

# 24-Pounder

1/20th actual size of a gun from the main battery of the U.S. frigate *Constitution*, this gleaming replica makes an attractive ornament for desk or bookshelf.

By WALTER E. BURTON

**I**F YOU ARE a dyed-in-the-wool model-maker, you know that plastic models can't begin to give you the satisfaction and pride of accomplishment you get from building an authentic replica from scratch. You'll get such a charge from modeling and displaying this 24-pounder from the main battery of the U. S. frigate *Constitution*.

While both English and American types of 24-pounders were in *Old Ironside's* complement of guns, this model, in gleaming brass and contrasting walnut, is patterned after the 12 American-type guns which were deployed at the forward and after ports. It's based on original shipyard plans which were followed in the 1927-1931 restoration of the *Constitution*. The vessel is still a commissioned ship in the United States Navy.

The original guns measured 9 ft., 5 $\frac{3}{4}$  in. in length and were of gray cast iron. The wooden carriages were of white oak, and most of the fittings were steel. The barrel of our model is brass and is approximately 5 $\frac{1}{2}$  in. long, which makes it about 1/20th actual size.

Carriages for the guns in the main battery varied in size according to the gun deck, and the heights of the carriage bed blocks, which were used for elevating the barrel, were determined by trial during firing missions.

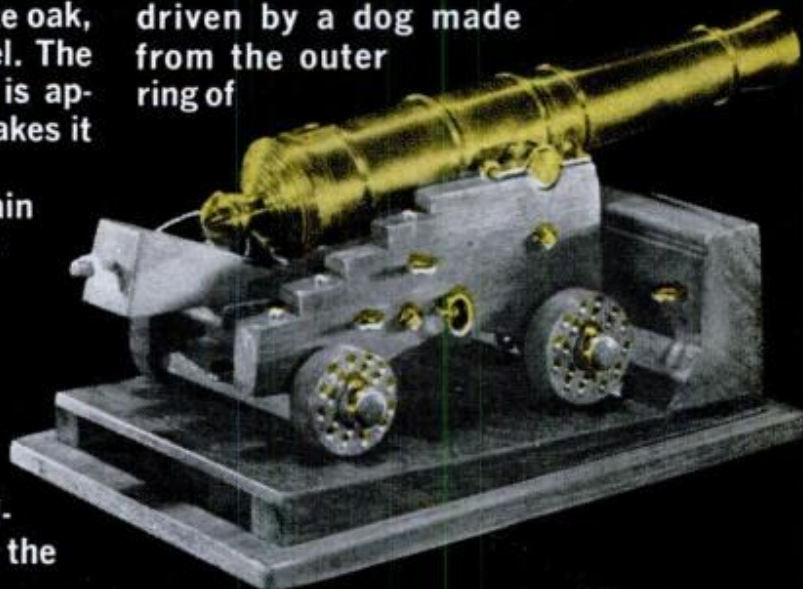
All the metal parts of the model are brass; the wooden parts are walnut. Clear lacquer is used to keep the

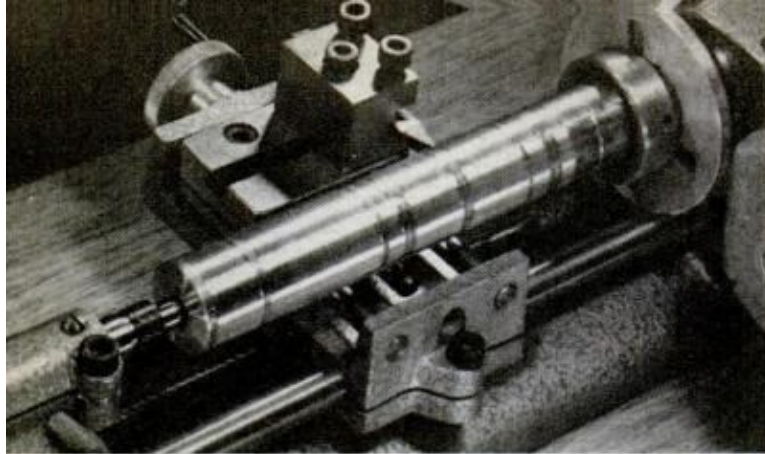
polished brass from tarnishing; the walnut carriage is finished natural.

Most of the dimensions are given in decimals. This is particularly true in the case of the gun barrel since the tool feed of a lathe on which it is turned is measured in thousandths of an inch. If you prefer to work in fractions, you can convert the measurements with the aid of a decimal-equivalent table. To increase the scale and size of the model, merely multiply each dimension by a suitable factor—such as 1.5 for a gun 8 $\frac{1}{4}$  in. long.

