A hand is shown lifting the lid of a wooden clock. The clock is a square, mahogany-colored piece with a white clock face and gold trim. The top of the clock is open, revealing a compartment filled with various wrapped candies, including one labeled 'CARAMEL'. The clock sits on a small, matching wooden base.

by Jock and
Susan Holmen

*this
classic clock
tells time,
but keeps
a secret*

Desktop Clock

THIS CLOCK HOLDS A SECRET, and its construction involves a few secrets as well. The case is made from 1/2-in.-thick mahogany plywood. You won't find this at most lumberyards, but you can make your own by gluing together two layers of 1/4-in. plywood.

Another secret to building this clock is to glue the moldings to the plywood case material first and then miter the parts. It simplifies the building and sure beats mitering all the molding parts individually. Gold painted trim adds sparkle to the finished clock.

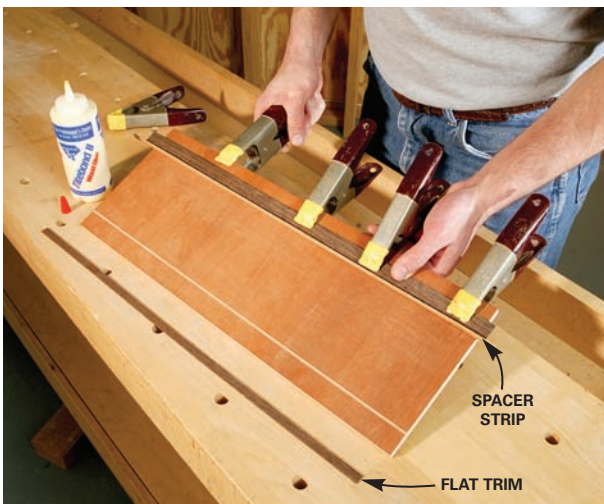




1 Make your own 1/2-in. mahogany plywood for the clock case, because finding it at a lumberyard can be difficult. Use several bricks as clamps and a piece of cardboard to protect the plywood from getting scratched.



2 Cut two 1/8-in. dadoes in the face of the plywood panel. A thin molding that goes all the way around the clock will later be fit into the dadoes. Use a push block for safety and to maintain even pressure while sawing.



3 Glue and clamp the flat trim pieces onto the plywood panel. Put a 1/8-in. x 1/4-in. spacer strip into the dadoes (without glue) and push the flat trim up against it. Remove the spacer strip after you've attached the clamps.



4 Rout the top and bottom moldings with a classic router bit. Use feather boards to hold the molding against the fence and table for the smoothest cut.

Tools and Materials

To build this clock, you'll need a table-saw, a planer, a router in a router table and a drill press. You'll also need a couple of special router bits: a classic bit and a 1/8-in. round-over bit. An adjustable circle cutter is used to cut the round clock opening (see Sources, page 37).

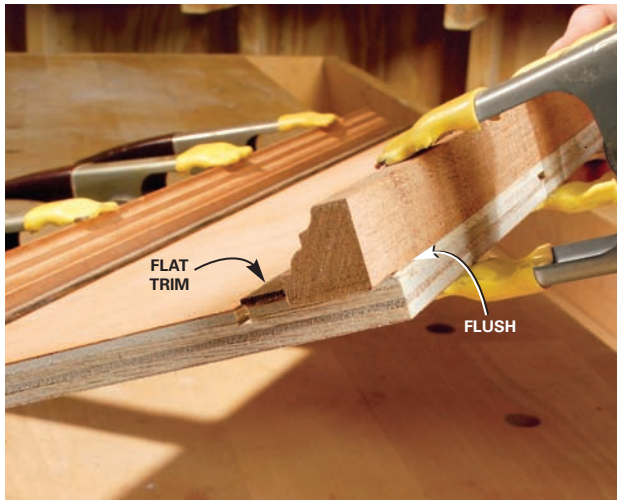
The clock is made from Honduras mahogany plywood and lumber, as

well as wenge (pronounced *Wen-gay* or *wenj*). Wenge is a dark-brown tropical hardwood that nicely complements the mahogany's reddish-brown.

