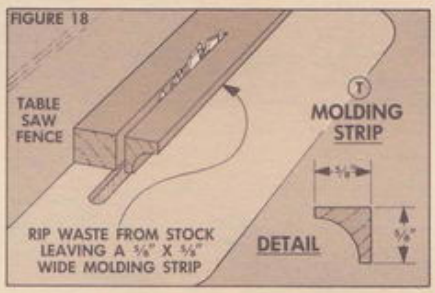


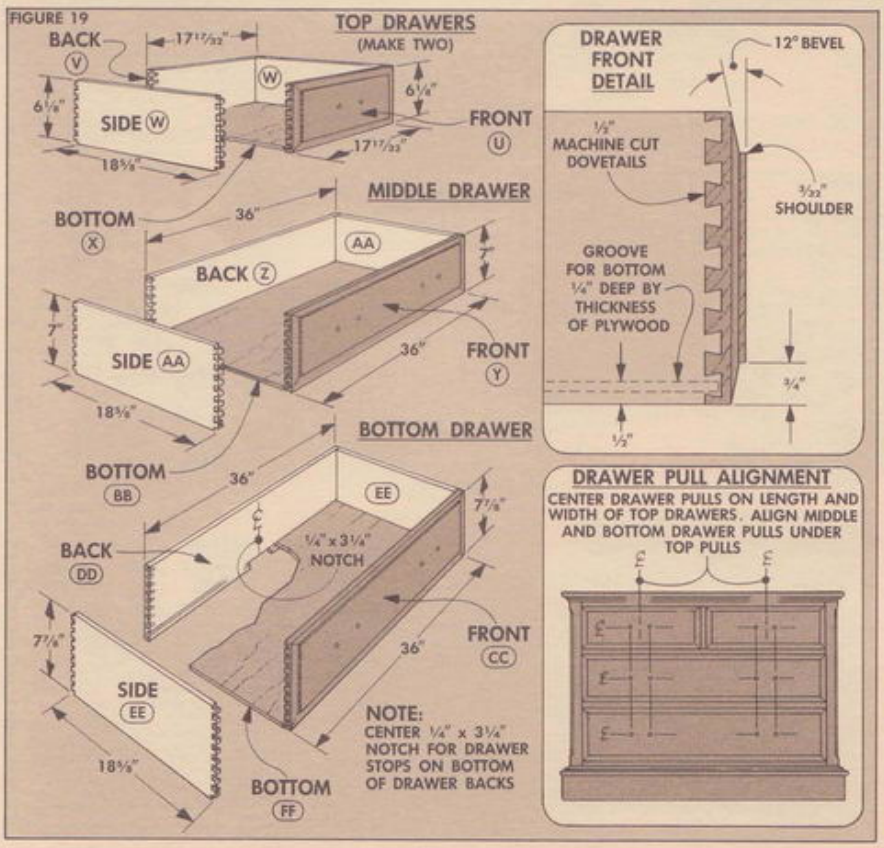












THE DRESSER'S TOP

To complete the cabinet, I started work on the solid-wood top (S).

BUILD UP TOP. Begin by edge-gluing 4/4 stock to make a blank that's 23" wide and 43" long. After it's dry, plane it flat and cut it to finished size: 2¼" longer than the cabinet's width and 1⅛" wider than its depth, see Fig. 16.

ROUT PROFILE. Next, rout the two sides and the front creating the same bullnose profile as on the base frame — except the ¼" round-over is on the top edge.

ATTACHING TOP. In order to fasten the top to the cabinet and to create a screwing surface for the plywood back, I added a filler strip on top of the top back rail, see Detail A in Fig. 16. Now, to secure the top, first center it on the cabinet (flush with the back), and clamp it down. Then drill angled screw holes up through the top rails and drawer guides, see Detail B.

After drilling these holes, remove the top and enlarge the shank holes so the top can expand and contract with changes in humidity. Then screw the top in place.

MOLDING STRIPS

To dress up the cabinet, I added molding strips above the base and below the top. To make these molding strips (T), start by resawing some 1½" wide stock to ⅝" thick. Then rout a ½" cove on one edge, see Fig. 17. Finally, trim the molding off the outside edge, see Fig. 18.

MITER. Now miter the molding strips to fit around the front and sides of the cabinet and glue them in place, see Fig. 16.

DRAWERS

After the molding strips are in place, the only thing left is to make the drawers.

CUT THE PIECES. Begin by cutting the drawer fronts (U, Y, CC) from 4/4 stock so they're ⅛" less in both width and length than the openings in the cabinet. (This is ¹⁄₁₆" less in length than the distance between the drawer guides (L, N). You can cut them slightly longer and sand them after assembly, refer to page 23.)

Next, cut the drawer backs (V, Z, DD) from ½" stock the same size as the fronts. Then cut the drawer sides (W, AA, EE) from ½" stock the same width as the fronts, and to a uniform length of 18⅝".

JOINERY. Once all the pieces are cut to size, rout dovetail joints on each corner (see pages 20 to 21), and cut grooves for the plywood drawer bottoms.

Before assembly, cut a notch on the bottom edge of each back piece to fit around a drawer stop pad (which is added later, see Fig. 20). Then cut the plywood bottoms (X, BB, FF) to fit between the grooves.

RAISE THE PANELS. To complete the drawer fronts, I made chamfer cuts to create a raised panel effect, (see *Wood-*

smith No. 53). Then drill holes for the drawer pulls, see Figs. 21 and 22.

ASSEMBLY. Finally, the drawers can be glued up with the bottoms in place.

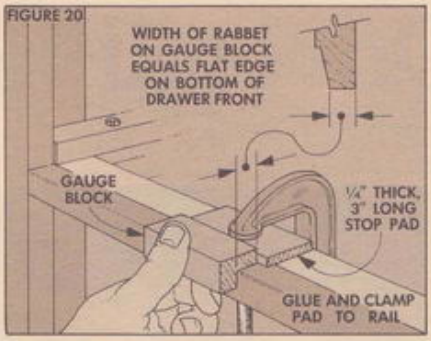
GLIDE STRIPS. There are a few more details to complete the drawers. To help the drawers glide smoother, I added nylon strips to the drawer runners, see Fig. 21. These strips also raise the drawer to create a slight gap *below* each drawer front.

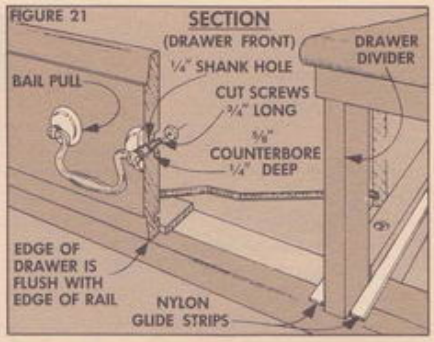
Shop Note: After the glide strips are in place, the top edges of the drawer may have to be planed down for a smooth fit.

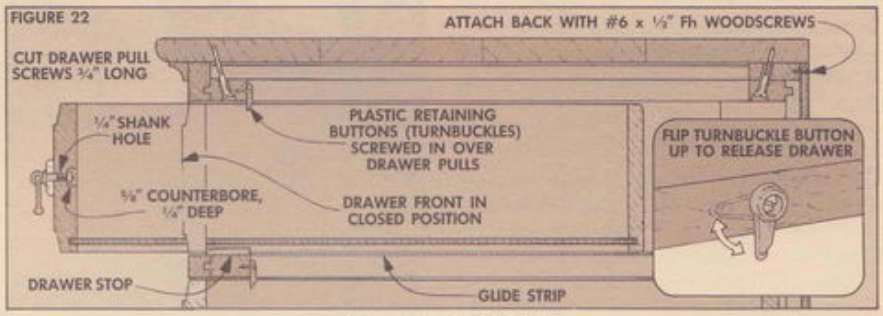
DRAWER STOPS. To stop the drawers from being pushed too far into the cabinet, I glued a drawer stop pad to each front rail, see Fig. 20.

Also, to prevent the drawers from being pulled all the way out, I screwed turnbuckles to the back of the front rails above the pulls, see Fig. 22.

FINISH. To complete the cabinet, I added a ¼" plywood back and then finished the entire dresser with General Finishes' Two-Step Sealacell system.



