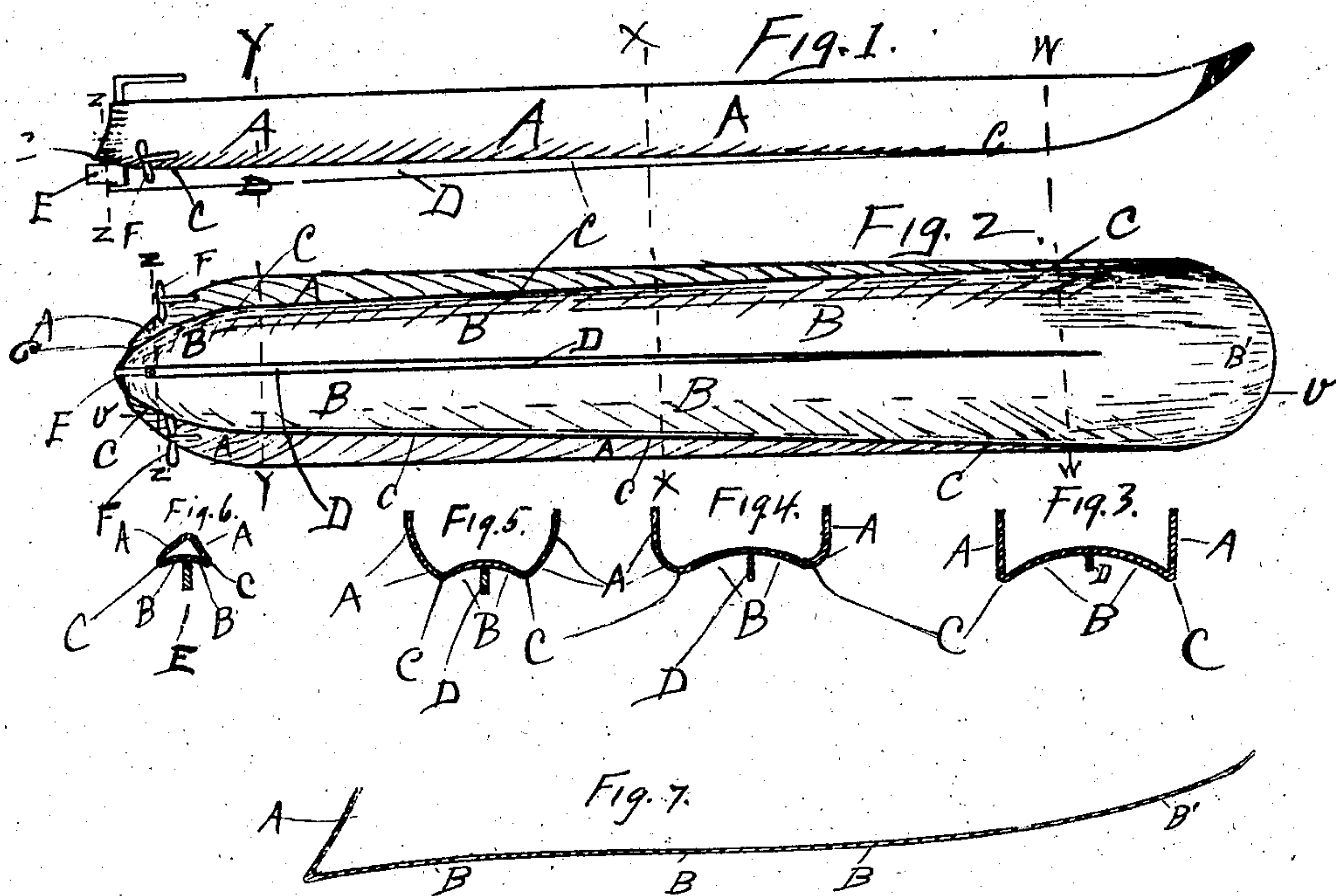


No. 815,187.

PATENTED MAR. 13, 1906.

C. A. MANKER.  
MARINE VESSEL.

APPLICATION FILED OCT. 3, 1904.



Inventor:

Carey A. Manker.

Witness.

Genevieve Manker  
Arthur Manker



# UNITED STATES PATENT OFFICE.

CAREY A. MANKER, OF PEARL, ILLINOIS.

## MARINE VESSEL.

No. 815,187.

Specification of Letters Patent.

Patented March 13, 1906.

Application filed October 3, 1904. Serial No. 226,962.

*To all whom it may concern:*

Be it known that I, CAREY A. MANKER, a citizen of the United States, residing in Pearl, in the county of Pike and State of Illinois, have invented certain new and useful Improvements in Marine Vessels, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to the exterior form of vessel-hulls for navigating the water, the purpose of the form in the peculiar configuration thereof being to overcome the resistance of the water as the hull moves therethrough with a minimum expenditure of power. The features by which this result is attained are substantially the formation of convex and concave exterior hull areas and the narrowing of the water-receiving portions of these areas from the forward end or bow of the hull to the rear end or stern.