For the clock case, you'll need 1/4-in.-thick mahogany plywood. It doesn't take much, so buy a partial sheet unless you plan to make several clocks. You'll also need a 3/4-in. x 6-in. x 48-in. piece of mahogany lumber and a chunk of wenge. Buy a piece of wenge that's at

least 3 in. wide by 32 in. long. It's more than you actually need, but it's easier and safer to cut the parts from a piece this size, rather than one that's smaller.

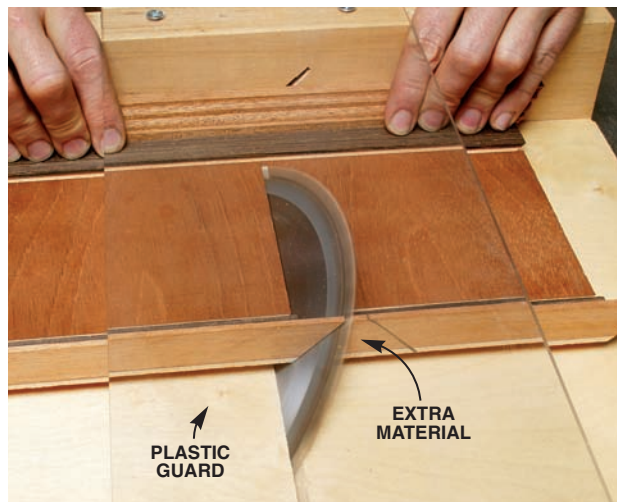
The battery-powered clock mechanism is a one-piece insert, which is simply friction-fit into a hole in the clock front. This makes it easy to change the batteries or the time. The total cost to make this clock is about \$65 (see Sources, page 37).



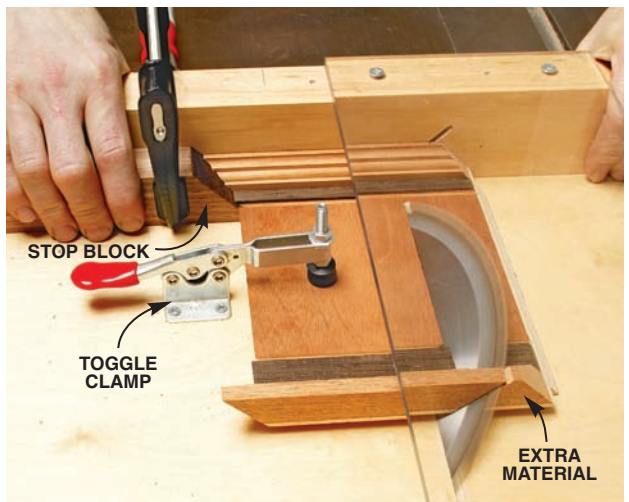
5 **Glue and clamp the classic molding** tight against the edge of the flat trim. The molding's outer side should be flush with the plywood edge. Trim off any molding or plywood overhang with your tablesaw.



6 **Cut two rabbets** in the plywood panel for the lid and bottom. Put a temporary wooden fence on your saw so you can push the fence right up to the dado blade.



7 **Cut one miter on all four case sides** with a shop-made saw sled. Cut the sides a little extra wide at this step. Pushing more slowly than normal helps reduce chip-out on the moldings.



8 **Miter the sides to final width.** Hold each piece in place with a toggle clamp. This ensures a straight cut and keeps your hands out of harm's way.

