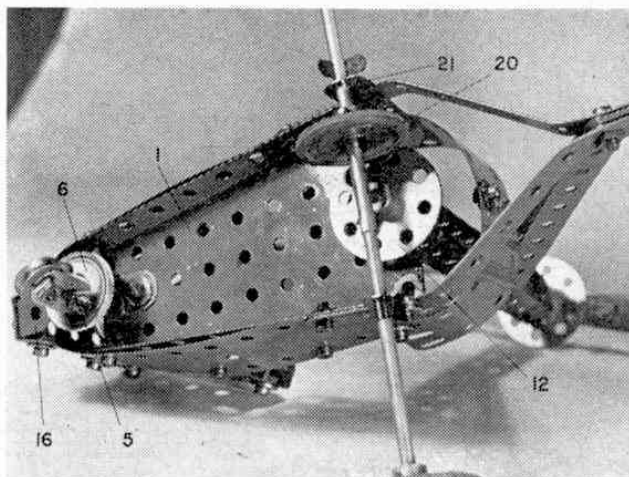


holding two curved  $2\frac{1}{2} \times 1\frac{1}{2}$  in. Plastic Plates 19 in place.

Last of all, the rear axle, supplied by two  $3\frac{1}{2}$  in. Rods joined by a Rod Connector, is fitted with a 1 in. fixed Pulley with Rubber Ring 20 and then journalled in Fishplates 21, bolted to Strips 3, where it is held in place by Spring Clips. Pulley with Rubber Ring 20 makes contact with Bush Wheels 12, thus providing a friction drive to the rotor when the model is pushed along on wheels provided by two 1 in. Pulleys 22, fitted with Motor Tyres and mounted on the ends of the rear axle.

#### PARTS REQUIRED

1-1	2-16	56-37a	2-142c
8-2	1-14	51-37b	1-155
2-3	1-17	14-38	2-188
1-5	4-22	1-48a	2-189
5-10	1-22a	1-51	2-194
2-11	1-23	1-54	1-213
5-12	2-24	3-111c	4-221
3-12a	6-35	1-125	



An underside view of the model showing the nosewheel and friction drive to the rotor. The nosewheel is controlled by a "joystick"-type steering handle.



## A SIMPLE SUBMARINE

Designed, constructed and described for readers by Lieut. Comdr. A. Greenhalgh R.N., C.Eng., M.I.Mech.E., A.F.R.Ae.S.

**T**HIS LITTLE model is ideal and exciting for the younger members of the Model Shipbuilding Fraternity; the cost to build it is small and the time required is short.

