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## An Irish Parlor Clock



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# An Irish Parlor Clock

In today's highly mechanized and electronic world, an elegant wooden wall clock makes more of a statement than ever. It ties us to a simpler past, when parlors were reserved for distinguished household guests and time was measured by handmade clock movements. This project has the added appeal of a charming family story passed along by John English, an Irishman and former editor with *Woodworker's Journal*.

A couple years ago in the ancient Irish market town of Arklow, an uncle of John English—a former editor with *Woodworker's Journal*—had a client who decided to retire. Uncle Joe, who supplied bottled propane to hardware stores, drove to Arklow and began helping his customer clear out some stock so the store could be listed with a realtor. He was out back, counting gas cylinders, when he spotted the original version of this project. Its veneer was peeling off, and the carcass was riddled with woodworm.

Joe knew immediately he had discovered something special. Though the carcass was decrepit, the clock's solid-brass movement had been exceptionally well built with thick, hardened gears and a great deal of hand-fitting. Knowing that, and being aware of John's love of clocks, Joe asked John to build a new home for the wonderful Westminster movement. John enjoyed the task so much that he ordered a brand-new movement and built this second clock as soon as he rebuilt the first. It's now telling the time at his sister's home in Dublin.

## A Few Modifications First

John decided to forgo veneering and build the new clock entirely out of solid stock. Since his sister's home is



**Figure 1:** No need to set up a dado head: you can use a standard saw blade to make the small dados on the inside faces of the sides.

furnished throughout with mahogany pieces, he also switched from oak to Honduras mahogany. You can build the clock case from any wood you like.

## Building the Carcass

The measurements in the *Material List* on pages 99 and 101 can be used both to purchase stock and to cut all the pieces to rough size. With that done, the first milling step is to cut 1/4" square dados (see *Figure 1*) across the case sides (pieces 1) at the locations shown on the *Elevation Drawing* on page 100. These dados are small, so this operation can be completed in two passes with a standard blade.

Stay at the saw to cut a rabbet in each side for the back (piece 2), as shown on the *drawings*. The back is set in 1/4": the reason will become obvious when you mount the movement.

The ends of the carcass top and

bottom (pieces 3) are also rabbeted (see *Figure 2*), creating tongues to fit in the dados you just milled. Take your time making these cuts, dry-fitting them several times to ensure a perfect fit.

Glue and clamp the sides to the top and bottom, making sure everything is both square and flat. (For parts orientation, refer to the *Exploded View* on page 98.) Attach the back with 3/4" pin nails every six inches along the perimeter, then set the carcass aside to dry.

