

# WOODWORKER'S JOURNAL

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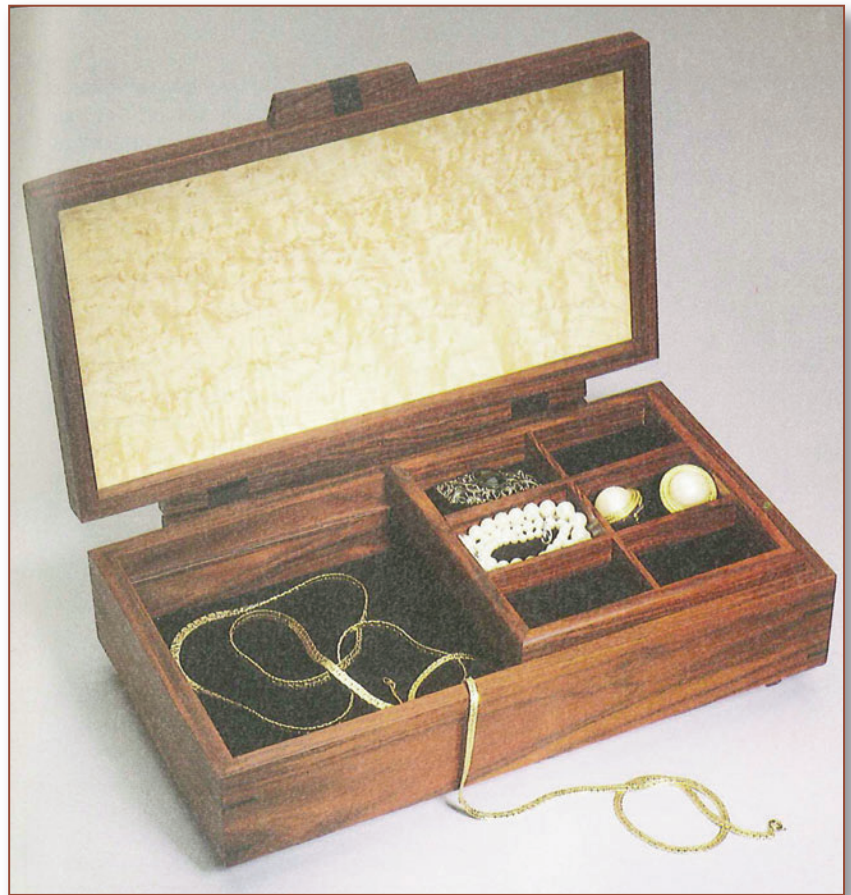


## Classic Project

### In this plan you'll find:

- Step-by-step construction instruction.
- A complete bill of materials.
- Construction drawings and related photos.
- Tips to help you complete the project and become a better woodworker.

## Heirloom Jewelry Box



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One of the busiest booths at this year's Boston Buyer's Market of American Crafts belonged to Ford Thomas and his company, Benchworks. This gem of a little jewelry box is one of his best-selling designs—and a glance at the photo should leave little doubt as to just why. Sure, it's basically just a simple box, but details like choice of woods, a clever wooden hinge, and a lid lift and feet that share a common design theme all combine to give this box "heirloom" appeal.

If you like this box and plan to make one—think again—and make two, three or more. As with most woodworking, the time spent in box making is usually spent in getting setups right, not in actual cutting and assembly. Mill enough stock for several boxes, and your efforts will be well-rewarded.

Since he's a production woodworker, Ford Thomas makes these boxes in

multiples. But the fact that Ford's design helps him economize on set-up and cutting time should also result in savings for you if you make only one. One way Ford saves time is to employ grooves wherever possible that are the thickness of his table saw blade. For example, the grooves for the box bottom, lid panel, tray supports and splines, plus the tray bottom groove, are all  $\frac{1}{8}$  in. wide, so they require only a single pass with the sawblade to cut. Ford actually uses a thin-kerf blade for his spline kerfs (the same blade that's used to separate the lid from the box, since these operations are done one after the other), but if you don't have a thin-kerf blade no one will ever notice the difference.