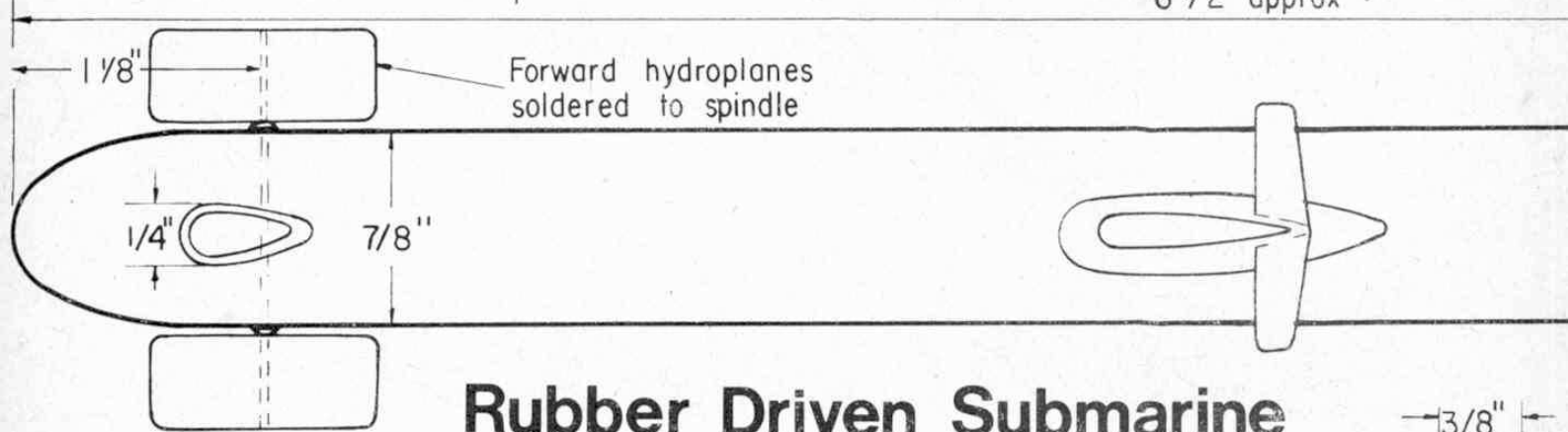
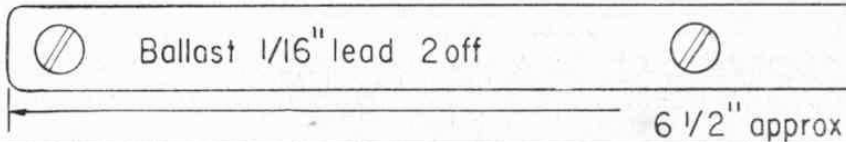
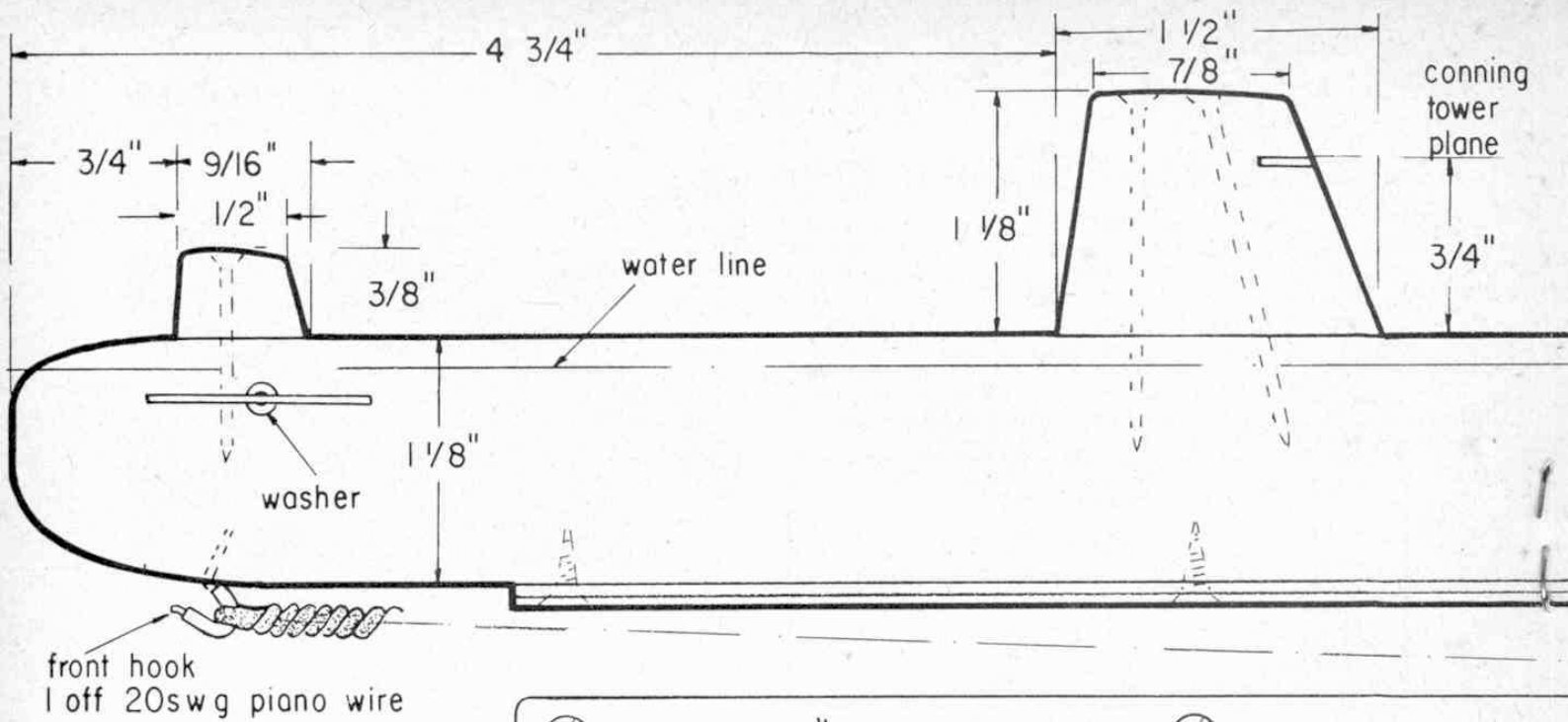
Make the hull from a piece of spruce or similar soft-wood to the dimensions and shape shown on the drawing. The conning tower and dome are made from the same sort of wood as the hull. Balsa wood is not really suitable because it soaks up water very easily, particularly if not properly proofed. Any absorption of water, no matter what wood is used, will seriously affect the trim, and eventually, as the weight increases, the boat will fail to surface.

