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# PROVISIONAL SPECIFICATION.

## Improvements in Flying Machines.

I ALLIOTT VERDON ROE of 47, West Hill, Wandsworth, London, S.W., Engineer, do hereby declare the nature of this invention to be as follows:—

It is desirable for a flying machine to be perfectly stable while in the air with no undue tendencies to dive or capsize, and I obtain these results by  
5 building a machine in the following manner.

In order to obtain this stability I build a horizontal steering plane out forward of the main aeroplane or planes. Convenient dimensions are as follows:—  
Two main aeroplanes, superposed, their width being about  $\frac{1}{6}$  the tip-to-tip measurement. Steering plane being  $\frac{1}{2}$  to  $\frac{3}{4}$  the tip-to-tip measurement and  
10 not quite so wide, the fore and aft overall length being about  $\frac{1}{2}$  to  $\frac{3}{4}$  the tip-to-tip, these dimensions are approximate, for instance the larger the steering plane the nearer it may come to the main aeroplane or planes.

The most important item is the angle of the steering plane relatively to the main aeroplane or planes, that is it should be tending to steer the machine  
15 upwards but the weight being well forward prevents this, with the result that a straight movement is obtained at a definite speed, should the speed be increased this angle is reduced, but this horizontal steering plane should be so fitted that it cannot be moved below the minimum uplifting angle of safety.

At first this action of carrying the weight so far forward and depending on  
20 the uplifting angle of the steering plane for stability may appear dangerous, but the stability of the machine owes itself to this, for instance if the engine were to stop for some reason while the machine was some height in the air and the aviator left his steering plane at too great an uplifting angle, the machine would go upwards until the momentum decreased, with this decrease of speed so  
25 the pressure on the steering plane becomes less than the forward weight, with the result the forward end comes down only to glide off again in a series of switchback like glides until the ground is reached. Thus with this arrangement it cannot fall backwards.

Steering laterally to the right or left is effected by raising one side of the  
30 steering plane higher than the other, if it is desired to turn to the right, the left side of this horizontal steering plane is raised, and *vice versa*. This can be conveniently done by means of an ordinary motor steering wheel so arranged that on turning it the usual way it lifts one side of the steering plane higher than the other, and if it is desired to go up the whole steering wheel is rocked  
35 or moved, thus moving the whole steering plane either when going straight or on turning.

The main body remains rigid the steering being entirely effected by the horizontal steering plane. On the main body vertical plane or planes are fitted, for without them the whole machine on turning laterally falls in towards the  
40 centre of the circumference it is describing owing to one side of the machine being higher than the other.

Thus my machine is controlled entirely with a large horizontal forward plane or superposed planes with no vertical planes either fore or aft of the main

[Price 8d.]