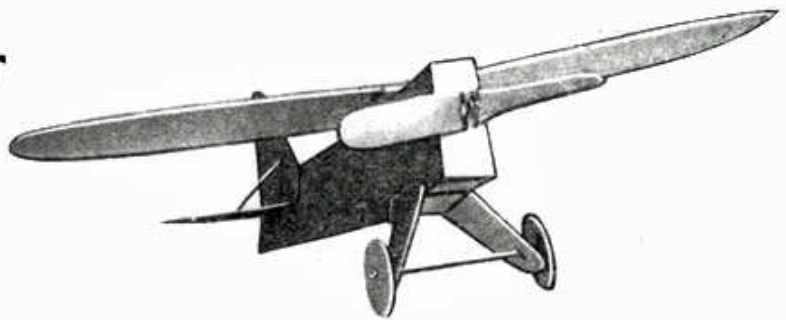


A Speedy Paper Model Plane

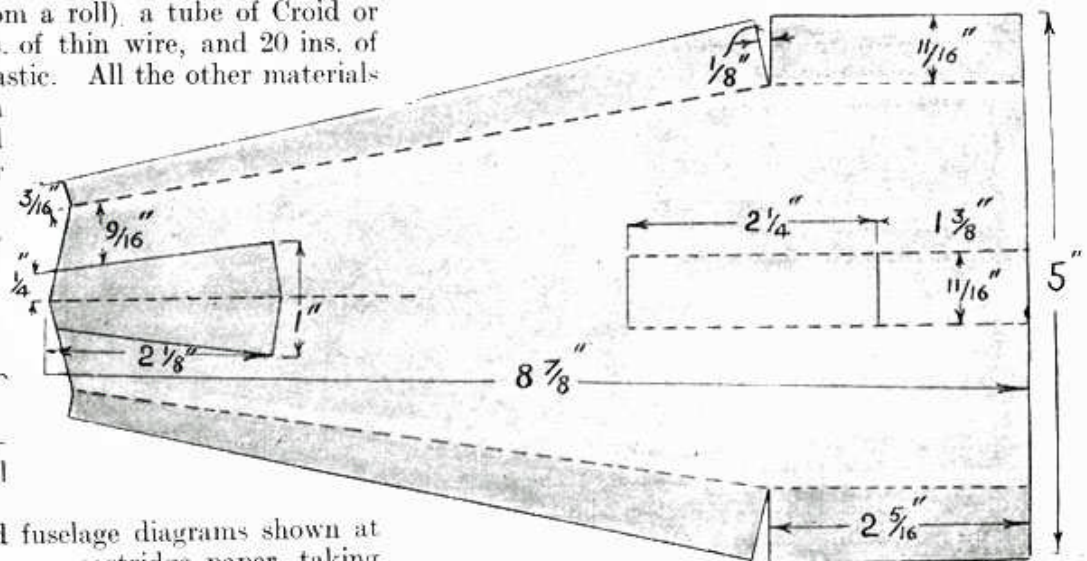
It makes flights of fifty yards!



THIS easy-to-make model monoplane, provided it is put together with care and patience, is an extremely fast flier for its size.

To make it you will need a sheet of best heavy cartridge paper (see that the shopman sells it from a flat stock and not from a roll), a tube of Croid or Seccotine glue, 15 ins. of thin wire, and 20 ins. of $\frac{1}{8}$ in. by $\frac{1}{16}$ in. strip elastic. All the other materials can be adapted from discarded odds and ends. For tools, a pair

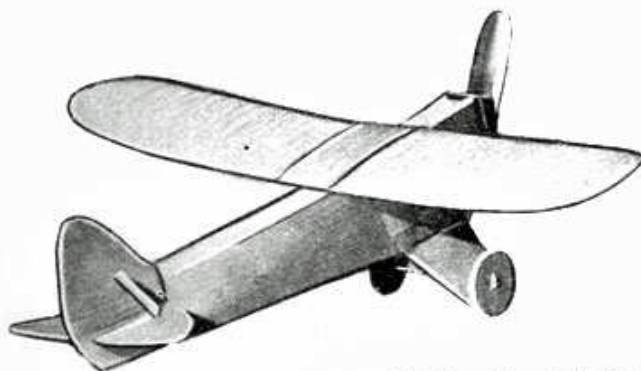
Fig. 1.—Pattern for the cartridge paper fuselage. The dotted lines show where to fold.



of scissors and a pen-knife are all you will require.