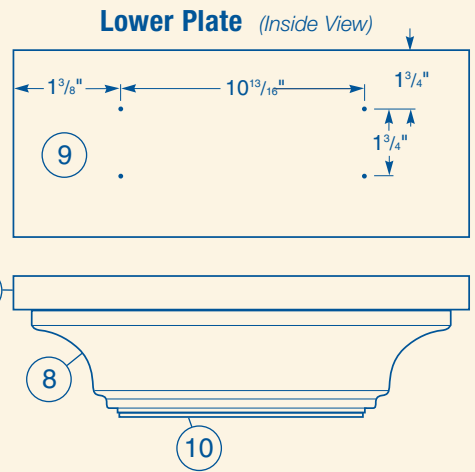
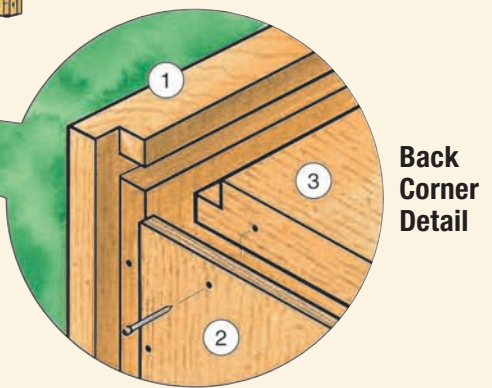
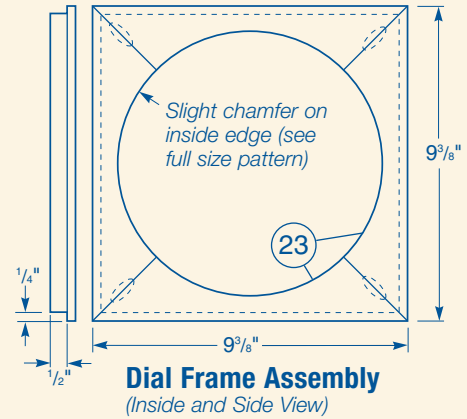
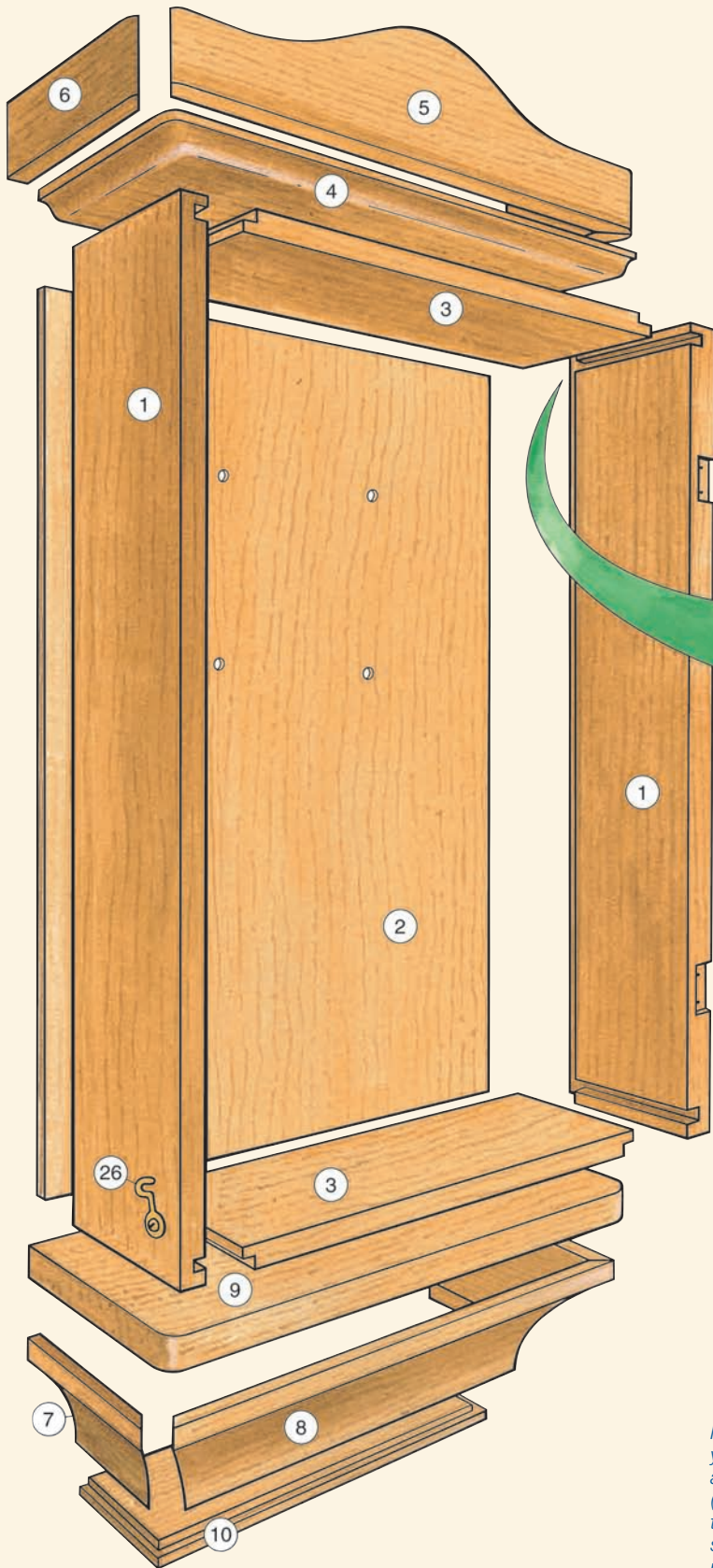
## Building the Crown Subassembly

The crown of the clock rests on a plate (piece 4) that will eventually be screwed to the carcass. The radii on its front corners and the profile of the crown front (piece 5) can be found on the *Elevation Drawing* on page 101. Cut both to shape on your band saw, then miter both ends of the crown front and one end of each crown side (pieces 6).

