

No. 736,952.

PATENTED AUG. 25, 1903.

E. FOX.
SCREW PROPELLER.
APPLICATION FILED JAN. 8, 1903.

NO MODEL.

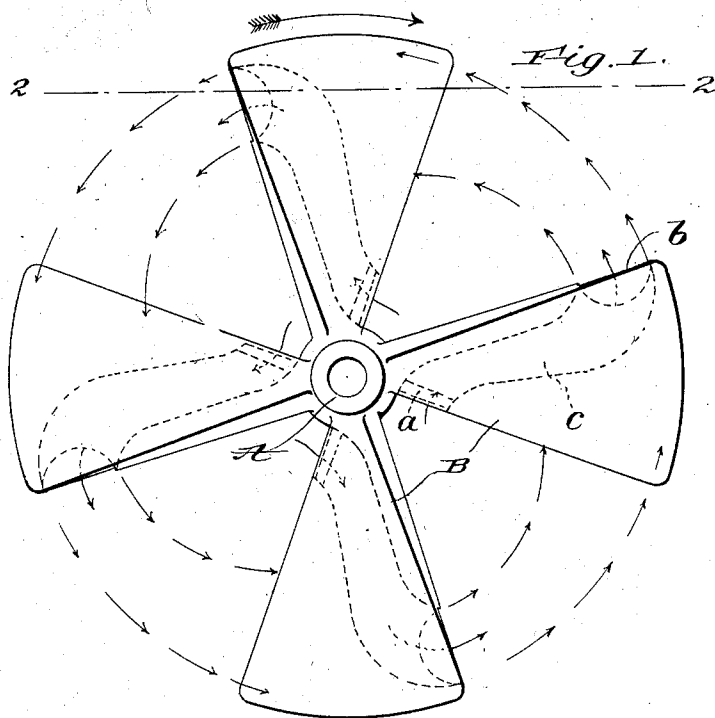


Fig. 2.

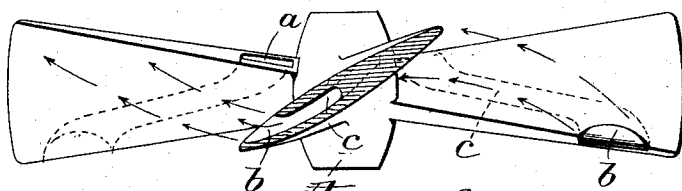
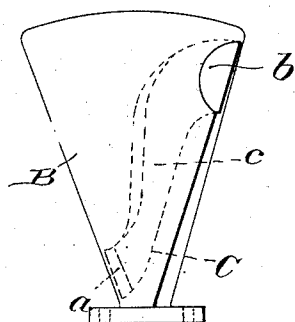


Fig. 3.



Witnesses
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UNITED STATES PATENT OFFICE.

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SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 736,952, dated August 25, 1903.

Application filed January 8, 1903. Serial No. 138,253. (No model.)

To all whom it may concern:

Be it known that I, EDWARD FOX, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Screw-Propellers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to marine propulsion; and it has for its object to increase speed in vessels by preventing to a great extent the slip of the screw in the water. I accomplish this result by the combined reaction and impact effect of streams of water forced through blades of the screw by the centrifugal action of the revolving screw through the water.

With the foregoing in mind the invention will be fully understood from the following description and claims when taken in connection with the accompanying drawings, in which—

Figure 1 is a rear elevation of a propeller constructed in accordance with my invention; Fig. 2, a horizontal section taken in the plane indicated by the line 2 2 of Fig. 1, and Fig. 3 a detail front elevation illustrating one of the blades of the propeller and a modification.

Referring by letter to the drawings, A is the hub of my improved propeller, and B B the blades. I desire it distinctly understood that I do not limit myself to any number of blades on the propeller or to any certain pitch of screw or to forming the blades integral with the hub, as shown in Figs. 1 and 2. In screw-propellers of large diameter the blades may be bolted, Fig. 3, or otherwise secured to the boss or hub on propeller-shaft, so as to permit of their disconnection from said boss or hub when necessary. The blades are each provided with a passage C. These passages are similar, and therefore a detailed description of the one shown in Fig. 3 will suffice to impart a clear understanding of all. Said passage C has its receiving end (indicated by a) disposed in the forward edge of the blade, with reference to the direction in which the propeller is rotated to drive a vessel forward, at a point adjacent to the hub A, and from said point a it extends in the direction of the

length of the blade and across the same to the point b, where it terminates in a discharge formed in the forward side of the blade adjacent to the rear edge and the outer end of the same. The discharge b is disposed at an approximate obtuse angle to the intermediate portion c of the passage, as best shown in Fig. 2, and hence is enabled when the propeller is rotated in the direction indicated by the large arrow in Fig. 1 to throw a solid stream of water outwardly—i. e., toward the outer end of the succeeding blade and forwardly against the rear face of said blade—after the manner shown by arrows in Fig. 2, 65

In the practical use of my improved propeller the same is rotated in the direction indicated by the large arrow in Fig. 1 in order to move a vessel forwardly. In virtue of each of the blades of the propeller being provided with a passage C it will be observed that when the propeller is rotated as stated solid streams of water will be caused to take through the passages (see arrows in Fig. 1) and will be forcibly projected rearwardly and outwardly against the rear faces of the several blades. From this it follows that the ordinary tendency of the water to follow the blades and cause slip is overcome, also that a dense body of water is always present at the rear face of each blade, and in consequence the purchase and thrust of the blades is materially increased, as is also the efficiency of the propeller as a whole.

I am well aware that it is old, as shown in German Patent No. 17,146, to provide each blade of a screw-propeller with a passage which extends from one edge of the blade at a point adjacent to the hub to the opposite edge of the blade at a point adjacent to the outer end thereof and is adapted to discharge a stream of water rearwardly parallel to the axis of the hub. I therefore make no claim to such construction.

What I claim, and desire to secure by Letters Patent, is—

1. A screw-propeller comprising a hub, and a plurality of blades, pitched at an angle to the longitudinal median line of the hub; each of the said blades being provided with a passage which extends from the forward edge of the blade, with reference to the direction in

which the propeller is rotated to drive a vessel forward, at a point adjacent to the hub, and in the direction of the length of the blade across the same, and terminates in a discharge *b* formed in the forward side of the blade adjacent to the rear edge and outer end of the same, and disposed at an obtuse angle to the intermediate portion of the passage; whereby it is adapted to discharge a stream of water against the rear face of the following blade.

2. In a screw-propeller, the combination of a boss or hub, and one or more blades detachably connected thereto; each of the said blades being provided with a passage which extends from the forward edge of the blade, with reference to the direction in which the

propeller is rotated to drive a vessel forward, at a point adjacent to the hub, and in a direction of the length of the blade across the same, and terminates in a discharge *b* formed in the forward side of the blade adjacent to the rear edge and outer end of the same, and disposed at an obtuse angle to the intermediate portion of the passage, whereby it is adapted to discharge a stream of water against the rear face of the following blade.

In testimony whereof I hereby affix my signature in presence of two witnesses.

EDWARD FOX.

Witnesses:

JOHN F. COWEN,
MARY B. LETTENBERGER.