Copy the wing and fuselage diagrams shown at Figs. 1 and 2 on to your cartridge paper, taking care to follow exactly all the dimensions given and putting in the curves at the end of the wing. You must also trace the tail-unit, shown full size, on to the cartridge paper.

Check your drawings to ensure that you have copied them accurately, and then cut the shapes out. At the same time cut out a strip of cartridge paper 7 ins. by $\frac{7}{8}$ in., which will be used for attaching the



As you can see from this photo, our model follows the rakish lines of a high-speed fighting plane.

wing to the fuselage—the wing centre section, as it is called.

Take the cover of an ordinary matchbox and, having given its exterior an even coating of glue, stand it on its side between the dotted lines in the

centre of the fuselage cut-out, and in such a position that the front edge of the matchbox lies along the front edge of the fuselage.

Fold the paper completely round the matchbox cover and glue together the flaps at each side to form the bottom of the fuselage, taking care that the fuselage is not pulled out of true.

In folding the fuselage, the paper should only be creased up to the point where the trailing, or back, edge of the wing will join the fuselage, and at the very back where the tail-unit will eventually be added. The portion of the fuselage between these two points should be left rounded, as at Fig. 3.

Take the strip of paper you have cut for the wing centre section and fold it into three equal parts, afterwards sticking it to the top of the fuselage in the position shown at Figs. 1 and 3. It thus forms a loop through which the wing, when finished, can be passed.

Cut a length of wire 9 1/2 ins. long and place it along the leading edge of the wing, attaching it there by

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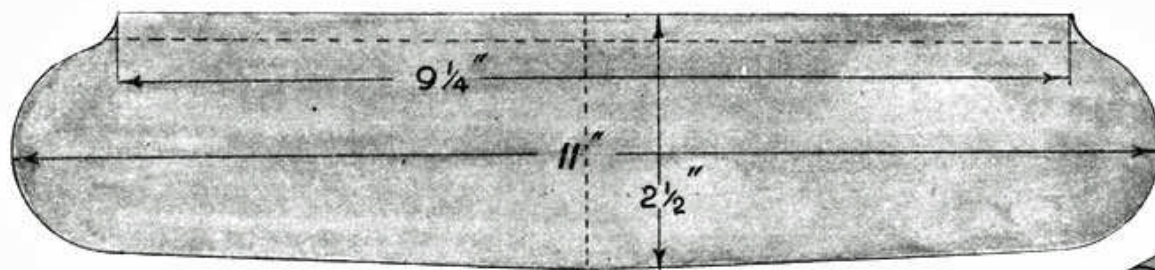


Fig. 2.—The wing is formed from a piece of paper cut to this shape and strengthened by a piece of wire glued along the dotted line.

folding over and gluing down the flap marked at Fig. 2. The wire acts as a stiffener for the wing.

When the glue has set it is necessary to impart a slight dihedral angle, or upward sweep, to the wings by bending each end upwards a little. The wing should also be slightly cambered—that is, bent a trifle so that it appears rounded when seen in cross-section. Test the finished wing by slipping it through the loop on top of the fuselage and making sure it fits tightly.

Fig. 4 shows how to fold the tail-unit. Double the piece of cartridge paper along the middle and turn out the two tail planes at right angles along the dotted lines, then glue the two rudder-fin portions together and finally glue the whole to the end of the fuselage.

It is best to give this tail-unit a tiny tilt upwards towards the rear. Once in position, pass a small strip of paper through slits in the rudder-fin and tail planes, attaching the ends of the strip to the underneath sides of the tail planes. This will make the whole of the tail-unit rigid.

