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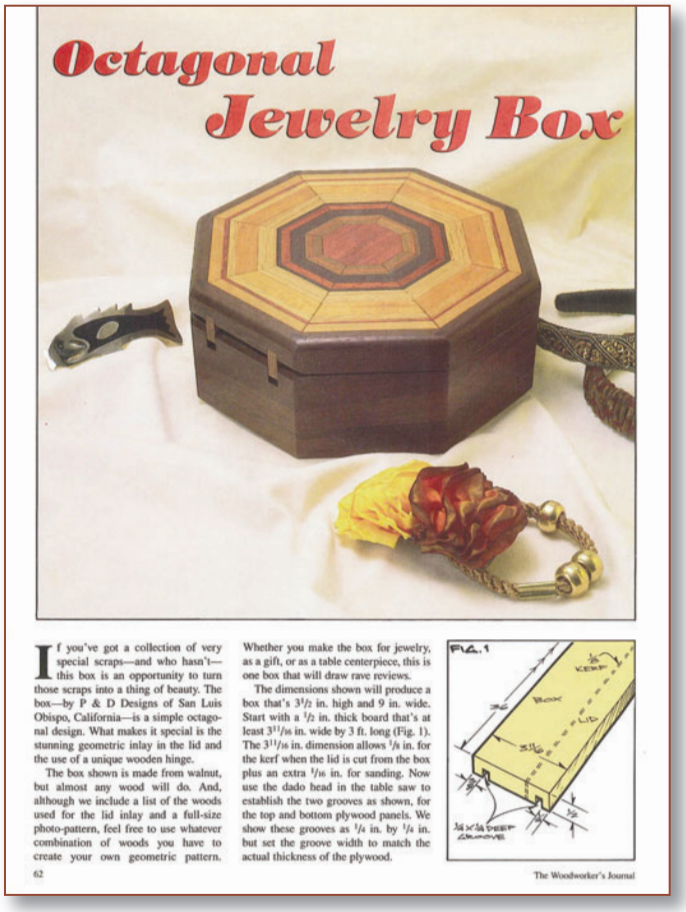
Classic Project

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.

