

(No Model.)

A. P. BLIVEN.
SCREW PROPELLER

No. 271,212.

Patented Jan. 30, 1883.

Fig. 1.

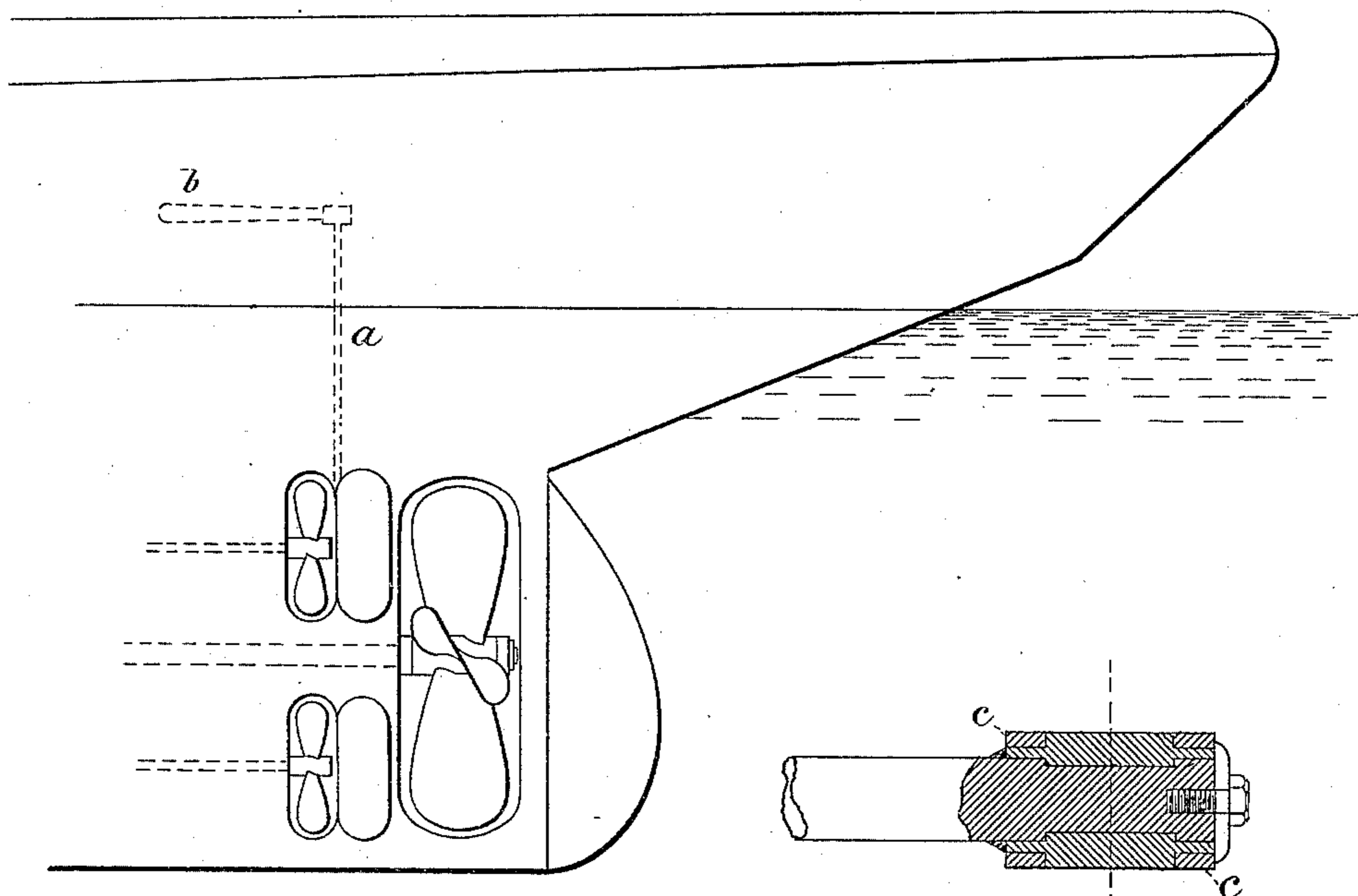


Fig. 2.