The undercarriage is made from a second matchbox cover

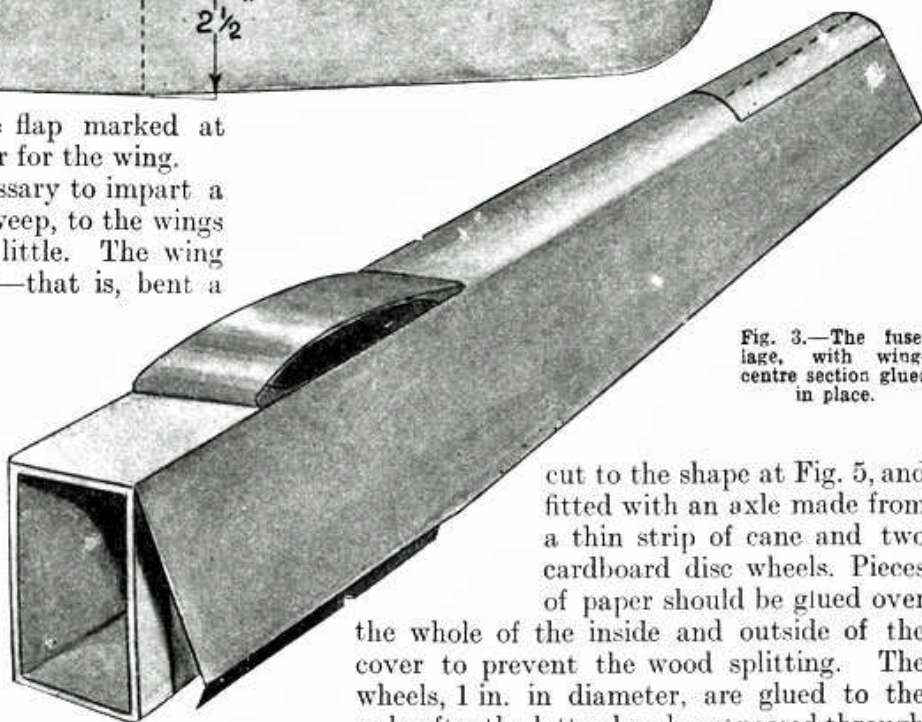


Fig. 3.—The fuselage, with wing-centre section glued in place.

cut to the shape at Fig. 5, and fitted with an axle made from a thin strip of cane and two cardboard disc wheels. Pieces of paper should be glued over the whole of the inside and outside of the cover to prevent the wood splitting. The wheels, 1 in. in diameter, are glued to the axle after the latter has been passed through the holes made for it in the undercarriage. The whole undercarriage is then glued to the fuselage at a point directly under the wing.

The bodywork of the plane is now complete, so the motor must be added. Cut a piece of tin from an old can and flatten it out, then from it cut the shape shown at Fig. 6, making the oblong in the centre exactly the same size as the end of a match-

