

S. GOLDEN.  
HULL FOR VESSELS.  
APPLICATION FILED FEB. 24, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

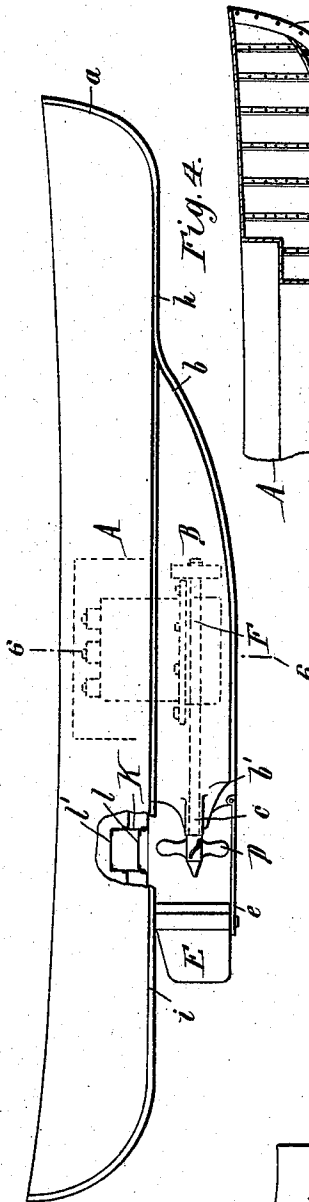


Fig. 2.

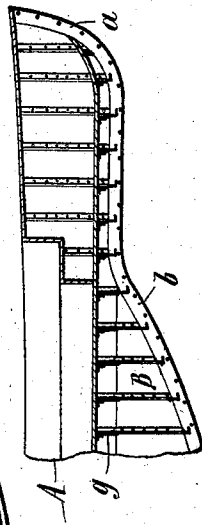
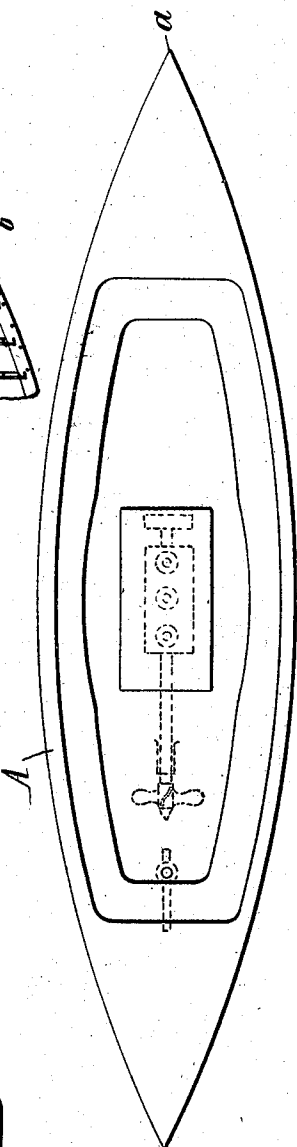
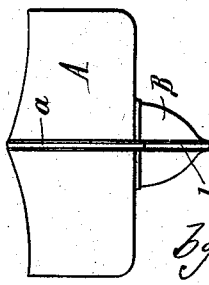


Fig. 3.



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Fig. 5.

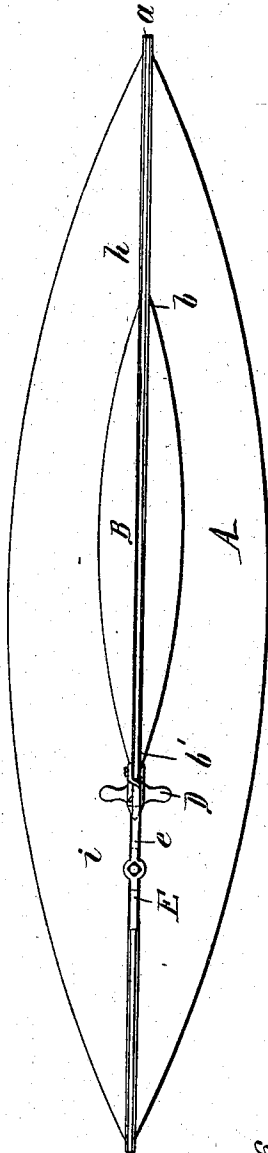


Fig. 6.