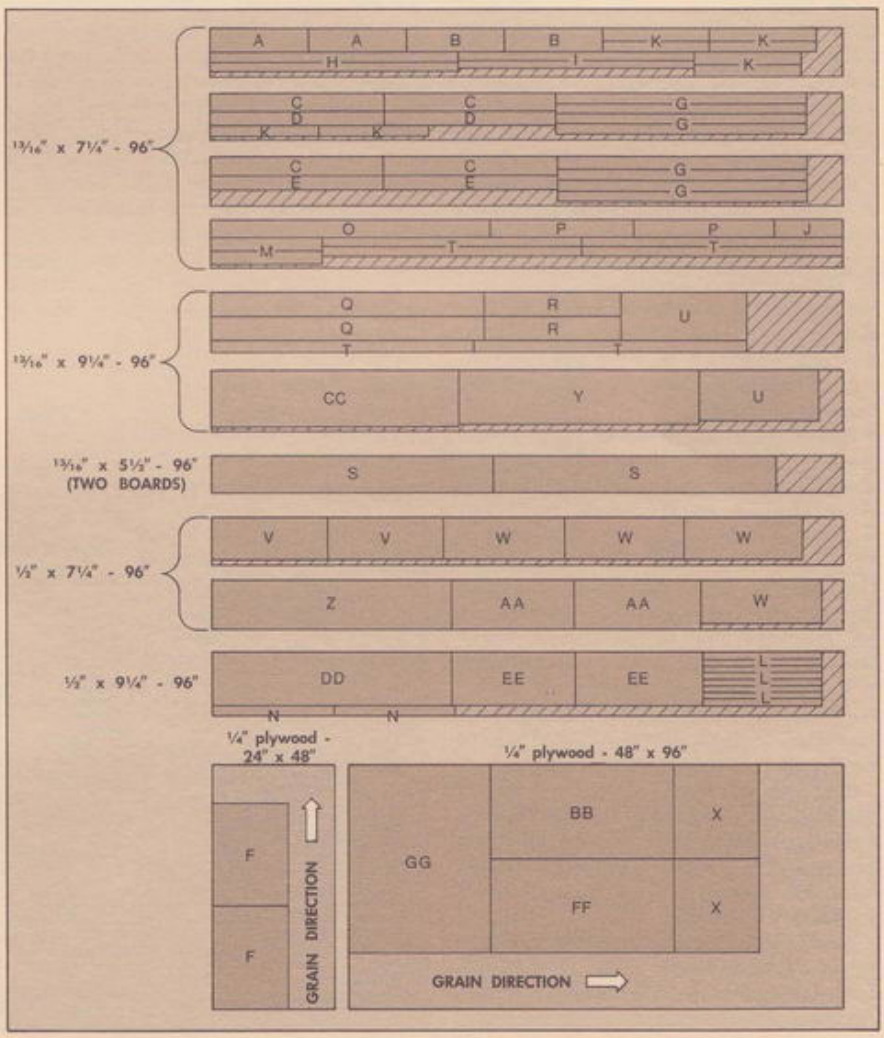




MATERIALS LIST

	Overall Dim.: 41⅞"w x 21⅛"d x 30¹⁵⁄₁₆"h	
	SIDE FRAMES	
A	Top Rails (2)	¹³⁄₁₆ x 3 — 14⅞
B	Bottom Rails (2)	¹³⁄₁₆ x 3⅝ — 14⅞
C	Side Stiles (4)	¹³⁄₁₆ x 2⅝ — 25¹³⁄₁₆
D	Front Face Stiles (2)	¹³⁄₁₆ x 1¾ — 25¹³⁄₁₆
E	Back Face Stiles (2)	¹³⁄₁₆ x 1¾ — 25¹³⁄₁₆
F	Side Panels (2)	¼" ply. 14¹³⁄₁₆ x 20⅛
	INTERIOR FRAMING	
G	Front/Back Rails (8)	¹³⁄₁₆ x 1½ — 38
H	Top/Btm. Facing (2)	¹³⁄₁₆ x 1⅜ — 36⅛
I	Mid. Rail Facing (2)	¹³⁄₁₆ x ¹³⁄₁₆ — 36⅛
J	Drawer Divider (1)	¹³⁄₁₆ x 1½ — 6¼
K	Outside Runners (8)	¹³⁄₁₆ x 1½ — 15⅞
L	Outside Guides (8)	½ x ³¹⁄₃₂ — 18⅜
M	Middle Runners (2)	¹³⁄₁₆ x 2 — 15⅞
N	Middle Guides (2)	½ x ⅞ — 18⅜
	BASE/TOP	
O	Frame Front (1)	¹³⁄₁₆ x 2⅜ — 41⅞
P	Frame Sides (2)	¹³⁄₁₆ x 2⅜ — 21⅛
Q	Kickboard Fr./Back (2)	¹³⁄₁₆ x 3½ — 41⅜
R	Kickboard Side (2)	¹³⁄₁₆ x 3½ — 20⅞
S	Top (1)	¹³⁄₁₆ x 21⅛ — 41⅞
T	Molding Strips (6)	⅝ x ⅝ — 15 ft.
	TOP DRAWERS	
U	Fronts (2)	¹³⁄₁₆ x 6⅛ — 17¹⁷⁄₃₂
V	Backs (2)	½ x 6⅛ — 17½
W	Sides (4)	½ x 6⅛ — 18⅝
X	Bottoms (2)	¼" ply. — 18⁹⁄₁₆ x 17
	MIDDLE DRAWER	
Y	Front (1)	¹³⁄₁₆ x 7 — 36
Z	Back (1)	½ x 7 — 36
AA	Sides (2)	½ x 7 — 18⅝
BB	Bottom (1)	¼" ply. 18⁹⁄₁₆ x 35½
	BOTTOM DRAWER	
CC	Front (1)	¹³⁄₁₆ x 7⅞ — 36
DD	Back (1)	½ x 7⅞ — 36
EE	Sides (2)	½ x 7⅞ — 18⅝
FF	Bottom (1)	¼" ply. 18⁹⁄₁₆ x 35½
GG	CABINET BACK	¼" ply. 37⅛ x 26⅝

CUTTING DIAGRAM



Dovetail Jig

SHOP-MADE JIG FOR CUTTING HALF-BLIND DOVETAILS

When I first started to build this dovetail jig, I thought the advantage was going to be the low cost. Dovetail jigs are priced from $50 up, but you can make the one shown here for about $30. All you need is some standard off-the-shelf hardware, five board feet of hardwood, and a piece of ¼" Masonite to make your own "comb" template. (A kit is also available that includes a pre-cut plastic template, see Sources, page 24).

SOLVING DESIGN PROBLEMS

As I worked on the design, I began to think about what I *didn't* like about the dovetail jigs I've used before. The main problem I've had with other jigs is the system for holding the workpieces tight to the jig. (If the wood shifts even slightly, the joint won't fit together correctly.)

On most jigs the workpieces are held with metal bars. The bars are tightened down with wing nuts or knobs. But you just can't tighten them enough to keep the wood from moving around as you rout. And, on some of the jigs, the metal bar bends as the wing nuts are tightened.

CAMS. To solve these problems, the jig shown here uses cams. They're much easier on the fingers and work faster than wing nuts. And you can apply considerably more pressure down against the workpieces. (We've cut well over 100 joints with this jig, and I haven't seen a workpiece shift out of position yet.) It's also easier to quickly change the pieces if you're doing a number of joints.

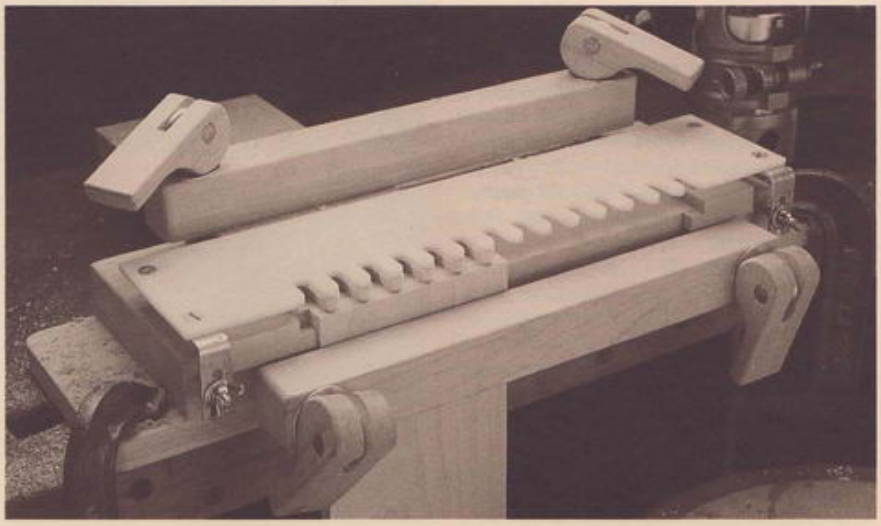
PRESSURE BARS. However, with all that pressure building up from the cams, you need strong bars that won't bend. (I used 1⅝"-thick hard maple to make the bars.)

BASE

The first step in making the jig is to build the base. It's built up from three pieces of 4/4 hardwood (¾" to 13/16" actual thickness). (Note: You could also use one piece of 8/4 stock and one piece of 4/4 stock.) It's important to use a tight-grained hardwood such as maple so the threaded inserts won't pull out.

CUT AND GLUE BASE PIECES. I began by cutting two base top pieces (A) to rough dimensions of 6½" wide and 19" long and laminating the pieces together face-to-face. After this blank is dry, cut it to a finished length of 18", see Fig. 1.

Next, I cut a base bottom piece (B) from 4/4 stock to a rough width of 6½" and finished length of 22." Then screw and glue this piece onto the bottom of the top blank



so there are 2" wings overhanging on each end. (The wings are used for clamping the jig down to a bench or table, see photo.)

CUT TO WIDTH. Once the base is assembled, trim it down to a finished width of 6", see Fig. 1. When trimming the front edge, make sure it's *exactly* 90° to the top.

DRILL HOLES. After the base block was trimmed, I drilled six holes in it. First, drill two ⅛"-dia. pilot holes in the top, ½" from the front edge (see Fig. 1), to hold stop blocks that are added later (refer to Fig. 19 on page 19).

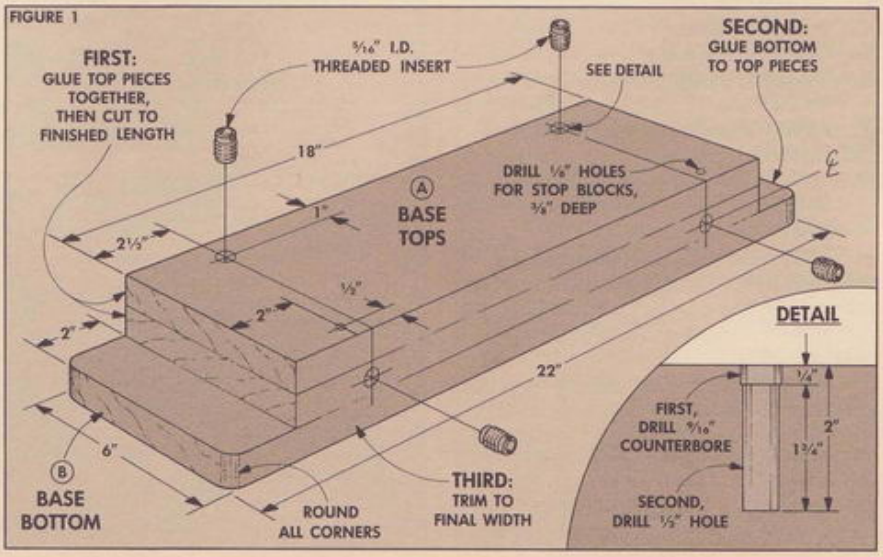
The other four holes are for the 5/16" threaded inserts that will accept eye bolts for the cams, refer to Fig. 7. However, before drilling the holes for the inserts, I counterbored 5/16"-dia. holes ¼" deep to make a space for the springs that hold the pressure bars away from the jig, see Detail in Fig. 1.