Boxes like this are showpieces for choice stock, and we certainly don't

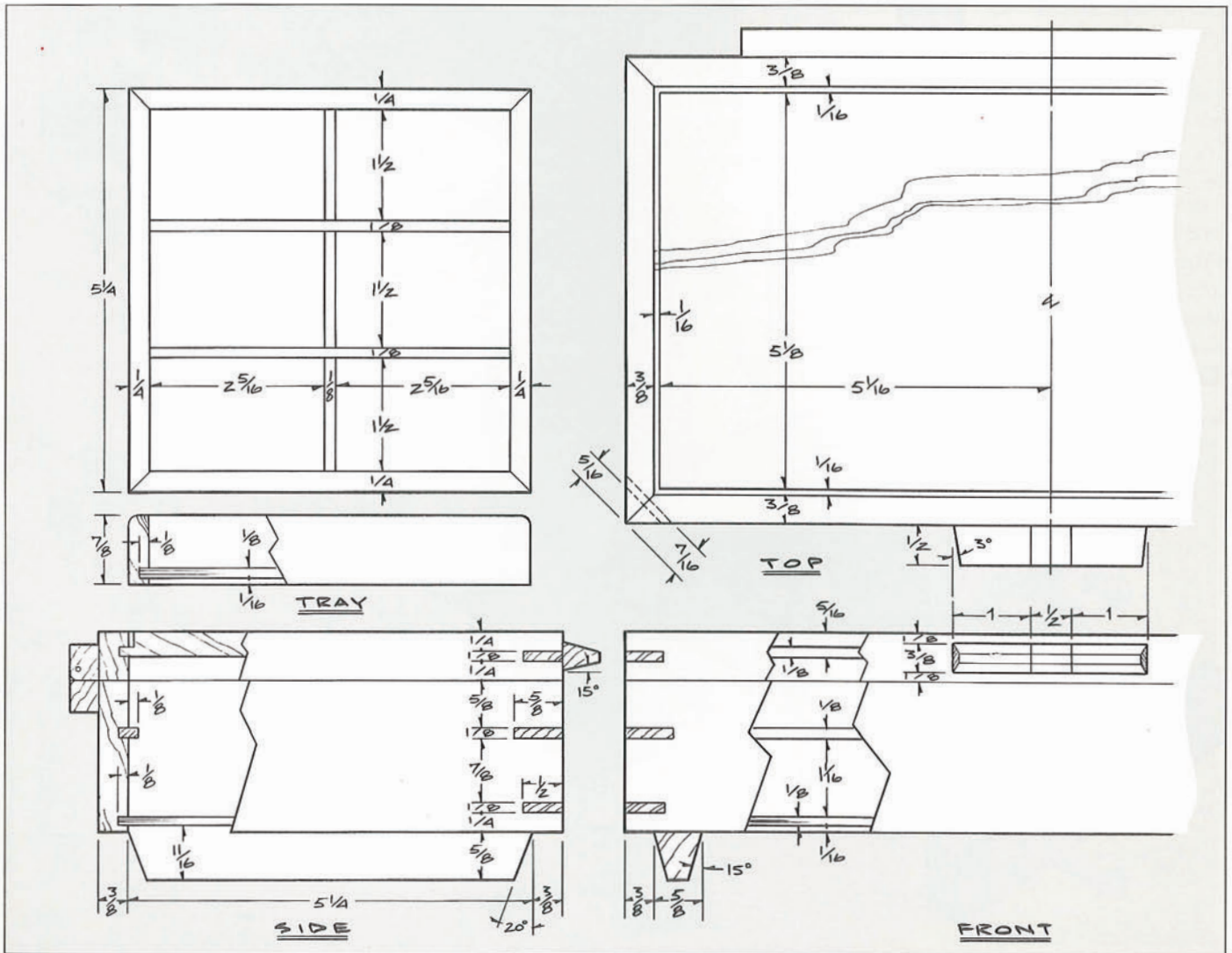
## Heirloom Jewelry Box

recommend using oak, pine or any other plain wood. The box shown is a combination of cocobolo and bird's-eye maple, with ebony accents, but other equivalent woods will also be fine.