Octagonal Jewelry Box



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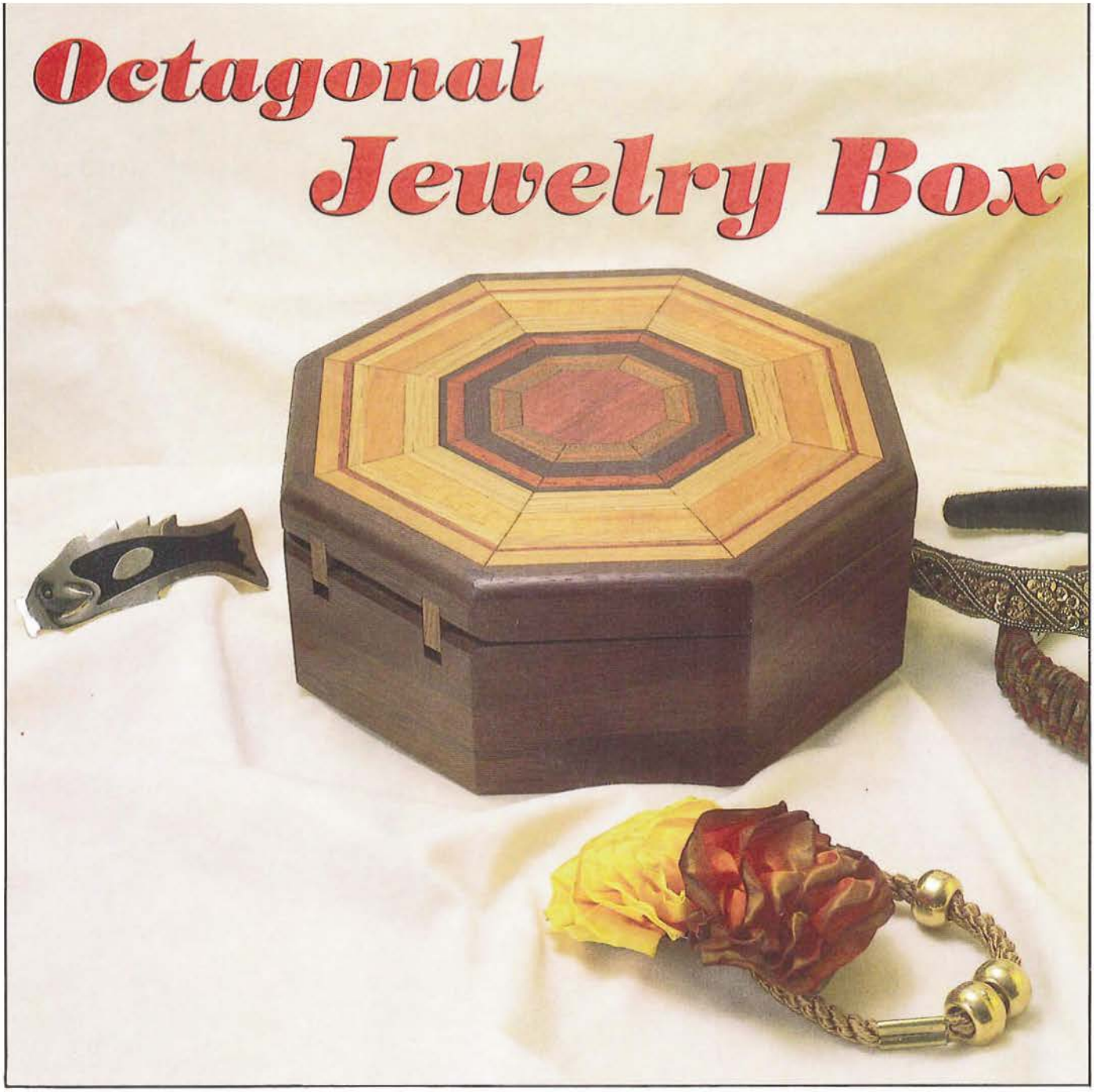
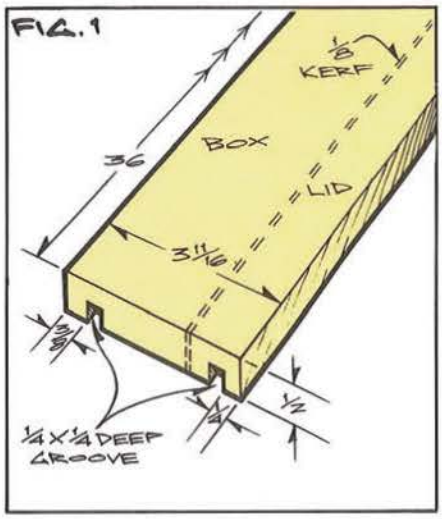
Octagonal Jewelry Box



If you've got a collection of very special scraps—and who hasn't—this box is an opportunity to turn those scraps into a thing of beauty. The box—by P & D Designs of San Luis Obispo, California—is a simple octagonal design. What makes it special is the stunning geometric inlay in the lid and the use of a unique wooden hinge.

The box shown is made from walnut, but almost any wood will do. And, although we include a list of the woods used for the lid inlay and a full-size photo-pattern, feel free to use whatever combination of woods you have to create your own geometric pattern. Whether you make the box for jewelry, as a gift, or as a table centerpiece, this is one box that will draw rave reviews.

The dimensions shown will produce a box that's 3 1/2 in. high and 9 in. wide. Start with a 1/2 in. thick board that's at least 3 11/16 in. wide by 3 ft. long (Fig. 1). The 3 11/16 in. dimension allows 1/8 in. for the kerf when the lid is cut from the box plus an extra 1/16 in. for sanding. Now use the dado head in the table saw to establish the two grooves as shown, for the top and bottom plywood panels. We show these grooves as 1/4 in. by 1/4 in. but set the groove width to match the actual thickness of the plywood.