After counterboring, I drilled a ½"-dia. hole to accept the threaded insert. This hole has to be 2" deep so the eye bolt can be screwed all the way through the threaded insert, refer to Fig. 2.

Shop Note: Most 5/16" (inside diameter) threaded inserts tighten into a ½"-dia. hole, but some require a smaller diameter hole. Drill the holes to match the specific inserts you have.

MOUNT INSERTS. After the holes are drilled, tighten the inserts down so they're set ¼" below the surface, see Detail in Fig. 2. To do this I tightened two nuts against each other on a 5/16" bolt and then

FIGURE 1



screwed on an insert. To help the insert cut into the maple, I rubbed some candle wax on the threads of the insert and tightened down the bolt with a socket wrench, see Fig. 2.

PRESSURE BARS AND CAMS

When all four of the threaded inserts were screwed in place, I began work on the pressure bars and cams. These pieces are cut from three blanks that measure 2" wide and 17" long, see Fig. 3. (Note: These blanks can be built up from two pieces of 4/4 stock or one piece of 8/4 stock — just so they're about 1½" to 1¾" thick.)

PRESSURE BARS. To make the two pressure bars (C), cut two of the blanks square (1⅝" x 1⅝") and to a finished length of 15". Then drill ⅜"-dia. holes 1" from each end to accept the eye bolts, see Fig. 3.

CAMS. The four whistle-shaped cams (D) can be cut from the other blank. I started by squaring up one edge of the blank and then cut it in half lengthwise, see Fig. 4.

LAY OUT CAMS. Next, I made a poster board pattern of a cam. To achieve the gradual tightening action of the cam, the rounded bottom of each cam is made from two different radii (⅞" and 1"). These radii start at two different center points (⅛" apart), and intersect at the bottom. (These two radii create the cam action that exerts gradually increasing pressure on the bar.)

After transferring the patterns to each workpiece, I drilled a ½"-diameter hole (centered on the 1" radius centerpoint) in each cam to accept axle pins, see Fig. 4.

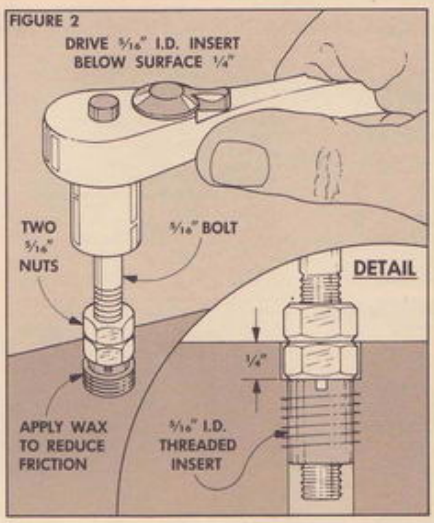
CUT SLOT. Before cutting the cams to final shape, cut a 5/16"-wide slot through each end of the cam blanks to accept the eye bolts. I did this by standing the piece up on end on the table saw and backing it with a 2x4 block, see Fig. 5.

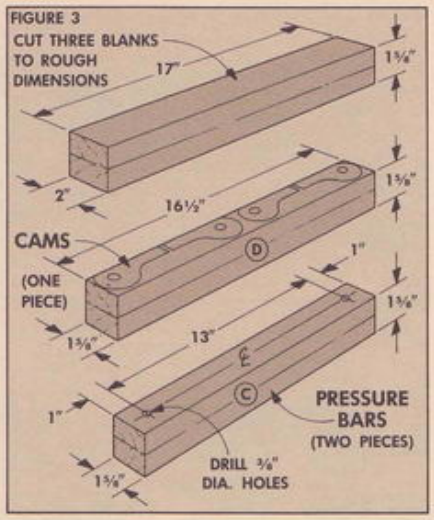
Cut a 1¾"-deep slot centered on each end, see Step 1 in Fig. 5. To widen the slot to 5/16", move the rip fence slightly away from the blade and repeat the cut. Then turn the piece around so the opposite face is against the fence and make another cut. Continue moving the fence slightly and cutting on opposite sides (Step 2) until the 5/16" eye bolt slides into the slot.

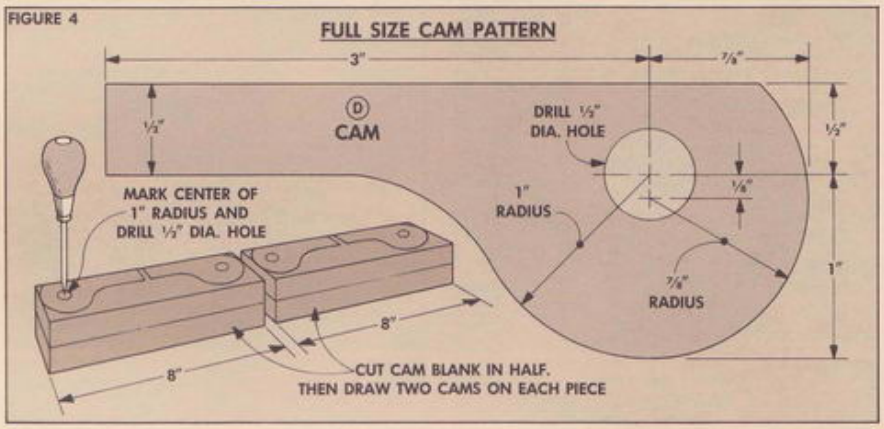
CUT TO SHAPE. Once the eye bolt fits the slot, cut and sand each cam to final shape. Also, slightly soften all of the sharp edges, see Fig. 6.

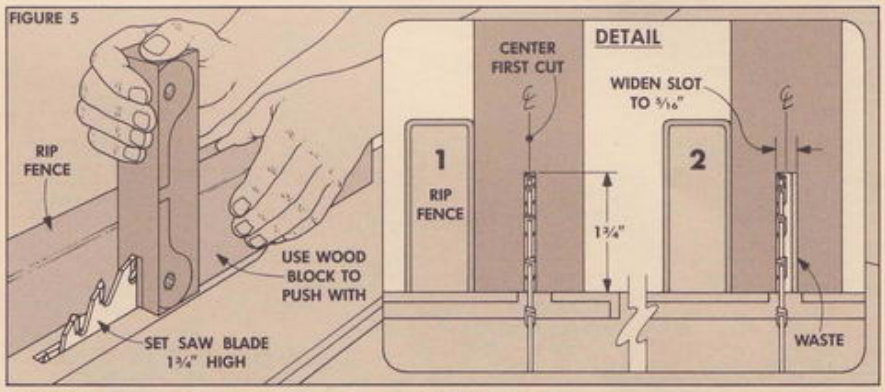
CUT AXLE PIN. Next, I cut a piece of ½" rod to act as an axle pin through the eye bolt, see Fig. 7. (Shop Note: You can cut this from a long rod, or from the unthreaded section of a ½" bolt.)

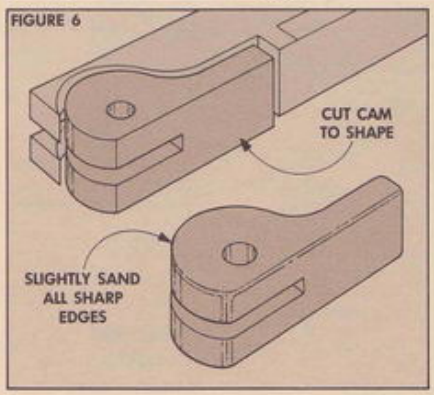
EYE BOLT. The eye bolt is just a standard 5/16" x 5" eye bolt purchased from a hardware store. After using the jig for awhile, I discovered that the eye section started to uncurl when extreme pressure was applied to the cam. To prevent this, I had it welded shut, see Fig. 7.