## The gun barrel

The gun-barrel blank is a 1-in. brass rod about 7 in. long. This length was selected as a convenient size for the Unimat lathe which I used in making the complete pilot model. Because a 3-jaw chuck would cut down on the usable length, the rod was center-drilled and mounted between centers, and driven by a dog made from the outer ring of

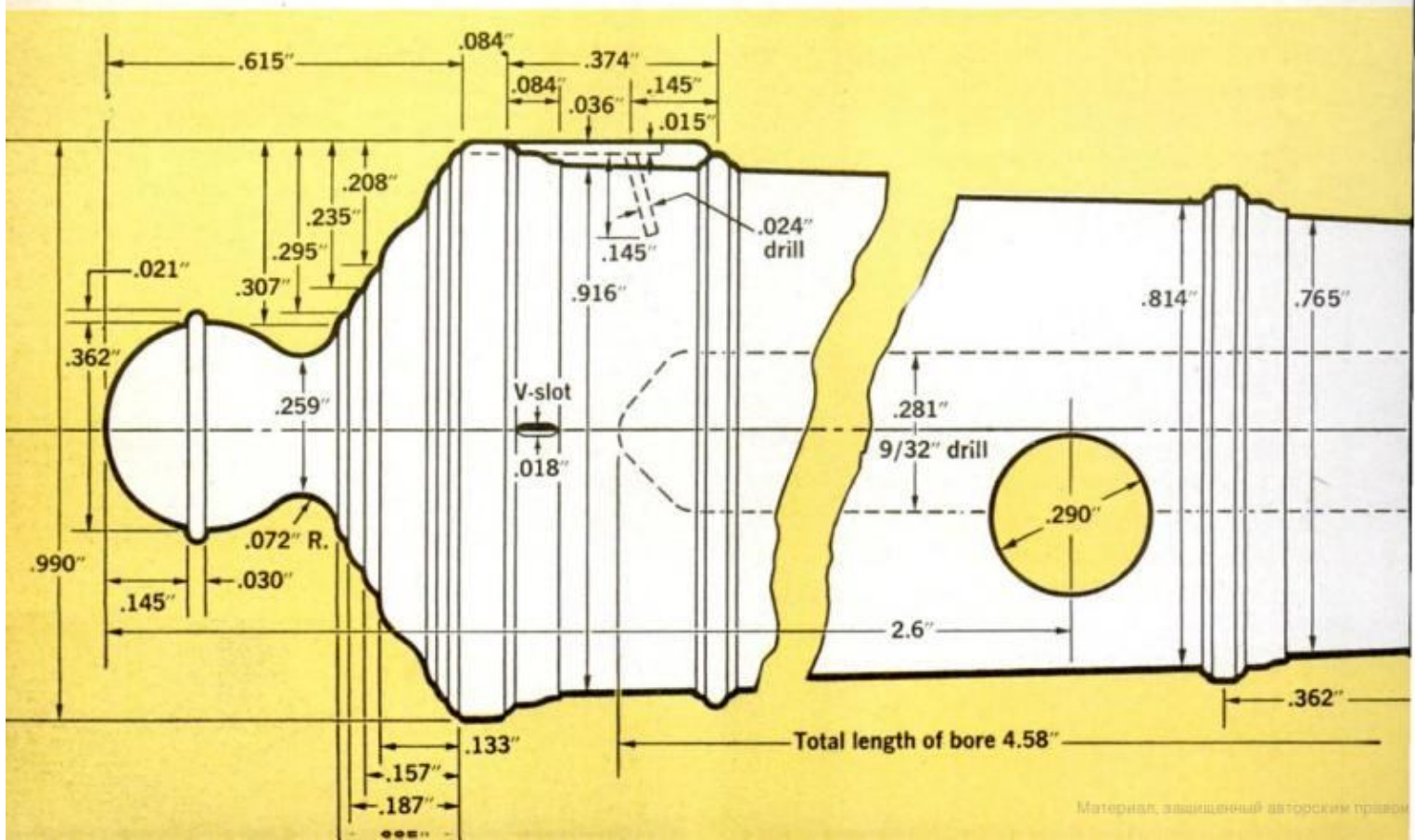
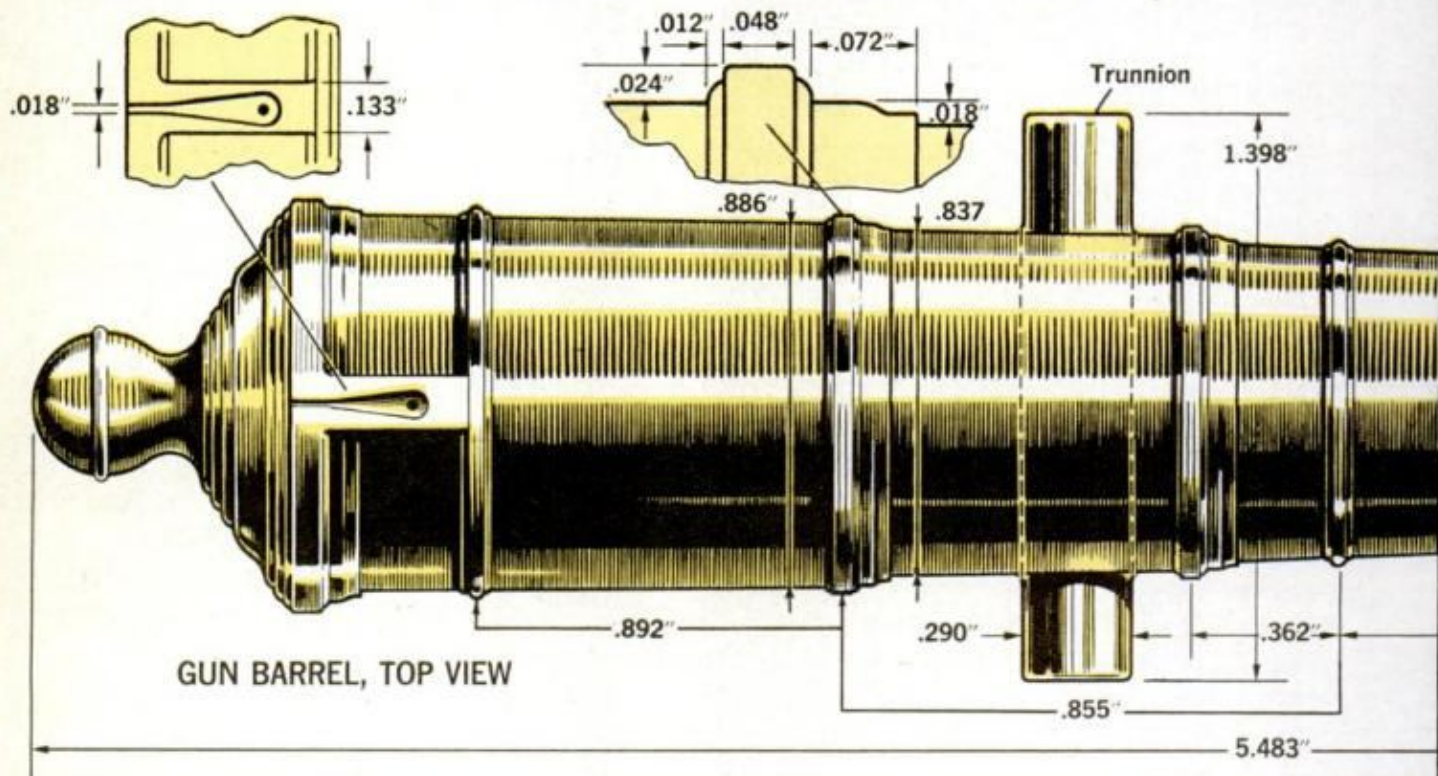