After carving each component to shape, sandpaper it smooth. The conning tower and dome are now glued and nailed to the hull. It is advisable to drill holes through these items to accommodate the nails and so avoid splitting the wood. Make the conning tower plane from tinplate and cement in place.

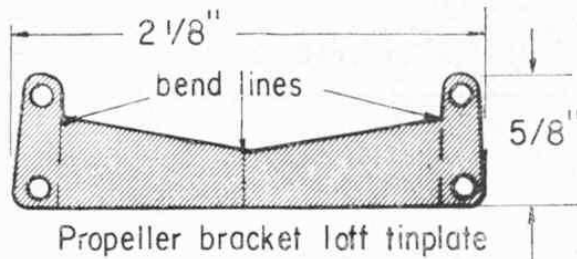
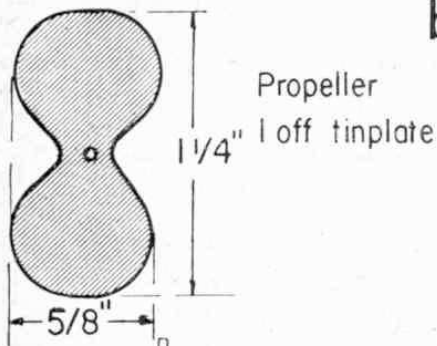
The next operation is to drill the hole for the spindle which carries the forward hydroplanes. This is drilled in from each side of the hull using a piece of 20 swg piano wire filed to a sharp point. The holes, of course, should meet at the centre.

The vessel can now be prepared for painting. Punch all nails to below the surface of the wood and fill the holes and any cracks with plastic wood or other suitable filler. When dry, remove the excess filler and rub the vessel down with fine sandpaper. A thin coat of undercoat paint should now be evenly applied. When thoroughly dry, apply a second coat and rub down again. Finish the model with a good quality enamel. The usual colour for a submarine is grey, but there are those who prefer them yellow!!

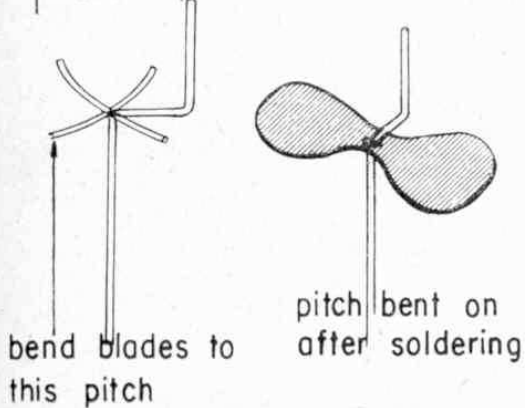
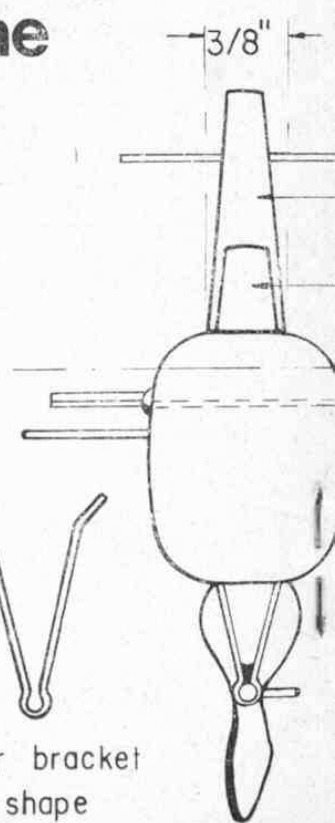
Let us now turn to the metalwork. The propeller and its bracket, hydroplanes and rudder, are made from the metal of a tin can. Cut a can up and flatten the metal obtained. Mark out the components using templates



