May 19, 1925. 1,537,973

I. M. UPPERCU

FLYING BOAT HULL

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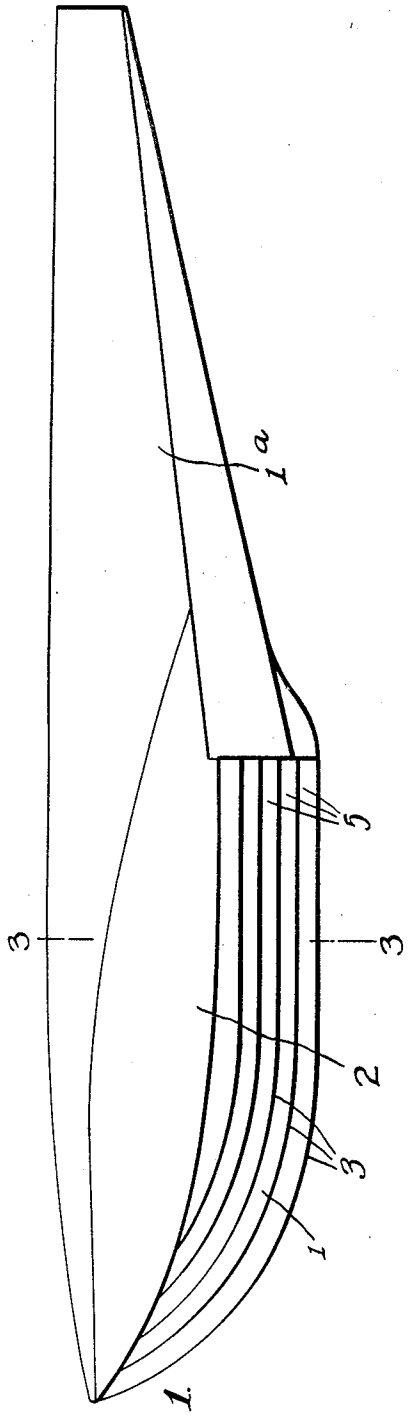


Fig. 1.

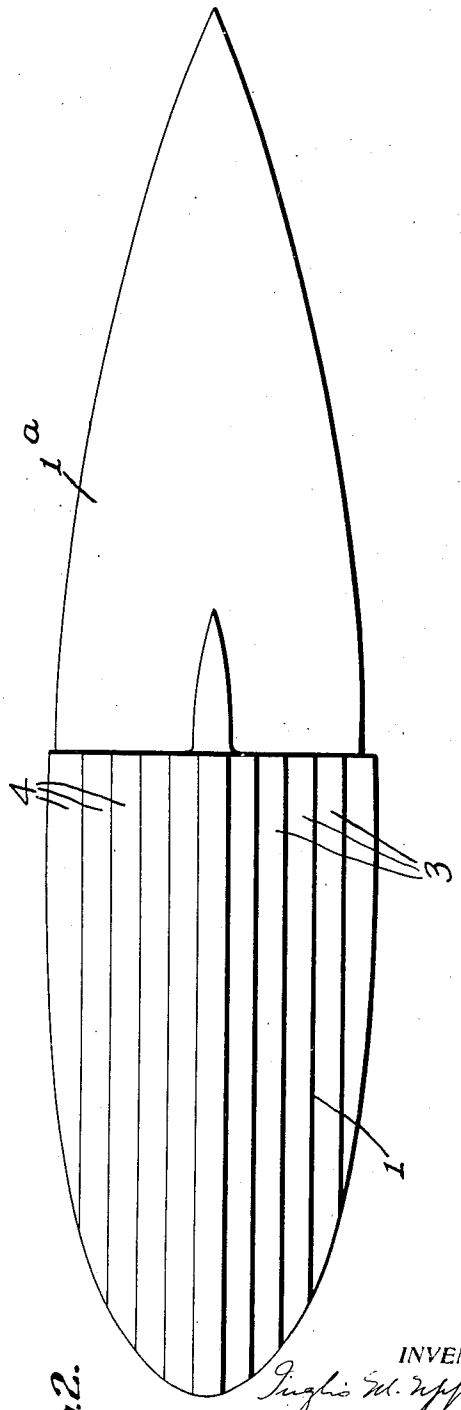


Fig. 2.

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Fig.3.

