(No Model.)

W. KUSS.

MEANS FOR STEERING SHIPS.

No. 598,424. Patented Feb. 1. 1898.

Fig. 1.

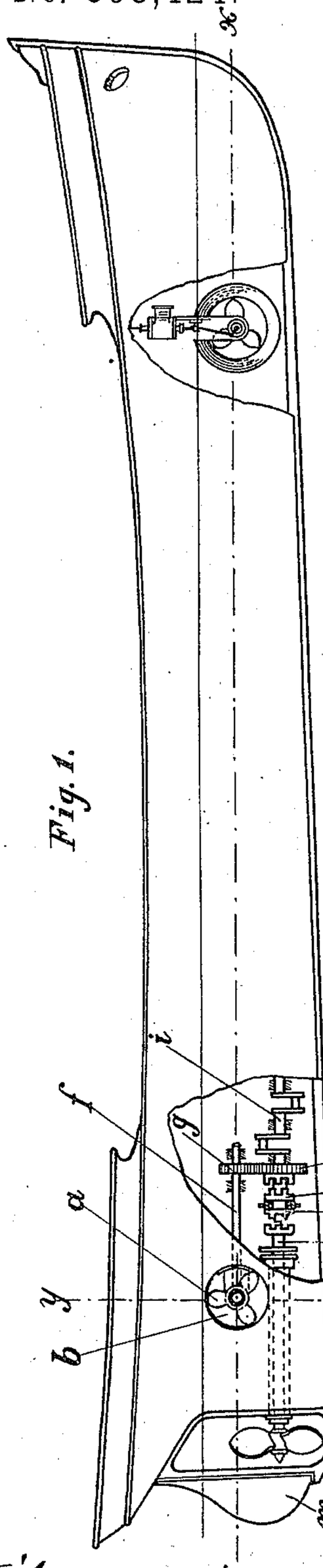


Fig. 2.

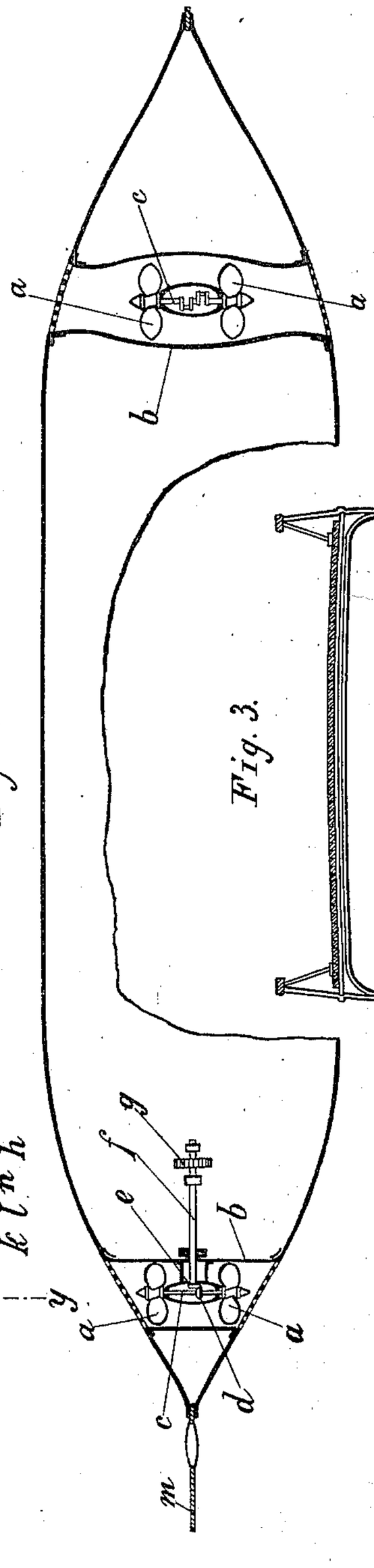
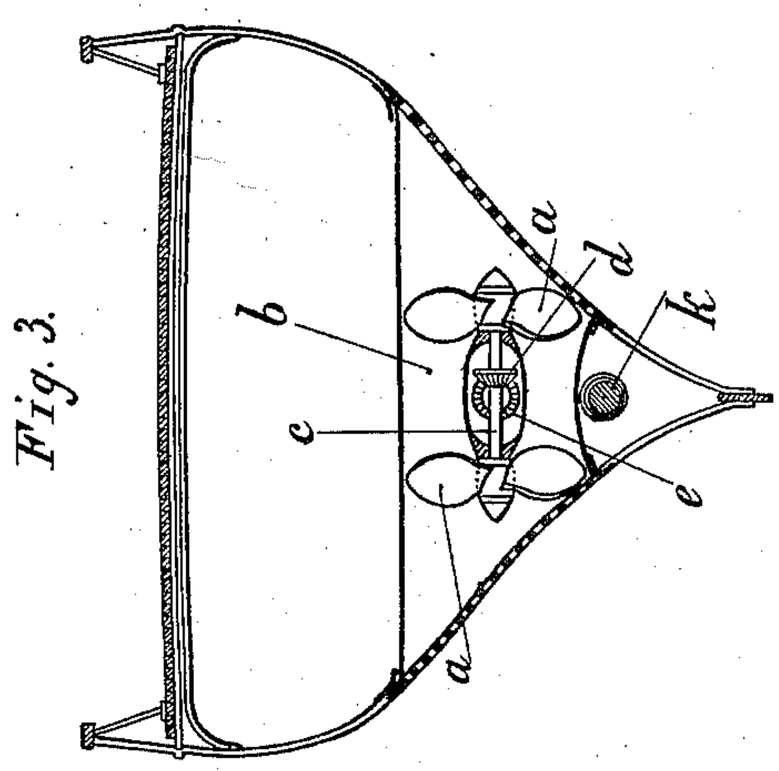