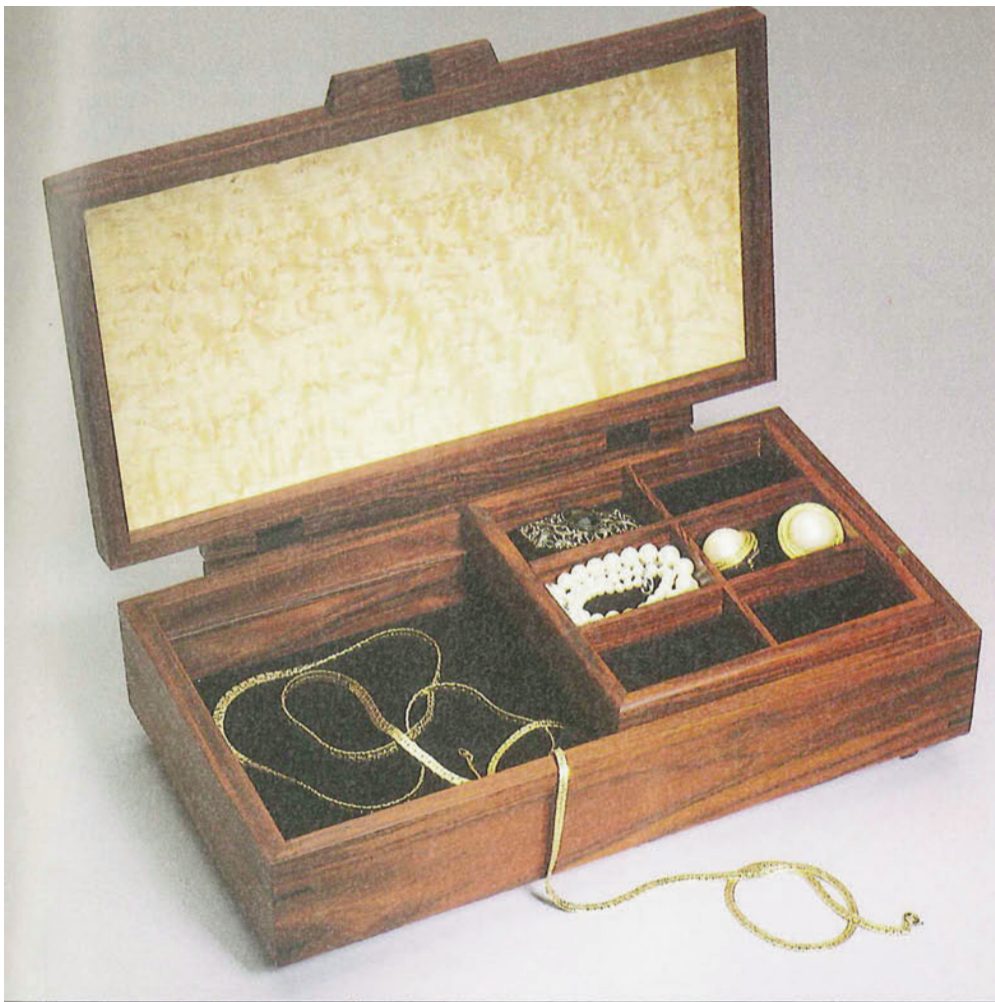
### The Box

When it comes to the actual work involved, a basic mitered-corner box is probably the simplest type of box to make. Remove the tray, the wooden

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hinge, the lift (I) and the feet (J), and all that remains is a simple box. But there are some tricks to making a box with mitered corners, and without these tips, you could be frustrated. Here's how to get the job done right.

**Size Stock:** For the box shown, start with a length of stock  $\frac{3}{8}$  in. thick by  $2\frac{3}{4}$  in. wide by at least 3 ft. long. The box is glued up as a single assembly, with the lid cut away later, so the  $2\frac{3}{4}$  in. width of your source board will yield the 2 in. wide ends (A) and front/back (B), the  $\frac{5}{8}$  in. wide lid ends (C), and front/back (D), plus allowing  $\frac{1}{8}$  in. for the cut to separate the lid from the box.

