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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.

Ratchet Table Lamp

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Colonial-style Ratchet Table Lamp

This handsome oak lamp is reminiscent of the ratchet candlestands common in 18th century colonial homes. The ratchet makes it adjustable, allowing the bulb to be raised almost 7 in. from its lowest position.

Begin by cutting all the lamp base parts (except part H) to the dimensions shown in the Bill of Materials.

The stretcher (B) and the two posts (C) have identical tenons, so they can be cut next. Note, though, that the tenons are not on center, but have a 1/4 in. shoulder on one side and a 1/2 in. shoulder on the other side. We used the table saw and dado head, with a miter gauge, to support the stock as it passes over the cutter.

The dado head can also be put to use on the ratchet (E). Use it to cut the 1/2 in. long tenon on the bottom end (see

Detail) and the 1/4 in. wide by 1/2 in. deep groove along one edge. Also, at this time, cut the tenons on each end of the guide (D).

The 1/4 in. wide by 1/2 in. deep stopped grooves in the posts are best cut using the router table. As shown in the front view, the groove is cut 8 1/4 in. long. Since the router bit creates a rounded corner, you'll need to square the end with a chisel.

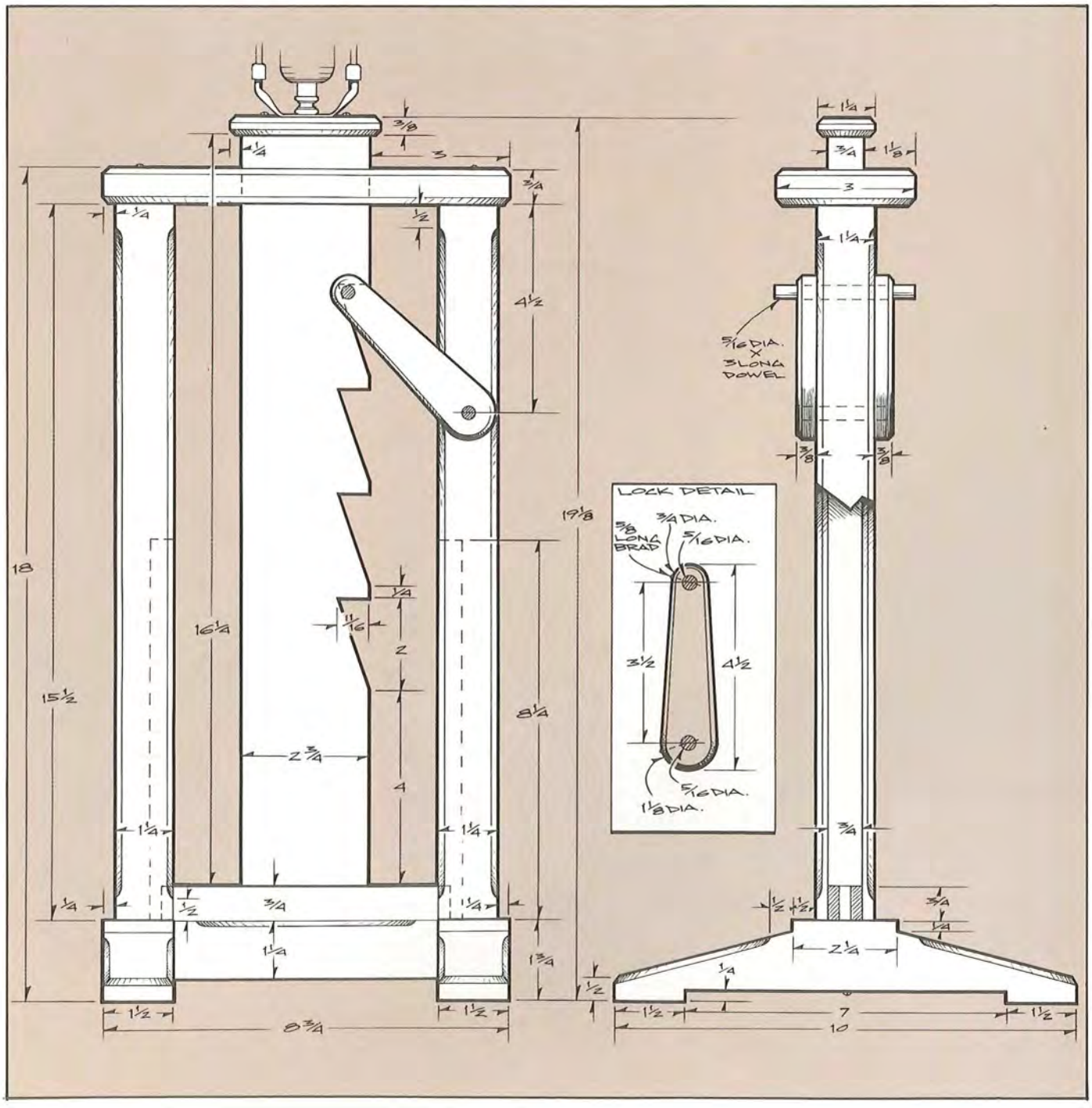
Next, lay out and mark the location of the mortises on the two feet (A), the top (F) and the guide. Note that the guide mortise is slightly off center, and longer on the left side, to create a space for the cord. To cut the mortises, use a drill bit to remove most of the material, then pare the remaining waste with a chisel. The 13/16 in. by 2 13/16 opening in the top (for the ratchet) can also be made now.