Laminate the Plywood First

Cut two 32-in. x 8-in. pieces of 1/4-in. mahogany plywood (Fig. B, page 35). Notice that the grain runs the short dimension on these parts. Glue these together to form the 1/2-in. mahogany plywood needed for the clock case (Photo 1). After the glue has dried, rip the 1/2-in. plywood to 7-1/2 in. wide on the tablesaw. Take about 1/4 in. off both edges so they are straight

and parallel. Next, cut the two 1/8-in. dadoes in the face of the plywood (Photo 2, Fig. A, page 34).

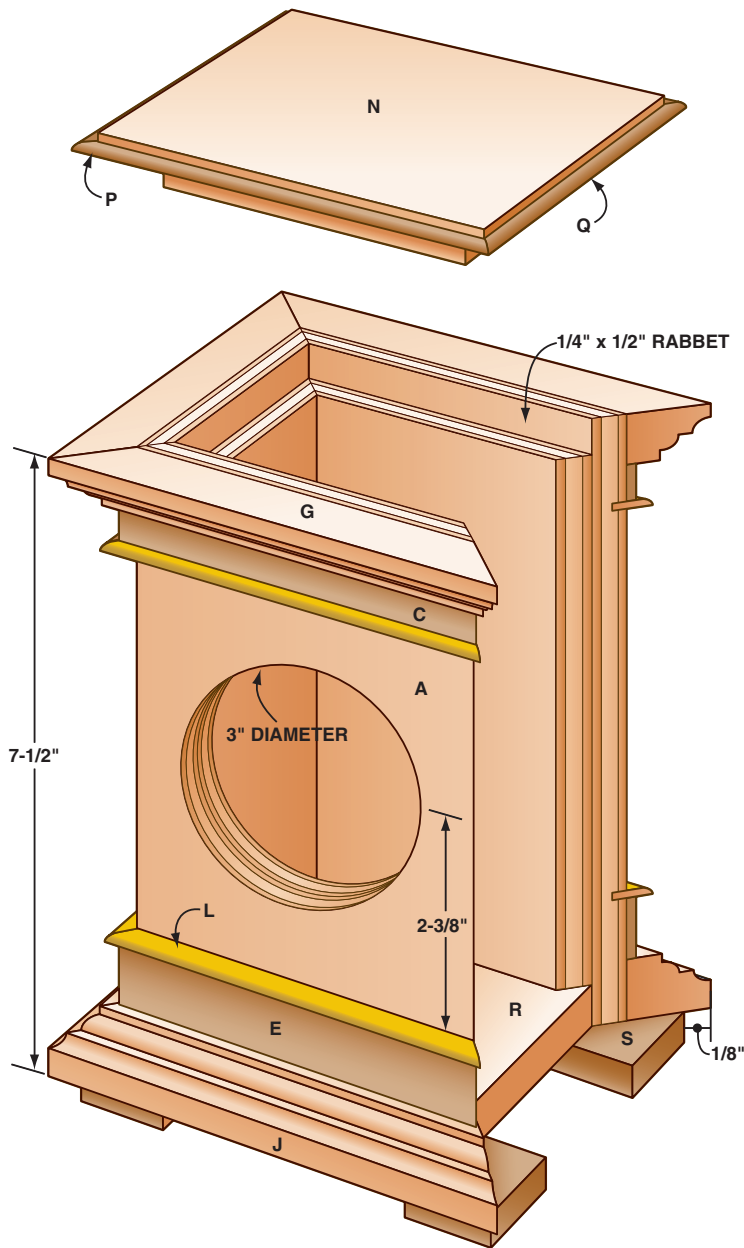
Attach the Moldings and Trim

Make the upper and lower flat trim pieces (C, D, E and F). Place spacer strips in the small dadoes in the panel to provide a stop for the flat trim to push up against, and glue the flat trim to the 1/2-in. plywood panel (Photo 3).

Remove the spacer sticks before the glue dries to prevent them from getting stuck.