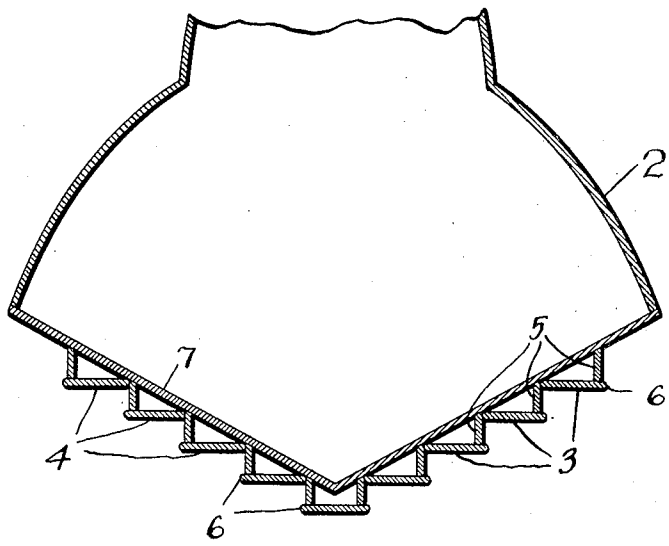
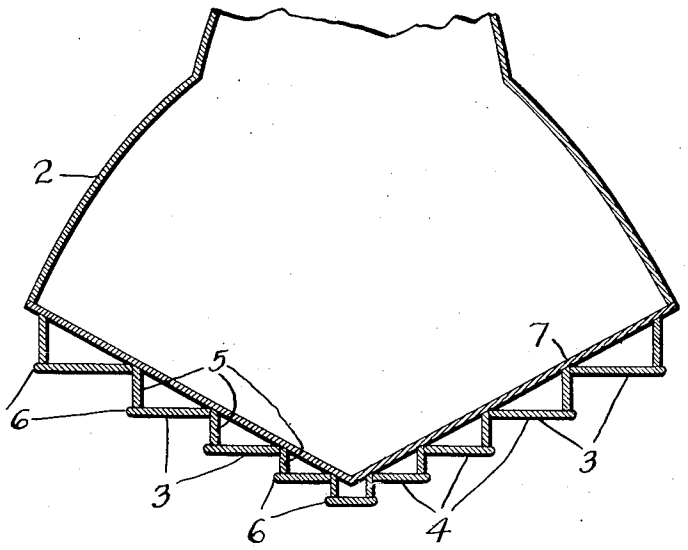


Fig.4.



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Patented May 19, 1925.

1,537,973

UNITED STATES PATENT OFFICE.

INGLIS M. UPPERCU, OF DEAL BEACH, NEW JERSEY, ASSIGNOR TO AEROMARINE PLANE & MOTOR COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

FLYING-BOAT HULL.

Application filed November 16, 1921. Serial No. 515,435.

To all whom it may concern:

Be it known that I, INGLIS M. UPPERCU, a citizen of the United States, and a resident of Deal Beach, in the county of Monmouth and State of New Jersey, have invented a new and useful Flying-Boat Hull, of which the following is a specification.

The object of this invention is to provide a hull construction for flying-boats, which combines in high degree the desirable qualities of quick getting-off, cushioned alighting and stability, and which is structurally sound and tight. The novel parts, features and combinations of the hull will now be briefly described, to be more particularly pointed out in the appended claims.

In the accompanying drawings, forming a part hereof:

Fig. 1 is a side elevation of a flying-boat hull illustrating an embodiment of the invention;

Fig. 2 is a bottom plan;

Fig. 3 is a cross-section on a larger scale, on the line 3—3 of Fig. 1; and

Fig. 4 is a similar view showing a modification.

The views show a flying-boat hull having a forward portion 1 and rearward portion 1^a, with the customary rearwardly-facing step or break in the bottom substantially amidships, and longitudinal sponsons 2 continuous beneath with the fore-bottom, the fore-bottom thus constituted being of deep or steep V section, that is to say making an angle of 12° or more to the horizontal. By reason of the steps hereinafter described, the angle can be made steeper than has been practicable in ordinary flying-boat hulls.

On opposite sides of the deep-V section are flights, that is to say, inverted flights, of longitudinally extending steps 3, extending practically from the keel to the outer edges of the bottom. These steps afford successive flat surfaces 4, successively nearer the center, on which the boat planes in rising from the water, thereby reducing the power and time required in that operation, increasing the speed over the water and avoiding spray; and in this connection it is important to note in Fig. 2 that the vertical sides 5 of the steps stand in parallel vertical planes from the bow region rearwardly, and do not converge with the narrowing of the bow. With this construction the minimum of resistance is obtained, and, in addition to the advantage in rising, cushioned alighting and stability in the water are realized.

The steps are made of horizontal (referring to cross-section) and vertical members or boards, which may be designated by the same numerals as the surfaces 4 and 5 which they form. These members are secured together in a suitable fashion, without the necessity and difficulty of forming absolutely tight joints at the corners, and are applied to the body 7 of the fore-bottom, which is complete in itself, built tight and continuous in the customary manner.

The outer edges of the horizontal members 4 are extended beneath and beyond the vertical members 5 to form lateral projections 6 from the steps, which serve to break up the water and let air into the channels, thereby overcoming the tendency of the water to cling to the vertical surfaces. These projecting ribs are preferably rounded as shown.

Fig. 4 illustrates a construction in which the steps diminish in width and depth from above toward the keel, which has the advantage that as speed and lift are obtained the hull planes on successively narrower surfaces.

What I claim as new is:

1. A flying-boat hull having a complete substantially deep-V bottom and flights of longitudinally extending applied steps on opposite sides of said complete bottom.

2. A flying-boat hull of substantially deep-V section with flights of longitudinally extending steps on opposite sides characterized by said steps decreasing in size from above downwardly of the flights.

3. A flying-boat hull of substantially deep-V section with flights of longitudinally extending steps on opposite sides characterized by lateral projections from said steps to break up the water in the channels.

4. A flying-boat hull having a complete

substantially deep-V bottom and flights of longitudinally extending applied steps on opposite sides of said complete bottom, said steps being formed of horizontal and vertical members, the edges of the horizontal members projecting beyond the vertical members.

5. A flying-boat hull of substantially deep-V section having flights of longitudinally extending steps on opposite sides formed by horizontal and vertical members, the edges of said horizontal members projecting beyond the vertical members.

INGLIS M. UPPERCU.