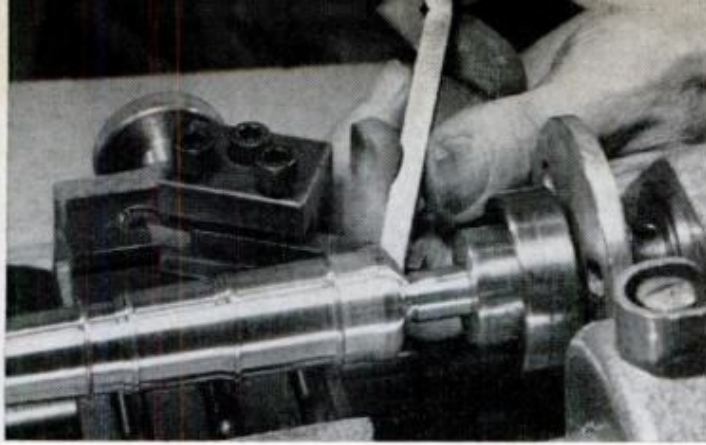


**BARREL BLANK**, mounted between centers, is driven by special faceplate dog made from ball-bearing ring

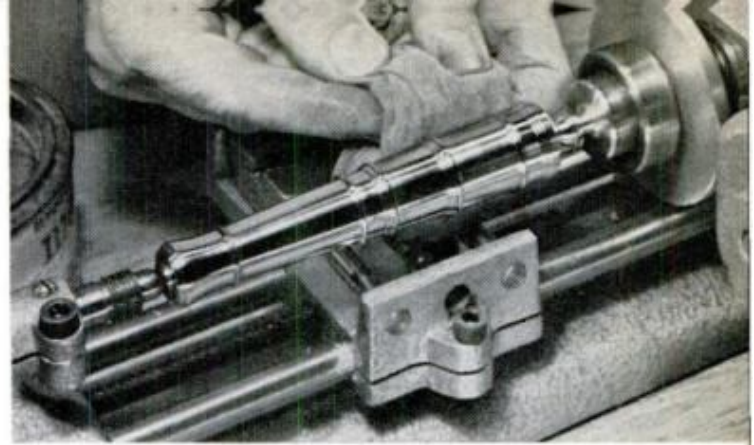


**AFTER RIDGES** are machined square they're rounded with Swiss-type file as done here at gun's muzzle end

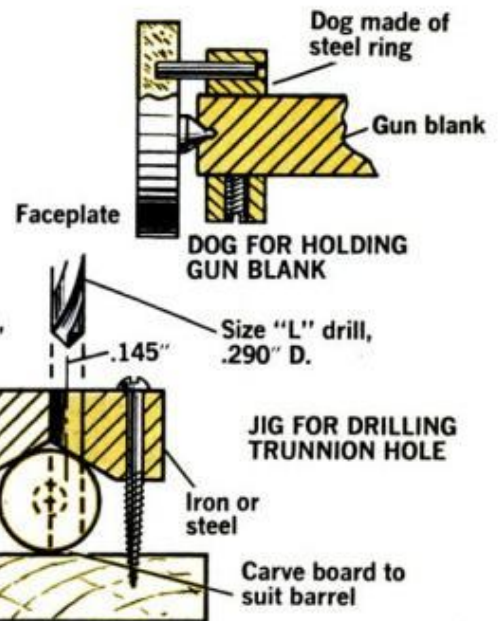
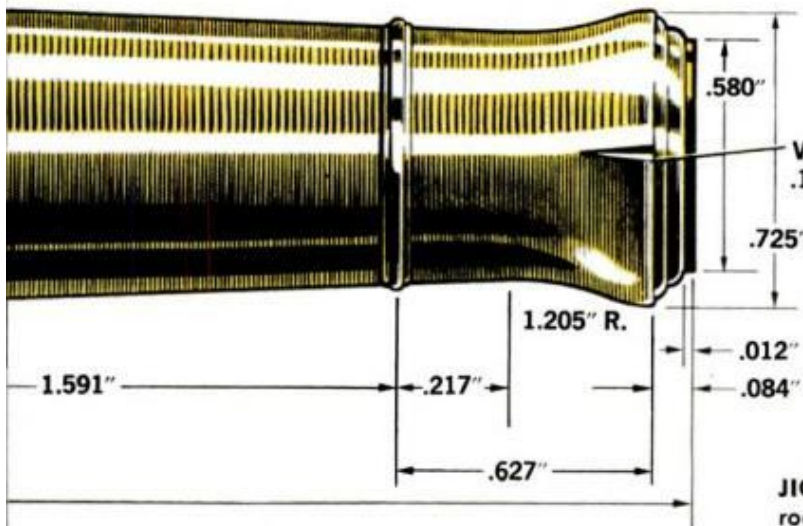
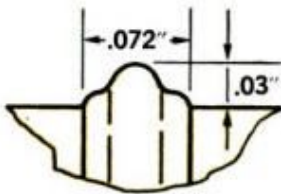