The band saw can now be used to cut both the taper and the 1/4 in. by 7 in. long step in each foot. Also, the locks (I) are cut to shape on the band saw, as are the ratchet teeth.

As shown on the drawing, a chamfer is applied to a number of the lamp base parts. Use the router table and a 45 degree chamfering bit to cut a 1/4 in. wide chamfer on the top, a 3/16 in. wide chamfer on the foot, stretcher and post, and a 1/8 in. wide chamfer on the locks and cap. You'll need to use a file or disk sander to chamfer the ends of the feet.

All the parts can now be given a thorough sanding, finishing with 220-grit. Take care not to round over the chamfers as you sand.

The two feet and the stretcher can now be joined. Apply a thin coat of glue to each mortise and tenon, then assemble



and clamp firmly. Make sure the parts are square. When dry, drill the 5/16 in. diameter lamp cord hole through one of the feet as shown in the exploded view. Locate the hole so that it lines up with the back edge of the 1/2 in. deep post slot. Use a countersink bit to apply a generous bevel to the hole on the underside of the foot.

Several more holes are also bored now. Start with a 1/4 in. diameter hole through one end of the guide and into the mortise. Then, using a pair of 1 in. long by no. 6 ovalhead brass wood screws, join the cap to the ratchet. Be sure to bore pilot holes before driving the screws. Next, bore a 3/8 in. diameter hole through the center of the cap and into the top end of the ratchet. Make the ratchet hole 1 1/2 in. deep to accept the threaded nipple (J) later on. Also, bore a 45 degree angled hole (see Wiring Diagram) to connect the ratchet groove with the hole for the threaded nipple. Next, clamp the two locks back-to-back and use the drill press to bore the pair of 5/16 in. diameter holes in each one. Finally, at a point 4 1/2 in. from the top end of the post, bore a 3/8 in. diameter pivot hole for the lock.

Cut the filler (H), sizing it for a press fit in the ratchet groove. A press fit eliminates the need for glue, so the filler can be easily removed should the cord ever need to be replaced.

All parts can now be final sanded in preparation for staining. The various moving and interlocking parts make this a difficult piece to stain once it is assembled, so it's best to stain before most of the parts are joined. Just be sure to avoid getting stain on any surfaces that will later be glued, as the stain could reduce the glue strength. We used two coats of Minwax's Jacobean Wood Finish.

After staining, use epoxy to glue the 2 in. long threaded nipple in place. It should extend above the cap about 7/8 in. if you use the hardware specified in the kit. You may need to adjust the depth a bit if you use other hardware. The lamp is now ready for assembly. You'll note that the joints are assembled with screws rather than glue. Like the press-fitted filler cut earlier, this will make it easier to replace the cord should it ever become damaged.

Begin by feeding the end of the lamp cord (O) up through the foot, into the hole in the end of the guide, and out the mortise. Temporarily assemble the ratchet to the guide, then run the cord up the ratchet groove, into the angled hole and out the threaded nipple. Once the cord has been threaded, the guide is joined to the ratchet using three screws driven up through the bottom of the guide. Assemble the lock to the post with a pair of 5/16 in. diameter dowel pins as shown. The dowels are secured with brads (see Lock Detail).

Now attach the posts by driving a woodscrew through the bottom of the foot and into each post tenon. Also add the top, securing it with a pair of 1 in. by no. 8 ovalhead brass wood screws driven into the tenons. Check the ratchet for a smooth sliding fit. If it's a little sticky, a thin coat of paste wax in the groove will help. Keep in mind that when the ratchet is lowered from its highest position, you'll need to pull out the excess cord from the bottom of the foot.

Add the harp (K) and spindle (L), then thread the lower half of the socket (M) to the nipple and secure it with the set screw. Wire the cord to the upper half of the socket and snap the two halves together.

The shade is held in place by the threaded finial (N).