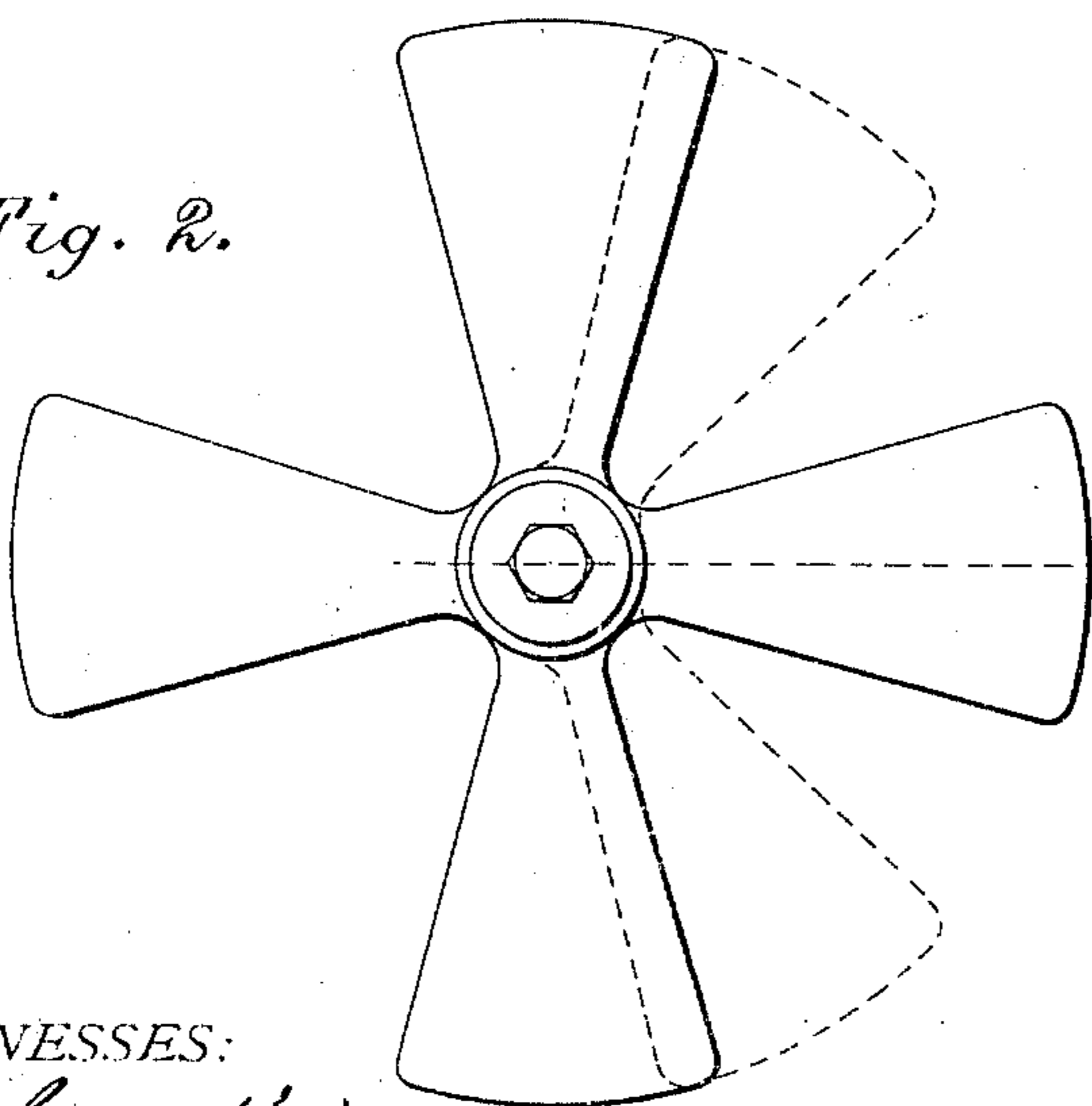
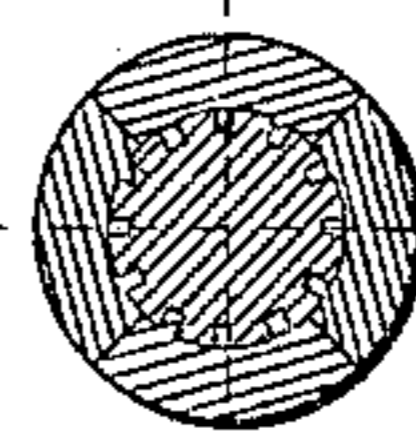


Fig. 3.



