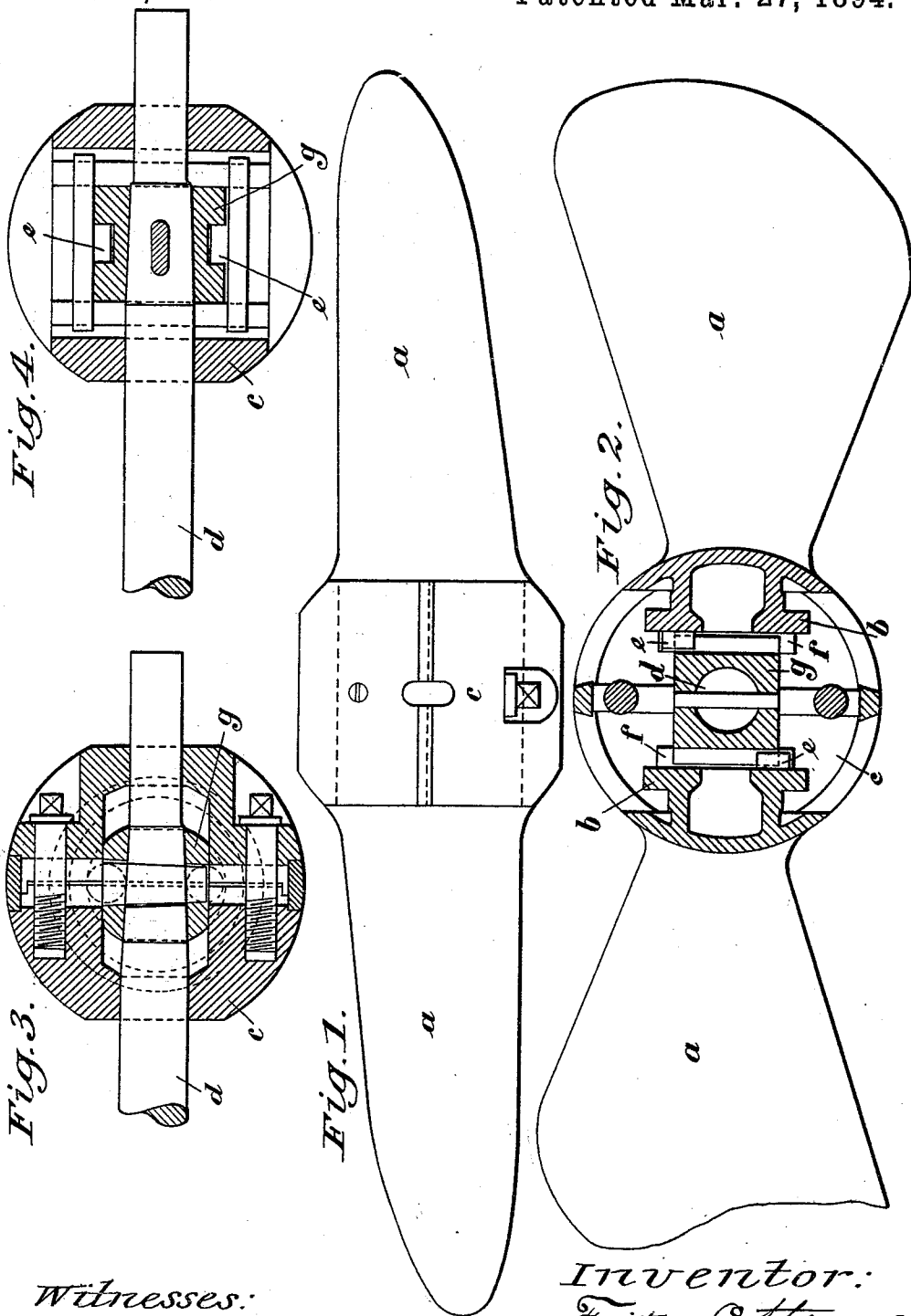


(No Model.)

F. OTTE.
SCREW PROPELLER.

No. 517,233.

Patented Mar. 27, 1894.



Witnesses:

E. B. Bolton

Madeline Sipple

Inventor:

Fritz Otte

By

Edward R. [Signature]

his Attorneys

UNITED STATES PATENT OFFICE.

FRITZ OTTE, OF ALTONA, GERMANY.

SCREW-PROPELLER.

SPECIFICATION forming part of Letters Patent No. 517,233, dated March 27, 1894.

Application filed July 12, 1893. Serial No. 480,248. (No model.)

To all whom it may concern:

Be it known that I, FRITZ OTTE, of 59 Lohmühlenstrasse, Altona, in the German Empire, have invented a new and useful Screw-Propeller with Blades which Can be Adjusted during Rotation, of which the following is a specification, reference being had therein to the accompanying drawings.

The object of this invention is a screw propeller, the blades of which can be adjusted, or turned to the required pitch, while propelling or rotating, by mere motion of the propeller shaft in the direction of its axis, and so that not only the speed of the vessel can be regulated thereby, but that its direction of motion can be reversed without in any way altering the speed or direction of motion of the engine, while permitting easy handling of the vessel.

Figure 1 of the drawings is a plan view; Fig. 2 a transverse section through the boss and shaft, and Figs. 3 and 4 longitudinal sections through the boss at right angles to each other.

Each blade *a* of this propeller is at its root-end provided with a round flange *b* so inserted into the two parted hollow boss that the blade *a* can turn on its axis vertically to the propeller shaft *d*. On each flange face near the circumference is provided a lug *e* working each in a groove *f* formed on two opposite sides of a block *g* fixed on the propeller shaft *d* and capable of sliding in the boss in the axial direction of the shaft. Assuming that the shaft is protruded axially to its farthest point to the right, then the grooves *f*

will hold the lugs *e* in such a position that the pitch angle of the blades is a maximum, and for quickest forward motion of the vessel. If the shaft during motion is pushed from the extreme right to the left, the grooves *f* will carry the lugs *e* with them so that the blades are turned vertically to the shaft, and the angle of the propeller-surface, or the pitch, is diminished, and the speed of the vessel diminished. In the medium position the blades stand so that the angle of the blades is nothing, and the vessel stands still. If the shaft is pushed from the medium position farther to the left, the angle will become negative; that is, the propeller blades will form left-hand screw tread instead of right hand screw tread, and the vessel will go astern. The more the shaft is pushed to the left, the greater becomes the angle of the blades and the greater the pitch, and hence also the speed for going astern.

What I claim, and desire to secure by Letters Patent of the United States, is—

In combination with the shaft *d*, the block *g* fixed thereto and having grooves *f* in opposite faces, the boss *c* carried by the shaft, the propeller blades *b* pivotally secured within the boss and projections *e* engaging the grooves, substantially as described.

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

FRITZ OTTE.

Witnesses:

PAUL FISCHER,
JOHN SALOWSKI.