**Establish Lid Panel and Bottom Grooves:** Set up the table saw with the rip fence, and make the  $\frac{1}{8}$  in. deep by  $\frac{1}{8}$  in. wide grooves for the lid panel (E) and bottom (F).

**Make Miter Cuts:** The best way to make the miter cuts that establish the final lengths of the box parts is to first cut the parts to rough length. Then set up the saw, with the blade angled over to 45 degrees, and use some scrap to make a test box. Fine-tune your blade angle setting now. The test miters are important, since any inaccuracy in the miters

will show up as a gap at the corners.

When making miter cuts like this, you'll want a sharp blade, and you'll need to set up stops on your miter gauge so the parallel parts are of equal length. But even with all your settings just right, you may find that your cut may not be as smooth as you expected. We've found that the best way to cut long miters like this is to make a first miter cut about one-half the thickness of the saw blade from the final cut. This way, the final cut is actually just a trimming cut, shaving about  $\frac{1}{16}$  in. of stock away.

By the way, the concept behind this is hardly new. A century ago, craftsmen using their cast-iron miter trimmers also made an initial rough cut, and then made one or two shaving cuts to establish final length. If you have the modern equivalent of the old miter trimmer—the power miter or “chop” saw—this is another option for making the miter cuts.

**Cut Remaining Box Parts:** With your miters complete, use the table saw to establish the grooves in the box front/back for the tray supports (G). Cut these parts, the lid panel and bottom, the splines (H), the lift (I), and the feet (J) to size. The rabbet in the lid panel is sized

so that when assembled, there will be about a  $\frac{1}{16}$  in. reveal all around. Note that the lift is a sandwich of two pieces of cocobolo around a piece of ebony. The elevation views give the angles for the lift and feet. These pieces are small, so take care—and use pushsticks. If you don't feel comfortable working with small pieces on the table saw, as an alternate, just use the disk sander to establish the angles.

**Glue Up Box:** After a test assembly, glue up the box front/back and ends around the lid panel and bottom. The bottom can be glued in place, but don't apply glue to the lid panel. With small mitered boxes like this, we've found that large clamps are clumsy to use, and may actually cause the miters to open as clamp pressure is applied. If your miters are accurate, it's better to just use masking tape to hold the corners together. Assuming that the lid panel and bottom are square, the box should square itself up as it's assembled.

**Make the Spline Kerfs:** A simple right angle jig (see detail) is used to make the spline kerfs. The jig is basically just two cleats screwed to an auxiliary fence. The two outside spline kerfs are made with the blade set for a  $\frac{5}{16}$  in. deep cut. Since both outside kerfs are the same distance from the top and bottom respectively, make the first cut in the four corners, then flip the box around to make the four identical kerfs. Raise the blade height to  $\frac{7}{16}$  in., relocate the fence and make the center spline kerfs. Glue the ebony splines (they're just rectangular slips of wood, sized to fill the saw kerf) in place, and when dry, trim and sand flush.

**Cut Off The Lid:** Use the table saw with a thin-kerf blade to remove the lid. Although the usual method here is to make cuts on three sides, then shim the kerf and tape across the lid and box before making the final cut severing the lid, we have an easier method. As shown in Fig. 1, set your table saw blade height at just a hair less than the thickness of the box sides (a hair less than  $\frac{3}{8}$  in. for our box), locate the rip fence just over  $\frac{5}{8}$  in. from the blade, and make the cuts on all four sides. Now, using a sharp utility knife, cut through the little remaining stock to separate the lid. The use of a thin-kerf blade should allow sufficient extra stock so that after sanding, your box and lid dimensions are 2 in. and  $\frac{5}{8}$  in. respectively.



## The Hinge

You can make this box with a plain brass butt hinge, but the wooden hinge shown is a novel idea, and it's easy to make. Our illustration (pg. 59) shows how.