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SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 271,212, dated January 30, 1883.

Application filed February 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, ALONZO P. BLIVEN, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain Improvements in Screw-Propulsion, of which the following is a specification.

The said invention relates to the propulsion of vessels by screw-propellers in such a manner that the parts of a broken screw may be effectively rearranged, and in the event of its loss or destruction recourse may be had to a supplementary screw, and dependence upon sails avoided, thus dispensing with spars and other top-hamper, from which the chief benefit to a fast steamer, in compensation for its ordinary retarding effect, is only realized in the case of accident to the propelling machinery. The blades of the propeller are made separately and fitted around the shaft in such a way that those of a four-bladed propeller, if one blade should be broken, may be arranged to serve efficiently as a three-bladed screw, and in the event of its loss or destruction the power may be applied through the supplementary propeller that is independent of the machinery and propeller that ordinarily drive the vessel.

Figure 1 of the drawings annexed represents the side view of the stern of a vessel fitted with a large screw, and with a smaller one placed above the main shaft, where it will not interfere with the flow of the water to the main screw. The small propeller is a two-bladed screw placed forward of the stern-post in the dead-wood of the ship, in which it may be inclosed when the blades are in a vertical position by shutters that are hinged on the after edge to the hull like a rudder, and in such a manner that they may be worked from the inside and turned and held back out of the way of the revolutions of the screws. Each of the shutters is provided like a rudder with a head, *a*, and a tiller, *b*, by which it may be handled and secured to leave the screw-openings free, and also to enable it to be used in connection with that on the opposite side of the stern to steer the vessel. They may also be used effectively as drags. This supplementary screw may be operated by separate boilers and machinery that may be otherwise employed for hoisting and other ordinary purposes, and it may be applied to sailing-vessels that it is de-

sirable to supply with auxiliary propelling power to be used on special occasions.

Fig. 2 is a front view of the main propeller on an enlarged scale, which is represented with four blades, although the same method of construction is applicable to a screw with any number of blades. The dotted lines show the change in position of two of the blades, if the one between them should be broken, so that the remaining three blades will be disposed at equal distances around the circle.

Fig. 3 represents longitudinal and transverse sections of the hub that fits upon the end of the shaft and shows how the parts are placed and held together. The blades are each made with two tenons on the hub-sections that fit into corresponding mortises on the shaft, and they are held in position by the bands *c*, that are fastened over the hubs on each side of the screw. Forward of the screw there is a collar on the shaft, that takes with the tenons the thrust from each blade of the screw, and on the after side is a washer that is held securely against the hub and the band on that side by a bolt tapped into the end of the shaft. By this method of constructing and combining the parts the blades may be forged or cast separately and held securely together. The sections of the hub that are shown in the drawings extend around the shaft to form a complete hub; but it is obvious that they may be made smaller and the intervening spaces blocked up or fitted with keys, as they would be if one of the blades were taken out, and that the parts in my arrangement are held in their proper positions by the inclosing bands.

A vessel like that shown in the drawings is intended to be propelled chiefly by the main screw, and in the event of accident to one of its blades the others may be rearranged with uniformity; and if it should be entirely lost or disabled, the supplementary propeller may be used in its place without recourse to spars and other top-hamper, that may therefore be wholly dispensed with. In the meanwhile, and under ordinary circumstances, the auxiliary screw with its inclosing shutters presents no obstruction to the flow of the water along the run of the vessel.

I claim as my invention and desire to secure by Letters Patent—

1. The combination of an auxiliary propel-

ler in the dead-wood of a ship forward of the
stern-post, above the main shaft, and inclosed
with hinged shutters that may be worked from
the inside, substantially in the manner and for
5 the purpose described.

2. The construction of a screw-propeller with
separate blades tenoned into the shaft and held

by the bands *c*, substantially in the manner de-
scribed.

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Witnesses:

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