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PROVISIONAL SPECIFICATION.

Improvements in or relating to Hydroaeroplanes.

I, CLIFFORD ROGER FLEMING-WILLIAMS, of The Old Mill House, Heybridge, in the County of Essex, Artist, do hereby declare the nature of this invention to be as follows:—

This invention has reference to hydroaeroplanes, and, more particularly, to the means employed for enabling them to travel through rough water, at the same time making it possible to construct the floating portion of the hydroaeroplane in such a manner that it will offer the minimum amount of "head resistance".

Heretofore it has been usual to make "steps" as an integral part of the bottom construction of the hull. These "steps", and the system which demands their existence, makes it imperative to construct the hull in a complicated manner and along certain set lines. When attached to aeroplanes they are of bad shape aerodynamically, it is difficult to attach them by any form of springing arrangement owing to their weight being dangerous unless held rigidly, the concussion of hitting a wave top on returning to the water is very great, and the resistance offered when running through rough or broken water is immense. Further, there is a vacuum of air formed behind the steps, and air vents are necessary.

The object of my invention is to overcome the foregoing disadvantages, and to provide a means whereby a float can be formed in such a way that it offers the least amount of head resistance combined with the maximum amount of buoyancy, which nevertheless possesses perfect hydroplaning action at all speeds, being supplied with an automatically adjusting planing area, and incorporating the very necessary springing or shock-absorbing effect highly desirable on all forms of hydroplanes.

According to my invention I attach to the bottom of the float separate hinged and spring planes, which have the effect of forcing the whole of the float out of the water, and owing to the angle at which they are set and the form of their construction taking up the whole weight upon themselves as soon as the structure is forced through the water, decreasing in their angle of incidence when struck by any water inequality and decreasing their submerged lifting area as the speed increases, and the demand for such larger area ceases; and doing so, moreover, in such a way that lateral stability is in no way decreased.

According to one way of carrying out my invention I construct a suitable float of efficient dimensions and under this float, at the forward end, I attach by a hinging device a plane of wood or metal, suitably strengthened by girders having its after edge curved as to plan either convexly or concavely according to whether one or more floats are used, so that as the speed of the hydroaeroplane increases and the float is forced out of the water, the plane is itself submerged only sufficiently to bear the weight of the whole structure. It is essential where only one float is used that the plane area should decrease from the centre, to preserve lateral stability. Towards the after extremity of the plane I attach upstanding arms movably fastened to the plane and secured to the float by guides which allow them to move up and down against the pressure of a spring, either of suitably coiled metal rubber