

No. 705,866.

Patented July 29, 1902.

E. E. PUNZELT.
ADJUSTABLE SCREW PROPELLER.

(Application filed Dec. 20, 1901.)

(No Model.)

Fig. 1.

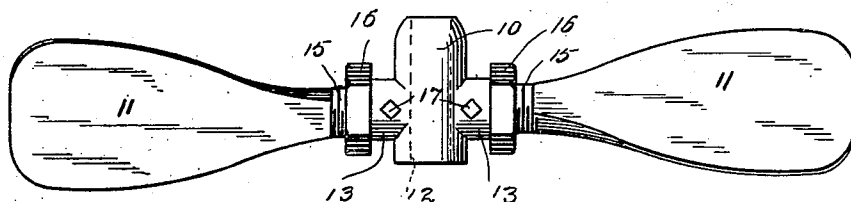


Fig. 2.

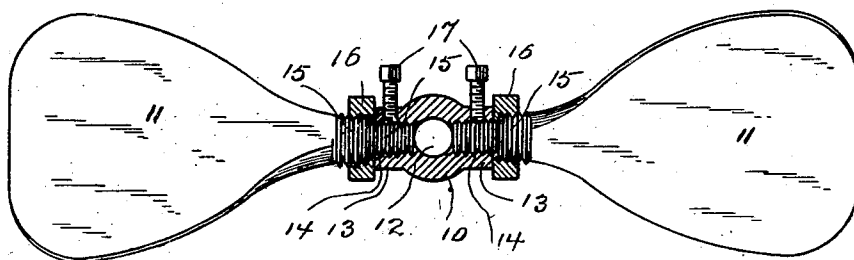
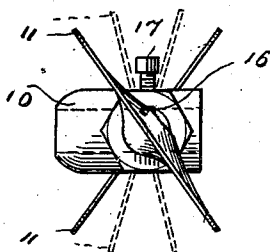


Fig. 3.



WITNESSES.

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EDWARD E. PUNZELT, OF NORWALK, CONNECTICUT, ASSIGNOR TO HORACE E. DANN AND OSCAR H. BANKS, OF NORWALK, CONNECTICUT.

ADJUSTABLE SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 705,866, dated July 29, 1902.

Application filed December 20, 1901. Serial No. 86,672. (No model.)

To all whom it may concern:

Be it known that I, EDWARD E. PUNZELT, a citizen of the United States, residing at Norwalk, county of Fairfield, State of Connecticut, have invented a new and useful Adjustable Screw-Propeller, of which the following is a specification.

My invention relates to screw-propellers for vessels, and is applicable to both small and large vessels, the object of my invention being to provide a simple and inexpensive screw-propeller so constructed that the blades may be quickly and conveniently adjusted at any angle best adapted to special conditions of use or in accordance with the judgment of the user, and either of the blades may be readily removed to permit the insertion of another should it become broken.

My invention will be found especially valuable for launches and small craft generally. Vessels of this character ordinarily use but one propeller, and it is of course obvious that should a blade of this propeller become broken the vessel is liable to be seriously crippled, as it is extremely difficult under ordinary conditions to attach a propeller of the type in general use to the shaft even should the vessel be provided with an extra propeller. My present invention obviates this difficulty by providing a screw-propeller having detachable blades so constructed that a broken blade may be readily removed and a new one inserted and adjusted without serious difficulty without the necessity of going to a machine-shop and without even requiring the services of a specially-skilled workman.

I have illustrated my invention as applied to an ordinary two-blade propeller, although it will of course be obvious that the number of blades used has nothing to do with the principle of the invention, which is equally applicable to two, three, or four bladed propellers.

In the accompanying drawings, forming part of this specification, Figure 1 is an elevation of a two-blade screw-propeller detached from the shaft; Fig. 2, an elevation of the blades as seen from a point of view at right angles to the point of view in Fig. 1, the hub

being in central section; and Fig. 3 is an end view as seen in Fig. 2.

10 denotes the hub, and 11 blades. The hub is provided with the usual central longitudinal opening 12 to receive the shaft and with two or more bosses 13, which are provided with threaded openings 14 to receive the shanks 15 of the blades, as is clearly shown in Fig. 2. The threaded shanks of the blades are provided with set-nuts 16, which are adapted to be set up against the outer faces of the bosses to lock the blades in position after adjustment. These set-nuts retain the blades securely when the propeller is being rotated forward. In order, however, to provide against the possibility of the propeller becoming loosened on the shaft when rotated backward, I provide set-screws 17 in the bosses, the ends of which are adapted to engage the shanks of the blades and lock them securely against being loosened by backward movement. As already stated, the number of bosses and blades employed is wholly immaterial so far as the principle of my invention is concerned. I have shown the shanks of the blades as provided with different-sized threaded portions—that is to say, the threaded portions which carry the set-nuts are of greater diameter than the portions which engage the hubs. This, however, is wholly immaterial, the diameter of the shanks and size of the screw-thread being matters that it is contemplated to leave entirely to the judgment of the manufacturer, to be determined in view of the special conditions of use to which a propeller is to be applied.

The operation of my invention is so obvious as hardly to require description. Should the user desire to adjust the blades of the propeller at any time, the set-screws would be loosened and the set-nuts turned backward slightly, so that the blades might be readily turned to the required angle. Having set the blades at the desired angle they may be locked there by turning up the set-nuts and the set-screws. In practice it is contemplated to provide one or more extra blades, so that should a blade be broken at any time it might be readily removed, the set-nut transferred to

the shank of a new blade, and the new blade turned into the hub and locked there in the manner already described.

Having thus described my invention, I
5 claim—

1. An adjustable screw-propeller comprising a hub having threaded bosses, blades having threaded shanks adapted to engage the bosses, set-nuts upon the shanks adapted to
10 engage the bosses to lock the blades when turned forward, and means for locking said shanks against movement in the bosses when the propeller is turned backward.

2. An adjustable screw-propeller compris-

ing a hub having threaded bosses, blades hav- 15
ing threaded shanks adapted to engage the bosses, set-nuts upon the shanks adapted to engage the bosses to lock the blades when
turned forward and set-screws in the bosses
which engage the shanks to lock the blades 20
when turned backward.

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

EDWARD E. PUNZELT.

Witnesses:

STEPHEN H. RICHARDS,
ASA B. WOODWARD.