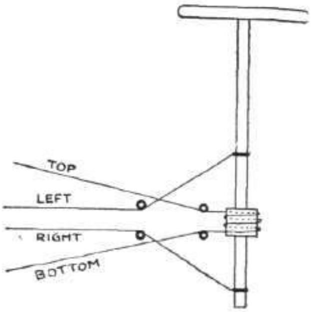
that it could tilt longitudinally, while the engine, &c., would be free to swivel transversely in the square frame. The arrangement would be controlled by a universally mounted steering wheel connected as shown in the sketch. Supposing the propeller to be rotating clockwise when looked at from behind, turning the steering wheel to the right would pull the top corner of the square frame backwards, but this movement would be resisted by the gyroscopic effect and the engine would actually turn to the right, thus pulling the wire marked



left and causing the steering wheel to rock forwards. This forward movement would not be resisted, of course. Pushing the steering wheel forward would pull a lever projecting to the right from the engine mounting by means of connection marked right, thus causing the engine and square frame to tip forwards and actually turning the steering wheel to the left. This turning movement would not be resisted. Pulling the steering wheel backwards would tip the propeller upwards, causing the steering wheel to rotate to the right. An attempt to rotate it to the left would cause it to move backwards and the propeller would turn to the left. It is easy to find what will happen to a gyroscope if an attempt is made to deflect it from the plane in which it is rotating if one remembers that any attempt to deflect it from its plane of motion will result in the deflection taking place 90° further advanced in the direction of rotation. The proposed arrangement should give a very sensitive steering control and at the same time one which would not require the aviator's hand continually on the steering wheel owing to the tendency of the gyroscopic action to keep the moving parts in the same plane, or to stay put, as an American would say. After a little practice the movements would come quite natural and the novelty would soon wear off. Of course any combination of the four simple movements described could be made. Suppose it was desired to ascend and turn to the right, the aviator would pull at the wheel and attempt to turn it to the right then allow it to make the resultant movements. This would deflect the propeller in the desired direction and the amount of deflection would depend on the amount of force applied.

The necessary connections to the carburettor, engine, &c., could be made by Bowden wire.

Bradford. HAROLD SMITH.

Aeroplane Control.

[1054] It may interest Mr. E. Temple Robins, who writes (No. 1016) on the above subject, to know that a patent has been applied for for a system of automatic control to counteract the tendency of an aeroplane to tilt sideways or to dive or soar suddenly owing to gusts of wind. This apparatus will be worked from a small dynamo coupled to the mainshaft of the engine and will operate horizontal fans in each wing tip and in the tail, in addition to warping the wing tips, so that an active force will be applied to right the aeroplane in addition to the wind pressure acting on the warped wing tips.

The aviator will have no need to touch any levers or to exert himself in any way. The same apparatus allows the aviator to cant the aeroplane at will and to depress or elevate the tail for rising or descending. He can also, if he wishes, set all three fans going "ahead" simultaneously to aid him in rising off the ground or in checking his descent.

If any firm of aeroplane builders is interested in such an apparatus I should be pleased to furnish them with further particulars.

Newcastle. R. E.

MODELS.

Gliding Models.

[1055] I have read with interest letter No. 983 (*re* Gliding Models).

I have just completed a model of my own design, photos of which I enclose. This model will glide after the propeller has stopped. Its chief feature is a double axle bar with two small inverted steel springs, which saves the chassis from damage when falling. There is also a spring cane skid directly in front of the rear wheel, which protects the tail portion in a similar way to chassis springs.

This model is very easy to make and quite strong, with few fittings.

Main plane, 3 ft. span; chord "in centre" 6 ins., tapering to 3 ins. at each end; planes are covered with stiff paper; camber in got by cutting paper slightly larger and placing

in position when gluing; tail plane is 12 ins., tapering to 3 ins. at rear. Total length, 33 ins. Motor power, 20 strands of $\frac{1}{16}$ in. elastic, and Cochrane propeller (or tractor), $8\frac{1}{2}$ ins.; the body of model is made of $\frac{1}{4}$-in. hardwood and aluminium rib wire.

This is a good flyer and glider, either with or without dihedral angle, better if anything without.

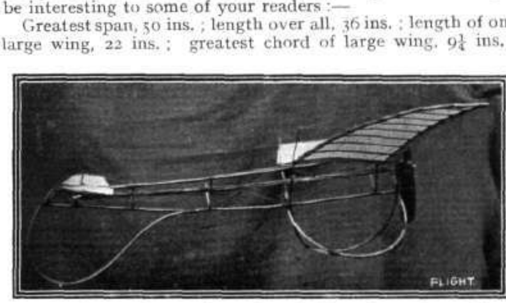
I am making, too, a monoplane without a tail (as No. 983 writes), but it will have a small elevator instead. I am very much interested in "Orestes'" machine with three propellers, and will look forward with pleasure in seeing sketch later on.

Portrush. ROBERT LEE.

Model Monoplane.

[1056] Enclosed, you will find a photo of a monoplane model I have made. It is entirely of my own make and design. The smaller plane is in front. I do not think there is anything exceptional in the design but perhaps some particulars might be interesting to some of your readers:—

Greatest span, 50 ins.; length over all, 36 ins.; length of one large wing, 22 ins.; greatest chord of large wing, $9\frac{1}{4}$ ins.;



span over front plane, 22 ins.; length of one front wing, $9\frac{3}{4}$ ins. greatest chord of front wing, $4\frac{1}{4}$ ins.; 12 in. propeller of 25 in. pitch; total supporting surface, 284 sq. ins.; total weight with 22 strands of $\frac{1}{4}$-in. strip elastic, $10\frac{1}{2}$ ozs.

The wings are attached to the fuselage by hooks and the dihedral angle is regulated by the threads running to the