



## SHOOT THESE

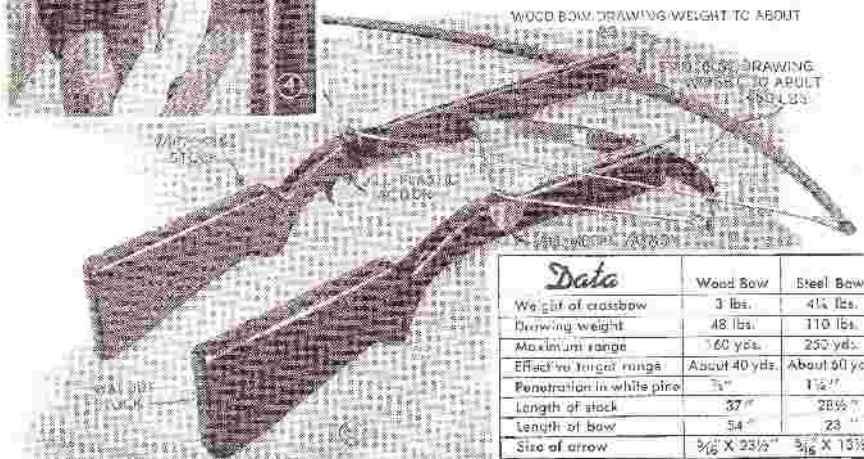


**I**F YOU can't hit the bull's-eye with a regular archer's bow and arrow, try one of these modern crossbows and you'll find yourself hitting the "gold" almost every time from distances up to 80 yds. They are good for hunting, too; a 160-lb. steel bow will stop anything short of an elephant. Two models are described in this story, both very similar in construction except that one has a wood bow and the other a steel bow. Comparative data is given in table of Fig. 5.

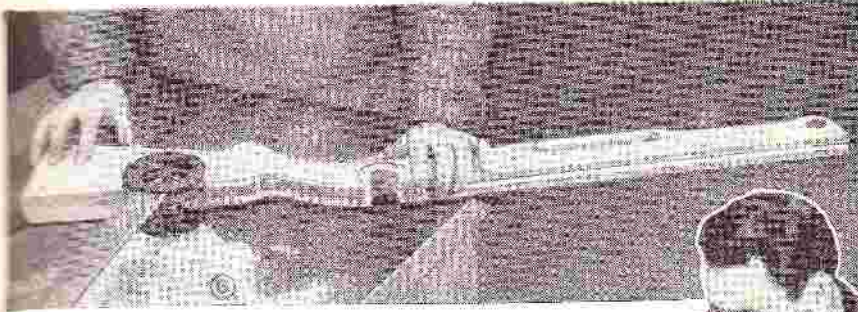
**Stock for wood bow:** The stock of the wood bow can be made from white pine. Its shape is very much like a modern rifle as can be seen in Fig. 8. Start the job by making a full-size drawing of the stock including the full detail at the trigger as shown in Fig. 9. Transfer the stock outline to 1 $\frac{3}{4}$ -in. white pine and saw it out. Drill the hole for the string release, using an expensive bit as in Fig. 2. Recesses on either side of the hole are run in with a straight shaper cutter, Fig. 3, the guide collar rubbing the hole. Lacking shaper equipment, the recesses can be cut with a router bit in a drill press. Fig. 4 shows the mortise for the

WOOD BOW DRAWING WEIGHT TO ABOUT

FIG. 5. DRAWING  
WOOD TO ABOUT  
160 LBS.



<i>Data</i>	Wood Bow	Steel Bow
Weight of crossbow	3 lbs.	41 lbs.
Drawing weight	48 lbs.	110 lbs.
Maximum range	160 yds.	250 yds.
Effective target range	About 40 yds.	About 80 yds.
Penetration in white pine	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "
Length of stock	37"	28 $\frac{1}{2}$ "
Length of bow	54"	23"
Size of arrow	$\frac{3}{16}$ " X 23 $\frac{1}{2}$ "	$\frac{3}{16}$ " X 13 $\frac{1}{2}$ "



# Modern CROSSBOWS

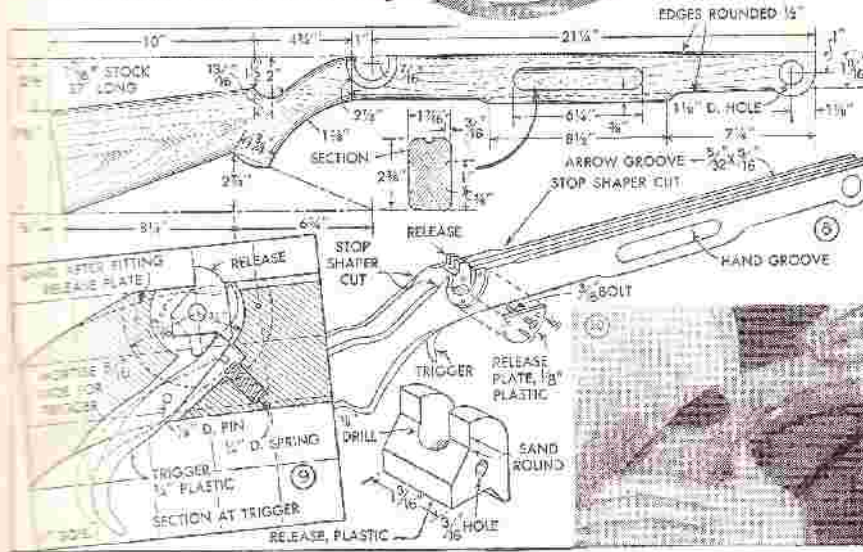
trigger being cut. Run in the arrow and hand grooves, using suitable shaper cutters. Then, shape all the edges  $\frac{1}{2}$  in. round, stopping about 1 in. from the release hole as indicated in Figs. 6 and 8.