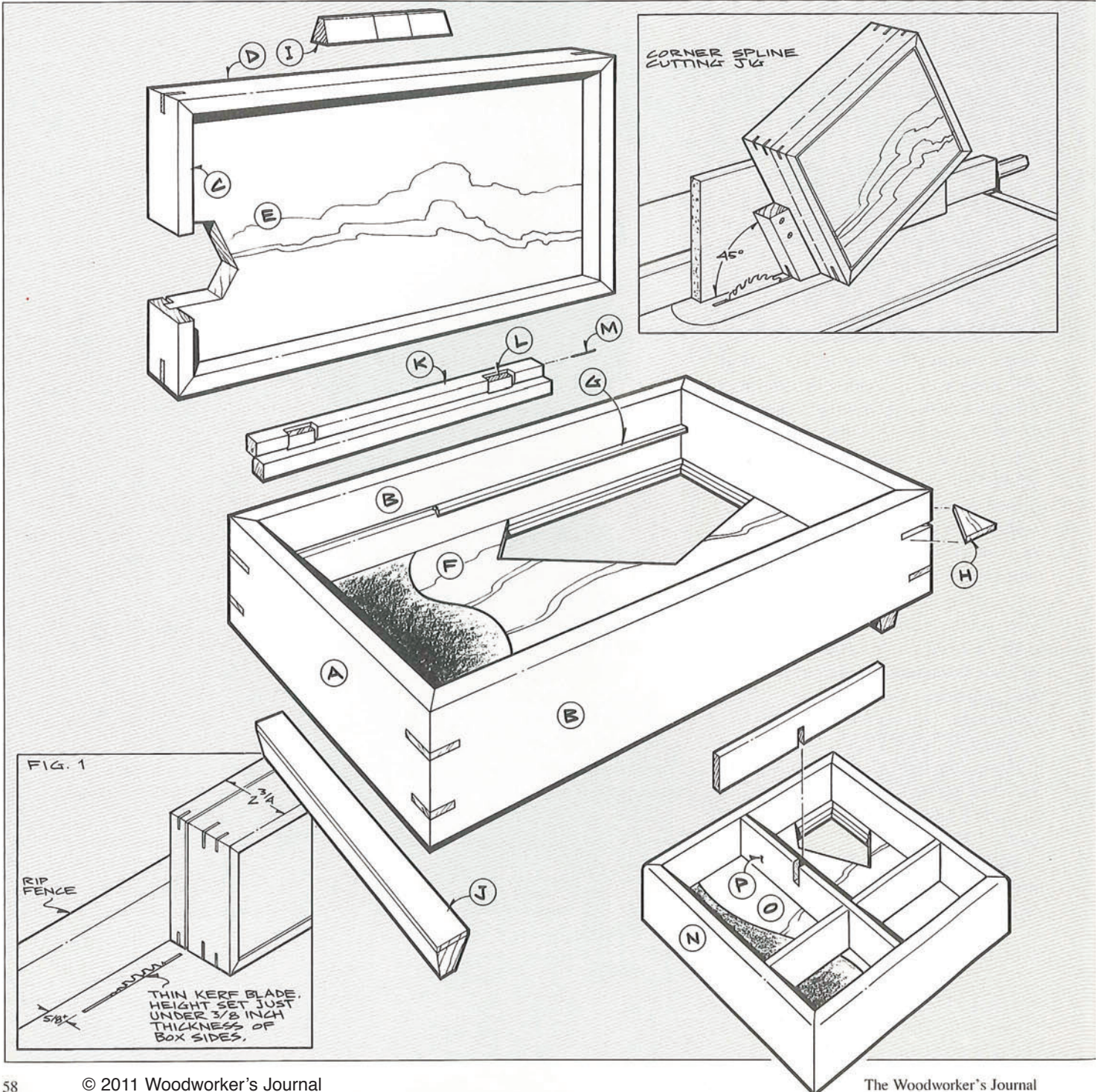
The hinge has only three different parts—a pair of leaves (K), a pair of posts (L) and a pair of brass pins (M). Starting with an 8 in. length of  $\frac{7}{16}$  in. thick stock, crosscut a pair of dados, each  $\frac{3}{4}$  in. wide by  $\frac{5}{16}$  in. deep. Then rip off a pair of  $\frac{7}{16}$  in. wide strips for the two leaves (Step 1). The width of your source board isn't important; we show a wider board for safety, but if you are

making several boxes as gifts, it's just as easy to rip a few extra strips as needed for the other hinges.