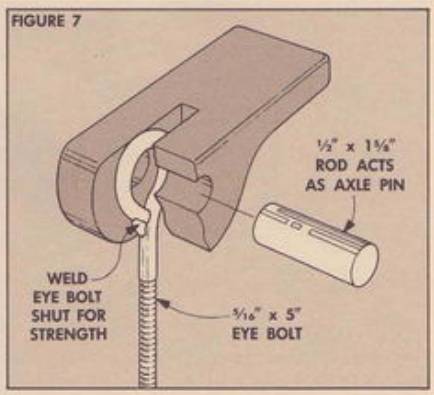


FIGURE 8

"COMB" TEMPLATE

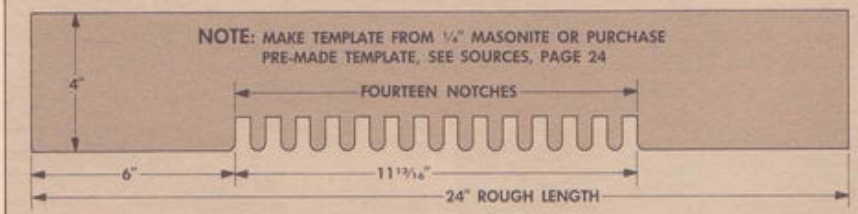


FIGURE 9

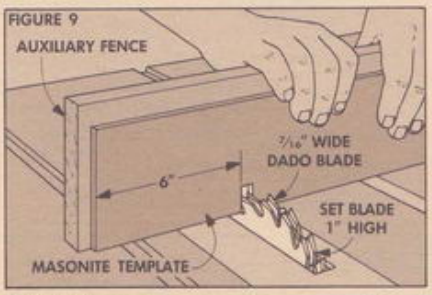


FIGURE 10

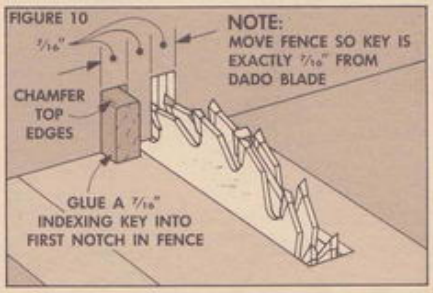


FIGURE 11

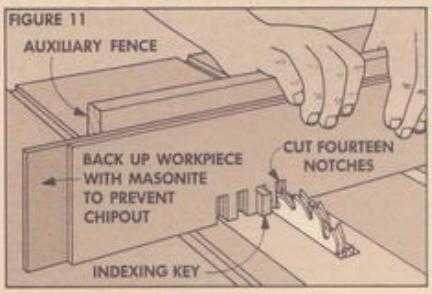


FIGURE 12

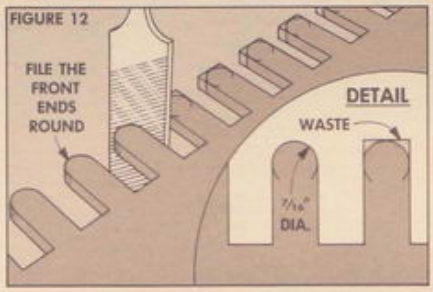


FIGURE 13

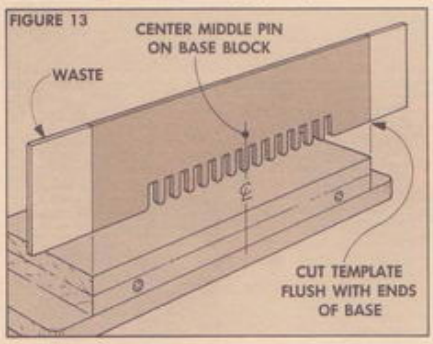


FIGURE 14

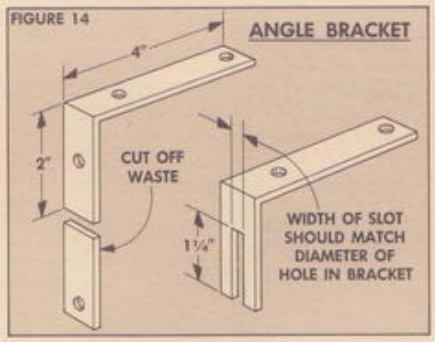
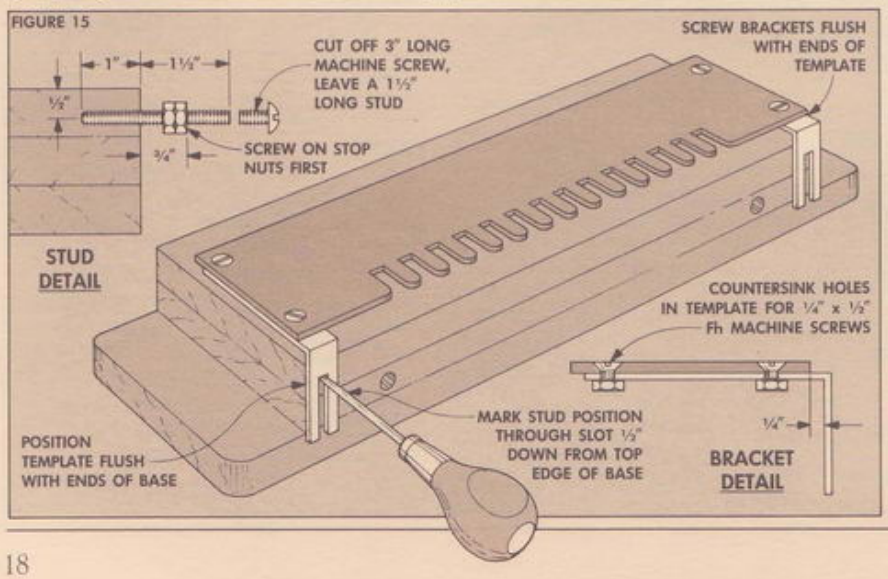


FIGURE 15



TEMPLATE

After the jig base block and cams were complete, I began work on the "comb" template that guides the router. Note: We're offering a pre-cut plastic template in a kit (see page 24), but you can make your own from ¼" Masonite.

This template must be extremely accurate or the dovetail joint won't fit together correctly. I found that the most accurate method of cutting the notches in the comb was to use a box joint jig. (To build a box joint jig, see *Woodsmith* No. 42.)

CUT NOTCHES. Start by cutting a piece of Masonite 4" wide and 24" long, see Fig. 8. The next step is cutting the notches. Since a ½" dovetail bit uses a 7/16" (outside diameter) router guide bushing, the notches have to be exactly 7/16" wide. (Check the width cut by your dado blade by making a notch in a test piece and see if your guide bushing fits.)

When the notch width is correct, raise the blade 1" high and then screw a tall auxiliary fence to the miter gauge. Now, stand the Masonite on edge and cut a notch 6" from one end, see Fig. 9.

INDEXING KEY. After the first notch is cut, cut a 7/16" indexing key and glue it into the notch in the fence, see Fig. 10. Once the glue dries, trim the top of the key slightly and chamfer the edges so the workpiece will slip over it easily.

Then, move the fence over and screw it to the miter gauge so the key is *exactly* 7/16" from the dado blade. (Note: This distance has to be extremely accurate and may take some "fine tuning." The box joint jig shown in *Woodsmith* No. 42 has an adjustable fence that makes this adjustment easier.)

CUT REMAINING NOTCHES. Once the jig is set up, place the first notch over the key and cut a second notch in the template. (Note: I backed up the workpiece with another piece of ¼" Masonite to prevent chipout.) Then continue this process until fourteen notches are cut, see Fig. 11.

To check for accuracy, measure the distance from the first notch to the last. Since there are fourteen 7/16"-wide notches and thirteen 7/16"-wide pins, it should measure 11 13/16", see Fig. 8.

ROUND THE PINS. Once all the notches are cut, I filed the front end of each pin round, see Fig. 12. (Note: The back end of the notches on most commercial templates are also rounded, but they don't have to be to cut dovetails.)

CUT TO LENGTH. To cut the template to length, place it on the base block with the middle pin centered on the length, see Fig. 13. Then mark and cut the template the same length as the top of the base.

BRACKETS. The template is attached to the block with angle brackets. These can be made from 4" x 4" steel corner brackets.

Start by hacksawing one "leg" on each bracket to 2" long, see Fig. 14.

Then cut a 1¼"-long slot up from the cut-off end. Depending on the brand of corner bracket you buy, you will probably be cutting up through a mounting hole. Cut the slot to width to match the diameter of the hole. On some brackets these holes are off center and the slot should be cut off center to match.

After the slots are cut, position the brackets on the ends of the template and countersink holes in the template for machine screws, see Detail in Fig. 15.

STUDS. Once the template is screwed to the brackets, two studs are mounted in the base block to position the brackets. To do this, position the template flush with the ends of the block and mark the slot positions on the front of the block, see Fig. 15.

The studs are created by tightening two machine screws into the block and then cutting off their heads, see Detail in Fig. 15. (The diameter of the studs should match the width of the slots in the brackets.)

Shop Note: Before tightening the screw into the block, thread two nuts onto the screw to act as stops for the template, see Detail in Fig. 15.

STOP BLOCKS

The only thing left to make are the stop blocks. These position the workpieces in relation to each other and to the template.

CUT THE RABBET. Start by cutting a piece of stock to a width of 2½" and length of 8". Then cut a ⅜"-deep by 1"-wide rabbet along one edge, see Steps 1 and 2 in Fig. 16. Next cut the piece to a finished width of 1⅜", see Step 3.

END NOTCH. When cutting dovetails, the two workpieces have to be offset 7/16" from each other. To allow for this offset, cut a 7/16"-wide notch at both ends of the stop block to produce a 7/16"-long finger, see Fig. 17. After cutting the notches, check the length against the comb template — the "finger" should be exactly as long as the *width* of a pin on the comb.

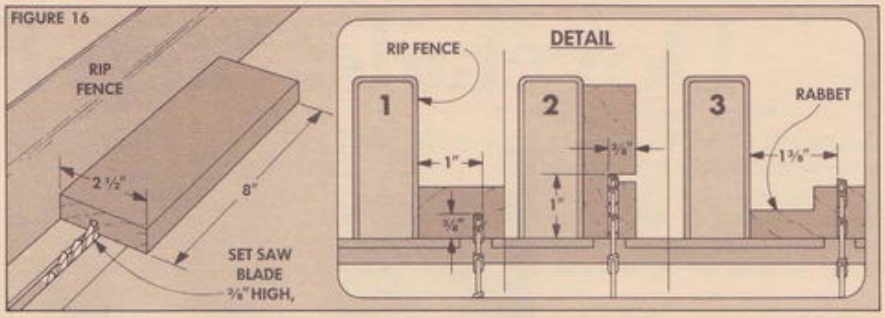
Shop Note: It may be easiest to cut the fingers just a hair longer than 7/16" and file them down to exact size.