**HAND-HELD CHISEL** resting on blank bit clamped in toolholder is used to shape final breech contours



**COMPLETED BARREL** is polished in the lathe with a brass polish; the ball end is hand-finished later



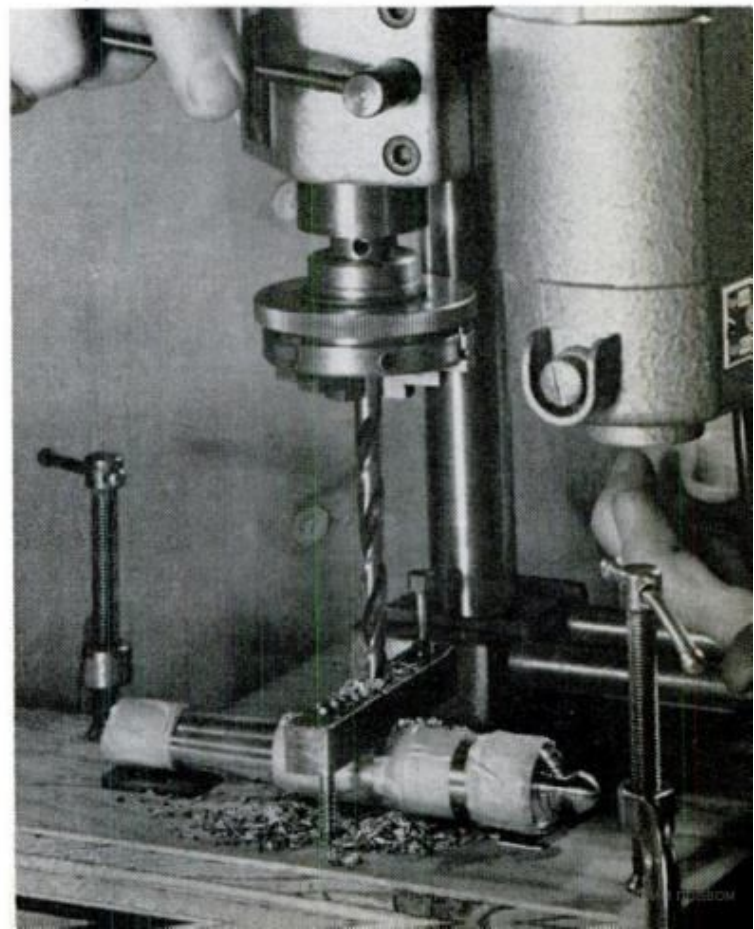
**JIG IS USED** to drill hole through barrel for trunnion rod. Note how barrel is protected with masking tape

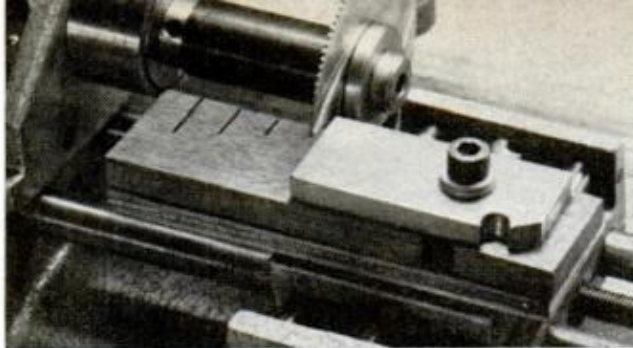
a ball bearing having a 1-in. bore. However, any similar ring will do. If your lathe lacks bed length to drill the center holes with a bit in a tailstock chuck, lay out centers carefully and use a center drill in a drill press.

When machining the barrel, follow the drawings on these pages. To form the rounded bands and contours, machine them with square edges, then round them with a fine file or a hand-held chisel.

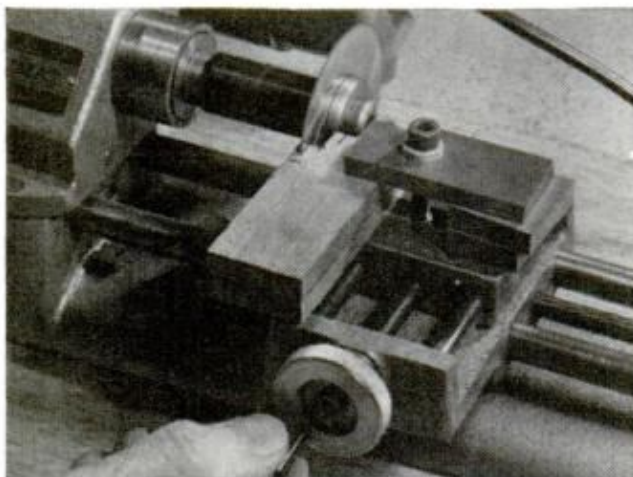
Trunnions are usually an integral part of a real cannon. In the model barrel, however, they are cut from brass rod. To drill the hole in the barrel for this rod, use the jig detailed above, right. If you lack an L-size drill (.290-in. dia.), you can make a  $\frac{3}{32}$  or  $\frac{19}{64}$ -in. hole and match the trunnion notches in the carriage. The rod forming the trunnions can be a drive fit or held with a setscrew on the underside of the barrel.