## Rubber Driven Submarine by A. Greenhalgh

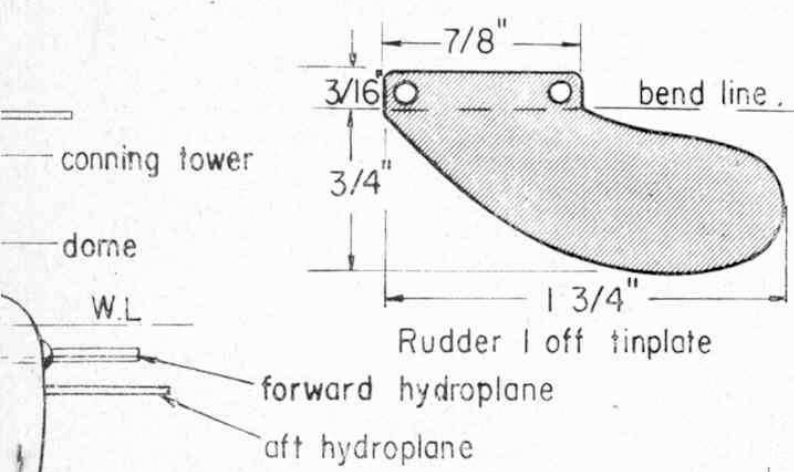
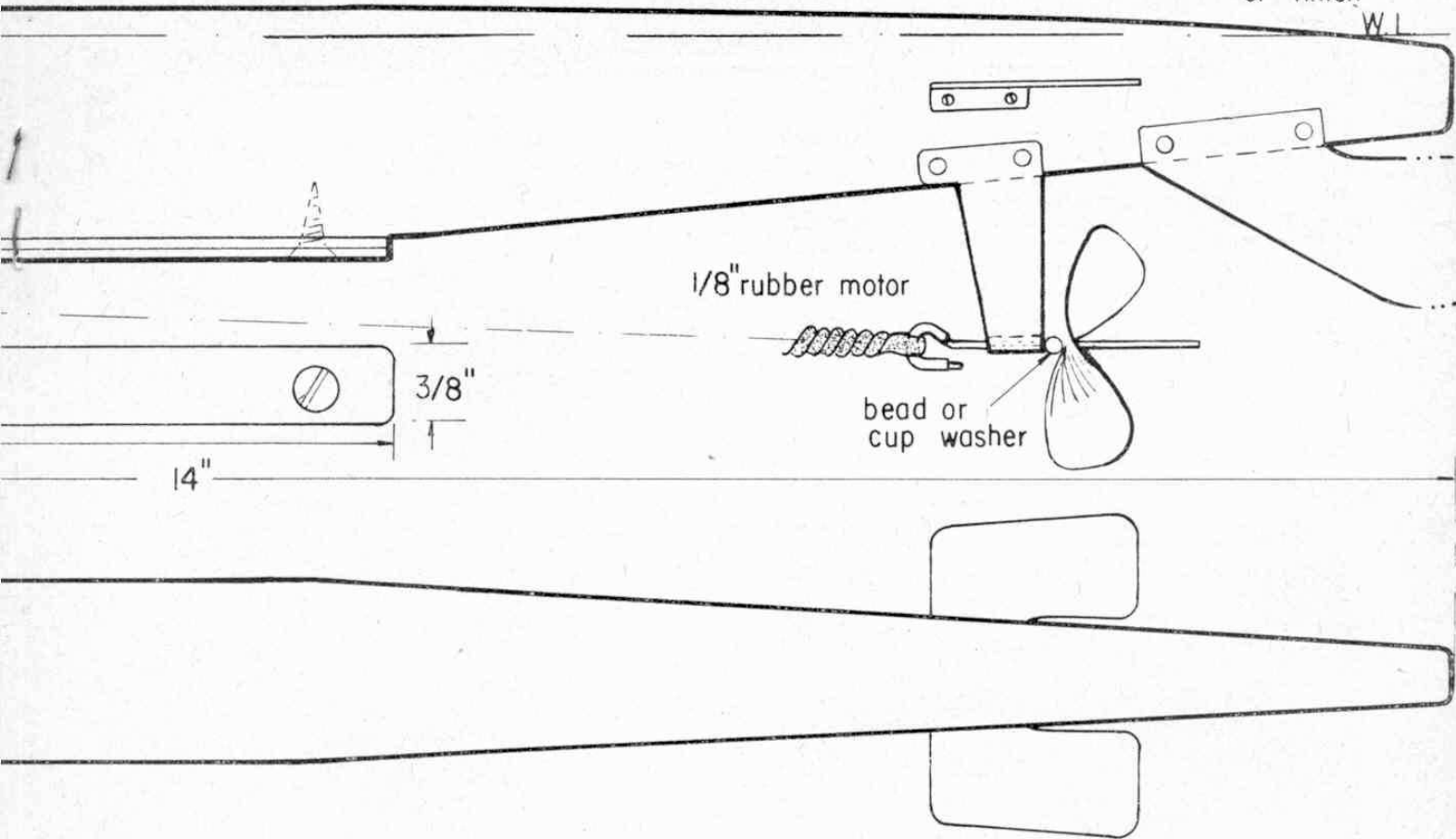


Prop shaft 1 off  
20swg piano wire

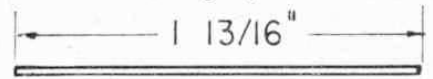


Hull, Conning tower and dome are made from spruce or similar wood. Balsa is not recommended, but if it is used it should be very well water proofed and heavier ballast is necessary

paint with two coats primer and two of finish



Forward hydroplane spindle  
1 off 20 swg piano wire



all holes in tinplate 3/32" diam.  
screws 1/4" No 1 Rd. head