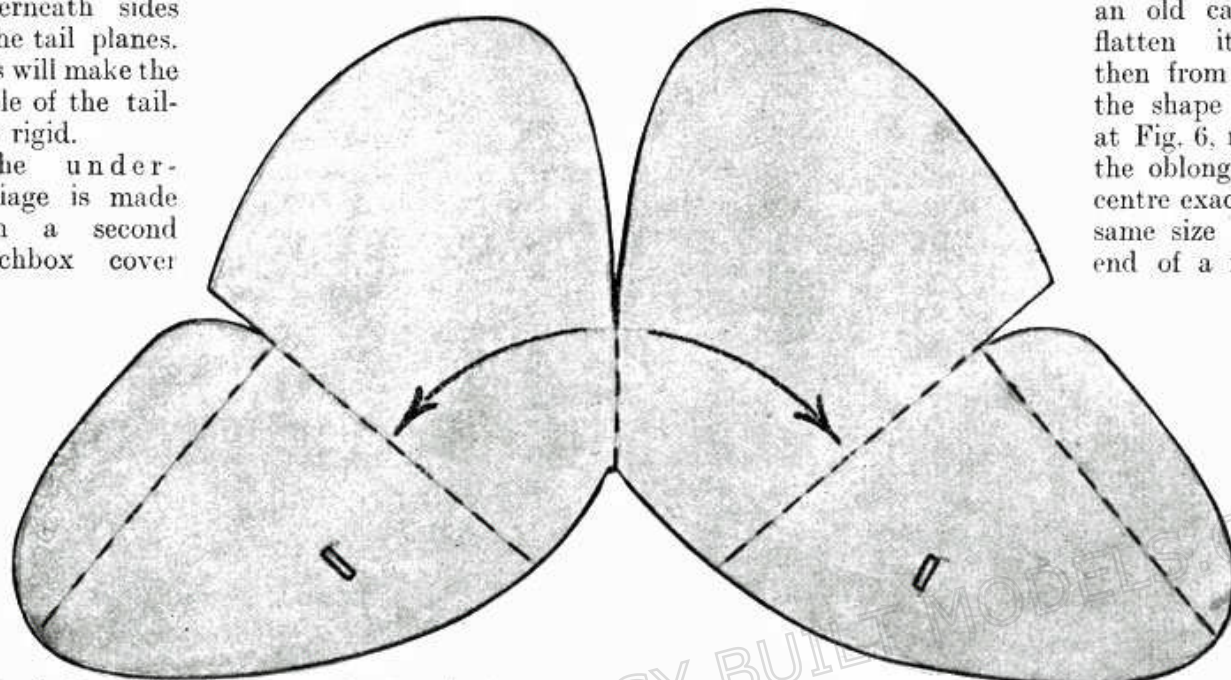


Fig. 4.—Trace this full-size pattern for the tail-unit on to cartridge paper, gluing together the two pieces indicated by the arrows.

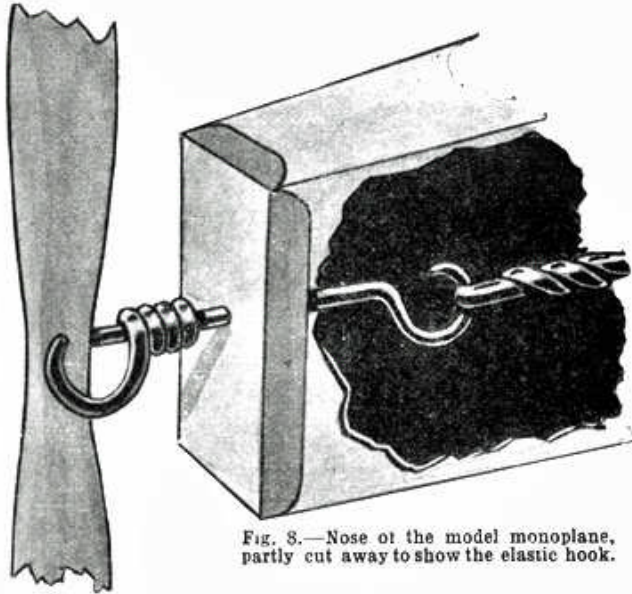


Fig. 8.—Nose of the model monoplane, partly cut away to show the elastic hook.

box cover. The flaps are a quarter of an inch wide.

Drill a small hole about two-thirds up from the bottom of the oblong and turn the four tabs up at right angles to the rest. The nose should then fit tightly over the front of the fuselage.

The tail-skid, shown at Fig. 7, can be used for holding your elastic inside the fuselage as well. Bend a piece of thin, strong wire to the shape shown and clip it over the rear edge of the fuselage.

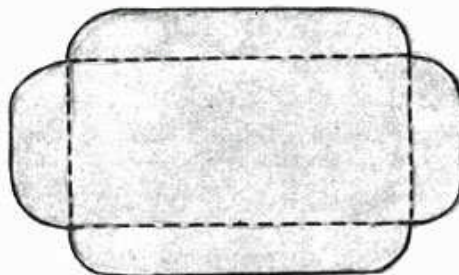


Fig. 6.—Shape for the tinplate dummy radiator which fits over the nose.