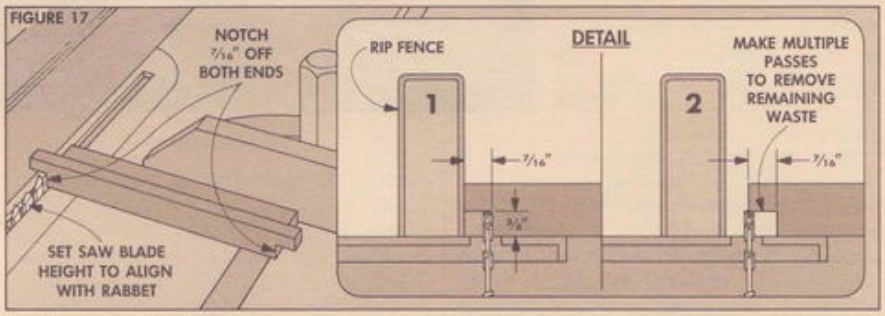
ADJUSTMENT SLOT. To make the blocks adjustable, I cut 1"-long screw slots by drilling a series of 3/16" holes, see Fig. 18. Then cut a stop block off each end.

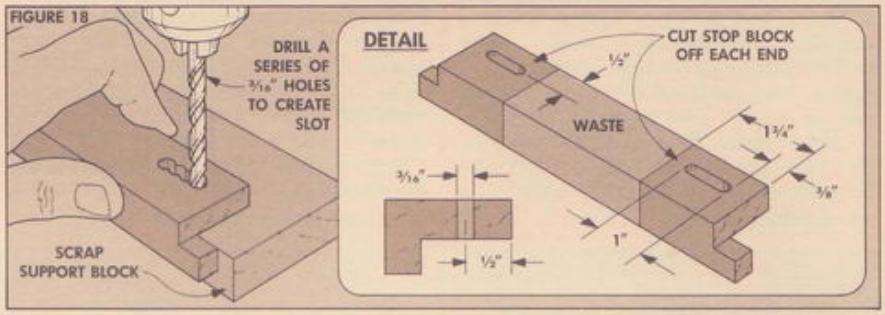
FINAL ASSEMBLY

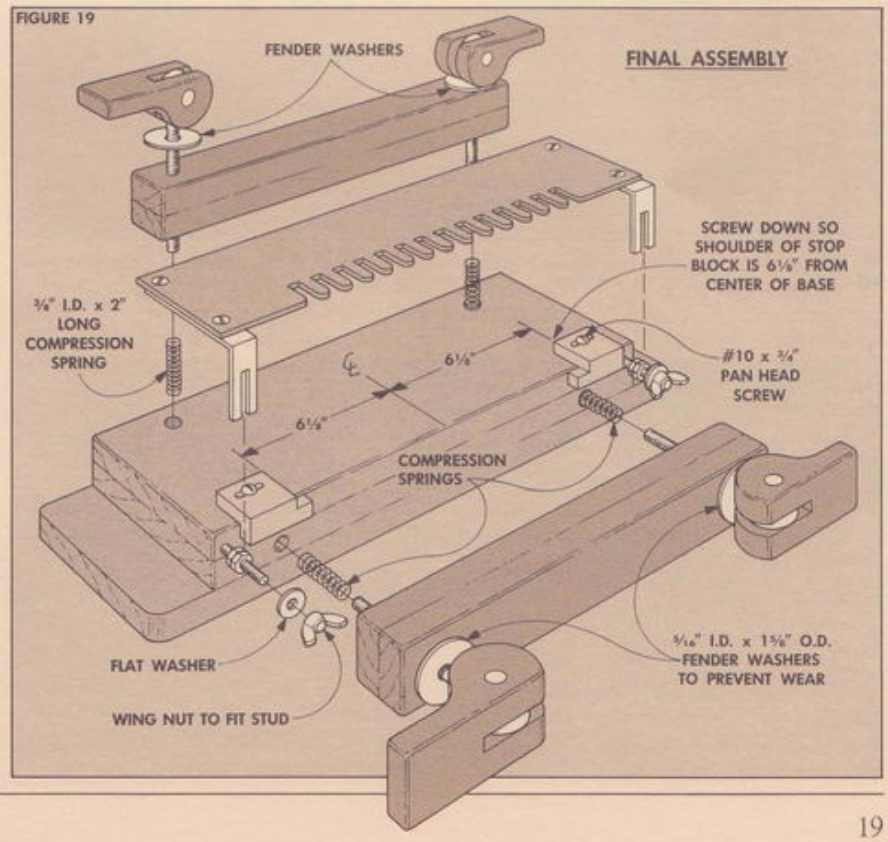
After the stop blocks are made, you can assemble all the pieces, see Fig. 19. To start, screw the stop blocks down with sheet metal screws into the pre-drilled holes so the shoulder of each stop block is 6⅛" from the center of the jig. (This may have to be adjusted later, see page 20.)

Then add the springs, bars, and cams. And finally, the template is held tightly to the studs with washers and wing nuts.



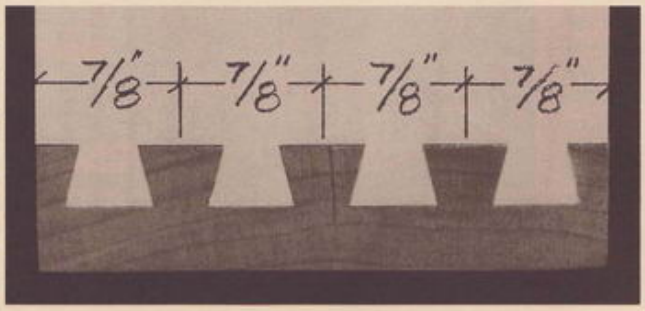






Dovetails: Step-By-Step

Cutting tight dovetail joints with a router and template is easy — but it requires a little planning ahead. It's best to plan the dimensions of the cabinet opening ahead of time to accommodate drawers that are joined with router-cut dovetails. That is, the width (height) of the drawer front has to be a multiple of ⅞". (This produces a joint that's symmetrical both on the top *and* bottom edges, see the photo.)



Once the width of the drawer fronts is determined, cut the drawer's side and back pieces to the same width. (Note: All of this assumes that the drawers are flush front drawers. See page 22 for information on making rabbeted front drawers.)

LENGTH. As for length, cut the pieces to fit the cabinet openings (taking into consideration any clearance). Also, to make sure the corners are square, check that the drawer front and back are equal lengths, and the drawer sides are equal lengths.

LABEL PIECES. Once all of the pieces are cut to finished size, lay them out and label the bottom edge of each piece. Also, number matching corners, see Step 1.

ALIGNMENT

Setting up the jig takes some trial and error, so don't start with the finished pieces. I work with scrap that's the same thickness and width as the drawer pieces.

MOUNT PIECES. Start by mounting a test drawer side under the *front* pressure bar and a test drawer top under the *top* pressure bar with the bottom edges tight against the left-hand stop block and the insides *facing out*, see Step 2. (This can be confusing since it's opposite the way the pieces will be in the drawer.)

After the drawer front is clamped down, reposition the drawer side so its end is level with the drawer front, see Step 3.

ADD TEMPLATE. Next, mount the "comb" template on the jig. Everything is okay if the bottom edge of the drawer side is centered on the first notch of the template, see Step 4. Now hold the template down (flat) on the drawer front and tighten the wing nuts, see Step 5. (The location of the stop nuts on the studs may take some adjustment, see box on page 21.)

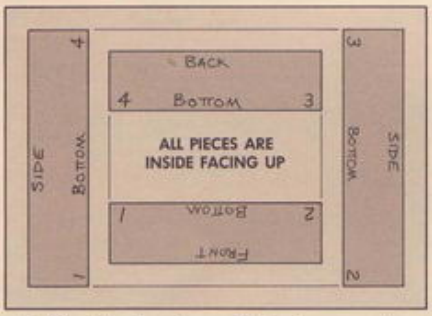
ROUTER SET-UP

The router is guided in and out of the template with the aid of a guide bushing, see Step 6. This is a metal "collar" that mounts to the router base, see Sources, page 24.

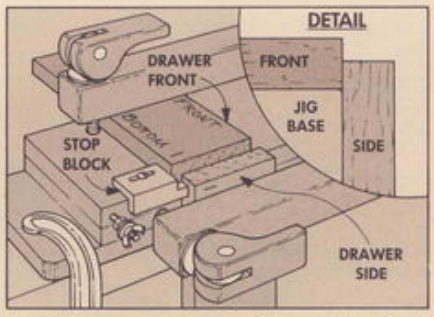
Next, mount a ½" dovetail bit in the router, making sure the bit is centered in the collar of the guide bushing. If it's not, adjust the router's plastic base slightly. As for the depth of the bit, I start with it ½" deep (from the base), but this may vary depending on the bit, see box.