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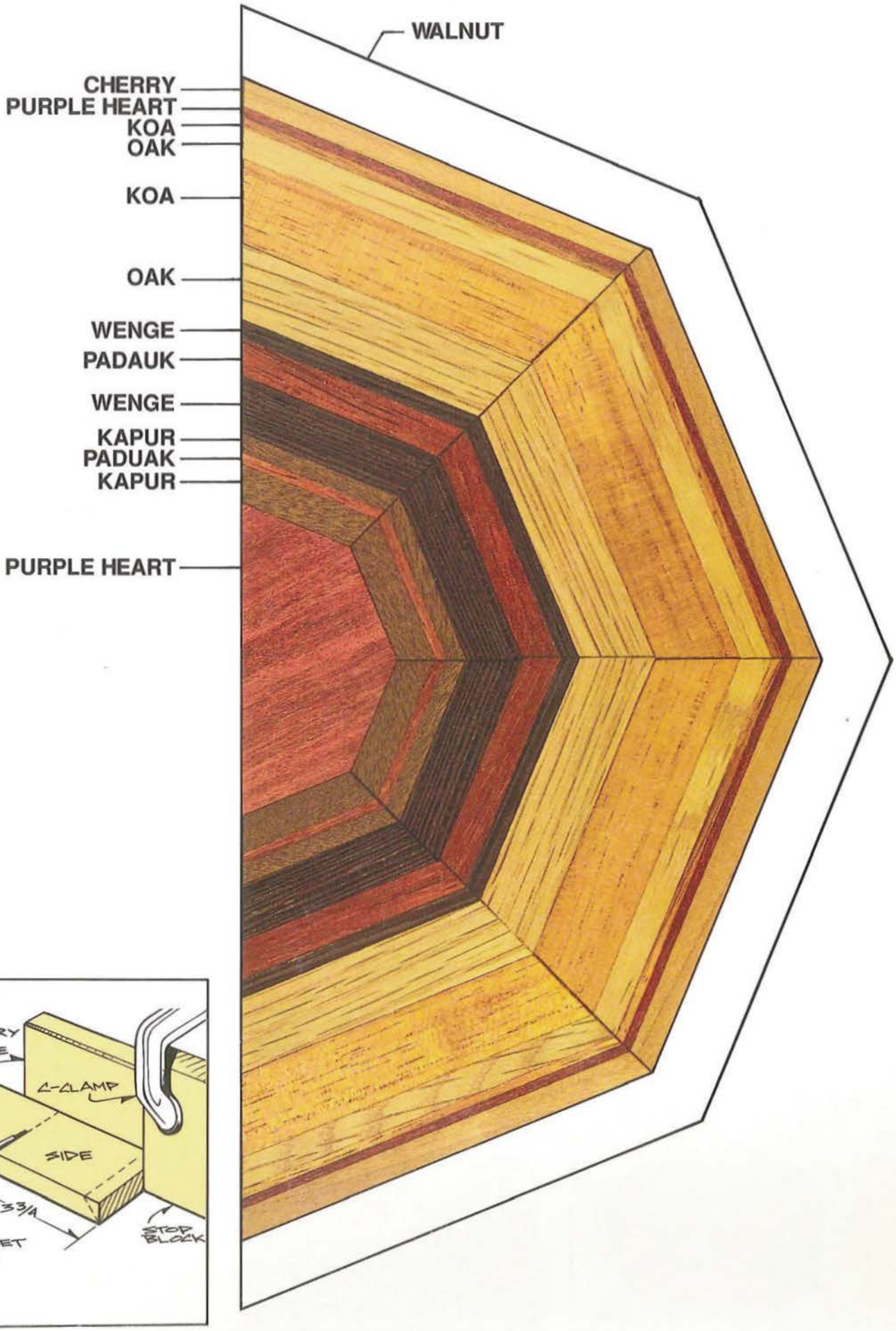