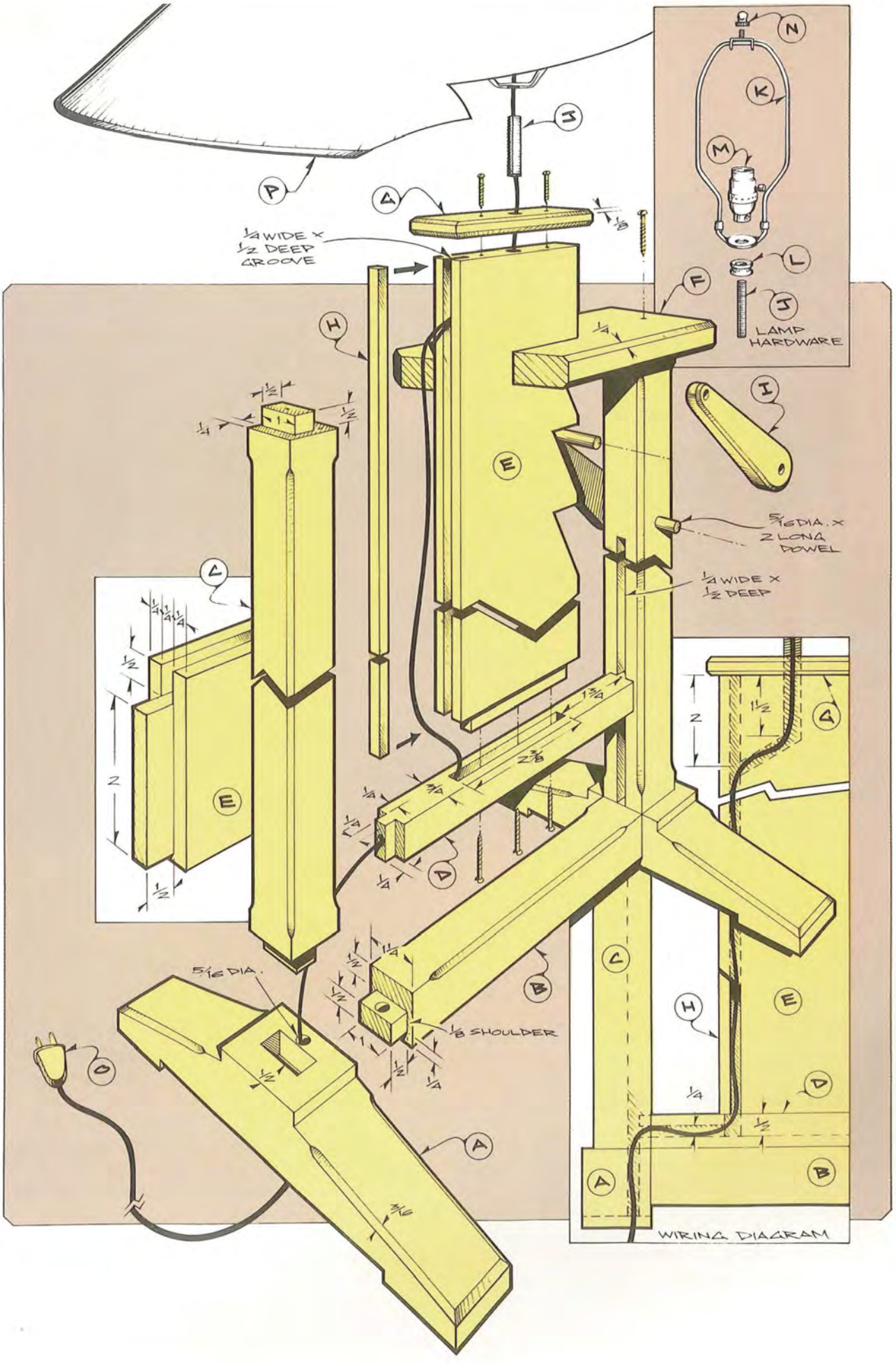
Bill of Materials
(all dimensions actual)

Part	Description	Size	No. Req'd.
	Lamp Base		
A	Foot	1 3/4 x 1 1/2 x 10	2
B	Stretcher	1 1/4 x 1 1/4 x 6 3/4*	1
C	Post	1 1/4 x 1 1/4 x 16 1/2*	2
D	Guide	3/4 x 3/4 x 6 1/4*	1
E	Ratchet	3/4 x 2 3/4 x 16 3/4*	1
F	Top	3/4 x 3 x 8 3/4	1
G	Cap	3/8 x 1 1/4 x 3 1/4	1
H	Filler	1/4 x 1/4 x 16 1/4	1
I	Lock	3/8 x 1 1/8 x 4 1/2	2
	Hardware		
J	Threaded Nipple**	3/8 O.D. x 2 long	1
K	Harp**	10 in.	1
L	Spindle**	9/16 high	1
M	Socket**	3-way	1
N	Finial**	1/2 high	1
O	Lamp Cord w/plug**	8 feet	1
P	Lamp Shade***	20 in.	1

* Length includes tenons.

** The originally printed source for these materials is no longer available.

Please explore other options via the internet or call 1-800-610-0883 for more information.


N
K
M
L
J
LAMP HARDWARE
P
J
A
1/4 WIDE x 1/2 DEEP GROOVE
F
H
I
E
5/16 DIA. x 2 LONG DOWEL
1/4 WIDE x 1/2 DEEP
C
G
D
B
5/16 DIA.
1/8 SHOULDER
O
A
WIRING DIAGRAM