Next cut a strip of mahogany for the top and bottom moldings (G, H, J and K). Use a classic router bit to shape them (Photo 4). Note that the top molding is 1/8 in. thinner than the bottom molding and they are attached to the plywood so they mirror each other (Fig. A). Glue and clamp them to the plywood (Photo 5). The edge of

Fig. A
Exploded view.



Detail 1
Dimensions for the rabbets
on the bottom of the lid.

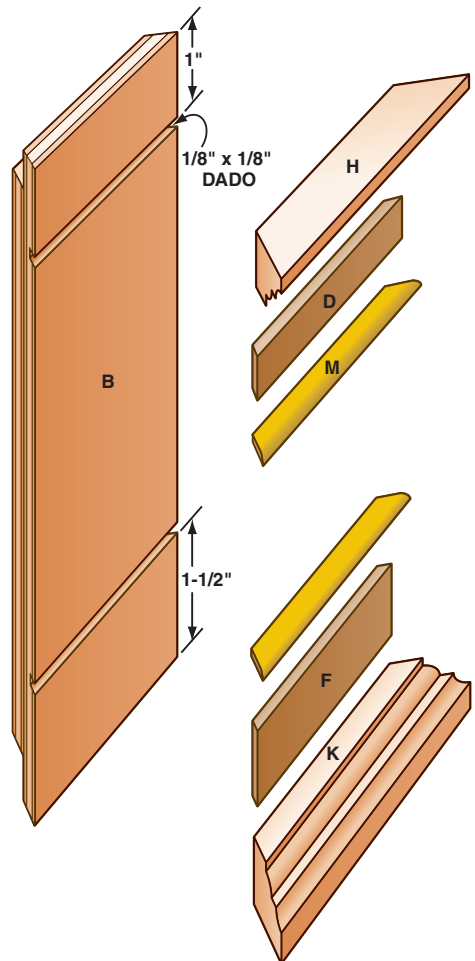
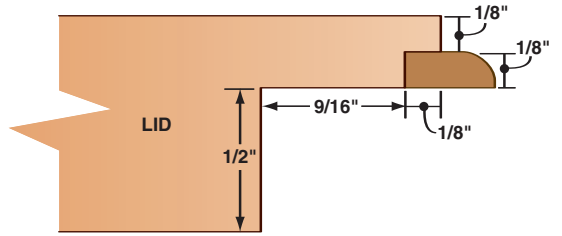


Fig. B
Plywood cutting diagram.

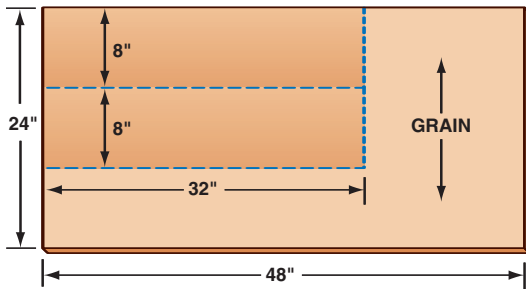
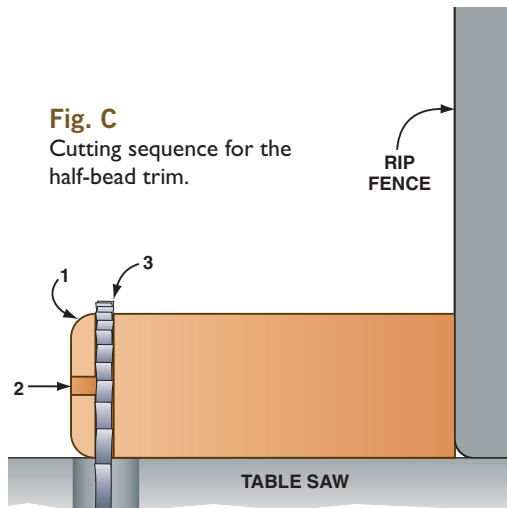


Fig. C
Cutting sequence for the half-bead trim.



