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E. L. WOOD

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Fig. 1.

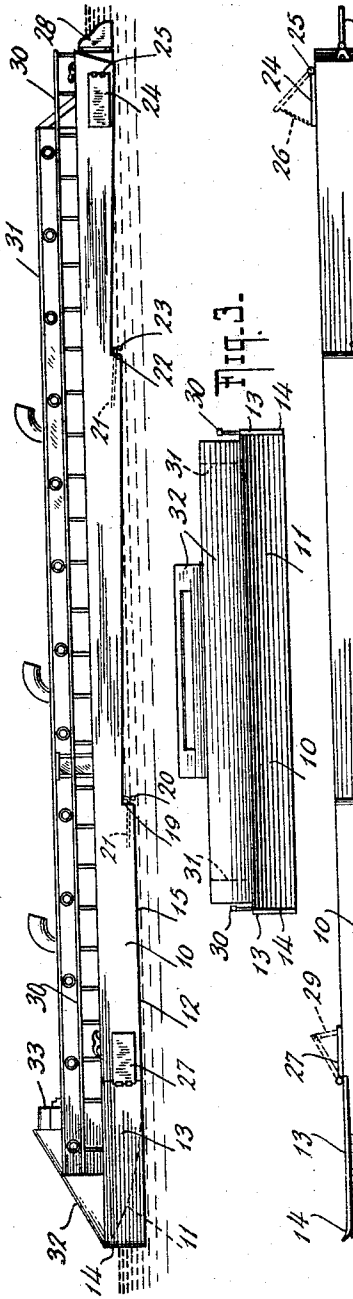


Fig. 3.

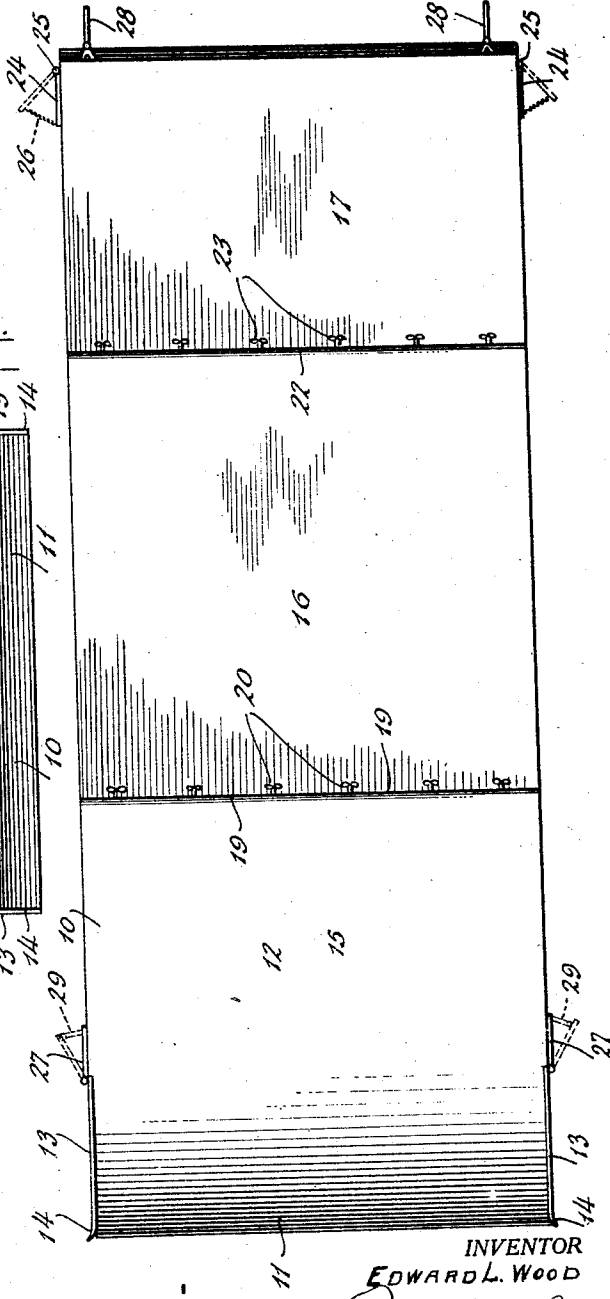


Fig. 2.

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UNITED STATES PATENT OFFICE.

EDWARD L. WOOD, OF KEANSBURG, NEW JERSEY.

SHIP.

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To all whom it may concern:

Be it known that I, EDWARD L. WOOD, a citizen of the United States, residing at Keansburg, county of Monmouth, and State of New Jersey, have invented certain new and useful Improvements in Ships, of which the following is a specification.

The principal object of this invention is to provide a new and improved construction of a power driven ship by means of which a large ship of great speed and capacity may be constructed having a minimum amount of draught.

A further object is to provide a hull construction in a ship by means of which the boat will ride over the top of rather than cut through the water.

Another object is to provide a double battery or series of propellers arranged in transversely extending pockets formed by the special hull construction, the angle of inclination of the propeller shafts being such that the thrust of the propeller blades will tend to exert a lifting effect as well as a forward driving effect.

A further object is to provide means for exerting a braking or checking effect upon the forward travel of the ship when it is desired to stop the progress thereof as quickly as possible in case of emergency.

For the accomplishment of these and such further objects as will be hereinafter apparent, to those skilled in the art to which this appertains, the invention consists in the construction, combination and arrangement of parts herein specifically described and illustrated in the accompanying drawings, wherein is shown a preferred embodiment of the invention, but it is to be understood that changes, variations and modifications may be resorted to which fall within the scope of the claim hereunto appended.

