W. J. ZINTECK.

TURBINAL SCREW PROPELLER.

APPLICATION FILED JUNE 24, 1912.

1,090,956.

Patented Mar. 24, 1914.

Fig. 1.

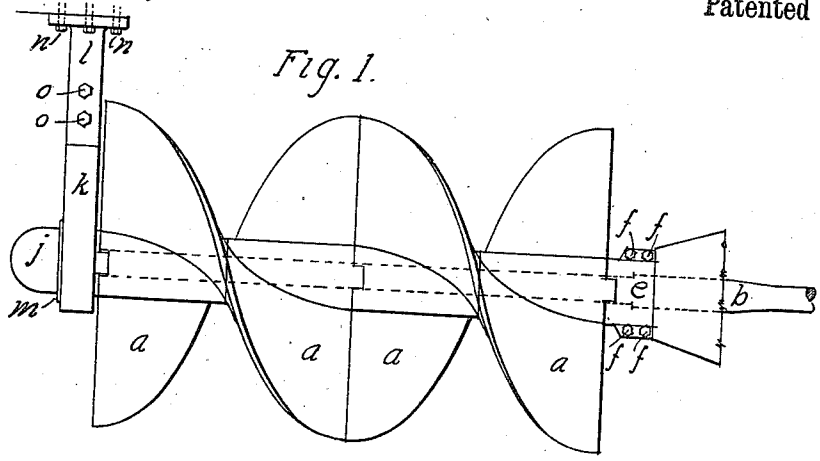


Fig. 2.

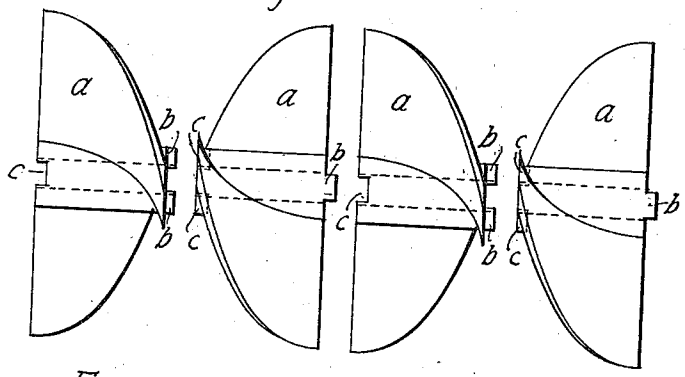


Fig. 3.

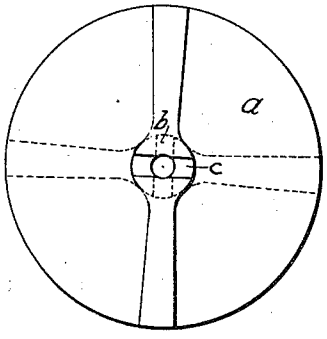


Fig. 4.

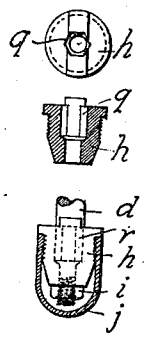


Fig. 5.

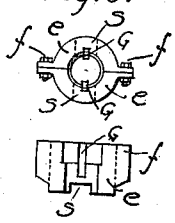


Fig. 6.

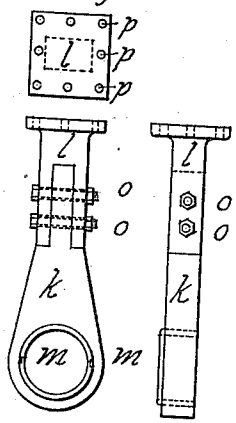
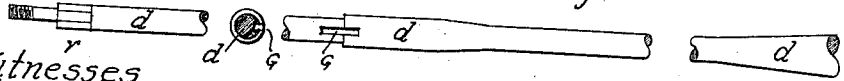


Fig. 7.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM J. ZINTECK, OF ST. PAUL, MINNESOTA.

TURBINAL SCREW-PROPELLER.

1,090,956.

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To all whom it may concern:

Be it known that I, WILLIAM J. ZINTECK, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Screw-Propellers for Boats, Ships, and Vessels of Every Kind, Known as the "Turbinal Screw-Propeller," of which the following is a specification.

This invention relates to improvements in screw propellers for boats, ships and vessels of every kind, and has for its object the attainment of greater speed on waters and a more economical propulsion of water crafts.