Figure 1 is a side elevation of my hull. Fig. 2 is a bottom view of the hull. Fig. 3 is a transverse vertical section taken on line W, Fig. 1. Fig. 4 is a vertical transverse section taken on line X X, Fig. 1. Fig. 5 is a vertical transverse section taken on line Y Y, Fig. 1. Fig. 6 is a vertical transverse section taken on line Z Z, Fig. 1. Fig. 7 is a vertical longitudinal section taken on line V V, Fig. 2.

A designates the side surfaces of my hull, the contours of which are in the main convex in horizontal lines, the shape being in cross-section, preferably vertical adjacent to the bow, (see Fig. 3,) and from thence to stern in part vertical and in part inwardly curved. The side surfaces A extend inwardly gradually from points adjacent to the bow of the hull with respect to the hull's axis, whereby the side surfaces are brought closer together in a gradual degree from the forward end of the hull to the rear end thereof, thereby producing a narrowing water-receiving hull, the greatest width of which is forward and the least width of which is rearward.

B designates the bottom surface of the hull, the contour of which is concaved in cross-section and which narrows from its forward end to its rear end in like manner to the narrowing of the side surfaces A. At the forward end or bow of the hull is an upwardly curved or inclined surface B', that is convexly curved transversely and is located immediately in front of the forward end of the concavity at

the hull-bottom. The side surfaces A and bottom surfaces B merge into more or less rounded ridge-surfaces C, whereby the hull is rendered of approximately U shape or V shape in bottom elevation.

D designates a ballast-keel extending longitudinally of the bottom-surface B at the center thereof.

E is a rudder, and F the propellers.

The surfaces A, due to their being inclined inwardly toward the axis of the hull from a forward point to the rear of the hull, have peculiar merit by reason of their terminating at a point at which the bow of the hull first receives impact of the water in its forward travel at which point the surfaces A merge into the surface B'. It will be seen that this construction of backwardly-facing sides, or, in other words, the narrowing water-receiving portion of the hull from a point rearward from the point at which the water first impinges against the hull in the forward movement of the vessel, permits of the water flowing inwardly in horizontal plane throughout the whole length of the water-impact surface of the hull, thus securing the advantage of side pressure of such inflowing water against the hull sides through a greater length of the hull than in vessels of types heretofore in use. The advantage of the construction may be further increased by having the horizontal longitudinal lines of the surfaces A partake of hyperboloidal or paraboloidal curves, wherein the curves inwardly and backwardly express the accelerated flow of the water inwardly as the vessel moves forwardly.

In the practical use of my vessel as the vessel moves forwardly the water in which it floats is displaced downwardly by the concave bottom area B, while the convex sides permit of the water at the sides of the hull flowing inwardly to prevent suction from the water or to prevent suction of air at the stern of the hull. It is especially to be noted that a displacement of water in a downward direction, as in my form of hull, tends to reduce the draft of the vessel while in motion, thus eliminating entirely a portion of the resistance of the water, while at the same time the side pressure against the rearwardly and inwardly extending side areas of the hull tends to assist in the forward travel of the vessel. By my construction the water is displaced throughout the principal length of the hull, thus providing for the securing of greater



speed without displacing the water faster than in other forms of vessels at a slower speed, whereby it will be seen that a higher speed may be attained and maintained with a saving of power for the higher speed. In ordinary types of vessel-hulls the water is displaced in the first third or half of the hull's length, and therefore the advantage that I secure is entirely absent therefrom.

10 I claim as my invention—

1. A vessel-hull having its sides inclined rearwardly and inwardly in horizontal section from the point of first contact of water with the hull to the stern.

15 2. A vessel-hull having the horizontal water-line surfaces at its sides inclined rearwardly and inwardly from points of first impingement of the water thereagainst at the bow as the vessel moves in a forward direction, to the stern of the hull.

20 3. A vessel - hull narrowed longitudinally from the point of first impingement of water against its sides to its stern, and having a concaved bottom surface, said concaved bottom

surface being narrower at its rear end than at its forward end. 25

4. A vessel-hull having its sides inclined rearwardly and inwardly from points of first impingement of water thereagainst and being of convex contour in vertical section and having a concaved bottom surface; said concaved bottom surface being narrower at its rear end than at its forward end. 30

5. A vessel-hull having its sides tapered inwardly and rearwardly from its bow to its stern and having a concaved bottom surface; said sides and bottom surface merging into ridges extending longitudinally of the hull from the points of first impingement of water thereagainst as the vessel moves in a forward direction. 35 40

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CAREY A. MANKER.

Witnesses:

GENEVIEVE MANKER;  
ARTHUR MANKER.