- 1. Rout** the corners with a 1/8-in. round-over bit.
- 2. Saw** a 1/4-in.-deep slot down the middle of the edge.
- 3. Rip** the trim off. Position your saw fence as shown so the trim falls away from the blade at the end of the cut.

the molding and the plywood should be flush. If they're not, wait until the glue has dried and trim the parts flush on your tablesaw. Complete the 1/2-in. plywood panel by cutting a rabbet at the top and bottom on the back side (Photo 6, Fig. A).

Miter the Sides

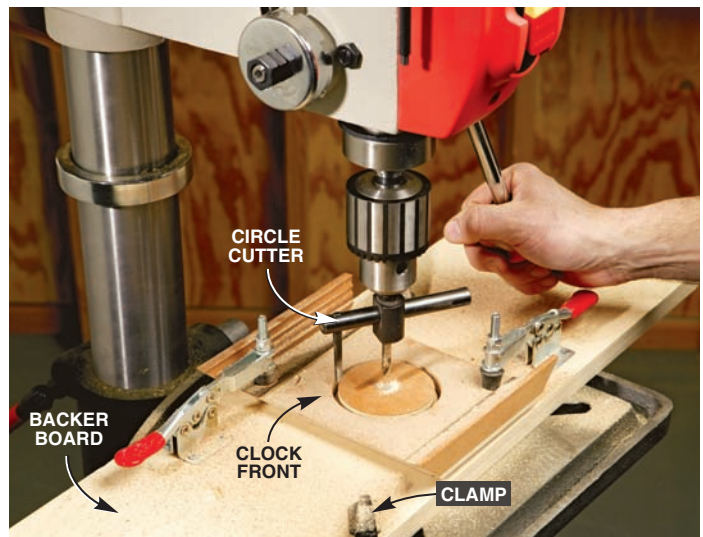
Set your tablesaw blade to 45 degrees and miter some test boards. Then use a tablesaw sled to miter the clock's four sides. Start by cutting the sides about 1/4 in. oversize (Photo 7). It's OK to leave the extra material on one edge. It will be cut off when you cut the parts to final width (Photo 8). Cut slowly to avoid chip-out on the moldings. Wenge is particularly prone to chip-out, but cutting at a slower rate helps avoid that problem. Use a toothpick to apply the glue and masking tape to hold the chip in place.

Drill the opening for the clock insert into the clock case front (A, Photo 9). The clock insert is centered vertically on the case front between the two gold half-bead trim pieces (L).

Assemble the Case

Apply glue to two sides first and hold them together with masking tape. Add the other two sides one at a time. Stretch the tape, so it pulls the parts tightly together (Photo 10). Then glue in the bottom and add the four feet (S, Photo 11). Next make the lid (N). Cut the rabbets on the bottom of the lid (Detail 1). Check that the lid fits easily into the rabbet in the top of the clock case.

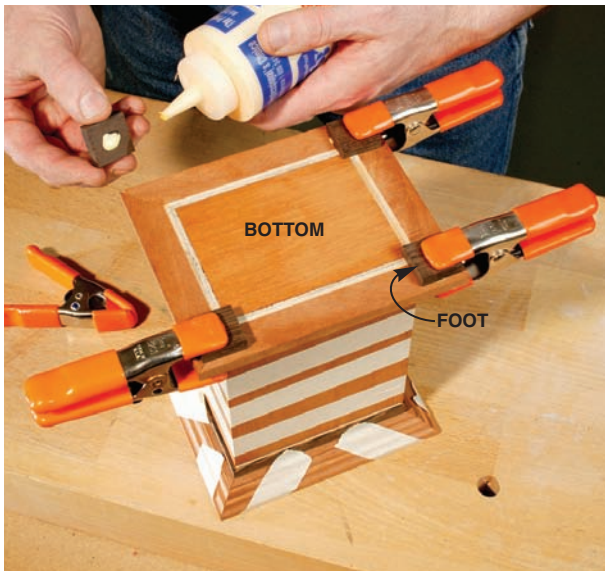
Now make the half-bead trim (L, M, P, Q) that goes around the case and the lid. This trim is very small, but is easy to make using our step-by-step cutting sequence (Fig. C, page 35).