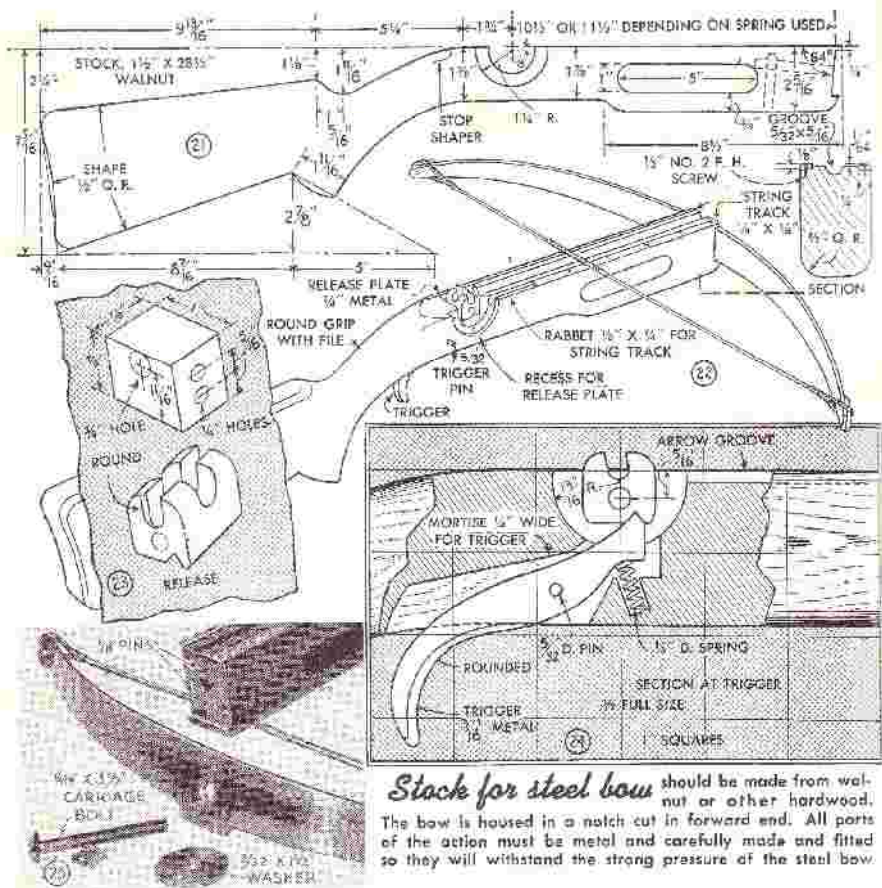
All working parts of the action are made from plastic. Dimensions given will provide sufficient strength for bows up to 60 lbs. bowing weight. Over this weight, the release plates should be  $\frac{3}{16}$ -in. plastic and the trigger should be made from  $\frac{3}{16}$ -in. metal. After fitting the release plates, the top of the stock is sanded down to meet the dotted line shown in



## Cocking lever

is required when bow pulls over 100 pounds. Bows that pull less than this weight can be set by hand.





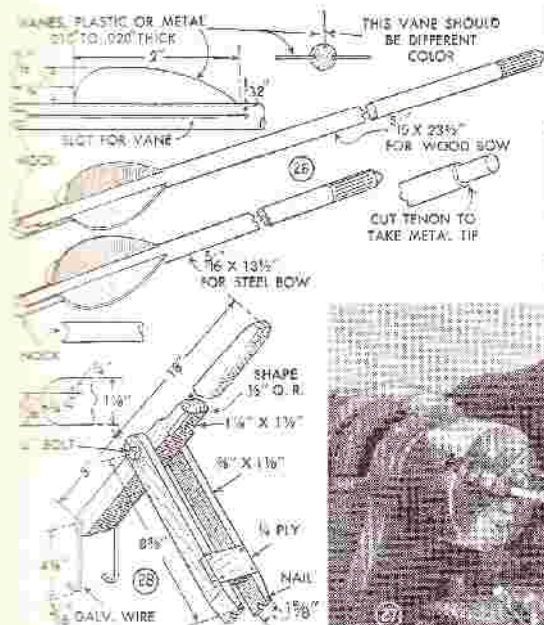
**Stock for steel bow** should be made from walnut or other hardwood. The bow is housed in a notch cut in forward end. All parts of the action must be metal and carefully made and fitted so they will withstand the strong pressure of the steel bow.