ROUTING THE PIECES

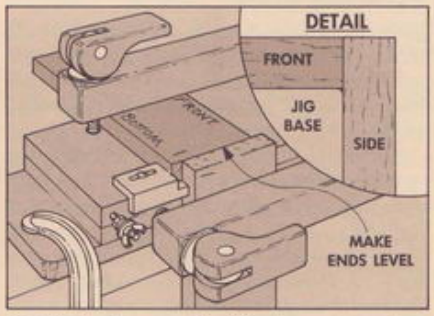
Now the pieces can be routed. To prevent chipout, start by making a light scoring



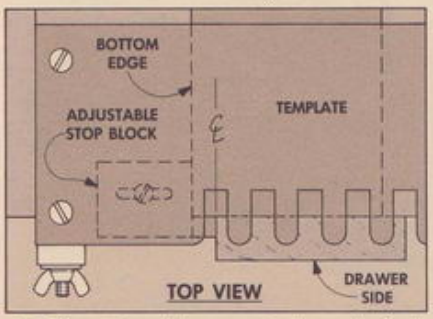
1 *Start by laying out the drawer pieces on a bench with the insides facing up. To avoid confusion, label all pieces and number the matching corners.*



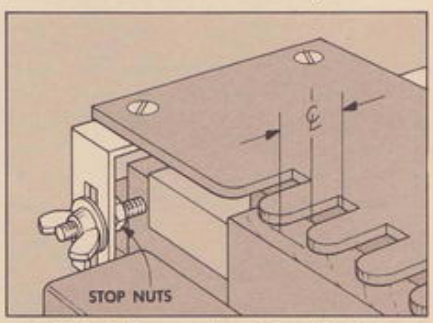
2 *Clamp a drawer side under front bar. Then clamp a drawer front on top of jig tight to the drawer side. Insides face out and bottoms to the left.*



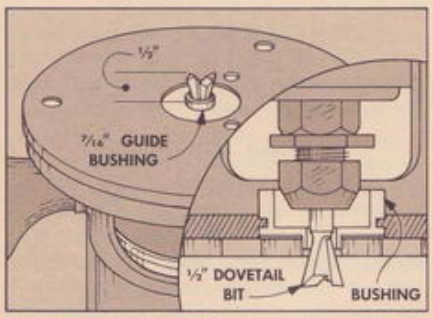
3 *Next, loosen the front pressure bar and reposition the drawer side so the top end is perfectly level with the top of the drawer front.*



4 *Place template over studs and check that the bottom edge of the drawer side is centered on the first notch. If it's not, adjust the stop block.*



5 *End of drawer front should start out centered between front and back of notch at both ends of jig. To adjust, change position of the stop nuts.*



6 *Mount 7/16" guide bushing onto the router. Then raise bit ½" from router base as a starting point. It may have to be adjusted slightly later.*

pass from right to left, see Step 7.

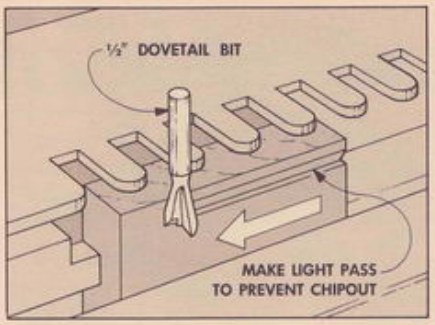
Then gently move the router in and out of the fingers, moving from left to right, see Step 8. You should be able to feel the guide bushing stop at the back of each notch. After routing, but before removing the pieces from the jig, check that you've routed each socket evenly, see Step 9.

ROUTING REMAINING JOINTS. At this point, you've routed the joint at the left front corner of the drawer. (It's marked No. 1 in Step 1.) Next rout the right rear corner joint (marked No. 3) using the same procedure. Mount the drawer side on the front of jig, the drawer back on the top of jig — with the bottom edges against the stop on the *left* and the insides facing out.

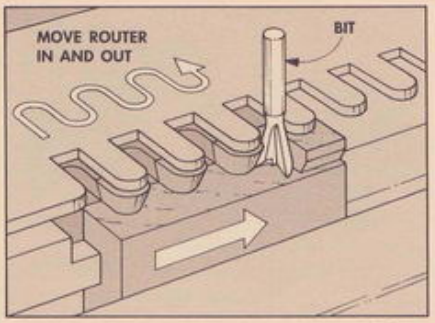
The other two joints (No. 2 and 4) are routed with the pieces tight against the stop block on the *right* side of the jig. Again, always clamp the drawer side to the *front* of the jig, the inside of the pieces facing out, and the bottom edges against the stops (this time on the right).

When routing on the right side, follow the same procedure. Make a light pass from right to left and then move the router in and out of the notches from left to right.

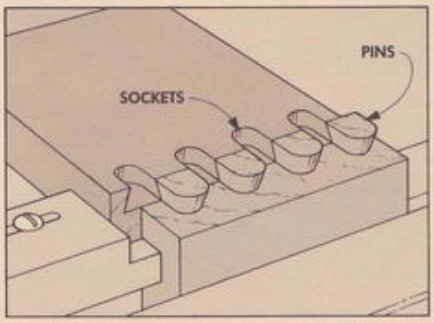
BOTTOM GROOVE. When all the joints are routed, all that's left is to cut the grooves for the drawer bottom, see Step 10. Cut the groove so it's centered on the bottom socket of the drawer front. Then it will be hidden by a pin on the drawer side.



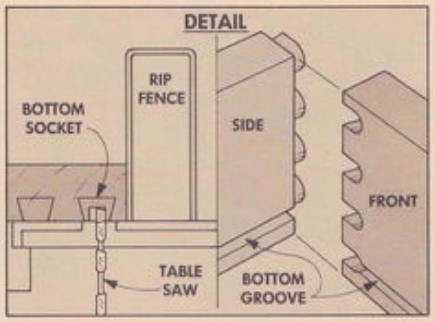
7 *To prevent chipout on drawer side, start by making a light pass from right to left. This "V" groove establishes a clean shoulder line.*



8 *Next, move the router from left to right working in and out of the notches. Push the router into each notch until the bushing hits the bottom of notch.*



9 *Finally remove the template and check that all of the sockets and pins are uniform. Opposite joints are cut on the right side of the jig.*



10 *After all joints are routed, cut bottom groove on saw in two passes to match drawer bottom thickness. Center the groove on the bottom socket.*

TROUBLE SHOOTING

Setting up to make router-cut dovetails is always a trial and error effort. There's usually lots of fiddling around with trial pieces and readjusting to get a perfect fit.

TOO LOOSE. If the joint is so loose that the pieces wiggle around when they're put together, the depth of cut is too shallow, see first photo below. *Increase* the depth of cut about 1/32" and try again.

TOO TIGHT. If a trial cut is so tight that the pieces can't be tapped together, the router bit is extended out too far from the router base. *Decrease* the depth of cut about 1/32" and try again.

TOO DEEP. If the pins on the drawer sides go too far into the sockets on the drawer front, the sockets are too deep, see middle photo on right. To correct this, move the template out (toward you) by turning the stop nuts on the studs counterclockwise. (Be sure to adjust the nuts on both ends of the jig.)

Note: You may want the pins to be recessed from the ends of the sockets about 1/32". This helps when sanding the joints flush later. (See Tips, page 23.)

TOO SHALLOW. If the pins don't go far enough into the sockets, move the template in (away from you) by turning the stop nuts clockwise.

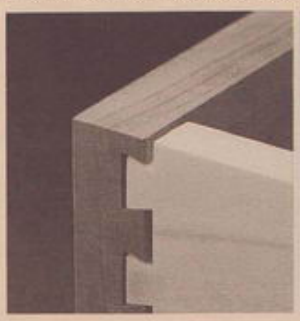
OFFSET. After the joints are cut and tapped together, sometimes the top edge of the drawer front doesn't align with the top edge of the side, see third photo.

If both the top and bottom edges are offset equal amounts, there could be a couple of things wrong. First, the edges of *both* pieces have to be tight against the stop block. There might be some sawdust between the workpiece and the stop block.

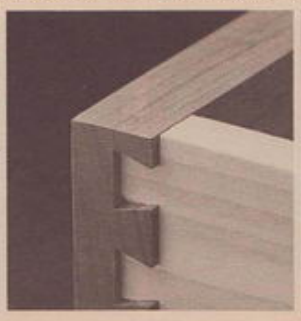
Second, the offset on the stop block may not be exactly 7/16". If it's a little more than that, you might try adding a layer or two of masking tape to the "finger" on the stop block.

Note: The end of the stop block should be centered on the first notch of the template, see Step 4 on page 20. If it's not, the top edges of the two pieces will be aligned, but the joint won't be symmetrical on the top and bottom edges.

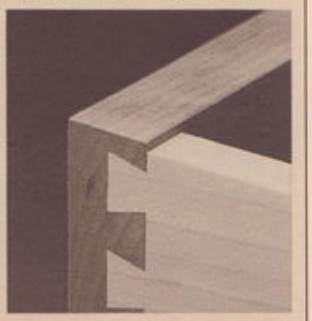
OTHER PROBLEMS. Most other problems are usually caused by the pieces not being clamped down in the jig so they are flush across the top, or because they move out of position as they're being routed.