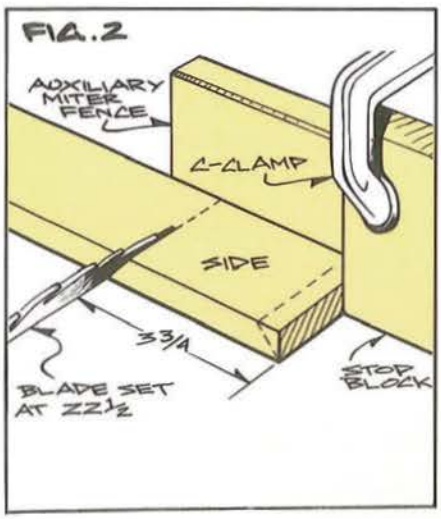

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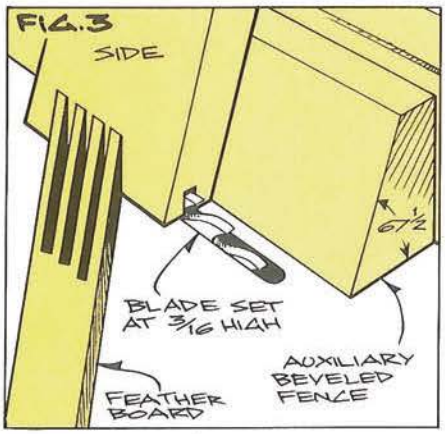
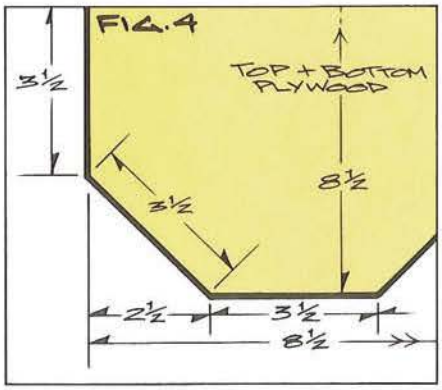
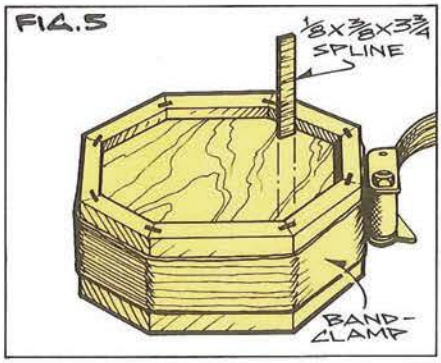
Next, as shown in Fig. 2, angle the table saw blade 22 1/2 degrees from vertical, set up a stop block on the miter gauge fence and miter the ends of the eight sides. The first miter cut establishes length, then the sides are flipped to miter the opposite ends. Point-to-point, the sides should be 3 3/4 in. long. Now change to a regular saw blade, set it



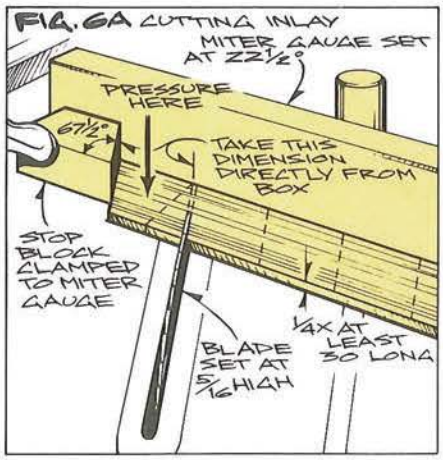
3/16 in. high, and using an auxiliary beveled fence and a featherboard as shown (Fig. 3), cut the spline grooves in the sides.

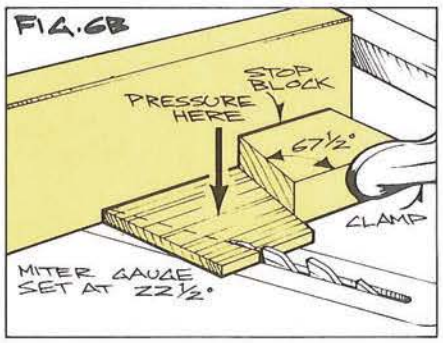
Cut the top and bottom panels to size (Fig. 4). Next, make eight splines (Fig. 5), glue up the eight sides around the top and bottom, and clamp the whole securely with a band clamp. While that's drying, laminate your scraps to create the stock from which you'll cut the 1/4 in. thick inlay wedges. You'll need at least 30 in. of lamination to yield the eight wedges.

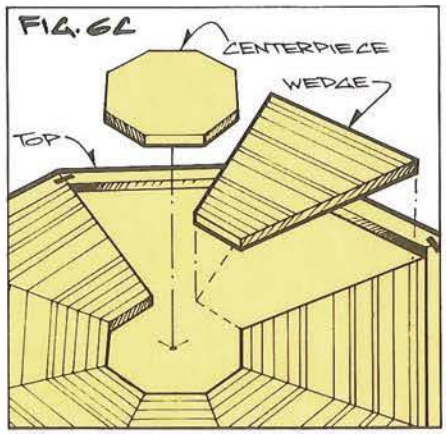




The wedges are cut using the miter gauge with an auxiliary fence and an angled stop. You'll need to hold the wedge securely, using your fingers (keep them well away from the blade) or a push stick, so the piece doesn't kick back. As shown in Fig. 6A, take the length dimension for the wedges directly from your box—that way there's no chance of a mistake. Cut the opposite