Dry-fit these parts to the plate, then locate biscuits on the mitered joints. Keep the biscuits toward the insides of the miters. When everything lines up, glue and clamp them together. Glue the entire subassembly to the plate.

After the glue cures, use a belt or disk sander to shape the glued-up mitered corners to the radii on the plate. Start with a coarse-grit belt to remove most of the waste, then refine

# Parlor Clock Exploded View



*NOTE: The cove molding is cut to a compound miter. Set your saw's miter gauge at 45°, then hold the molding braced against the miter gauge at 45° to the plane of the table top. (The edges of the cove molding will fit square to both the table top and the miter gauge.) Cut your first angle, then swing the miter gauge to the opposite 45° setting to make the reciprocal miter. Test this procedure on a piece of scrap first.*

## MATERIAL LIST – *Parlor Clock*

|    |                                | T x W x L                   |
|----|--------------------------------|-----------------------------|
| 1  | Case Sides (2)                 | 3/4" x 4 1/8" x 23 3/4"     |
| 2  | Case Back (1)                  | 1/4" x 11 3/16" x 22 11/16" |
| 3  | Case Top & Bottom (2)          | 3/4" x 4 1/8" x 11 1/4"     |
| 4  | Upper Plate (1)                | 1" x 5 13/16" x 14 1/4"     |
| 5  | Crown Front (1)                | 1" x 3 1/2" x 13 1/2"       |
| 6  | Crown Sides (2)                | 1" x 1 3/4" x 5 1/2"        |
| 7  | Side Cove Moldings (2)         | 3/4" x 4 3/8" x 4 7/8"      |
| 8  | Front Cove Molding (1)         | 3/4" x 4 3/8" x 12 3/16"    |
| 9  | Lower Plate (1)                | 1" x 5 9/16" x 13 9/16"     |
| 10 | Cove Molding Plug (1)          | 1/2" x 2 5/16" x 7 1/8"     |
| 11 | Door Stiles (2)                | 3/4" x 1 5/16" x 23 5/8"    |
| 12 | Center Door Rail (1)           | 3/4" x 1 7/16" x 9 3/8"     |
| 13 | Top Door Rail (1)              | 3/4" x 1 7/16" x 9 3/8"     |
| 14 | Bottom Door Rail (1)           | 3/4" x 1 7/16" x 9 3/8"     |
| 15 | Biscuits (8)                   | R3 Ryobi style              |
| 16 | Door Molding (2)               | 3/4" x 1" x 23 5/8"         |
| 17 | Door Stile, Small 1/4 Rnd. (2) | 1/4" x 1/4" x 23 5/8"       |
| 18 | Door Muntins (2)               | 3/4" x 5/8" x 12 13/16"     |
| 19 | Bottom Side Panes (2)          | Glass, cut to fit           |
| 20 | Bottom Center Pane (1)         | Glass, cut to fit           |
| 21 | Stop Molding (1)               | 1/4" x 7/16" x 90"          |
| 22 | Top Pane (1)                   | Glass, cut to fit           |
| 23 | Dial Frame Segments (4)        | 3/4" x 2 1/4" x 9 3/8"      |
| 24 | Door Hinges (2)                | Brass, 1 1/2"               |
| 25 | Dial Frame Turnbuckles (4)     | Brass                       |
| 26 | Door Catch (1)                 | Brass hook and eye          |

the corners with less aggressive belts, finishing with 220 grit. Move to a drum sander chucked in your drill press to clean up the top edges, then mill the ogee at the bottom of the upper plate's edge with a piloted ogee bit in your router table.

Attach the crown to the carcass with screws driven up from the inside the top, through pre-drilled and countersunk pilot holes.

### Making a Mitered Compound Cove

In a technique common among nineteenth-century clock case builders, the bottom of the clock is dressed up with three pieces of wide molding. These moldings (pieces 7 and 8) are mitered and glued together before they're attached to the lower plate (piece 9). Their profile is shown on page 101.

Cut the molding's main cove on your table saw (see sidebar on page 101), then reset the saw and rip the



**Figure 2:** Tongues on the top and bottom fit into dado slots in the sides. Create them by milling rabbets on the opposing edges.

edges to the correct angles. Mill the decorative groove with a core box bit in your router table (see *Figure 3*), then sand the entire molding. A sanding drum works great as a manual sanding block to clean up the main cove (see *inset photo*).