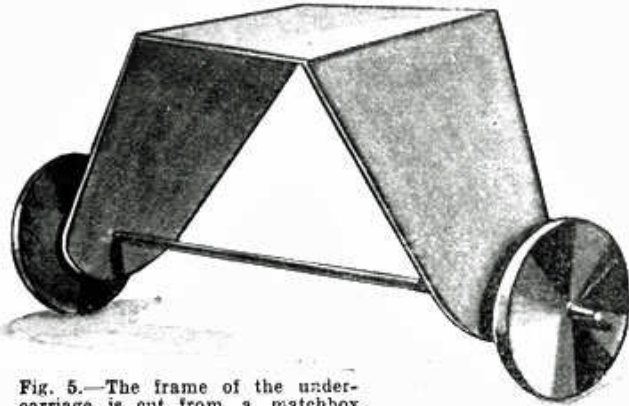
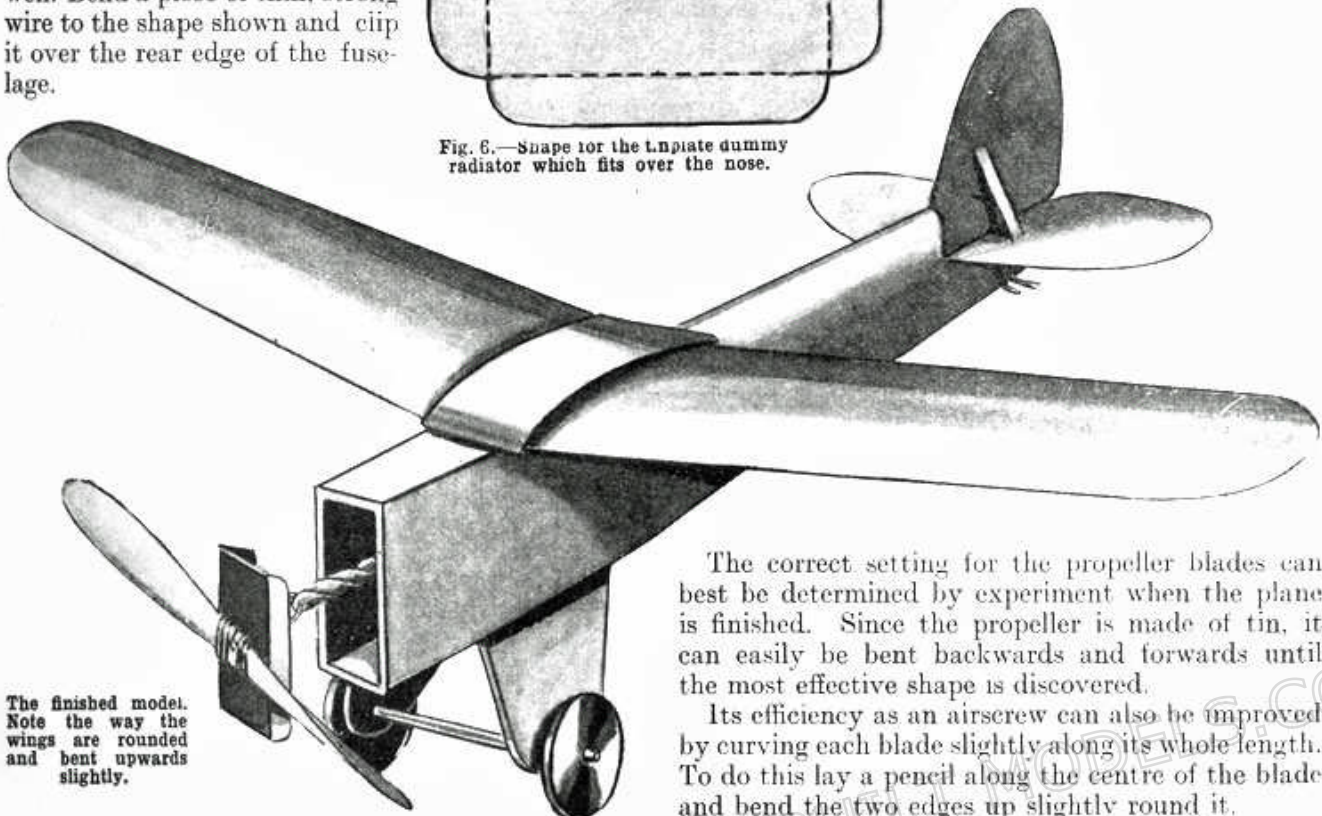


Fig. 5.—The frame of the undercarriage is cut from a matchbox cover, with a cane axle for the cardboard wheels.