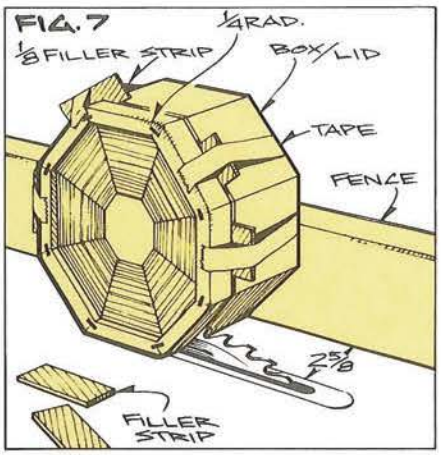






side of each wedge (Fig. 6B), use a gap filling glue or an epoxy to secure them in the lid (Fig. 6C), then cut, fit and glue the centerpiece. If everything doesn't quite fit as intended, a disk sander comes in handy for trimming the wedges and centerpiece to size. If you can't find it locally, a gap filling glue can be ordered from Garrett-Wade, 161 Ave. of the Americas, New York, NY 10013; tel. (800) 221-2942.

Apply a 1/4 in. radius to the top edge of the box, final sand, then use a series of ripping cuts to separate the lid (Fig. 7). Set your blade height a little over 1/2 in. and rotate the box to a fresh side for each pass. Filler strips and tape are used to hold the lid in position for the last few cuts.



Make the wooden hinge as detailed in our Special Techniques article (page 38), then finish as desired (we recommend tung oil). Finally, wrap some felt fabric over cardboard to fashion a bottom liner (Fig. 8). The liner cushions valuables stored in the box.

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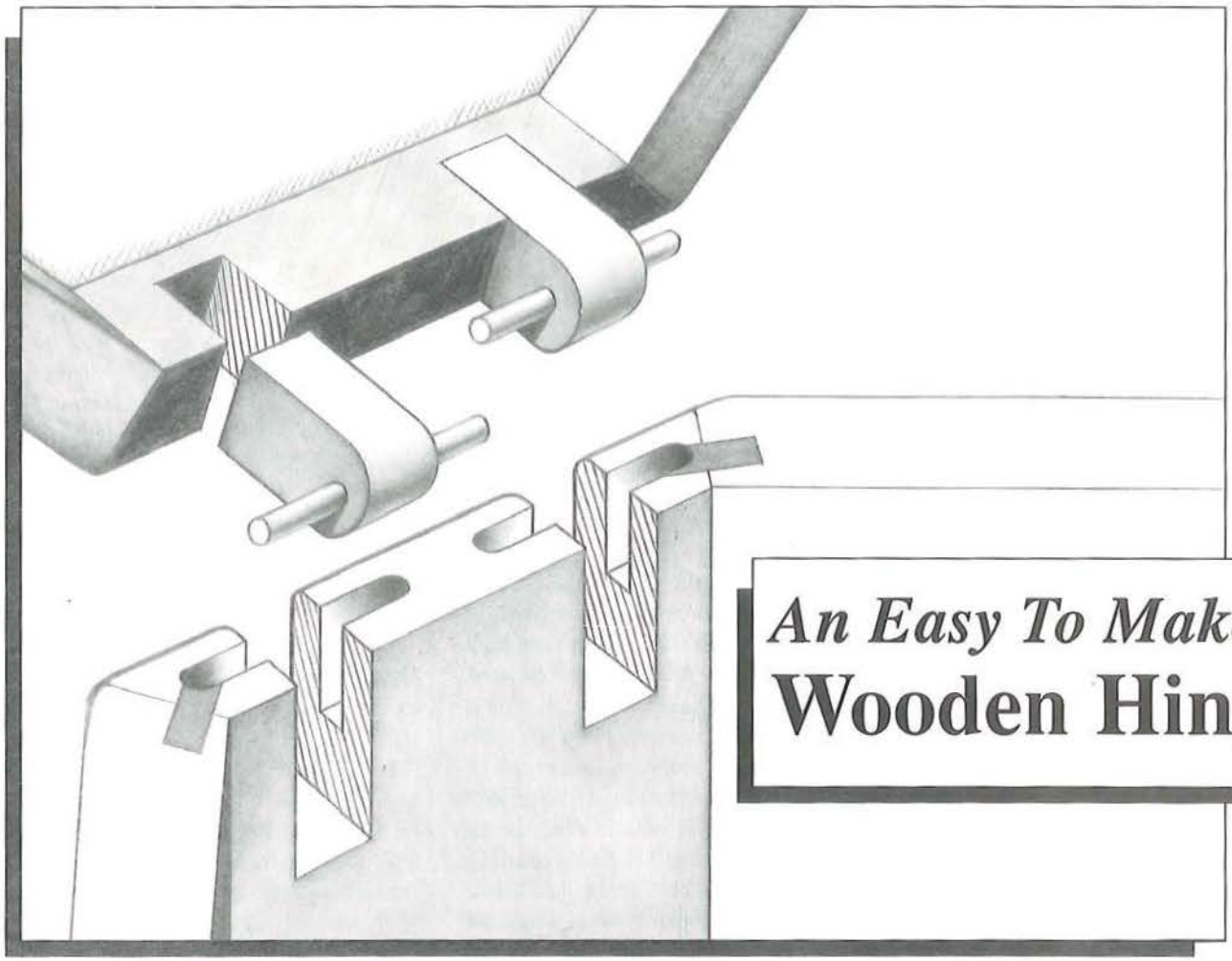