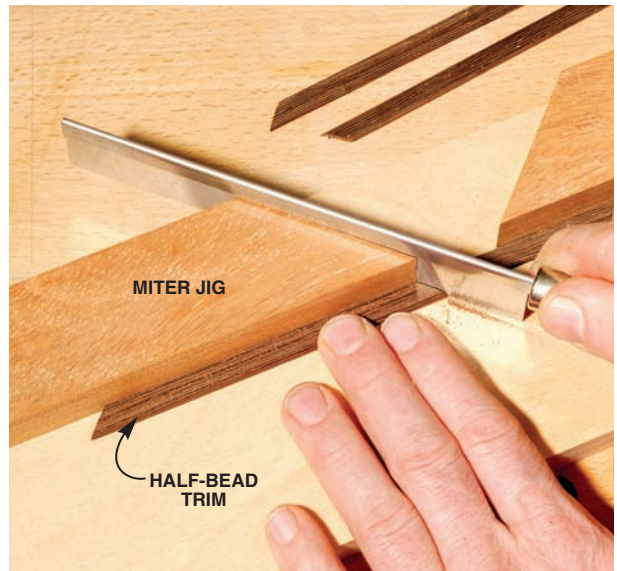
9 Drill the hole for the clock with a circle cutter. Set the drill press to its slowest speed and hold the part with two toggle clamps. Secure the backer board to the drill table with a couple of clamps.



10 Assemble the sides with glue and masking tape. Pull the masking tape tight and check that the miters align tightly.



11 Glue the bottom into the rabbet that runs around the sides. Then attach the feet. Set the feet 1/8 in. in from the edge of the molding.



12 Miter the half-bead trim using a small handsaw and mitering jig. The jig is simply two mitered boards glued to a piece of plywood.

Miter the half-bead trim that goes around the lid and attach it to the underside of the lid (Photos 12 and 13). You'll need some small spring clamps to hold these trim pieces in place while the glue dries (see Sources, page 37). Set aside the strips of half-bead trim (L, M) that go around the case. They will be used later.

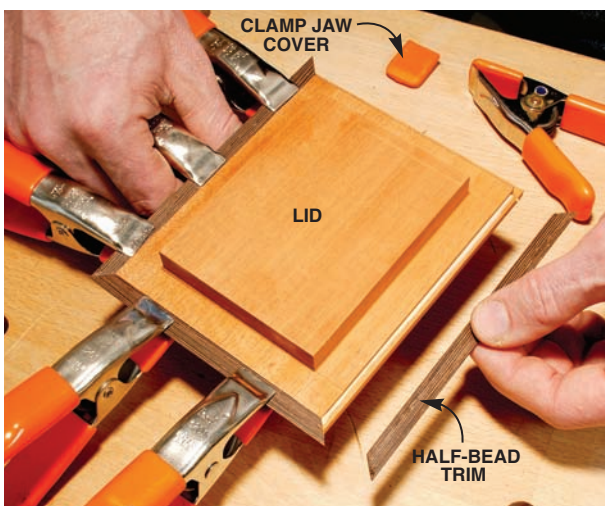
Finishing Touches

Sand the entire clock case and lid with 180-grit paper and stain it (Photo 14). A red mahogany stain gives the mahogany a deep rich tone and helps even out any color difference between the plywood and the lumber (see Sources, page 37).

After the stain dries thoroughly (24 to 48 hours), brush on a satin

polyurethane varnish (see Sources, page 37).

While the stain and finish dry, paint the half-bead trim gold (L, M, Photo 15). Miter it to final length and glue it into the dadoes on the clock case. All that's left now is to install the battery in the clock mechanism, set the time and insert it into the clock case (Photo 16). Oh, yeah, don't forget to add the candy.



