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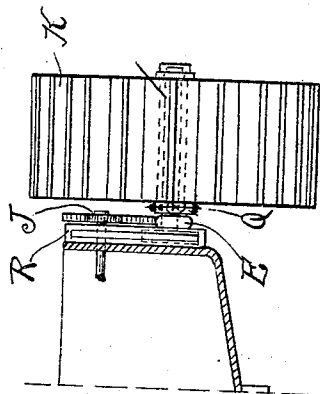
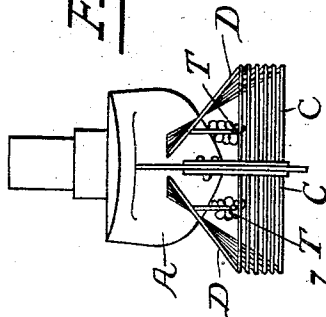


Fig. 2.



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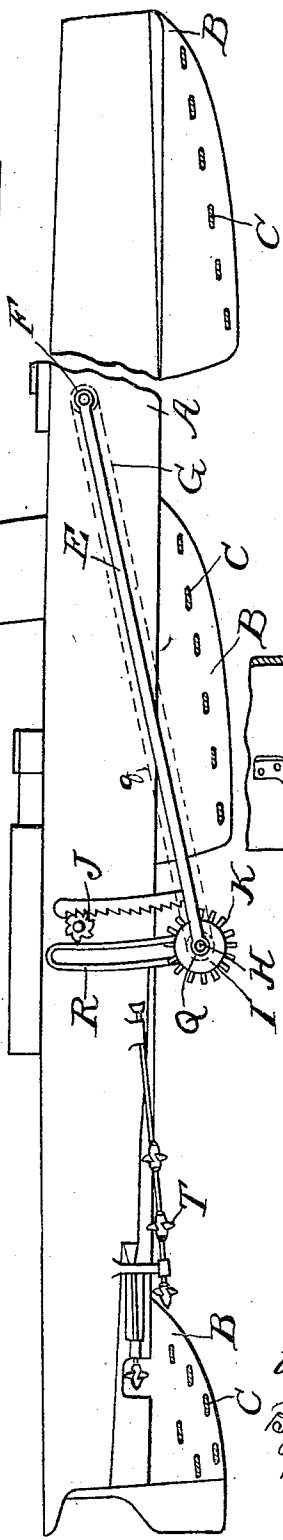
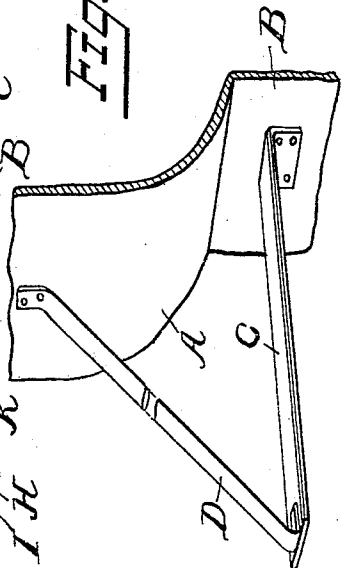


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIAM PHILLIPS THOMPSON, OF LIVERPOOL, ENGLAND.

MARINE PROPULSION.

No. 904,465.

Specification of Letters Patent.

Patented Nov. 17, 1908.

Original application filed November 20, 1903, Serial No. 181,999. Divided and this application filed November 30, 1907. Serial No. 404,525.

To all whom it may concern:

Be it known that I, WILLIAM PHILLIPS THOMPSON, a subject of the King of Great Britain, residing at Liverpool, England, have invented certain new and useful Improvements in Marine Propulsion, of which the following is a description, reference being had to the accompanying drawing and to the letters and figures of reference marked thereon.

This application is a division of my application filed November 20th, 1903, Serial No. 181,999, and has for an object an arrangement of steam or other motor driven vessel, whereby it can be propelled with greater velocity, and with less power, than has heretofore been considered practicable, the vessel being supported on fins resembling the aeroplanes of aerial navigation, and hereafter called aquaplanes.

The invention consists in the matters hereinafter described and referred to in the appended claims.

In the accompanying drawings, which illustrate the invention,—Figure 1 is a side view of the vessel when going at full speed the braces being omitted and the fins being shown in section; Fig. 2 is a view from the stern of the same; and Fig. 3 is a detail view of one of the supporting fins. Fig. 4, is a detail view partly in section, illustrating the mode of attachment of the paddle wheel.

In these drawings, A is the hull of the ship; B, B continuations of the keel extending to a considerable distance below the hull.

C, C, are a series of supporting fins projecting from the side of the ship, and formed of steel, bronze, or other like hard tough metal, and having a sharp edge front and back, said fins being set at an angle of say four degrees, with the horizontal higher in front than in rear. These fins are arranged in pairs or trios at different heights. In the drawings there are 18 fins arranged at six different heights.

D is a series of struts from the hull to the fins, so as to support them. For a small vessel these struts may not be required. For medium sized vessels one strut holding the end, will suffice. For large vessels, two or more struts on each side may be requisite. These struts are made with sharp edges fore and aft, in order to lessen the friction in the water, but are otherwise tubular in large vessels for strength and rigidity.

E is a beam swiveled on the driving axle F, there being one or more of these at each side of the vessel.

G is a chain gear connecting the driving axle with the axle H of the paddle wheel I. There are the same number of paddle wheels as beams.