Fig. 3.



Witnesses.
R. D. Johnston
Robert Everett.

Inventor.
Wilhelm Kuss.
By James L. Norris.
Atty.

UNITED STATES PATENT OFFICE.

WILHELM KUSS, OF CROSSEN, GERMANY.

MEANS FOR STEERING SHIPS.

SPECIFICATION forming part of Letters Patent No. 598,424, dated February 1, 1898.

Application filed March 23, 1897. Serial No. 628,916. (No model.)

To all whom it may concern:

Be it known that I, WILHELM KUSS, a subject of the King of Prussia, residing at Crossen-on-the-Oden, Germany, have invented a new and useful Improved Means for Steering Ships, of which following is a specification, reference being had therein to the accompanying drawings.

This invention relates to apparatus for steering ships by causing quantities of water, gas, or other fluid to be expelled or discharged by means of a propeller, pump, or other well-known and suitable device through openings made in the side of the ship. The openings may be made at either one or both ends of the ship, and they are so constructed that the water, gas, or other fluid used for steering purposes is expelled or discharged at right angles to the direction of the keel of the vessel. When, for example, the water or gas is expelled or discharged from both ends of the ship simultaneously and it is desired to turn the ship's head to starboard, the discharges are so arranged as to be from the port side of the stem and the starboard side of the stern. If it is desired to turn the ship's head to port, the direction of the discharges is reversed, and in order that my said invention may be properly understood I have hereunto appended an explanatory sheet of drawings, whereon—

Figure 1 is a side view of a vessel, partly in section, constructed in accordance with my invention. Fig. 2 is a horizontal section on the line *x x*, Fig. 1. Fig. 3 is a vertical transverse section on the line *y y*, Fig. 1.

It is assumed that the vessel is propelled by means of a screw-propeller situated at the stern. On the sea or in smooth river-water the ordinary rudder *m* is used when it is not required to turn the vessel rapidly; but in narrow waterways or whenever it is found necessary to keep out of the way of a ship going at full speed, either behind or in front, the small screw-propellers *a* are brought into action. The screw-propellers *a* are located in passages *b*, formed across the ship.

c is the shaft of the propellers, which is rotated by means of bevel-gearing *d e*. The bevel-wheel *e* is mounted on the shaft *f*, which is rotated by means of the wheels *g h*. The wheel *h* is mounted loosely on the crank-shaft *i* of the main engine of the ship. The crank-shaft of the main engine is not, as usual, firmly connected to the propeller-shaft *k*, but is coupled thereto by means of the clutches *l n* whenever the ship goes ahead or astern. When it is desired to turn the ship rapidly, the clutch *n*, which forms an integral part of the clutch *l*, is coupled to the loose toothed wheel *h*, fitted on the crank-shaft *i*, and the propellers *a* are thus set in motion by the main engine. The clutches *l h* are capable of sliding axially on a feather on the crank-shaft and are rotated thereby. According as the main engine is made to rotate to the left or to the right hand the propellers *a* will turn in a corresponding direction and steer the ship either to port or starboard.

For men-of-war and generally for large ships the method of steering before described has this advantage, that fluid can be forced out fore and aft on the same side of the ship and thus give the ship a lateral motion.

In the passage *b*, Fig. 3, a single propeller only may be used, such propeller being actuated by means of suitable driving-gear for the purpose of steering the ship.

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

In a ship having a transverse passage open at both ends, the combination of the transverse shaft *c* mounted in said passage and provided with steering-blades *a*, the shaft *f* provided with gear-wheel *g*, bevel-gearing *d e* connecting the shafts *c f*, the main shaft *i*, the loose gear-wheel *h* carried by the said main shaft *i* and adapted to be meshed with or disengaged from the gear *g* of shaft *f*, the propeller-shaft *k*, and means for clutching and unclutching the shafts *i* and *k*, substantially as described.

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

WILHELM KUSS.

Witnesses:

ROBERT DITTMANN,

CARL KLOSI.