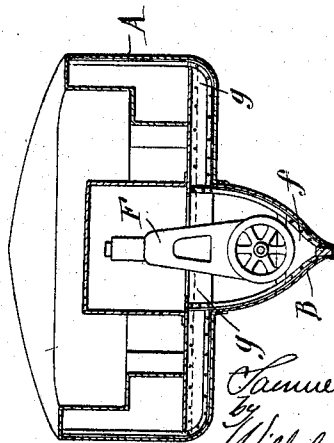
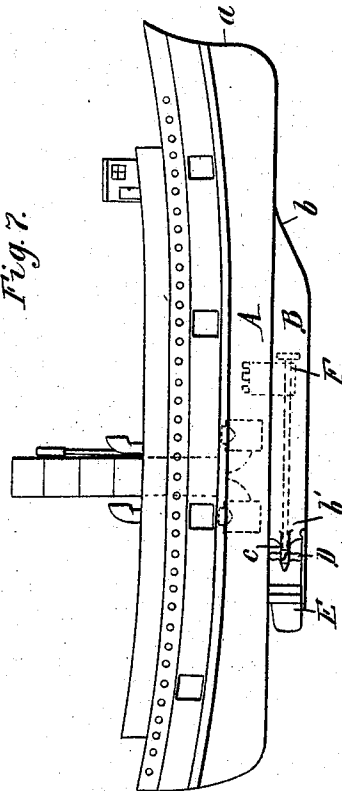


Fig. 7.



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# UNITED STATES PATENT OFFICE.

SAMUEL GOLDEN, OF BUFFALO, NEW YORK.

## HULL FOR VESSELS.

No. 867,654.

Specification of Letters Patent.

Patented Oct. 8, 1907.

Application filed February 24, 1905; Serial No. 247,099.

To all whom it may concern:

Be it known that I, SAMUEL GOLDEN, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Hulls for Vessels, of which the following is a specification.

This invention relates to the hulls of vessels, particularly those which are propelled by screw propellers, and has for its object to secure greater efficiency and speed, increase the stability and seaworthiness, facilitate maneuvering, and gain other advantages.

To that end my invention consists of a hull which has its bottom provided with a hollow extension or fin, having the form or lines of a vessel and suitable for accommodating the propelling machinery, wholly or in part, said bottom extension or fin being shorter and narrower than the hull and beginning at a distance in rear of the stem or front end of the hull and terminating at a distance forward of the stern or rear end of the hull, so that the bottom of the hull extends forwardly, rearwardly and laterally beyond this extension or hollow fin.

In the accompanying drawings, consisting of two sheets: Figure 1 is a side elevation of a launch or similar vessel provided with my improvement. Fig. 2 is a top plan view thereof. Fig. 3 is a front elevation. Fig. 4 is a longitudinal sectional elevation of the front portion of the vessel. Fig. 5 is a bottom plan view. Fig. 6 is a vertical cross section in line 6-6, Fig. 1, on an enlarged scale. Fig. 7 is a side elevation of a steam vessel provided with my improvement.

Like letters of reference refer to like parts in the several figures.

A represents the hull of the vessel and B the hollow bottom extension or fin formed on the bottom of the hull and extending downwardly therefrom. This extension or fin has the form or lines of a vessel and is of less length and width than the hull and begins at a distance rearwardly from the front end or stem *a* of the hull. The front end or stem *b* of the fin is preferably made slanting. The fin is preferably about half as long as the hull, and the front and rear overhang of the hull are each about one-fourth the length of the hull, but these proportions may be changed at desire. The fin is made as narrow as circumstances will permit. The stern or rear portion of the fin is provided with a stern tube *c* for the shaft of the propeller wheel D. E represents the rudder which is arranged underneath the bottom of the hull in rear of the propeller wheel and supported on a shoe *e*. The fin is hollow so far as may be necessary to accommodate the propelling machinery or parts of the same. The engine F is arranged in the fin on the floor members or plates *f* thereof and may project into the hull to a greater or less extent.