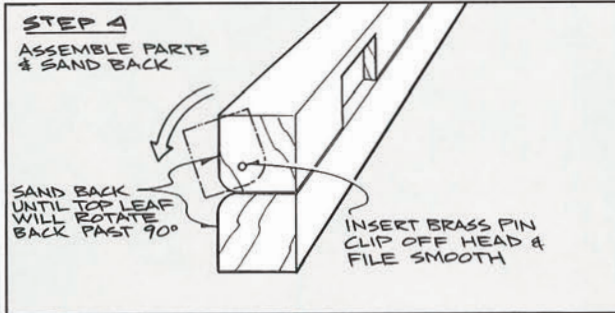
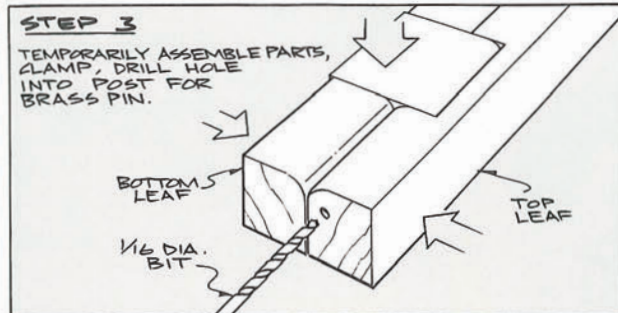
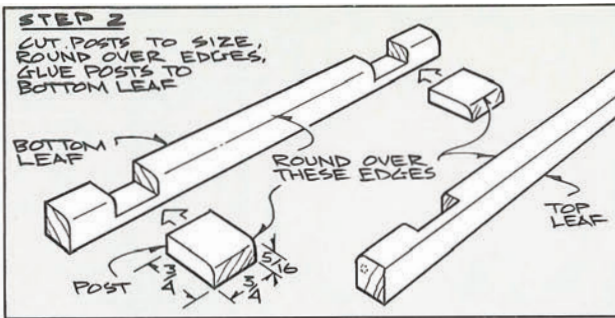
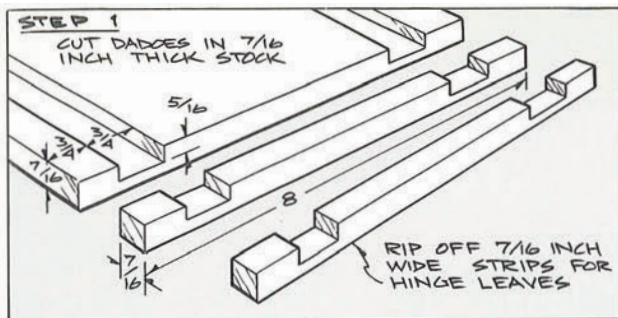
As shown in Step 2, cut a pair of  $\frac{5}{16}$  in. thick by  $\frac{3}{4}$  in. wide by  $\frac{3}{4}$  in. long posts, then sand the same corner of both posts and the same corner of each leaf to a gentle radius. Glue the posts into the bottom leaf of the hinge, and stand the top leaf on edge, as shown.

When the bottom leaf/post assembly is dry, slide the top leaf into place as shown in Step 3, clamp securely, and drill into the ends of the bottom leaf and through the posts, using a  $\frac{1}{16}$  in. dia. bit.

We used long brass escutcheon pins—clipping the heads off—as our pivot pins, but finish nails will work as well. The key here is to not use a pin that's larger than the  $\frac{1}{16}$  in. hole. The leaf and post parts would split fairly easily if an oversize pin is forced into an undersized hole. As shown in Step 4, next up is sanding the *back* of the hinge, so that when opened, the lid will stop at just past 90 degrees. This sanding is pretty much an incremental sand-and-check procedure. Prior to sanding, pivot the top leaf back; it will probably open to just shy of 90 degrees. As you sand the







back of the hinge, gradually the degree of pivot will increase, until the hinge opens just past 90 degrees, as shown.