Round the front corners of the lower plate and sand, then miter the cove molding. Now pin nail and glue the molding segments to the lower plate. Attach this sub-assembly to the carcass with screws, then rabbet the edges of the cove molding plug (piece 10) before gluing and clamping it in place (see *Elevation Drawing* on page 101 sidebar).

### Forming the Built-up Door Stiles

Begin building the door by rabbeting one edge of each door stile (pieces 11) and both edges of the center rail (piece 12), following the dimensions shown on the *Door Assembly Drawing*, page 100. This saw setup can also be used to cut rabbets on the inside bottom edge of the top rail (piece 13) and the inside top edge of the bottom rail (piece 14).

Again referring to the *Drawings*, use the saw's miter gauge to create tongues on both ends of each rail. After dry-fitting, glue and clamp the stiles and rails together. Make sure to check for squareness, and be gentle with the clamp pressure. That extra turn or two on the clamp screws could distort the door out of flat, which will make it fit poorly.

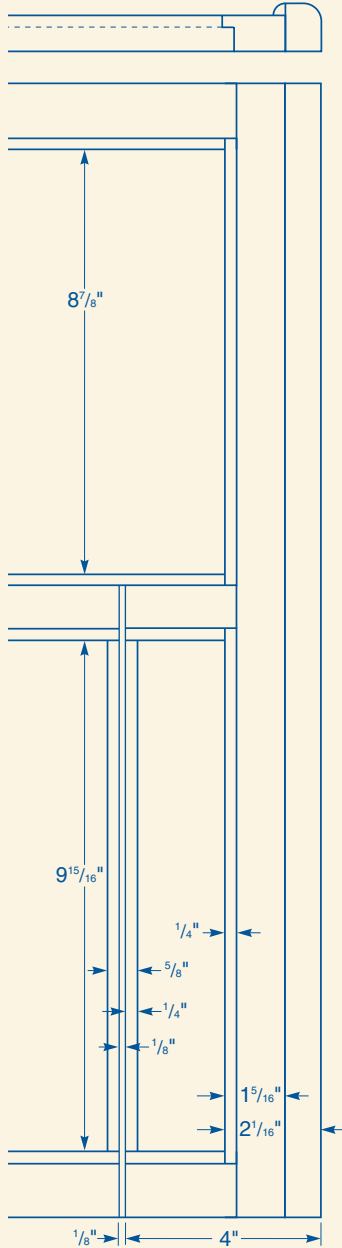
Now use biscuits (pieces 15) to attach the door molding (pieces 16) to the outside edge of each stile. This molding is first shaped on the router table with a 3/8"-radius roundover