13 Glue the half-bead trim into the small rabbet on the bottom side of the lid. Remove one of the jaw covers from the spring clamp to provide more pressure on the small trim. Leave the other jaw cover on to protect the lid's top from getting dented.



14 Stain the clock case to even out any differences in wood color between the solid lumber and plywood parts. When the stain is dry, apply a clear finish.



15 Apply three coats of gold paint to the half-bead trim that goes around the clock case. Sand between coats to remove any roughness. Install the trim after the paint is dry.



16 Install the clock mechanism. It's simply a pressure fit, requiring no fasteners.

Cutting List Overall Dimensions: 8 in. x 6-3/8 in. x 5-3/8 in.

Part	Name	Qty	Material			Dimensions	Notes
			T	W	L		
A	Front and back	2	Mahogany plywood	1/2"	4-3/4"	7-1/2"	Cut to final widths after attaching moldings C through K (see Photo 8).
B	Sides	2	Mahogany plywood	1/2"	3-3/4"	7-1/2"	
C	Upper flat trim (front/back)	2	Wenge	1/8"	3/8"	5"	Rough-cut these parts 32 in. long. They will be cut to final length after they are attached to the 1/2-in. plywood that makes up parts A and B (see Photo 8).
D	Upper flat trim (sides)	2	Wenge	1/8"	3/8"	4"	
E	Lower flat trim (front/back)	2	Wenge	1/8"	3/4"	5"	
F	Lower flat trim (sides)	2	Wenge	1/8"	3/4"	4"	
G	Top classic molding (front/back)	2	Mahogany	5/8"	3/4"	6-1/4"	
H	Top classic molding (sides)	2	Mahogany	5/8"	3/4"	5-1/4"	
J	Bottom classic molding (front/back)	2	Mahogany	3/4"	3/4"	6-1/4"	
K	Bottom classic molding (sides)	2	Mahogany	3/4"	3/4"	5-1/4"	
L	Gold half-bead trim (front and back)	4	Mahogany	1/8"	5/16"	5-1/8"	Paint with gold leaf paint before cutting to final size.
M	Gold half-bead trim (sides)	4	Mahogany	1/8"	5/16"	4-1/8"	
N	Lid	1	Mahogany	3/4"	4-5/8"	5-5/8"	
P	Half-bead trim for lid (front/back)	2	Wenge	1/8"	5/16"	6"	
Q	Half-bead trim for lid (sides)	2	Wenge	1/8"	5/16"	5"	
R	Bottom	1	Mahogany	1/2"	3-1/4"	4-1/4"	
S	Feet	4	Wenge	5/16"	1"	1"	

Sources

Woodworker's Supply
(800) 645-9292, www.woodworker.com
Circle cutter, #829-757, \$18 each
1-in. spring clamps, #125-033, \$2 each.

MLCS
(800) 533-9298,
www.mlcswoodworking.com
1/4-in. classic router bit, #6491,
\$26 each
1/8-in. round-over router bit, #6350
\$11 each.

Rockler Companies, Inc.
(800) 279-4441
www.rockler.com
Clock insert, #23995, \$11 each.

Jo-Ann Stores
(800) 525-4951
www.joann.com
Liquid Leaf Classic Gold, \$5 per 2 oz.

Woodworkers Source
(800) 423-2450
www.woodworkerssource.com
3/4-in.-thick wenge, \$15 per bd. ft.

Wood & Shop Inc.
(314) 731-2761, www.woodnshop.com
1/4-in. mahogany plywood, 48-in. x 24-in.,
\$20 per piece.

Minwax Co.
(800) 523-9299 (for dealer locations)
www.minwax.com
Satin Polyurethane Varnish, \$12 per quart
Red Mahogany Stain, #225,
\$8 per quart.

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