To bore out the barrel, use a  $\frac{3}{32}$ -in.

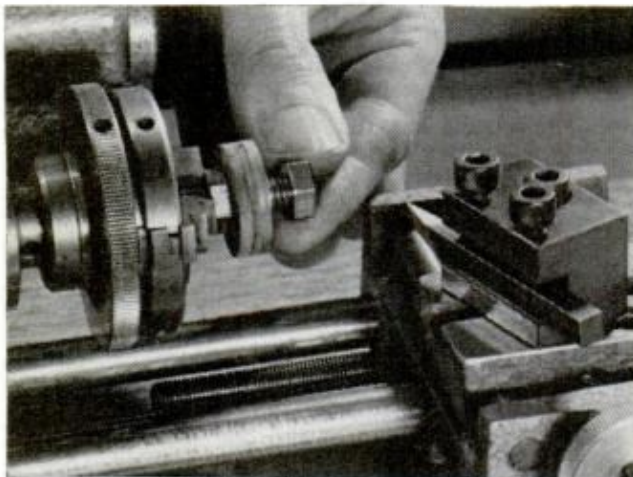




**THIN MILLING CUTTER**, on head spindle arbor, is used to cut walnut side members of gun carriage

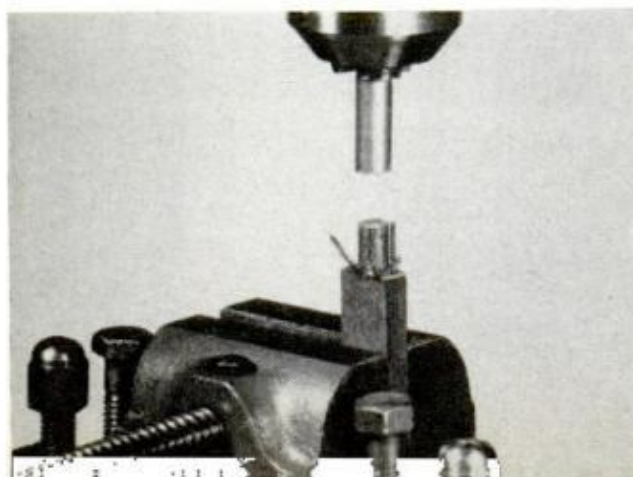


**CUTS AT RIGHT ANGLE** to first ones are made in both side pieces at same time, require hand finishing



**CARRIAGE TRUCKS** are turned to final diameter by mounting discs on arbor of  $\frac{5}{16}$ -in. bolt and two nuts

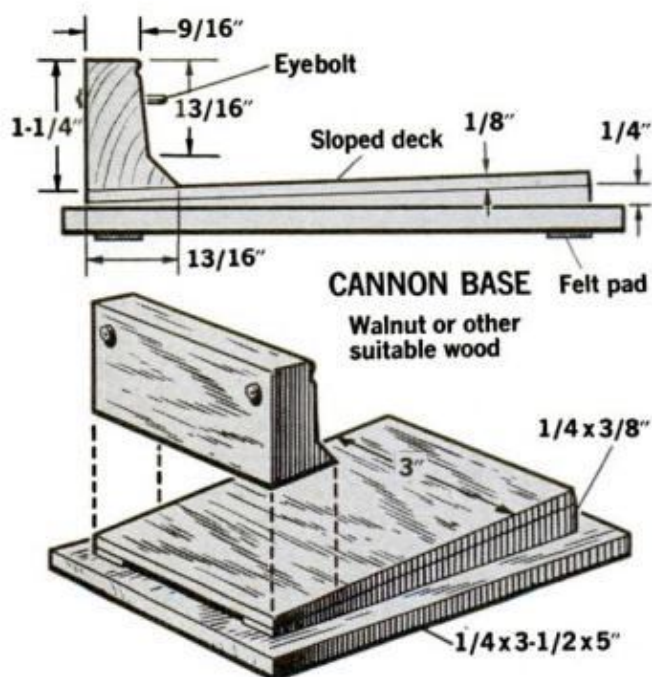
**HOMEMADE "PLUG CUTTER"** from  $\frac{1}{8}$ -in. pipe is used in drill press to round ends of wooden axle-tree parts



twist drill, starting at the center hole in the muzzle end. The drawing shows the bore full length, as in the original cannon, but in the model it need extend only to the trunnion hole, enough to keep the barrel from being muzzle-heavy.