To mount the hinge, clamp the lid securely to the box, so that it's perfectly flush all around, then add glue and clamp the hinge in place. As shown in the side elevation, make certain the centerline between the hinge leaves is perfectly aligned with the line where the lid and box meet. Using a damp rag to wipe away excess glue immediately will save a lot of fuss with scraping away dried glue squeeze-out later.

### The Tray

We show a square tray, just four sides (N) glued up around a bottom (O), with several dividers (P) to create the individual compartments. However, there's no reason why you can't customize the tray to suit your own needs, perhaps increasing the length and the number of dividers. If you plan your work carefully before starting this project, you'll be able to do all your mitering work at the

same time, saving time with resetting the saw to 45 degrees.

### Details

Once your box and tray are made, all that remains are a few details. Glue the tray supports, feet and lift in place, then apply your finish. Our photo hardly does this sensuous little jewelry box justice, but the finish really is lustrous and swirl-free, with great depth. Yet according to Ford, there's no secret to the finishing process—it's nothing more than penetrating oil and multistep sanding, using a random-orbit sander with progressively finer grits, typically culminating in a 600-grit paper.

If you've been into woodworking for some time, but haven't yet figured out why everyone's so high on random-orbit sanders, take one look at the finish on a box like this, and you'll have your answer. The cross-grain sanding scratches that are the bane of belt and stroke sanders, and the curlicue or pig tail swirls that mark the passing of the pad sander are history. Hold the box so the light bounces off the top, and you'll detect neither scratch nor swirl!

Like most good jewelry boxes, ours sports felt liners on the box and tray bottoms. There are as many ways to tackle this as there are woodworkers making boxes. You can use spray adhesive to mount the felt directly to the bottom, wrap the felt around a stiff cardboard, or even mount the felt to the bottom *before* assembling the box. Everyone has their own reasons for feeling their method is superior, and we

Bill of Materials (all dimensions actual)			
Part	Description	Size	No. Req'd.
<b>Box</b>			
A	End*	3/8 x 2 x 6	2
B	Front/Back*	3/8 x 2 x 11	2
C	Lid End*	3/8 x 5/8 x 6	2
D	Lid Front/Back*	3/8 x 5/8 x 11	2
E	Panel	5/16 x 5 1/2 x 10 1/2**	1
F	Bottom	1/8 x 5 1/2 x 10 1/2**	1
G	Tray support	1/8 x 1/4 x 10 1/4	2
H	Spline	As Shown	12
I	Lift	3/8 x 1/2 x 2 1/2	1
J	Foot	5/8 x 1 1/16 x 5 1/4	2
<b>Hinge</b>			
K	Leaf	7/16 x 7/16 x 8***	2
L	Post	5/16 x 3/4 x 3/4***	2
M	Brass Pin	1/16 dia. x 2 long	2
<b>Tray</b>			
N	Side	1/4 x 7/8 x 5 1/4	4
O	Bottom	1/8 x 5 x 5**	1
P	Divider	1/8 x 5/8 x 4 3/4****	3

\* Note that dimensions of these parts are after lid is separated from box. Actual starting width of box ends, front and back is 2 3/4 in.

\*\* Panel dimensions as given are exact groove-to-groove distances. In practice, size the lid panel a bit less to allow for wood movement and the bottom panels a little smaller so they don't interfere with the box or tray glue-up.

\*\*\* Leaf and post dimensions of hinge are before hinge is final sanded to establish lid stopping angle.

\*\*\*\* Width dimension of divider allows for felt liner.



won't attempt to resolve that issue here. Whatever method you choose, the box's recipient will thank you for the time spent in adding the felt liner.

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Thank you again for your purchase, and happy woodworking!

Matt Becker  
Internet Production Coordinator