

allowed while the next column is being sprayed. (See Fig. 2.)

About three or four spray coats should be given the wing for a good finish, and if a high gloss finish is desired, the surface should be given a coat of clear lacquer over the last coat. The use of masking tape and paper is clearly shown in Fig. 2. Masking tape and paper are used when two-color jobs are being sprayed to prevent the spray of one color going on some surrounding different colors.

A condenser should be on your spray outfit, if of the air-compressor type, to prevent water from entering the lacquer container on the gun.

THE WING STRUCTURE

IT is presumed you have in your possession the plans of the ship you intend to build. If this is the case, then you should consult the plans for the proper sizes of stock you will need for building the wings. When you have obtained your stock you are ready to begin construction.

First build the ribs to the dimensions shown in the plans, using casein glue for the glueing, and when these are completed they should be inspected for any defects in construction. If everything is O. K., they should be given a coat of varnish or Lionoil, care being taken that none is applied where glue is to be spread.

Upon completion of the ribs, the spars should be cut to size, and the fitting holes drilled at the correct places. The ribs are now to be slipped on the spars, care to be taken that the ribs are in their correct places and that you make *one right* and *one left* wing. The ribs should not be nailed to the spars through the cap strip, but rather through the side piece of the rib which lies on the side of the spar.

When all the ribs are in place, the fittings should be bolted on, and the drag and anti-drag wires are then cut to shape and size. When making the terminal loops in the hard wire, be sure to slip on both ferrules before the terminals are formed to shape. Square up the wing, one bay at a time, beginning with the inner one. When the structure is square, the turnbuckles should be safetied with copper wire.

The leading and trailing edge pieces are next put in place and firmly fastened. Then the bow end is fastened to the ends of the spars. Any other wooden braces are now put in place, and after the wing has been painted with spar varnish or Lionoil, it is ready to cover.

It should be remembered, however, that when two surfaces are to be glued that there should be no paint or varnish beneath the glue joint. The glue is useless on painted surfaces. When cutting out the ailerons, if such needs to be done, be sure that you cut only the required number of ribs, and that the ends of the ribs are not split when they are nailed to the aileron beam. Be sure the aileron does not bind, either

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One Big Piece of Luck

AN amazing parachute jump was made by airmail Pilot James Johnson when a wing of his plane buckled over Allport, Pa.

Johnson was unconscious most of the time his plane was falling and cannot remember having jumped. He was en route to Cleveland from New York, flying high to take advantage of tail winds, when the wing folded up. At the same moment the instrument board was displaced and struck him in the face, knocking him unconscious.

After dropping part of the way, the pilot regained consciousness, then lost it again and did not remember anything until he awoke on the ground and found farmers dashing cold water in his face.

Pilot Johnson apparently went through the motions of jumping and pulling the parachute ring unconsciously. Farmers who found him said he did not leap until the ship was within 500 feet of the ground. The plane cracked up 300 feet from the point Johnson landed.

This Pilot Flies His Glider Blindfolded

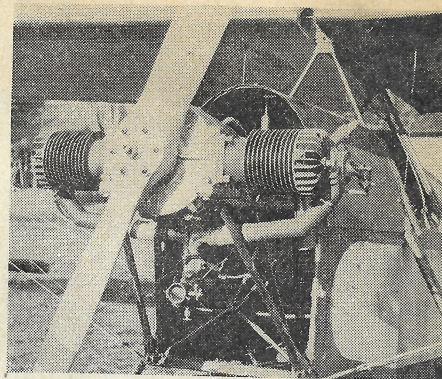
AN ex-army pilot, who has taken up gliding for pleasure, tries *blind gliding* and finds it much more interesting than blind-flying. Without any instruments, and using only his senses, this man glided some three-hundred feet in a trial of this new type of gliding.

He has been practicing this form of gliding for the past few months and has had remarkably few accidents. Only trained men with years of experience should attempt this stunt.



How the glider is flown blindfolded. What a chance to take in the dark!

A New Lightplane Engine



A new two cylinder engine for light planes.

EVERY day something new is done to improve the lightplanes. More and more the private owner is taking to lightplanes. Les Long, of Cornelius, Oregon, has brought out a new engine after considerable experimental work. Mr. Long believes that this engine "should just about settle the engine question for light planes."

The engine is a 2 cylinder type working on the 4 cycle principle. It has 2-in. valves. The crankshaft and the connecting rods are of special alloy steel. The lubrication is kept at high pressure by gear pumps, one of which is used for scavenging. The mounting is a simple four-bolt, motor bearer type.

Mr. Long has made three engines of this type and he has thoroughly tested them. Installed in a 600 pound plane it takes off in about 100 feet, with a climbing rate close to 1000 feet per minute. 2500 r.p.m., with a 5 ft. 2 in. prop. develops about 30 hp. The total weight is only 95 pounds, including the Bosch mag. and Zenith carburetor. This engine sells for only \$195.

Mr. Long does not say what the top and cruising speeds of this plane are, nor does he say anything about the gas consumption. The picture shows us that it is a neat, very compact engine, and well designed.

If Mr. Long will tell the performance of this engine when mounted in a plane we will be glad to pass the information along.

Small Plane Takes Off with Tail Down

C. A. BUTLER, who recently broke the Australian time record from London, owns a fly-size Comper-Swift plane, so small that it can only take a slender pilot in the cockpit. This monoplane is very speedy, and the prop almost touches the ground, so that it has to be flown tail-down at the take-off. Pilots must have considerable air hours to fly the ship properly, and in the hands of such it is a wonderful job. There are but few Comper-Swift ships in commission, one of them being owned and flown from Renfrew, Scotland.