J is a gear for raising and lowering the paddle wheel. The paddle wheel is formed as a hollow drum, with a large series of radial blades K, passing through slots in the same. These blades can be fixtures or have any convenient device, such as a spiral cam not set forth in the drawing for drawing them in uniformly towards the center, or projecting them through each of the slots.

T, T, are the ordinary screw propellers of the well known steamship "Turbina".

In Fig. 4 is shown how the paddle wheel slides in a sliding bearing in a circular slide having the center of the curve in the driving axle. In this drawing, H is the axle of the paddle wheel; Q the axle box; and R the circular guide slide.

g is the sprocket wheel chain, I the paddle wheel, and J represents the raising and lowering gear.

The mode of action is as follows: The ordinary propellers are set going to between 20 and 30 miles an hour; the vessel rises on the fins; the paddle wheel is lowered sufficiently in the water to act on the water; the engines by friction gear or other mechanism are put in gear with the paddle wheels, which are thus set going; while the screws are thrown out of gear with the engines. The water going against the fins has a tendency to raise the vessel higher out of the water, and consequently affords less resistance to the water. The power thus saved is devoted to increasing the speed of the vessel and from time to time, or continuously or automatically as the vessel rises, the paddle wheel is lowered, so as to always keep in contact with the water. This can be done automatically if the beam and the paddle are weighted sufficiently.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A vessel having a plurality of keel members, and inclined vessel-supporting fins, projecting from each of said keel members to beyond the gunwale of the vessel.

2. In a vessel supported by fins when trav-

eling above the surface of the water, a plurality of sets of fins, projecting from opposite sides of the vessel, the several fins being independently supported, each set comprising two or more fins in a common horizontal plane, and the sets of fins being arranged in superposed horizontal planes, the upper set or sets of fins being arranged to successively rise to or above the surface of the water, as the speed of the vessel increases.

3. A vessel, and a plurality of sets of fins projecting from opposite sides thereof, the several fins being independently supported, and all disposed above the base line of the keel, each side comprising two or more fins in a common horizontal plane, and the sets of fins being arranged in superposed horizontal planes, the sets of fins being arranged to successively rise above the surface of the water as the speed of the vessel increases.

4. In a vessel supported by fins, a plurality of sets of independently supported fins, projecting from opposite sides thereof, and all disposed above the base line of the keel, each set comprising two or more fins at intervals along the length of the vessel in a common horizontal plane, the sets of fins being arranged in superposed series, whereby when the vessel is going slowly all the sets of fins are in the water, but as the speed increases, and consequently the supporting power of each fin is increased, the higher set or sets of fins as they are not required, gradually rise out of the water.

5. In a vessel supported by fins, a plurality of sets of fins under the vessel, the lower set extending from the center on each side to beyond the beam transversely, and arranged at intervals along the length of the vessel, and the other set or sets attached to the vessel at a higher level than the one below, and projecting outward, whereby when the vessel is going slowly all the sets of fins are submerged, but as the speed increases, and consequently the supporting power of each fin is increased, the higher set or sets of fins, as they are not required, gradually rise out of the water, whereby fins extending to a greater width than the vessel from the center line still remain in the water, and steadily support the vessel.

6. In a vessel, the combination of a hull, a keel piece, a series of long thin sharp-edged supporting fins, having their inner ends directly attached to the vessel and projecting out laterally therefrom, said fins being at different heights, whereby when the vessel is low in the water all the fins are submerged, but as it rises, sets of fins successively rise out of the water, for the purposes described.

7. In a vessel, the combination of a hull, a series of long thin sharp-edged supporting fins having their inner ends directly attached to the vessel and projecting out lat-

erally therefrom, the forward edge of each fin being higher than its aft edge, with one or more series of supporting fins at a different level from the other series, substantially as described, whereby when the vessel is deeply immersed, it is supported on all the fins, but when it rises out of the water, it is supported only by the lowest set.

8. The combination with a hull and keel piece, of fins having their inner ends connected to the vessel, and projecting out laterally therefrom, said fins being arranged in a plurality of sets or series of places at two or more heights, all the fins at each height being nearly equi-distant from each other in the length of the ship; substantially as described.

9. A vessel having a plurality of keel members in its length, said members gradually increasing in length from the bottom upward, and a series of fins attached to said keel members at varying heights, whereby there is sufficient keel surface for steering in the length of the vessel, without having a continuous keel, and as the fins in the water are lessened so is the keel surface also lessened.

10. In a vessel largely or wholly supported by fins, the combination of a series of long sharp-edged supporting fins projecting out laterally from the vessel to beyond the beam, slightly higher in the fore edge than the aft edge, and in two or more series, each series being at different heights.

11. In a vessel largely or wholly supported by fins, a series of fins projecting out laterally from the vessel, to beyond the beam and placed at two or more heights, all the fins at each height being nearly equidistant from each other in the length of the vessel.

12. In a vessel wholly or largely supported by fins, the combination of a hull, downward keel projections carried by the hull, a series of narrow blade fins projecting out at right angles to the vertical axial plane of the vessel carried by these projections below the level of the hull at intervals along the length of the vessel.

13. In a vessel largely supported by fins, the combination with a hull, of a keel, portions of which project downward at intervals in the length of the vessel, these portions being tapering in length from the top down, and fins carried by these projecting portions of the keel, whereby the length of keel submerged varies with the number of fins submerged.

In testimony whereof I affix my signature, in presence of two witnesses.

WILLIAM PHILLIPS THOMPSON.

Witnesses:

CHARLES LESLIE,
RICHARD W. WILLIAMS.