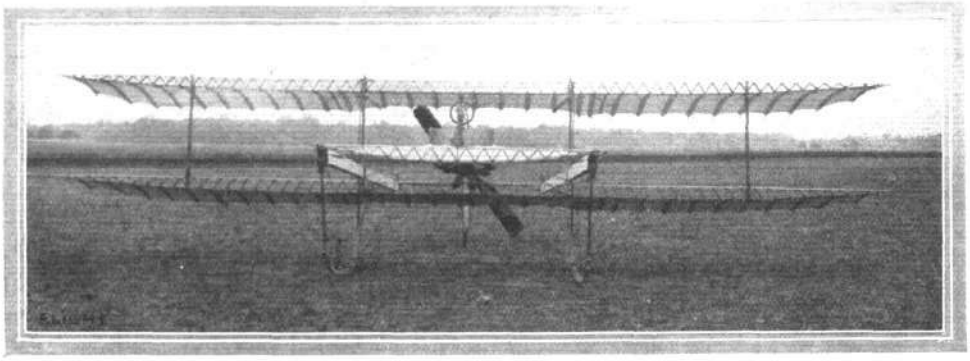
THE PAULHAN BIPLANE.

CONSIDERABLE interest attaches to Paulhan's *machine à voler*, as he prefers to call it, both because of its constructor's great reputation as an aviator of the highest class and because of the originality of the design. One is anxious to find out from it the secrets taught by experience to an expert and observant aviator, and to see if possible how such teaching differs, if at all, from that of abstract theory.

Superficially, the most striking feature is the method employed in the construction of the framework, a method which at once shows the connection of Henri Fabre with the design. The fuselage and the leading edges of the planes are of a built-up lattice-work of great strength, thus doing away with the majority of the customary wire stays.

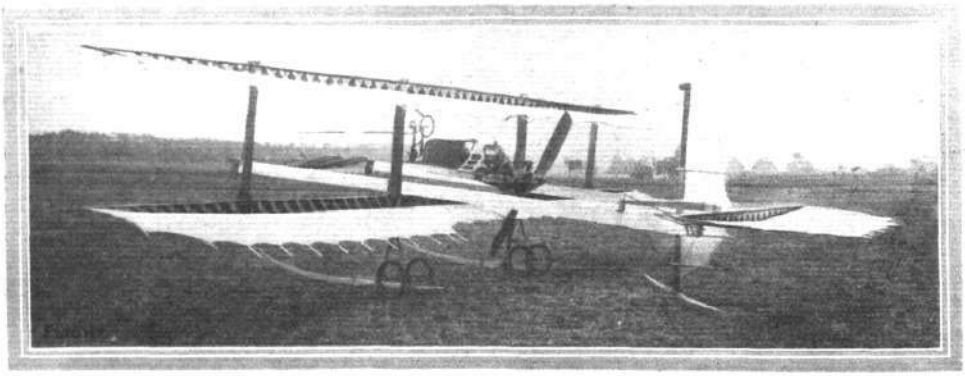
The machine is a biplane fitted with a forward elevator and single-plane stabilising tail, in front of which appears the rudder. The main planes lie midway between the elevator and tail, and are divided into three sections, the centre one of which is stationary, the two outer ones being connected in such a way that the angle of one or other of the sections can be altered for the purpose of maintaining lateral stability.

far from houses and spending the night in the open, or if it be necessary to alter the wing area. Four wooden stanchions are fitted between the beams of the main planes, and to the centre pair are clipped the beams which run fore and aft to carry the elevator in front and the horizontal tail behind. To these central stanchions are also attached the pillars at the rear of the landing skids. For nearly all these flexible joints and for the hinges of the elevator and tail M. Paulhan has introduced a neat arrangement in which a strip of chrome leather bears all the movement.



PAULHAN'S NEW BIPLANE.—View from in front.

One very interesting part of the design is that the *nacelle*, which carries the motor and propeller, the petrol tank, and the seats for pilot and passenger (side by side), and on the forward end of which is mounted the controlling wheel and levers, is rigidly suspended between the main planes by steel cables from top and bottom of the central stanchions. It is claimed that this method of attachment is exceptionally light, and facilitates the mounting and adjustment of the motor. The vertical rudder, which, as we have said, is placed just in front of the horizontal tail, is also attached to the rear end of the outriggers in the same way. At the foot of the vertical beam



PAULHAN'S NEW BIPLANE.—General view from behind. The surface area of the planes can be altered in a few minutes.

The construction of the wings is very interesting. The entering edge consists of a beam made by the insertion of a kind of lattice work between two strips of ash of about 6 ins. in width, the ends of which approach each other. In the centre of the plane the two strips are 6 ins. apart. From this beam spring the ribs, each fastened by an ingenious clip, which can be released readily when the replacement of broken spars is necessary, or if it is desired to alter the curvature of the wing. Over these is spread the canvas, each rib sliding through a pocket. The canvas is attached to the trailing edge end of the ribs by tiny hinged spring-clips. It is thus possible to remove the entire canvas covering, if a hangar is not available during rain, or when making long journeys

carrying the rudder is a wooden skid, which can be operated by a cable from the pilot's seat to act as a brake.

The control is by wheel, mounted on a shaft, the backward or forward movement of which works the elevator. For steering, the wheel is rotated and a right or left movement of the entire control alters the angle of the wing sections.

The angle of the tail, which is hinged to the frame, can be readily adjusted on the ground by the movement of levers up and down a slotted bar, mounted on the rear end of the outrigger, as in one of the accompanying photographs.

M. Paulhan fits the Gnome motor and Normale propeller as standards.