An Easy To Make Wooden Hinge

Wooden hardware has been around from the earliest times. Working wooden locks were common even in ancient Sumer—the so-called ''cradle of civilization''—in what is today southern Iraq and Kuwait. But where the first wooden hardware was fashioned out of need, much of what we make now from wood instead of metal is done as an item of special interest.

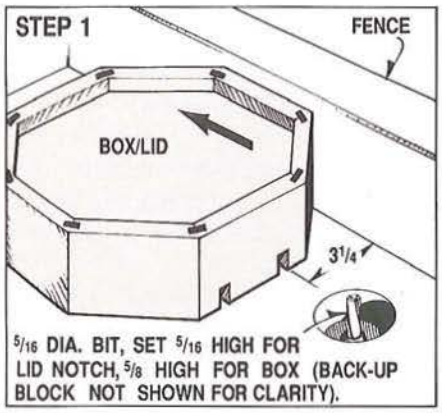
One might argue that it's easier to fasten a factory-made hinge in place than to craft one from wood. But even a fancy extruded brass hinge will not be nearly the attention getter that a hand-made wooden hinge is. The fact is, there's something special about a project where every part—even the hardware—is fashioned from wood.

The wooden hinge shown here, and the accompanying step-by-step drawings, show the hinge that's used on the Octagonal Jewelry Box on page 62. It's a very simple design; just an arm glued into the lid, pivoting on a pin that's captured in a slot in the box. The lid and box are notched to fit the arm, which is glued into the lid notch and pivots through the box notch.

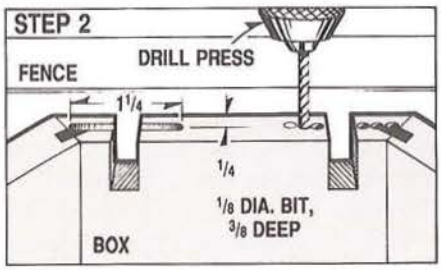
The same hinge can easily be adapted to any number of other uses, from more box applications to hanging a cabinet or case door. But, depending on the application, you may need to adjust the hinge size. Also, while our hinge was made after the box was complete, with other applications you may find it easier to make the hinge at an earlier point in the construction. For the Octagonal Jewelry Box, the hinge work begins after the lid has been cut from the box.

Step 1: Cut the notches for the hinge arms. These cuts can be made with either the table saw dado head or the router table. We show the router table. You'll need a 5/16 in. diameter straight cutter to establish the 5/16 in. wide notches.

Note that the notch depth in the lid is 5/16 in., while the notch depth in the box is 5/8 in. But the only change you'll make is in the cutter height. The fence setting for all the cuts remains the same, exactly 3 1/4 in. from the edge of the cutter. To insure that the notches in the lid and box are aligned, use the following cutting sequence.



