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B. C. MODIN

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PROPELLER GUARD

Filed Nov. 4, 1930

Fig. 1.

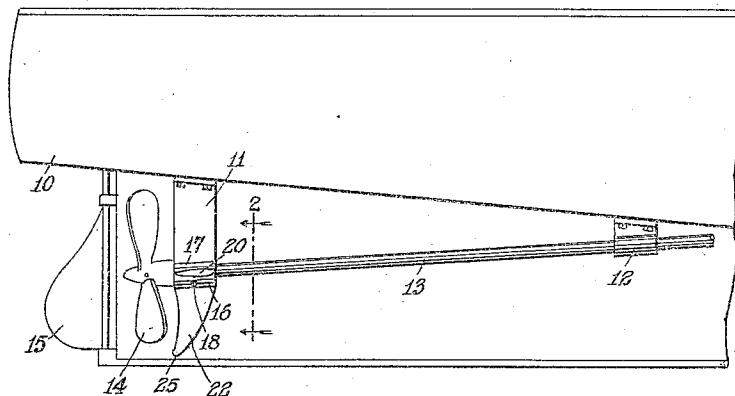


Fig. 2.

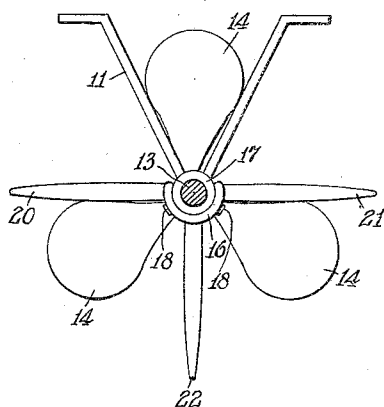


Fig. 3.

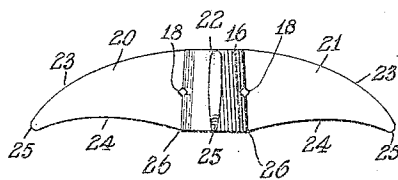
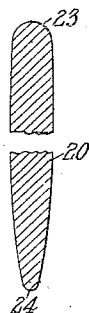


Fig. 4.



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PROPELLER GUARD

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The invention relates to guard means adapted for association with the screw propeller of a vessel for the purpose of protecting the same against fouling by free floating or submerged objects, such as driftwood and other floating débris.

It has for an object the provision of a relatively inexpensive guard which is adapted for ready application to propellers already installed, as well as being suitable for installation in the original construction of the vessel. A further object of the invention resides in a guard member which is conveniently removable for repair if damaged and replaceable in the case of destruction thereof.

A still further object of the invention resides in a design and arrangement of the guard member relatively to the propeller which will not appreciably decrease its efficiency; and which, furthermore, will not tend to result in wedging of floating matter between it and the said propeller.

The nature of the invention, however, will best be understood when described in connection with the accompanying drawing, in which:

Fig. 1 is a side elevation of the stern of a vessel equipped with the novel guard member for its propeller.

Fig. 2 is a fragmentary transverse section, taken on the line 2—2, Fig. 1 and looking in the direction of the arrows.

Fig. 3 is an underneath view of the guard member.

Fig. 4 is a transverse section, on an enlarged scale, taken through a blade of the guard member.

Referring to the drawing, 10 designates the stern of a vessel and to the underside of which is mounted in the usual hangers or standard supporting struts 11 and 12 a propeller shaft 13 for rotating a screw propeller 14 of the vessel and located in the usual manner forward of its rudder 15.

In accordance with the invention, the novel guard member is arranged to be mounted immediately forward of the propeller 14 and to be carried by the hanger 11. To this end, the guard member comprises an arcuate and supporting sleeve 16 adapted, for example, to fit

over the propeller bearing 17 of the outer hanger 11, said sleeve being curved to slightly more than a semi-circle for vertical support on the bearing and having a taper fit thereon. The said sleeve is further secured in position by means of set screws 18 countersunk in the sleeve 16.