The powder-igniting arrangement on top of the breech is formed as shown. The teardrop recess is a separate piece of brass soldered or cemented with epoxy to the barrel. V-shaped sighting notches on top and each side of the barrel can be hand-filed or scribed while the barrel is in the lathe. To do this, move the lathe carriage back and forth and feed a pointed tool so it shaves a notch .018-in. wide.

Before removing the barrel, polish it with very fine abrasive cloth. Then use a brass polish for a final luster. After cutting scrap from the breech, carefully smooth and polish the rounded end. If

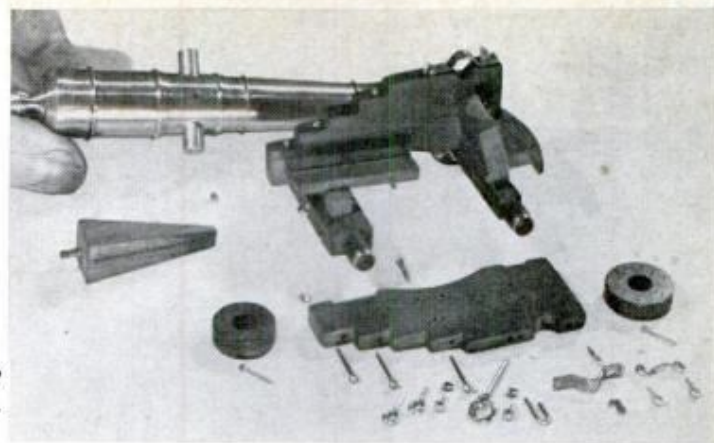
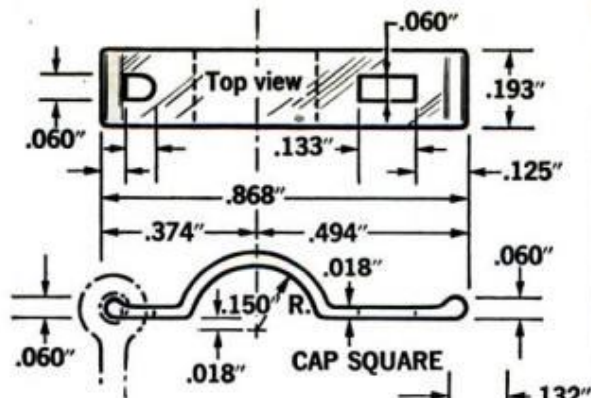


you solder the powder "pan" to the barrel, repolish the metal to remove heat discoloration. Spray the polished brass with clear lacquer.

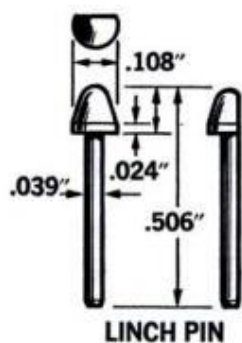
### The gun carriage

Full-size patterns for wooden parts on the gun carriage are shown at the right. As for the sides, made in pairs, you'll find it helpful to make a master pattern from aluminum or cardboard, then drill the ring and tie-bolt holes in it. Saw both sides at one time, tape the template to them, then drill the holes slightly smaller than the eyebolts. Note that the sides

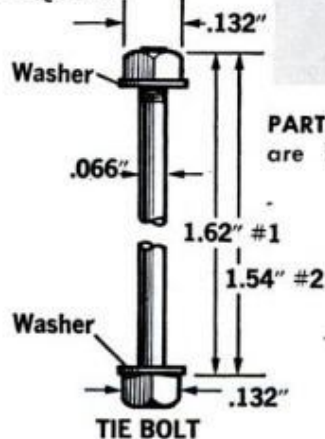
*(Please turn to page 204)*



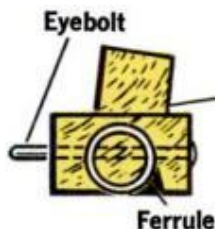
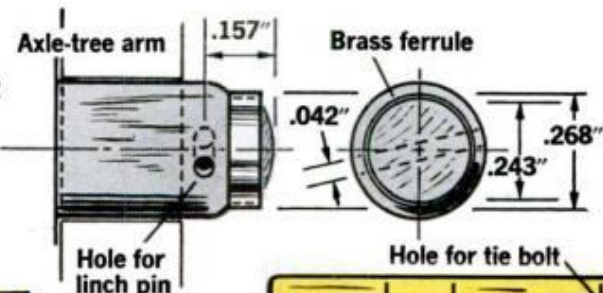
**PARTLY ASSEMBLED CARRIAGE.** Eyebolts and other parts are half-length to simulate bolts passing clear through