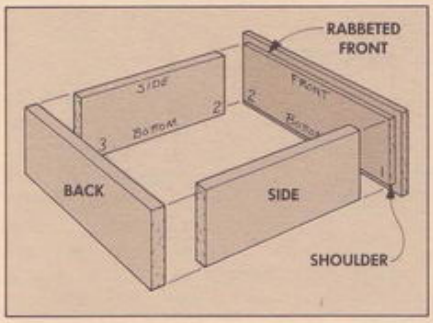
TOO LOOSE. *If joint is too loose, increase bit depth.* ***TOO TIGHT.*** *If the joint is too tight, decrease depth.*



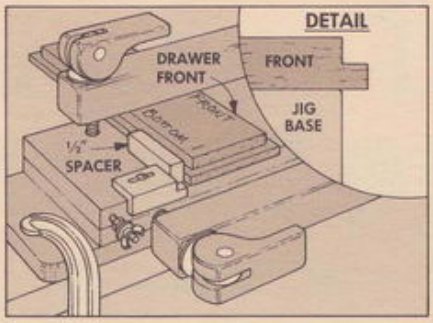
TOO DEEP. *If pins go deep, move template toward you.* ***TOO SHALLOW.*** *If not deep enough, move toward jig.*



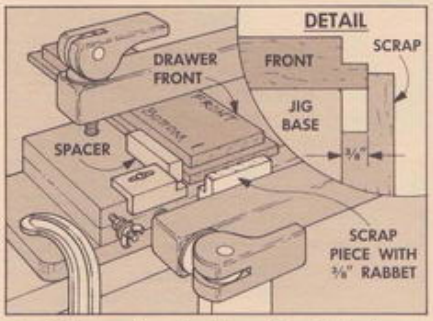
OFFSET. *If the pieces don't align, they may not have been tight against stops. Or stop offset may not be 7/16".*



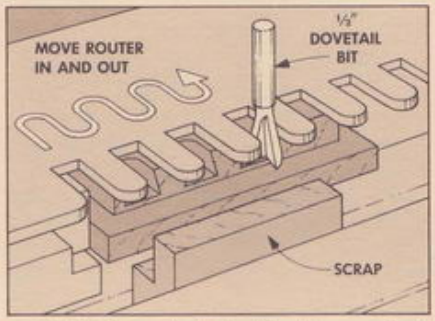
1 *When laying out for a rabbeted drawer, the width of the sides and back should equal the shoulder-to-shoulder dimension of the front.*



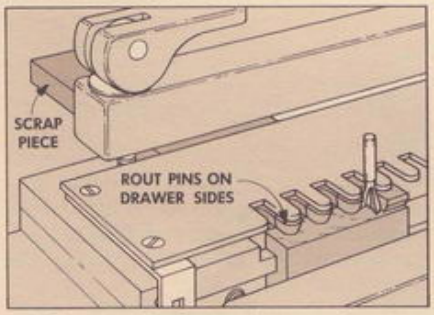
2 *Cut the rabbet on the drawer front first. Then, for a ⅜" rabbet, slip a ½" spacer between the bottom edge of the drawer front and the stop block.*



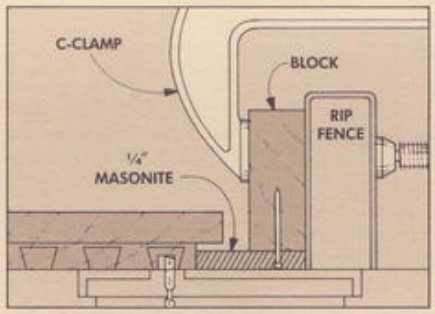
3 *To keep the shoulder of rabbet aligned with front of jig, clamp temporary rabbeted piece under front bar and bring end of drawer front up tight.*



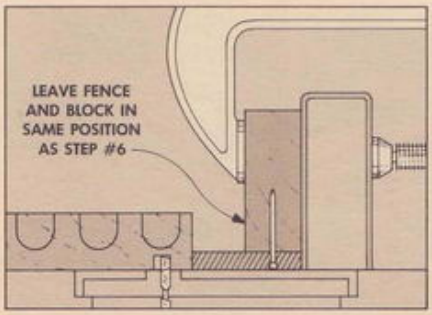
4 *Cut the sockets in the drawer front by moving router from left to right. Work in and out so the guide bushing bottoms out in all of the notches.*



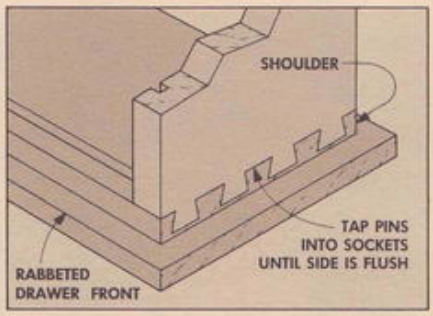
5 *Remove the drawer front and replace with a piece of scrap. Then rout the pins on the ends of the drawer side the same as on a flush front drawer.*



6 *To cut groove for bottom, nail a strip of Masonite to the bottom of a block and clamp to fence. Then run the rabbet shoulder against the Masonite.*



7 *To cut the bottom groove on the inside of the drawer sides and back, leave the rip fence and Masonite spacer in the same position.*



8 *Tap drawer sides into drawer front until the pins fit flush with the shoulder. The back joint is cut the same as for a flush front drawer.*

RABBETED DRAWERS

Making the dovetail joints for a drawer with a *rabbeted* front is a little different from routing a flush front drawer. You have to take into consideration the lip around the outside of the drawer front.

LAYING OUT. When you lay out the pieces, the width of the drawer's back and sides has to equal the *shoulder-to-shoulder* width of the drawer front instead of the overall width, see Step 1. And the length of the back equals the shoulder-to-shoulder length of the front, not the overall length. (I cut the rabbets *before* routing.)

Note: Once again, it's best if the cabinet is designed so the width of the drawer back and sides is a multiple of ⅛".

SPACER. When clamping the drawer front to the jig, you also have to take into consideration the rabbet. To correctly position the shoulder in relation to the template, I put a spacer between the drawer front and the stop block, see Step 2.

To determine the thickness of this spacer, subtract the width of the rabbet from ⅞" (since a pin plus a notch = ⅞"). For a ⅜" rabbet then, you will need a ½" spacer, see Step 2.

END ALIGNMENT. On the end of the drawer front, the *shoulder* of the rabbet (not the end) has to be aligned with the front of the jig. To set this up, cut a matching rabbet in a piece of scrap and clamp it under the front pressure bar. Then bring the drawer front up tight against the rabbet in the scrap, see Step 3.

ROUTING SIDES. After routing the drawer front (Step 4), remove the front from the top of the jig and replace it with a piece of scrap, see Step 5. Then bring the drawer side up tight against the front of the jig and the scrap. Since the side piece doesn't have a rabbet in it, you can rout it without a spacer.

BACK CORNERS. The back corners (where the drawer back meets the sides) are cut with the flush dovetail technique, see page 20.

BOTTOM GROOVE

The rabbet also has to be considered when locating the groove for the bottom in all the pieces. To do this, I just avoid the rabbet by making a little fence for the table saw that fits *under* the rabbet, see Step 6. Then the groove will be cut the same distance from the shoulder on the drawer front as it is from the bottom on the back and sides, see Step 7.

When cutting a groove for a ¼" plywood bottom, I do it in two steps. First, adjust the fence so the cut will be slightly off-centered on the bottom socket. After making a pass with all the pieces, move the fence slightly until the groove is centered on the socket and wide enough to accept the ¼" bottom. Then make another pass.

Tips for Dovetailing

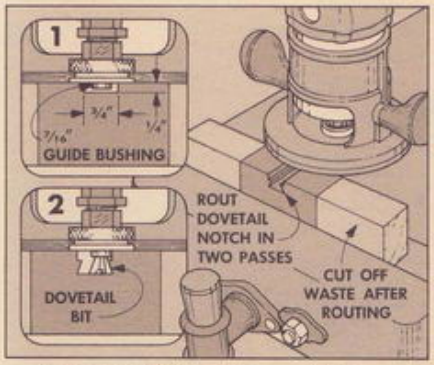
DEPTH-SETTING GAUGE

One of the most difficult things about setting up a router to cut dovetails is adjusting the bit to the correct height. If the bit is just a hair too high, the joint will be too tight; just a hair too low, and it's too loose.

BUILD A GAUGE. Once the bit is set to the correct level, it's worth taking a few minutes to build a simple depth-setting gauge. Then, whenever you use that bit, you can easily set it to the correct height.

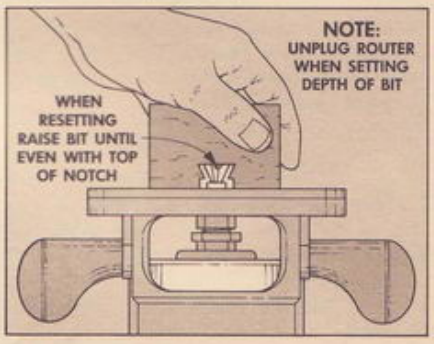
When the router was set up and ready to go, before cutting the dovetails, I first made a gauge (for future use) by cutting a notch in a long scrap of hardwood. (Start with a long block and cut it shorter later.)

But there's a problem here. You can't run the router over the block because the guide bushing around the router bit blocks the bit from cutting. (It's not a problem when using a template since the template keeps the bushing up off the workpiece.)



DADO FIRST. To get around this problem, start by cutting a ¾"-wide dado across the block. Cut it a little deeper than the height of the bushing, see Step 1.

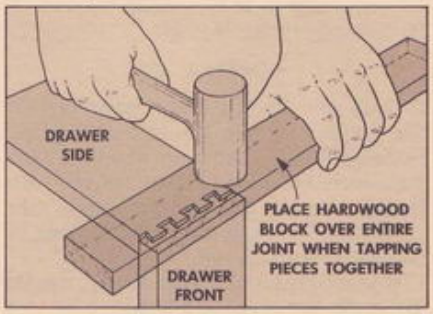
ROUT DOVETAIL NOTCH. After cutting the dado for the bushing, rout a wide dovetail-shaped notch across the block. To do this, I clamped the block in a vise and ran the bushing against the left shoulder of the dado, and then back out against the right shoulder, see Step 2.



USING THE GAUGE. Now, whenever you want to set up to rout dovetails, put the block on the router base and raise the bit until it's even with the top of the notch.

FITTING DOVETAIL JOINTS

How tight should a dovetail joint be? A good fit shouldn't be so loose that you can push the pieces together with your hands. It should take some *light* tapping to get them together.



However, even with light tapping, it's best to apply even pressure across the whole joint to prevent the pins from splitting out. I place a block of hardwood over all the pins on the drawer side and then tap until the pins are seated in the bottom of the sockets.

STANLEY HAMMER. Instead of using a steel hammer or wooden mallet, I've found that a Stanley "Dead Blow" hammer works nicely for most joint assembly tasks. These hammers are made of black plastic and the head is filled with oil and shot. They can be used with quite some force and still not dent the wood. They're available at most hardware stores and home centers.