To make the propeller you will need a strip of sheet tin $3\frac{3}{4}$ ins. long and $\frac{1}{2}$ in. wide, rounded at the ends and with a hole bored in the centre. The blades are bent evenly in opposite directions, and a shaft is added by passing a piece of wire through the hole, bringing the spare end of the wire back over the boss of the propeller and twisting it around the shaft to keep the "prop." clear of the tin engine cover.

The shaft itself is passed through the hole in the engine cover and bent into a hook to hold the end of the elastic.



The finished model. Note the way the wings are rounded and bent upwards slightly.

The correct setting for the propeller blades can best be determined by experiment when the plane is finished. Since the propeller is made of tin, it can easily be bent backwards and forwards until the most effective shape is discovered.

Its efficiency as an airscrew can also be improved by curving each blade slightly along its whole length. To do this lay a pencil along the centre of the blade and bend the two edges up slightly round it.

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Lastly, bind the two ends of the elastic together so as to form a ring of rubber, and attach one end to the tail-skid and the other to the hook on the end of the propeller shaft. Replace the nose, and the model is finished.

Lubricate the elastic well, and make sure that the wings are tilted slightly upwards and that the tail is perfectly level. The elevators should be in a neutral position.

A take-off can be effected if the model is placed

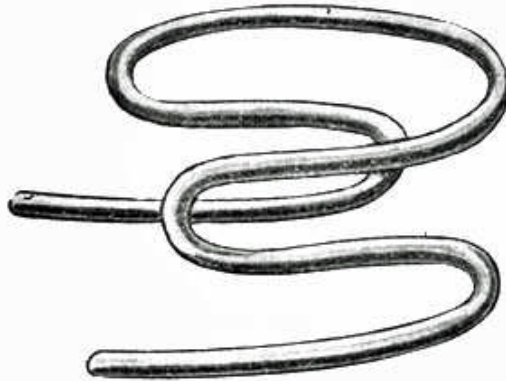
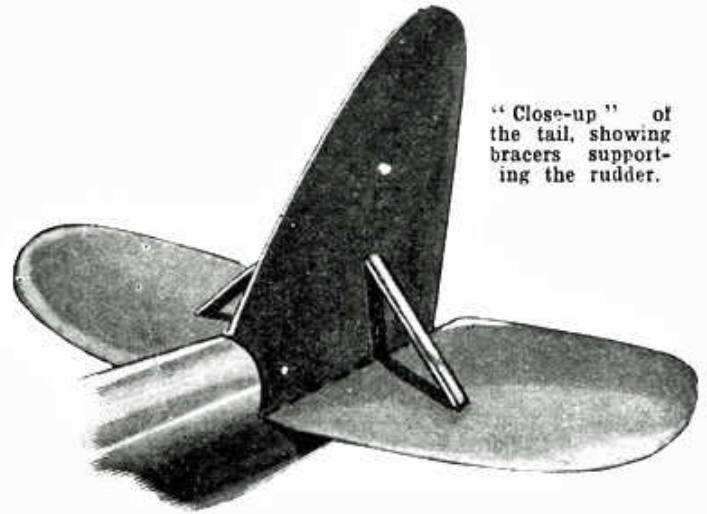


Fig. 7.—A piece of springy wire bent to this shape forms the combined tail-skid and rear elastic hook.

on a smoothish floor or road, or the model can be hand-launched.

Wind the motor 250 turns to start with, working up to 350 gradually as the elastic lubricant gets worked in. In good trim this model will give a flight of fifty yards from a hand launch. Launch it level and not too vigorously.



"Close-up" of the tail, showing bracers supporting the rudder.