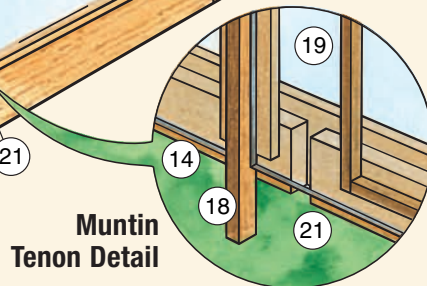
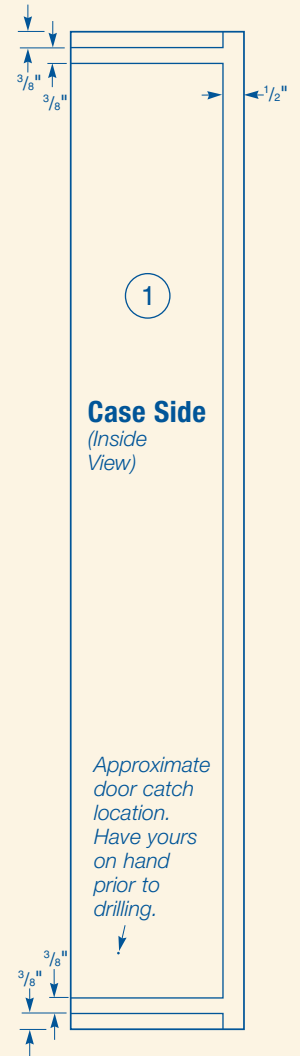
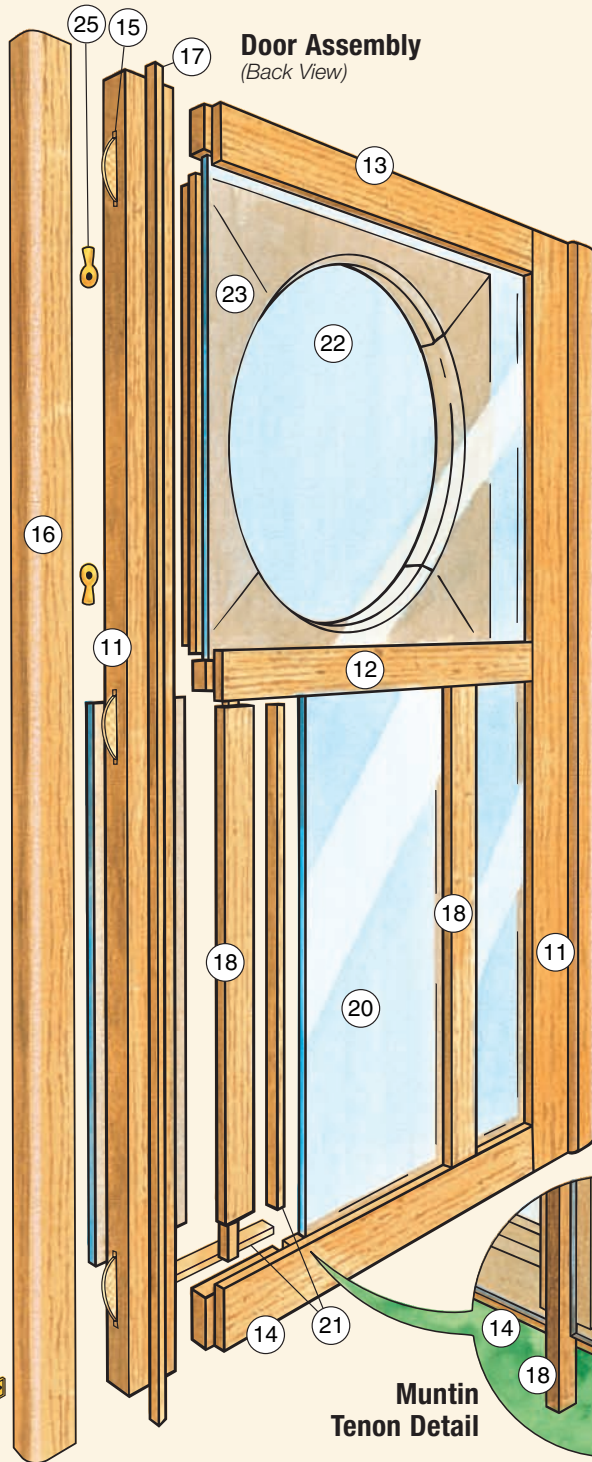
**Figure 3:** Use a core box bit to rout a decorative groove into the lower edge of the crown molding, then clean up the main cove (right).

# Door Assembly Exploded View

**Door Assembly**  
(Top View)

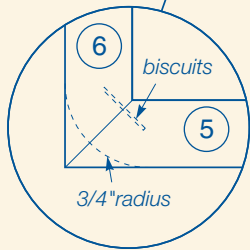
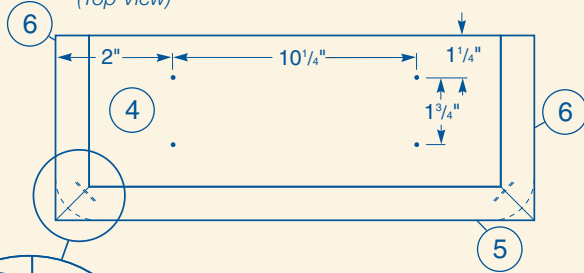


**Movement and Chime Rods**  
(Side View)



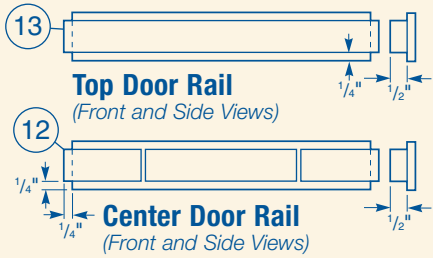
### Upper Plate Subassembly

(Top View)