In the drawings forming a portion of this specification:—

Fig. 1 is a side elevation of a ship embodying my invention.

Fig. 2 is a front elevation and

Fig. 3 is a bottom plan view.

As shown in the drawings, the hull 10 of the ship has an exceptionally broad beam somewhat less than half the length of the ship. The bottom of the hull is curved upwardly from a point some distance rearward of the front to form the curved bow 11. Secured to the sides of the ship and extending from the extreme forward end of the

bow to the point where the curved bow merges into the flat bottom section 12, of the hull are a pair of wave interrupters 13. These interrupters are preferably constructed of metal plates and have their forward ends flared outwardly as at 14 and are intended to prevent the ship from causing side waves when it is propelled through the water.

For the purpose of this application, the bottom of the hull will be designated as formed into a bow section 15, a midship section 16 and a stern section 17. The bow section 15 as heretofore described is curved upward to form the bow proper and extends from the inner end of the curved bow in a horizontal plane to a point forward of midship where it terminates at the bottom of a vertical wall 19. The wall 19 extends upwardly a short distance from the plane of the bottom of the bow section 15 and the bottom of the midship section 16 extends in a plane from top of the wall 19, a distance from the wall 19 substantially equal to the length of the bow section. The rear end of the bottom of the midship section lies in the same horizontal plane as the bottom of the bow section thereby forming an upwardly tapered bottom which defines with the vertical wall 19, a recessed pocket in which the battery of propellers 20 is arranged. The propeller shafts 21 are arranged at an angle to the horizontal to cause the propellers to exert a lifting effect upon the ship and the wash from the propellers as well as the reaction between the tapered bottom of the midship and stern sections as the ship is driven forwardly by the propellers will tend to cause the ship to ride over the top of the water.

The midship section terminates at the vertical wall 22 from the top of which the bottom of the stern section extends in an inclined direction similarly to the midship section, thereby forming another pocket for the battery of propellers 23. I prefer to construct the stern section of less length than the bow or midship section and adjacent the rear end of the stern section a braking plate 24 is hinged as at 25 to each side of the boat. One end of a cable or chain 26 is secured to the outer free ends of each plate 24 and has its other end passed around a suitable power driven winch (not shown) for operating the plates.

Two sets of rudders, a forward and a stern

set, are preferably provided to render the steering or maneuvering of the boat to be performed more readily, the members 27 of the forward set preferably being pivoted to the sides of the hull just aft of the wave interrupters 13 and the members 28 of the stern set being pivoted to the stern of the ship adjacent the sides thereof. Suitable means such as shafts or screws as indicated by the numeral 29 will be provided for operating the forward rudders while the stern rudders will be operated by any of the common or well known means.

The superstructure of the ship may be constructed in any desirable way but for the purpose of illustration, I have shown a main deck 30 and a top deck 31 with the usual cabins below each deck. In order to cut down the wind resistance a wind deflector 32 extends downwardly at an angle from the bridge 33 to the forward end of the bow.

Any suitable driving engines, preferably oil or gas engines may be provided for furnishing the motive power and I prefer driving each propeller or a pair of propellers by an electric motor the current for which is supplied from a main generator driven by the engine.

The operation is as follows, assuming the propellers to be in operation, the thrust thereof in a slightly downward direction will tend to reduce the normal displacement of the ship when it is at rest, and the reaction of the water against the tapered plane portions of the bottom of the midship and stern sections will also help to contribute a lifting effect upon the ship which will cause it to skim across the top of the water. The large flat surface area of the bottom of the ship will also contribute largely to this effect. The wide curved bow 11 will cause the bow end of the ship to raise upwardly to ride over the water, and the interrupter plates will not only act to confine the water under the bow and thereby assist the raising effect but will effectually prevent the formation of side waves during the forward travel of the ship. The location of the propellers in the pockets aft of the vertical walls 19 and 22 will also prevent the formation of

waves by the action of the propellers. The stern rudders upon one side may be connected for simultaneous operation with the forward rudder upon the other side or each of the rudders may be independently operated. The action of the rudders will be obvious.

In case it becomes necessary to stop the ship as quickly as possible in an emergency, the braking plates are swung outwardly in addition to reversing the direction of rotation of the propellers.

While I have shown the hull of the ship as consisting of three sections having two propeller pockets located therebetween, it will be understood that any desired number of sections may be provided, that any number of batteries of propellers may be used and that the number of propellers in each battery may be varied as desired.

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

A ship having a hull arranged to form a plurality of sections having pockets extending transversely between said sections, the bottom of the bow section having the rear part thereof arranged in a horizontal plane and its front part curved only in a vertical plane to form a wide upwardly extending surface, a pair of flat vertically extending plates secured to the sides of said bow section, said plates extending the full length of said curved front part from the top of the hull to a point below the water line to prevent the formation of waves by said bow section, propeller shafts arranged at angles to the horizontal and each disposed in one of said pockets, a pair of forward rudders pivoted to the sides of said hull adjacent the bow section thereof, a pair of stern rudders arranged adjacent the sides of the stern of the hull, a pair of plates pivoted at their rear ends to the sides of said hull adjacent said stern, and means to hold said plates perpendicular to said sides to effect a braking action upon the forward travel of the ship.

In testimony whereof I have affixed my signature.

EDWARD L. WOOD.