Three blades or fins extend radially outwardly from this sleeve and are integral therewith so as to be rigid with the shaft bearing 17. Two of these blades 20 and 21 extend laterally from the said sleeve in opposite directions in a substantially horizontal plane which includes also the axis of rotation of the propeller, while the third blade 22 extends downwardly substantially at right angles to the plane of the blades 20 and 21, thus being located midway between the same and in a vertical plane.

The aforesaid blades, moreover, are tapered to stream-line proportions, that is to say, their respective forward edges 23 are rounded and broader than the after edges 24. By this expedient, substantially no dead space results in the region immediately forward of the propeller and thus insures maximum efficiency in the operation of the said propeller. Furthermore, both the edges 23 and 24 are curved longitudinally, as indicated, to deflect and direct any material contacting therewith laterally outwardly therefrom or downwardly and from either above or below the propeller. Driftwood and the like will therefore readily slide off the inclined edges of said blades, which are of substantially equal radius, with their tips 25 constructed to extend slightly beyond the circumference of the corresponding propeller blades 14 so that the débris will be directed also beyond said propeller.

The after edge 24 is preferably curved, also, and to a shorter radius than the edge 23 to increase space for better propeller action; and the tip 25 of the meeting edges terminates substantially in the same plane with the end 26, where the edge 24 merges into the sleeve, to afford ample clearance for the propeller.

It will be understood, of course, that the blades instead of being secured to a removable

sleeve 16 may be formed integrally with the bearing or hub 17 of hanger 11 if originally built into the boat. However, by utilizing a sleeve as set forth, it is a simple matter to
 5 remove or replace a guard member, the operation requiring only a very brief period, not exceeding as a rule fifteen minutes, and does not necessitate taking down the entire hanger.

10 It will be noted, because of the horizontally disposed blades 20 and 21 extending in opposite directions from the sleeve, that in case of partial submerging of the stern 10 these blades will act as a horizontal rudder to
 15 assist in lifting said stern; and, due to their slight thickness and stream-line contours, will not in passing through the water materially impede the progress of the vessel therein.

20 I claim:

1. In a propeller-driven vessel; a guard for the propeller thereof, comprising an arcuate sleeve adapted to be rigidly secured over the lower half of the propeller shaft
 25 bearing immediately forward of the propeller and having a pair of integral stationary blades extending laterally therefrom in opposite directions and substantially in a horizontal plane, and an integral intermediate stationary blade extending downwardly therefrom substantially in a vertical plane.

2. In a propeller-driven vessel; a guard for the propeller thereof, comprising an arcuate sleeve adapted to be rigidly secured over the lower half of the propeller shaft
 35 bearing immediately forward of the propeller and having a pair of integral stationary blades extending laterally therefrom in opposite directions and substantially in a horizontal plane, and an integral intermediate stationary blade extending downwardly therefrom substantially in a vertical plane, and the said tips of all of the blades lying substantially in the same plane with the
 45 points at which the inner ends of the respective after edges merge with the sleeve.

3. In a propeller-driven vessel: a guard for the propeller thereof, comprising an arcuate sleeve adapted to be rigidly secured over the lower half of the propeller shaft
 50 bearing immediately forward of the propeller and having a pair of integral stationary blades extending laterally therefrom in opposite directions and substantially in a horizontal plane, and an integral intermediate stationary blade extending downwardly therefrom substantially in a vertical plane, the forward and the after edges of all of the blades being curved, the curvature of the
 55 after edge being of a greater radius than the forward edge, and the said tips of all of the blades lying substantially in the same plane with the points at which the inner ends of the respective after edges merge with the sleeve.

4. In a propeller-driven vessel: a removable guard attachment for the propeller thereof, comprising a unitary structure adapted to be rigidly positioned with respect to the propeller shaft bearing and embodying a pair
 70 of stationary and horizontally disposed blades adapted when the attachment is secured to the said propeller shaft bearing to extend in opposite directions from its longitudinal axis in a horizontal plane including
 75 said axis, and an intermediate stationary blade extending then downwardly from said axis in a vertical plane including the axis, all of said blades projecting beyond the tips of the guarded propeller.

In testimony whereof I affix my signature.
 BEN C. MODIN.