### Miter and Radius Detail

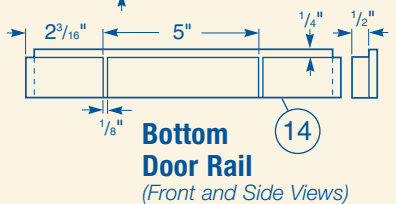
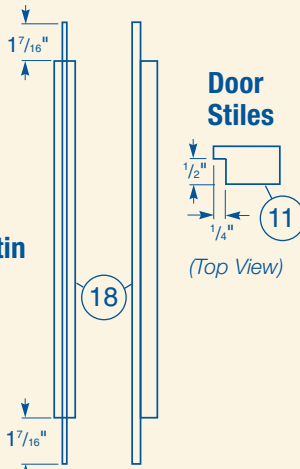
(Top View)



After dry assembly, trim this tenon to clear rabbet above.

### Door Muntin

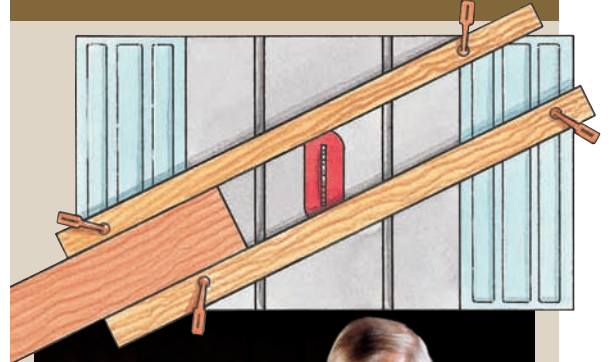
(Side and Front View)



### Door Molding

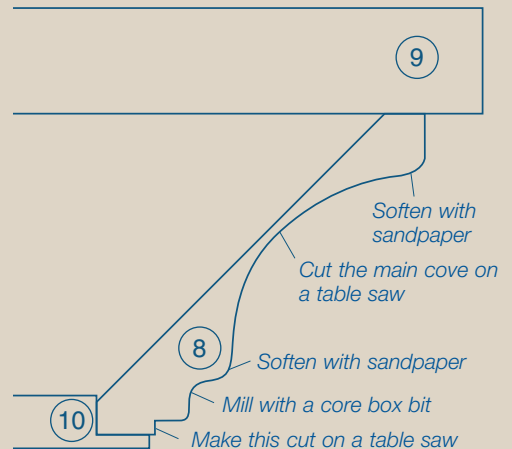
(Front View)

## MILLING COVE MOLDING ON THE TABLE SAW



Clamp two scrap auxiliary fences to your table saw  $4\frac{1}{8}$ " apart and at  $45^\circ$  to the blade. Center them on the blade (front to back). Use a fine-toothed blade for best results, and set the blade height to  $1/16$ ". Test your set-up on scrap. Raise the blade  $1/16$ " for each pass until the cove shown below is formed. Use a push-pad to guide the wood: never pass your hands over a spinning blade.

### Cove Molding Subassembly





**Figure 4:** The outside edge of the large door molding is shaped on a router table with a 3/8"-radius roundover bit.

bit as shown in *Figure 4*. Once secure, attach the small quarter rounds (pieces 17) to their inside edges, (see *Figure 5* and the *Elevations* on the previous page).

### Milling the Door Muntins

A pair of thin muntins (pieces 18) divide the bottom half of the clock door into three glazed segments. The safest way to make the muntins is to form them on the edge of a wide board (see *Figure 6*), then trim them to size (see *Figure 6 Inset*).

These muntins are set into dados cut in the door's center and bottom rails. Locate these dados on the *Door Assembly Elevation*, page 100, then cut them on the table saw, as shown in *Figure 7*. Keep in mind that the top rail isn't dadoed like the others.

Use your saw's miter gauge to trim tenons on the ends of the muntins to fit into these dados, following the dimensions shown in the *Muntin Tenon Detail* on page 100. When everything fits, glue and clamp the muntins in place.

### Forming Glass Retainers

The three lower panes of glass in the door (pieces 19 and 20) are secured by a simple stop molding (piece 21) ripped off the edge of a wide board and mitered to fit the glass openings.

The large pane of glass in front of the dial (piece 22) is kept in place by a separate, removable frame made up of four mitered segments of square stock (pieces 23) that are biscuited and glued together before being milled to accommodate the dial. Hold off on this assembly until you locate the dial in the door.

### Lining Up the Dial with a Template

Getting the dial to line up properly in the door is critical for visual balance.