**LINCH PIN**



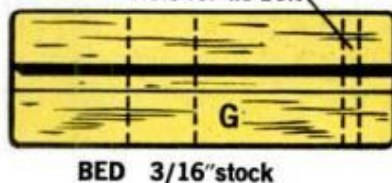
**TIE BOLT**



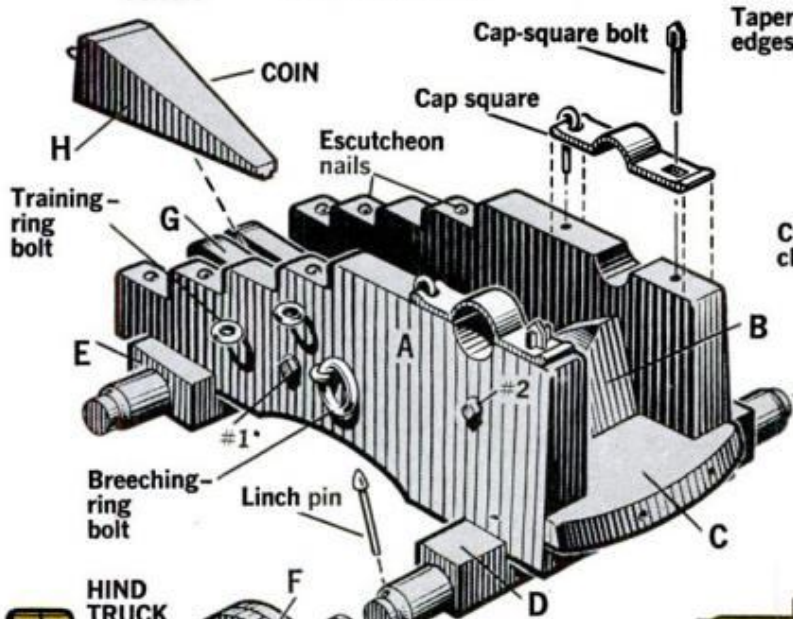
**Ferrule**



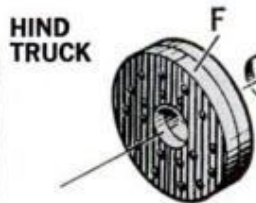
**HIND AXLE TREE**



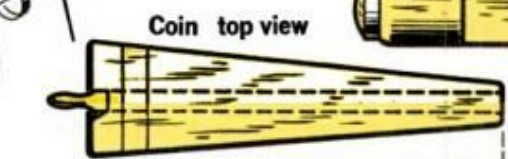
**BED 3/16" stock**



**NOTE TO READERS**  
All parts in color shown actual size for tracing direct from magazine



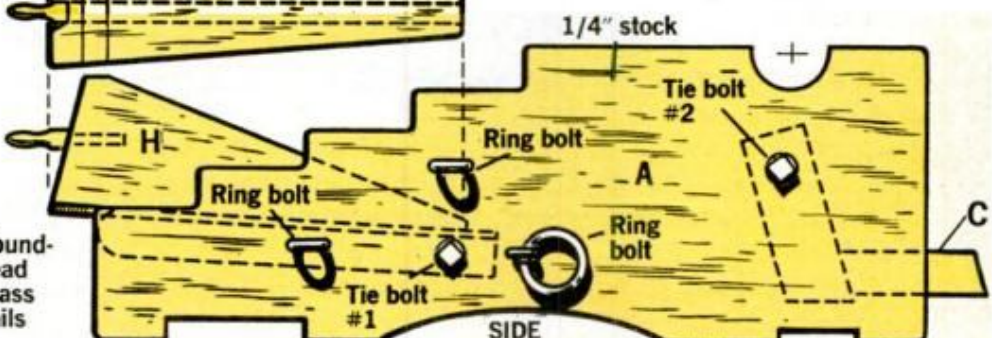
**FORE TRUCK**



**Coin top view**



**FORE AXLE TREE**



**SIDE**