I attain the general objects stated by the operation, at the stern, of turbinal screw propellers, consisting of four consecutive true edged sections, and all of which are made of metal of a nature and quality, and also made in a size and diameter, that may differ according to the size or weight of the water craft, the momentum required for its propulsion, or the pressure against the water to which such propellers may be subjected. These propellers revolve with a cylindrical propeller shaft of a size and strength proportionate to the weight of the propellers and to the use of the water craft, and are held fast and in place, at their fore end, to the propeller shaft by a two-piece metal shoulder-head firmly secured to the shaft by sunk metal keys, and at their after end to the propeller shaft by a shoulder-head of like kind, with hexagon aperture fitting corresponding hexagon shaft end, and by nut and cap at the end of the shaft. All is supported by a hanger attached to the after end of the shaft and to the boat, ship, or vessel. The propellers rotate in outward directions from the top of the sections. The combination and attachments are illustrated in the accompanying drawings, in which—

Figure 1 shows side view of the assembled turbinal screw propeller, and attachment of the invention to both the propeller shaft of boats, ships, and vessels of every kind, and to the hanger supporting the after end of the propeller shaft; Fig. 2 shows propeller sections; Fig. 3 shows an end view of propeller section; Fig. 4 shows cap and nut on after end of the propeller shaft; Fig. 5 shows shoulder-head on fore part of propeller and also shows sunk metal key in such shoulder-head, holding it fast to the shaft; Fig. 6 shows front side and top view of hanger independent from the other mechanism; Fig. 7 shows propeller shaft.

Similar letters refer to similar parts throughout the several views.

The sections *a* of the propeller are ground to a true edge to fit corresponding sections, and all sections are assembled and held securely together by clutches *b* cast onto one side of section *a*, and corresponding sockets *c* cast in the other side of section *a*. The combined sections *a* are slid onto the propeller shaft *d* through their center aperture. They are held in place and order on such propeller shaft *d*, at their fore end, by a two-piece metal shoulder-head *e*, with sockets, and corresponding clutch *b* in fore section *a* of propeller which shoulder-head is held together by bolts and nuts *f*, and is held firmly in place on shaft *d* by sunk metal key *g*. They are held in place and order on such propeller shaft *d*, at their after end by shoulder-head *h*, with hexagon center aperture *q* and sockets *s* to fit corresponding hexagon propeller shaft end *r* and clutches *b*, and by nut *i* and cap *j*.

Shaft *d* is attached to the boat, ship or vessel in the ordinary manner and both such shaft and the combined sections *a* are supported at after end by a two-piece hanger *k* and *l* with anti-friction bearing rings *m*, attached to water craft by bolts *n*, at bolt holes *p*, through top *l* of hanger. Parts *k* and *l* of this hanger are securely fastened and held together by bolts *o*.

The operation of this propeller is effected in the same manner as in the case of other screw propellers, but the potency of the revolutions of this propeller in the water is far greater than in other screw propellers by reason of the comparative greater rapidity of the revolutions, in spiral succession, of the four combined sections, and the consequent greater utilization of the water in propulsion by its winding or circling around the fore sections and gradually receding from them without diminishing in force and effect.

I claim:

A propeller for boats comprising the combination of a propeller shaft provided adjacent its joint of exit from the stern of the boat with a pair of diametrically disposed key slots, a two-part clamp adapted to embrace said shaft and provided with keys for engagement with said slots, said clamp be-

ing further provided with a pair of clutch sockets, a sleeve mounted on said shaft, said sleeve being formed of a plurality of sections each section being provided at one end with a pair of diametrically disposed clutch teeth and at the other end with a pair of sockets oppositely disposed on a diameter at right angles to that on which said teeth are mounted, and a pair of helical blades arranged in alinement with the blades of the adjacent sections, the teeth of the section adjacent the clamp being adapted to engage with the sockets on said clamp, said shaft being further provided with a hexagonal portion ending in a threaded part at the extremity of the shaft, a locking head with a hexagonal bore for engagement with said hexagonal portion and a nut adapted to engage said threaded part to hold said locking head in place, clutch teeth on said locking head for engagement with the sockets of the adjacent sleeve section, a hollow cap mounted for threaded engagement with said locking head and adapted to inclose the nut and shaft end, and a supporting bracket depending from the stern of the boat and provided with a bearing in which said hollow cap is adapted to revolve.

Dated June 21, 1912.

WILLIAM J. ZINTECK.

Witnesses:
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