

(No Model.)

W. STELLNER.
MARINE SCREW PROPELLER.

No. 587,245.

Patented July 27, 1897.

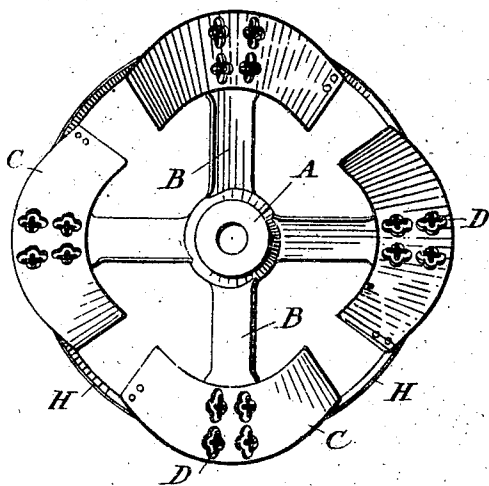


Fig 1

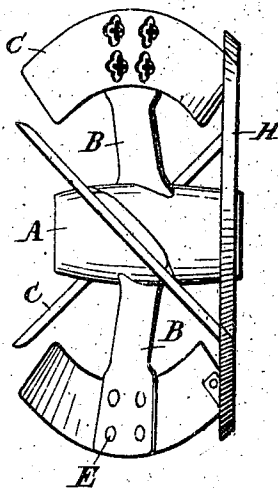


Fig 2

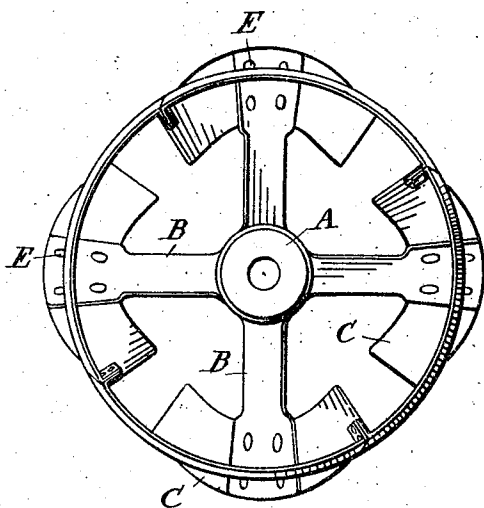


Fig 3

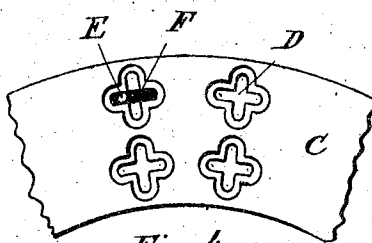


Fig 4

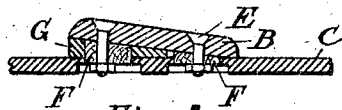


Fig 5

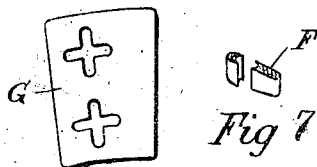


Fig 6 Inventor:
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Witnesses:
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By

UNITED STATES PATENT OFFICE.

WILLIAM STELLNER, OF MELBOURNE, VICTORIA, ASSIGNOR OF ONE-HALF
TO JAMES ALFRED COOPER, OF SAME PLACE.

MARINE SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 587,245, dated July 27, 1897.

Application filed December 23, 1896. Serial No. 616,701. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM STELLNER, engineer, a subject of the Queen of Great Britain and Ireland, residing at 277 Elizabeth Street, Melbourne, in the Colony of Victoria, have invented a certain new and useful Improvement in Marine Screw-Propellers, of which the following is a specification.

The object of my invention is to provide a propeller the blades of which are not only easily detachable from and adjustable on the arms which carry them, but by means of which a greater speed is obtained. In the screw-propellers hitherto in use it has generally been necessary when the pitch of the blades required altering or a broken blade replacing to send down a diver or to dock the vessel; but with my invention the delay and expense attendant on this operation is not incurred, since if the after part of the ship be lightened it will rise sufficiently to expose the blades above the water, from which, one at a time, they can be approached by punts or rafts for either replacement or adjustment.