NO CLAMPS. One advantage of having tight fitting joints is that you won't need clamps to hold the drawer together while the glue dries. (Clamps can sometimes have the negative effect of pulling the drawer out of square.) If the joints are cut with a tight fit, just check the drawer for square as soon as the joints are tapped home. Then allow the drawer to dry on a flat surface.

GLUING DOVETAIL JOINTS

How much glue should be applied to a dovetail joint? And where should you put it — on the pins or in the sockets?

TIGHT JOINT. If the joint fits tightly, you don't need much glue. I usually squirt one dot of yellow glue on the *back* side of each pin. Then when the pin seats in the socket, the glue sort of squishes its way around the pin and the socket.

LOOSE JOINT. If the joint is a little loose you may need to brush the glue all the way around the pins and also in the sockets. I usually use a small artist's brush to do this. The problem is that there are a lot of surfaces to cover and the glue can start setting up before you can get the drawer assembled. It's a good idea to have some help to spread the glue quickly.

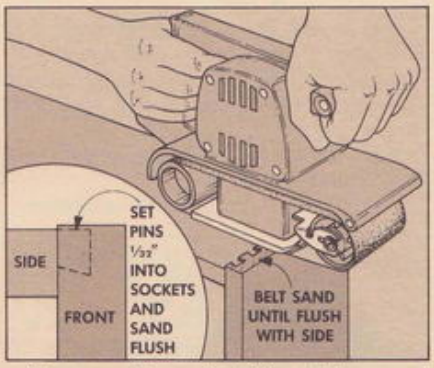
SANDING THE JOINT SMOOTH

The perfect dovetail joint should fit together tight, flush, and there shouldn't be a lot of excess glue squeeze-out. That's the ideal. But in reality, there may be some finishing work to do on a dovetail joint after assembly.

In fact, since I know the joint won't be perfect, I plan the fit of the joint so it has to be sanded down exactly smooth. The only question here is: Should the joint be cut so the *pins* stick up a little from the surface, or so the *ends of the sockets* stick up a little?

SANDING PINS. If the joint is cut so the pins stick up, you have to sand the *whole* drawer side to keep it a uniform thickness. If you only sand down the face of the pins (near the joint), the middle section of the drawer side will be thick and cause problems when it's time to fit the drawer in the cabinet.

SANDING DRAWER ENDS. If the joint is cut so the pins are deep, then you only have to sand the ends of the sockets (the ends of the drawer front and back). But this creates another problem. The front and back are usually cut to length to fit the opening in the cabinet so there will be a small gap on either end. If you sand after the drawer is assembled, the gaps can easily get too large.



However, I usually follow this second method and cut the joint so the pins are about 1/32" too deep. But I take this into consideration when measuring and cutting the drawer front and back to length. If the pins are set 1/32" too deep, the length of the drawer front and back will be shortened 1/16" when both ends are sanded.

Sources

HOPE CHEST

You can order the hardware for the hope chest from *Woodsmith* as a kit (see box below), or from the following source:

THE WOODWORKERS' STORE, 21801 Industrial Boulevard, Rogers, MN 55374; 612-428-2199 (Catalog: $2.00.) (Note: The design of some of this hardware is slightly different from that in the photos and in the *Woodsmith* kit.) *Desk Butt Hinges* (1 pair), solid brass, 1½" long x 2" wide, Order No. D1238. *Lid Supports* (1 pair), brass plated, 6½" long, Order No. D1205. *Chest Lock*, includes key and escutcheon, Order No. D3304. *Carved Hardwood Pulls* (2), 1¾" high, 4¾" wide, Cherry, Order No. B1202; Walnut, Order No. B1200; Oak, Order No. B1204. Another option would be to use brass pulls (see photo below): *Brass Pulls* (2), 3" bore, 4⅜" overall, Order No. E1123.

DRESSER

You can order the dresser hardware from *Woodsmith* (see below), or from:

THE WOODWORKERS' STORE, (see address above). *Drawer Pulls* (6), brass with ceramic rosettes, 3" bore, Order No. E1808. *Panel Retaining Buttons* (6), tan plastic, Order No. D3802. *General Finishes' Sealacell*, Sealer, Order No. P3010; Satin Finish, Order No. P3011.

MEISEL HARDWARE SPECIALTIES, P.O. Box 258, Mound, MN 55364; 800-441-9870 (Note: $25 minimum order. Catalog: $1.00.) *Glide Strip*, self-adhering plastic, ½" wide, sold in 10 ft. lengths (approx. 13 ft. needed), Order No. 464.

DOVETAIL JIG

We are also offering kits of parts to build the dovetail jig (see box below). You can probably find the hardware at a local hardware store for around $15.00, but this price doesn't include the pre-cut plastic template. The template can be made from ¼" Masonite, see page 18.

If you buy the hardware locally, use the list in the box below as a shopping list, but there are some things you will have to do:

- Weld the eyebolts shut to prevent the eyes from coming uncurled.
- Cut four ½" x 1⅝" steel pins from a ½" steel rod or from the unthreaded part of ½" carriage bolts.
- Make two 2" x 4" brackets from 4" x 4" corner brackets, see page 18.

GUIDE BUSHING. To use the dovetail jig you need a 7/16" outside diameter guide bushing. Bushings are made to fit specific routers, so check with a dealer who carries accessories for your router. A universal bushing set is available from:

WOODCRAFT SUPPLY CORP., 41 Atlantic Ave., P.O. Box 4000, Woburn, MA 01888; 800-225-1153 (Catalog: Free). *Router Guide Bushing Set*, with universal base plate, Order No. 11V12.

DOVETAIL BITS. The jig is designed to work with a ½" diameter (¼" shank) dovetail bit. (Note: The ½" refers to the widest diameter at the bottom of the bit.)

Since a dovetail bit has to make a full cut on the first pass, I'd recommend a two-flute, carbide-tipped bit. We're offering a bit (see box below), or one can be purchased through most tool suppliers.

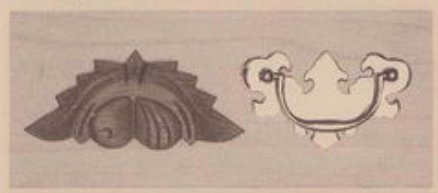
WOODSMITH KITS

HOPE CHEST

Woodsmith is offering two hardware kits for the hope chest. One has carved cherry pulls, the other solid brass pulls.

KIT #58A. Hope Chest Kit (Wood Pulls) ($34.95) includes:

- (1 pair) Solid Cherry Hardwood Pulls, 2⅜" x 5⅜", see photo below. These pulls are hand carved in the Amana Colonies in Iowa.
- (1 pair) Solid Brass Hinges, 1½" long, 2" open width, with screws.
- (1 pair) Lid Supports, one right-hand, one left-hand, brass plated, with brass screws.
- (1) Chest Lock, key, strike plate, and keyhole escutcheon.
- (1) Full-size Patterns of scrollwork.



KIT #58B. Hope Chest Kit (Brass Pulls) ($29.95) includes all of the items in Kit #58A, except the pulls are made of Solid Brass, 2⅜" x 4⅛", see photo above.

PATTERN ONLY. If you only want the full-size patterns of the scrollwork designs on the hope chest, Order Kit #58C, Hope Chest Pattern, $1.00.

DRESSER

Woodsmith is also offering a kit of hardware for the dresser.

KIT #58D. Dresser Kit ($36.95) includes:

- (6) Solid Brass Drawer Pulls, with ceramic rosettes, 3" bore.
- (6) Plastic Buttons (drawer stops).
- 15 feet of Glide Strip, self-adhering, pressure-sensitive plastic, ½" wide.

DOVETAIL JIG

We've also put together two different kits to build the dovetail jig.

KIT #58E. Dovetail Jig Parts Kit ($34.95) includes:

- (1) Dovetail "Comb" Template, plastic, 3/16" x 4" x 18".
- (4) Eye Bolts, 5/16" x 5", with eyes welded shut.
- (4) Threaded Inserts, 5/16" inside dia.
- (4) Compression Springs, ⅜" x 2".
- (4) Steel Pins, ½" x 1⅝".
- (2) Pan Head Screws, No. 10 x ¾".
- (2) Machine Screws, ¼" x 3".
- (8) Hex Nuts, ¼".
- (2) ¼" Wing Nuts with washers.
- (4) Fh. Machine Screws, ¼" x ½".
- (4) Fender Washers, 5/16" x 1⅝".
- (2) Corner Brackets, 2" x 4" x ¾", aluminum with slot and holes.

KIT #58F. Dovetail Jig Parts and Wood Kit ($54.95) includes the parts in Kit #58E plus all of the wood (hard maple) needed to build the jig:

- (1 pc.) 1⅝" x 6" x 18" (Base top).
- (2 pcs.) 1⅝" x 1⅝" x 15" (Bars).
- (1 pc.) 1⅝" x 1⅝" x 16½" (Cams).
- (1 pc.) 13/16" x 6" x 22" (Base).
- (1 pc.) 13/16" x 2½" x 8" (Stops).

TEMPLATE ONLY. If you want the plastic "comb" dovetail template only, Order Kit #58G, Dovetail Template, $24.95.

DOVETAIL BIT. We're also offering a double-fluted, carbide-tipped ½" dovetail bit. It's a high quality bit with a ¼" shank. Order Kit #58H, ½" Dovetail Bit, $15.75.

ORDERING INFORMATION

To order any of the kits, write your order and your name and address on a piece of paper (or, if available, use the order form on the protective cover of this issue). Send your order and payment (no charge cards or phone orders, please) to:

Woodsmith Kits
P.O. Box 10350
Des Moines, IA 50306

Please specify the kit number on the outside of the envelope. Allow 4-6 weeks for delivery. Postage and handling are free. (Iowa residents add 4% sales tax.) Prices of these kits are good through December 31, 1988.