**Figure 5:** The safest way to make the small quarter round molding for the door edges is to form it first with a router on the edge of a wide board, then rip it to width as shown here.



**Figure 6:** Machine the muntins from larger pieces of lumber in a two-step process.

In fact, if it's even slightly off it will be noticeably. So we strongly recommend creating a template from 1/4" plywood to help. Rip and crosscut the template to fit the rabbets in the upper door opening, and carefully center the clock dial on the template (see *Figure 8*). Use it to outline the large circular hole.

Cut the dial hole with a jigsaw or scroll saw, then clean up the edges

with a drum sander chucked in the drill press. Be very particular—the quality of this work will be quite obvious later on.

### Finishing and Hardware

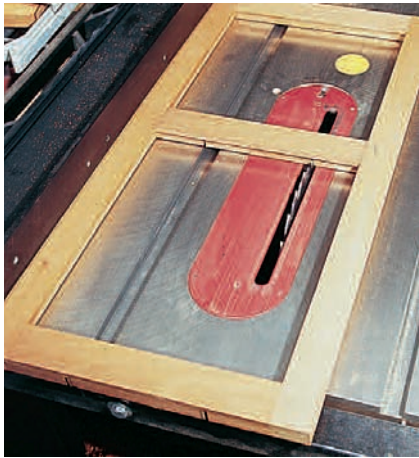
You're now ready to sand and finish the entire project. John used four coats of clear satin polyurethane to bring out the mahogany's luster in his clock. Sand between coats with 400-grit paper, then use a tack cloth to clean up before the next coat. When your finish is dry, set the clock on its back and position the door on the carcass. Locate and install the hinges (pieces 24) next. Each hinge will require a single dado in the front edge of the carcass stile, as shown on the *Door Elevation Drawing*: this eliminates the need to chop any mortises in the back of the door. Drill pilot holes for the hinge screws, and fasten the door to the carcass. Then temporarily tack the dial template into the rabbets in the back of the door.

### Milling the Dial Frame

With the location of the dial established, you can now make the frame that fits around it. Rip the four frame segments (pieces 23) to size, then miter them to the lengths shown on the *Material List*. Use biscuits to reinforce the miter joints, and join the parts with glue and clamps to create a square form that looks like a picture frame. Make sure this frame is flat and square as you tighten the clamps.

When the glue is dry, trim the outside of the frame to fit in the door rabbet, leaving 1/16" of play all round. Remember to shave a little off each side so the mitered joints don't look off-center in the door. When the fit is perfect, center your plywood template on the frame, clamp it gently in place,





**Figure 7:** Make dados for the muntins in the door frame subassembly. Remember that the top rail does not have dados.



**Figure 8:** A 1/4" plywood template will help you place the clock face accurately.

and then draw a line for making the final circular cutout.

Make the cutout with a scroll or jig saw, then use a drum sander to clean up the edges. When you're satisfied with the fit, use a bearing-guided chamfering bit to relieve both the front and back edges of the cutout to give it a finished look. Cut a 3/8"-wide rabbet on the back edges of the dial frame, to bring it flush with the door.

Apply finish to the dial frame, then secure both it and the glass with four tiny brass turnbuckles (pieces 25). Close the door and install the brass

## PLACING THE MOVEMENT



Attach the dial to the movement according to the manufacturer's instructions, then remove the large square pane of glass from the door. Place the movement in the case (with the 12 at the top), then close the door. Gently reposition the movement until the dial is centered in the cutout (see *photo*, below).

Open the door and use a pencil to mark the movement's bolt locations on the plywood back. Then remove the movement and drill the holes. Secure the movement to the back with the nuts and washers provided by the manufacturer.

Install the chiming rods next, then attach the hands. Set the clock upright to install the pendulum, then follow the manufacturer's instructions to set the time and adjust the movement.



catch (piece 26) to the side of the clock case with a screw and a couple of pins, as shown on the *Exploded View Drawing* on page 98.

All that's left to do at this point is install the movement on the clock face (see *sidebar*, above.)

One final piece of advice: mechanical clock movements are very sensitive, so make sure the wall where the clock will hang is absolutely plumb and level. If it is, you'll enjoy years of reliable service from this reproduction of an Irish parlor clock.

# Irish Parlor Clock

Pinup Shop Drawings