Fig. 20 are the number of threads of 6-cord flax required to hold a bow of the drawing weight indicated. Stepping on the center of the bow while the ends are supported on wood blocks will bend the bow enough to permit slipping the string in place.

**Stock for steel bow:** Because of the heavier drawing weight, the stock for a steel bow must be made from walnut or other hard, strong wood. The stock should be laid out full-size, Figs. 21 and 24, then transferred to wood, cut out, and then machined in much the same manner as the wood-bow stock already described. An addition is the metal track on each side of forearm, Fig. 22. This originally was to protect the wood from the rubbing action of a metal bow string. The metal string (6-strand, 19-wire flexible cable  $\frac{5}{16}$ -in. dia.) did not stand up under actual shooting and was discarded for the flax thread. The track, however, is worthwhile protec-

tion even with the flax string, although not essential. All parts of the action are metal, steel for the release, Fig. 23, and trigger, and aluminum or brass for release plates and string track. The bow is housed in a notch cut in the end of the stock, and is held by means of three locating pins and a bolt, as shown in Fig. 25. The carriage bolt is ground round at the head, which is sawed to form a screwdriver slot. The release pin is  $\frac{1}{8}$ -in. diameter, slotted on one end for a screwdriver and threaded on other end to fit a tapped hole in the release plate. All metal parts are of ample strength for bows up to 400 lbs. drawing weight. Follow the release and trigger design closely; these parts are nicely balanced to provide positive holding while retaining a light trigger pull.

**Arrows:** Arrows for both bows are  $\frac{5}{16}$ -in. birch dowel. Vanes are plastic, celluloid or metal, glued in grooves cut in the shaft.



Arrows are made from 5/16-inch birch dowel. The vanes are cut from celluloid and are fixed in the grooves cut in the shaft.

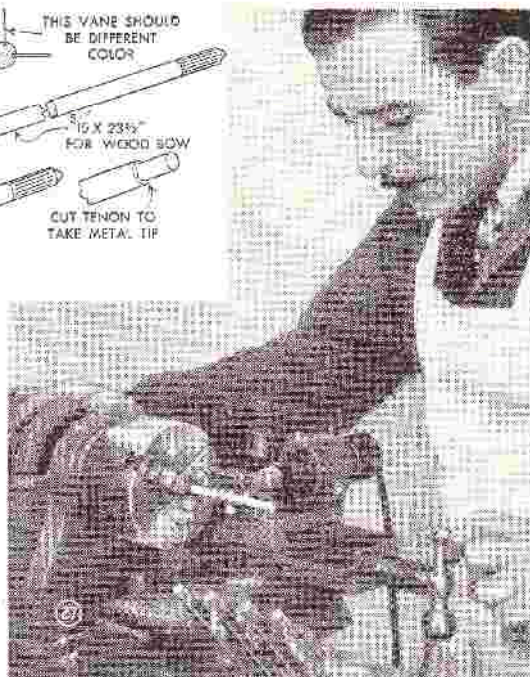


Fig. 27 shows one way of cutting the grooves, the shaft being held in the lathe, supported by the indexing head, while a rotary hand tool mounted in a slide rest does the cutting. Vanes are mounted at right angles, Fig. 26, instead of the usual triangular pattern used for long bow arrows. This method of mounting provides perfect ruddering for smooth, straight flight and, at the same time, fits the mechanical construction of the crossbow.

**Cocking lever:** Bows up to about 100 lbs. drawing weight can be set by hand; over this weight it is necessary to use a cocking lever. Fig. 28 shows the construction and dimensions of a cocking lever for 11 1/2-in. draw. The galvanized-wire hook which slips under the bow will automatically assume a bent position the first time it is

used. Photo Fig. 7 shows the manner of using the lever. If the release is set slightly forward, the trigger will cock automatically when the string engages the rear prong of the release.

**Shooting:** After cocking the bow, the cross bow is shot very much like a shotgun, sighting down the arrow to the target. A little practice will enable you to judge the range and drop of an arrow very nicely. When hunting, the bow can be carried cocked but without arrow. When not in use, the steel bow is left braced, but the wood bow is unstrung. Needless to say, any bow over 100 lbs. packs a terrific drive, and the utmost caution should be exercised in its use. Never fit an arrow in place until you are ready to shoot, and don't point the gun in any other direction than toward the target when the arrow is in place.

### Three Simple Ways You Can Preserve Linseed-Oil Putty

To assure a supply of soft putty whenever needed, pack it in a jar having a tight-fitting lid. Level off the putty and cover it with raw linseed oil to a depth of 1/4 in. Do not use boiled oil. Before use, pour off the oil and take out the required amount of putty and repack the remainder. If the putty is too soft when removed, work in a

little whiting. To do this, cut the putty in small pieces, sprinkle on the whiting and knead the mixture to the desired consistency. If you just want to keep putty soft overnight in hot weather, place it in a jar and cover it with water. You can keep putty for a few weeks by wrapping it in waxed paper before putting it in water.