In the case of a steam vessel the boiler or boilers are

arranged in the hull, as represented by dotted lines in Fig. 7.

The floor plates or members *g* of the hull extend across the upper portion of the fin, Fig. 4, and connect and brace the parts of the bottom of the hull which are located on opposite sides of the fin.

The front portion *h* of the bottom of the hull extends forwardly beyond or overhangs the front end *b* of the fin, and the rear portion *i* of the bottom of the hull extends rearwardly beyond or overhangs the rear end *b'* of the fin, these overhangs having about the same length or extent, so that the vessel is approximately balanced fore and aft. This balancing of the front and rear overhangs of the hull over the fin gives the wind about equal bearing or pressure on the front and rear ends of the hull, whereby the vessel is enabled to turn against the wind or with the wind with equal facility. The main hull is easily kept in a horizontal position with or without load, whereby maneuvering is rendered easy and certain under all conditions of water and weather.

The hull is provided in its bottom in rear of the fin and over the propeller with a well or port K which extends above the light water line and which is closed, preferably, by a removable bottom plate *l* and a removable top plate *l'*, either or both. Upon removing these plates the propeller can be inspected and minor repairs can be made on the same.

The bow wave or water which is displaced by the front end of the fin when being driven through the water is forced up against the forwardly overhanging bottom of the hull and tends to raise the same, while the water which is driven aft by the propeller wheel tends to raise the rearwardly overhanging portion of the vessel. The faster the boat is driven the greater is the tendency which is so developed to raise the hull, whereby the friction and resistance are correspondingly reduced.

The propeller wheel is placed in a position underneath the hull where it will remain submerged in unbroken water under all conditions of load, weather and motion, thereby avoiding the severe shocks and strains to the vessel and machinery when the screw or propeller works in a seaway alternately on a light load on being raised and on a heavy load on being lowered.

The propeller shaft is comparatively short, whereby the liability of its being sprung and bound or jammed in its bearings by the bending and springing of the hull in a seaway is removed. The weight of the shaft and of its bearings is also correspondingly reduced.

The hull fin obviates the necessity for bilge keels as it performs every function of the same without, however, wasting any power. Very fine lines can be given to the hull fin so that the water is parted and

allowed to fall back with the least possible disturbance. The hull fin presents a very small cross section to the water through which it is driven, and causes little lateral movement of the water, so that  
 5 the propeller wheel rotates in nearly unbroken water, whereby its efficiency is greatly increased.

The center of gravity being located low by reason of the engine being arranged in the fin, the vessel has superior qualities for riding in the trough of the sea  
 10 and suffers little strain in being driven head on to a big sea.

As the propeller wheel and rudder are always submerged in unbroken water they can be relied upon to properly perform their functions under all circumstances, and as the fin acts as a center board or pivot  
 15 to the hull and prevents the vessel from sliding side-wise when turning, or drifting to leeward under wind pressure, the vessel is enabled to turn on a very short radius, whether going forward or backward, and to  
 20 execute intricate evolutions quickly and safely.

The fin forms an arch on the bottom of the hull

whereby the latter is greatly strengthened and stiffened.

I claim as my invention:

The combination of a vessel hull having a hollow horizontal bottom extension of less length and width than  
 25 the hull, said extension being overhung by the bottom of the hull at the front, rear and sides, the front portion of the extension sloping from the bottom of the hull downwardly and rearwardly to the bottom of the extension, the  
 30 front and rear ends of the extension being arranged at a distance rearwardly and forwardly of the front and rear ends of the hull, and the bottom of the hull extending approximately at right angles outwardly from the upper  
 35 ends of the sides of the extension, a propelling engine arranged with its lower portion in said extension, a horizontal propeller shaft extending from said engine rearwardly through the extension, a propeller arranged at  
 40 the rear end of said extension, and a rudder arranged in rear of said propeller underneath the overhanging bottom of the rear portion of the hull, substantially as set forth:

Witness my hand, this 18th day of February, 1905.

SAMUEL GOLDEN.

Witnesses:

EDWARD WILHELM,  
 C. B. HORNBECK.