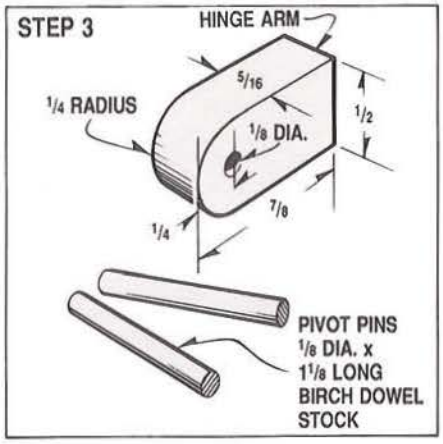
Start with the lid notches. Make the first cut, then flip the lid around, drop it over the cutter and make the second notch in the lid. Now raise the cutter to 5/8 in. high, and use the same procedure to cut the notches in the box. Dropping the lid and box over the cutter for one of each pair of notches enables you to maintain proper feed direction. We suggest you employ a back-up block to avoid tear-out where the bit is exiting on the outside of the box and lid. You could simply switch feed direction, but if you do be sure to maintain firm pressure on the box to prevent its being forced away from the fence.



Step 2: Clean out the slots in the box for the hinge pins. An overarm pin router comes in handy for work like this, but a drill press will also do the job. Use a 1/8 in. diameter drill bit to establish the ends of the slots, and to clean out most of the waste. A sharp knife will pare the remaining waste.

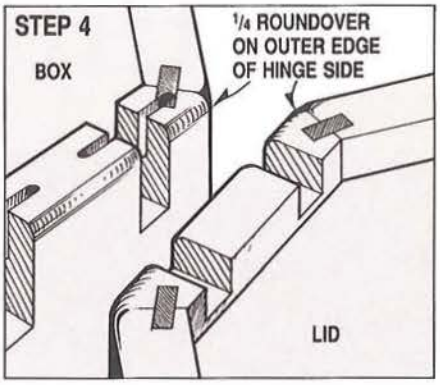
If you have a laminate trimmer with an edge guide, or a Dremel Moto-Tool with their router base and edge guide attachment, use a 1/8 in. diameter spiral cutting bit (either high-speed steel or carbide) to make these slots. You'll probably need to readjust several times to achieve the final 3/8 in. depth. These spiral cutting bits—in high-speed steel or carbide—can also be used for mortising with the drill press, though you'll need to use your highest available speed and feed the work a little slower than you would for the Dremel or laminate trimmer.

The length of these slots needn't be exact, but don't exceed the 1 1/4 in. slot length that we show. That will place the slot ends about even with the miters. Note that the slots cut partly into the splines joining the box sides.



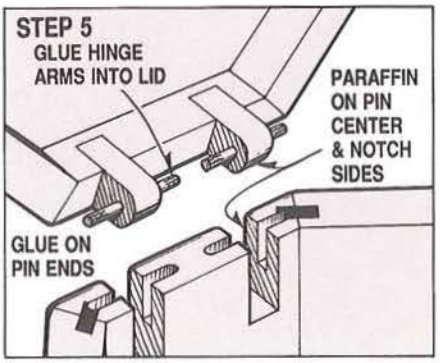
Step 3: Cut the two hinge arms. They measure 5/16 in. thick by 1/2 in. wide by 7/8 in. long, but it's best to work with wider and longer stock for safety. Hand-plane about 10 in. of stock to 5/16 in. thick, then rip off a 1/2 in. wide strip and crosscut two pieces to 7/8 in. long each. Radius one end of each piece, then drill the 1/8 in. diameter pin holes as shown, on center 1/4 in. from the rounded bottom of the arms.

Also, cut your two pivot pins. They're just a good quality 1/8 in. diameter birch dowel stock, sized to fit within the pin slots. If your slots are 1 1/4 in. long, then the pins should be about 1 1/8 in. long.



Step 4: Round over the back edges of the lid and box to provide clearance as the lid pivots back. Just use sandpaper; a router bit will risk chipping the notch edges. A 1/4 in. radius on each edge should be more than enough.

Step 5: Assemble the joint. Glue the hinge arms into the lid notches and let dry. Next, rub a little paraffin wax on the center of each pivot pin and on the sides of the box notches, insert the pins into the arms, and test fit the lid on the box by seating the pivot pins in their slots. Open and close the lid to check that clearance



is sufficient. Also check that the pivot pins rotate smoothly in the arms. If everything works as intended, add a little glue to the pin ends (be sure to first clean any wax from the pin ends), and then replace the lid. With the lid in the closed position, let the glue dry.

All that's left is a final sanding to make sure the hinge arms are flush with the box sides.

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