My invention, which is applicable to one, two, three, or four bladed screw-propellers, consists of blades which in contour resemble the segments of a circle and which are detachable from arms protruding from the propeller-boss. In order to stiffen the said blades and also to ward off any ropes, chains, or other floating or falling obstructions which might cross the propeller's pathway, there are placed between the leading ends of each blade connecting-stays. An unbroken circle is thereby formed on the leading side of the propeller, the blades of which are adjustable in three ways—radially from the boss, longitudinally on the arms, and also as regards their pitch. The radial and longitudinal adjustment is effected by cross-shaped holes in the blades, while the pitch is varied by a pitch-adjusting wedge (also having cross-shaped holes) situated between the blades and the arms. The bolts or rivets passing through these holes are locked in any required position by a chock or chocks cut to fit into the holes; but in order that my invention may be better understood I will now refer to the accompanying sheet of drawings, which are

to be taken as part of this specification and read herewith.

Figure 1 represents an elevation of a four-bladed screw looked at from the aft or driving side. Fig. 2 represents a side elevation of the same, showing the connecting-stays, which, as will be seen, are attached to the back of the leading ends of the blades. Fig. 3 represents an elevation of the screw, looked at from the forward or leading side. Fig. 4 represents, on an enlarged scale, a view of one of the blades looked at from its driving side. Fig. 5 shows a sectional plan of a blade between which and the arm is the pitch-adjusting wedge. Fig. 6 represents a front view of the wedge. Fig. 7 represents a perspective view of the chocks which are placed in the elongated holes shown in Fig. 5.

Similar letters of reference indicate similar or corresponding parts where they occur in the several views.

On reference to the drawings it will be seen that A is the boss, to which are integrally attached the arms B. The fore and aft edges of these arms, as shown in Fig. 2, are not square with the axis of the boss, but trail aft at the outside end. The sides of the arms may be at any angle with the aforesaid axis, which angle is governed by the pitch. At the end of the arms are connected the blades C, each one of which in contour is a perfect segment of a circle. These are preferably secured by bolts which pass through the recessed cross-shaped holes D.

Attached to the leading ends of the blades by bolts, rivets, or other means, are the rectangular sectioned connecting-stays H. These extend from blade to blade, and at both ends, in order not to reduce the area of the driving side, are secured to the trailing face or back of the said blades.

The longitudinal and radial adjustment of the blades is effected by the cross-shaped holes D. These permit them to be moved either fore or aft and either from or to the boss. When the desired position is ascertained, the shape around the bolt or rivet E is filled by the chocks, such as F, which effectually lock both bolt and blade. The heads of the said bolts or rivets, by the recessed

holes shown, are sunk beneath both the blade and the arm.

The adjustment of the pitch of the blades is effected by means of interchangeable
 5 wedges G, which are provided with cross-shaped holes to permit of the longitudinal and radial adjustment of the blades. When the pitch of the blade is to be increased, a more obtuse wedge is employed, and when the pitch
 10 is to be diminished a more acute wedge is used.

I do not bind myself to a wedge of the particular inclination shown, nor to the shape of the holes within it, since these particulars
 15 will all vary with the different conditions under which each particular is constructed. The blades, which can be attached to existing propellers, may also be either curved or flat, the amount of the curvature depending
 20 upon the diameter and the pitch.

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

1. In marine screw-propellers, the combination of the blades and arms, with pitch-adjusting wedges interposed between the blades and arms, substantially as and for the purpose described.

2. In marine screw-propellers, the combination of the arms, with blades C each forming a complete segment of a circle detachably secured to and adjustable on the arms, substantially as and for the purpose described.

3. In marine screw-propellers, the combination of the arms, with detachable blades
 35 having recessed cross-shaped holes for the retaining bolts or rivets, and means for holding the bolts in proper position in the holes, substantially as and for the purpose described.

4. In marine screw-propellers, the combination of the arms, with detachable blades,
 40 pitch-adjusting wedges interposed between the blades and arms, and securing-bolts, all substantially as and for the purpose described.

5. In marine screw-propellers the combination of a boss A having integral arms B to which are detachably connected blades C
 45 having recessed cross-shaped holes D; with pitch-adjusting wedges G interposed between said blades and arms, all substantially as and for the purpose described.

6. In marine screw-propellers the combination of a boss A having integral arms B to which are detachably connected blades C
 50 having recessed cross-shaped holes D; with pitch-adjusting wedges G interposed between said blades and arms; and stays H connecting and stiffening the blades, all substantially as and for the purpose described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

WILLIAM STELLNER.

Witnesses:

EDWIN PHILLIPS,
 CECIL WOODS LE PLASTRIER.