J. DORMAN & T. G. GOOD.

Propelling and Steering Apparatus for Vessels.

No. 162,156. Patented April 20, 1875.

Fig. 1

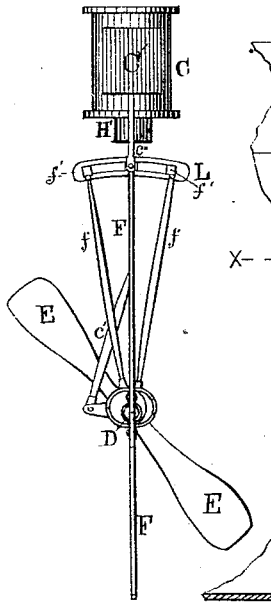
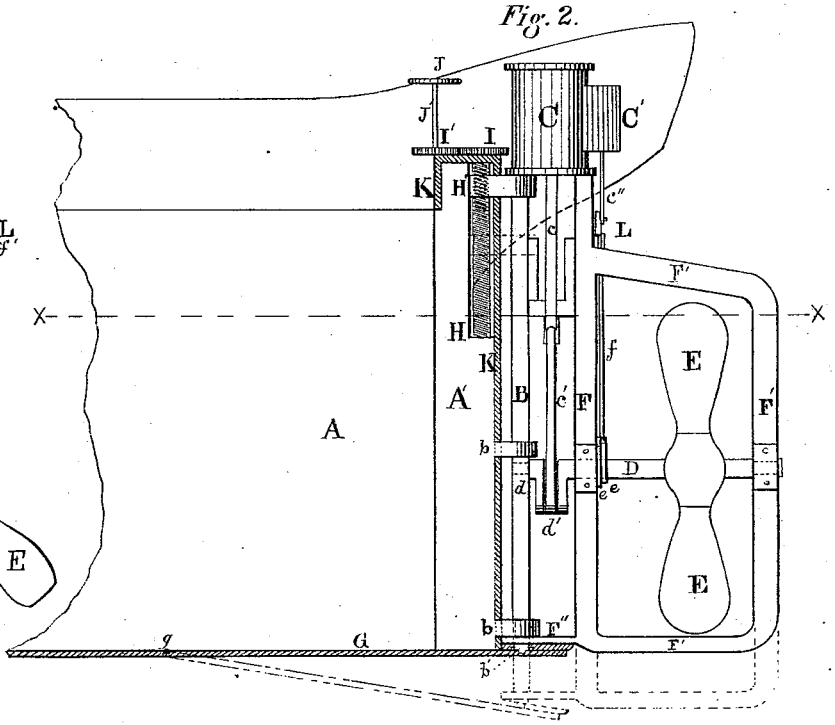


Fig. 2.



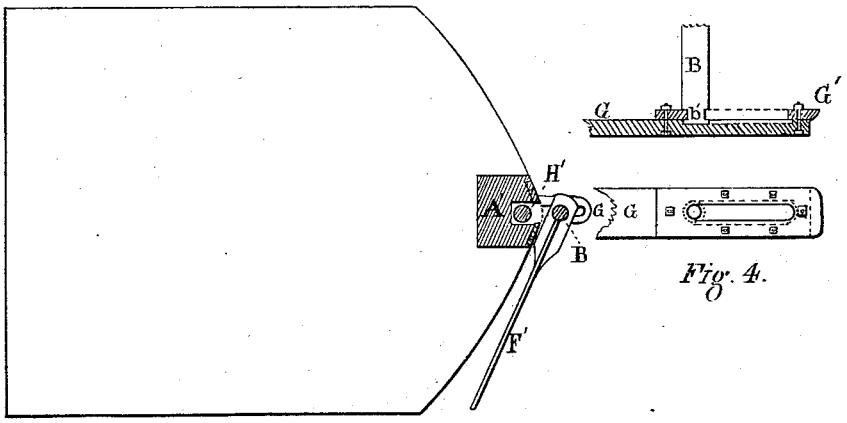


Fig. 4.

Fig. 3.

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JERRY DORMAN AND THOMAS G. GOOD, OF GEORGETOWN, D. C.

IMPROVEMENT IN PROPELLING AND STEERING APPARATUS FOR VESSELS.

Specification forming part of Letters Patent No. **162,156**, dated April 20, 1875; application filed January 22, 1875.

To all whom it may concern:

Be it known that we, JERRY DORMAN and THOMAS G. GOOD, of Georgetown, in the county of Washington and District of Columbia, have invented certain new and useful Improvements in Devices for Propelling and Steering Vessels; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

Figure 1 is an end elevation, showing the connection of the steam-box with the link-motion and main shaft of the propeller. Fig. 2 is a side elevation of the vessel with cylinder and propeller-frame. Fig. 3 is a plan view, showing the propeller-frame turned transversely to enter the lock, &c.; Fig. 4, details of keel-plate.

This invention relates to vessels propelled by steam from the stern, and the connection of the propeller with a frame which serves the purpose of a rudder, and which propeller is operated by a steam-cylinder situated vertically above the shaft, and which moves orbitally around the stern of the vessel, with the frame acting as a rudder in steering. It also relates to the method of hanging the rudder or frame, so that when in deep water it may be lowered to obtain all the advantages of the full blades of the propeller, and yet, when advancing into shoal water or over bars, the frame will be automatically lifted clear of the obstruction, or on entering a canal-lock the same will take place; and in passing either from the lock or over bars, &c., into deep water, the frame will subside again to its normal position, all of which will be more fully hereinafter explained.

In the drawing, A is the hull of the vessel; A′, the stern-post, to which is attached the working parts of the propeller and rudder-frame. B is a vertical shaft, the lower end of which revolves freely in a socket on the keel-plate G, and is sustained in bearings *b b*. To the upper end of B is permanently attached a cylinder, C, whose steam-chest, C′, is in the rear, and so placed that its valve-rod *c″* is connected below to the pin of a link-motion arc at L. D is the main driving propeller-shaft, which has a bearing inwardly in the rotating shaft B at *d*, and has a crank, *d′*, and two eccentrics, *e e*, immediately in rear of the rudder-post F, and at the extreme end is supported by boxes on the rudder-frame F′. E is the propeller; F, the rudder-post, supported at the bottom by brace F″, and at top by braces each side of the steam-chest, or to any frame-work supporting the cylinder and chest as may be found convenient; F′ F′, the frame of the rudder. G is a keel-plate of metal, which is hinged to the keel of the vessel at *g*, and has upon its outer end a slotted plate, G′, to clasp a neck, *b′*, formed upon the lower end of the vertical shaft B, so that when said shaft is lowered the bar or plate may fall with it, its slotted plate G′ moving along the neck *b′* upon the shaft. The arrangement of this bar or plate with reference to shaft B, cylinder C, frame F F′, and propeller E is such that when the vessel is in motion, and the position of propeller vertically has been fixed by the screw and nut, the plate G will, upon coming in contact with any substance in the canal or river, cause the propeller and its appendages to be raised up, they being kept above the keel of the vessel, and thus prevented from receiving injury, while being used in shallow water, or when the bottom of the vessel comes in contact with the earth, snags, or rocks, the plate at all such times serving to raise the parts referred to automatically. H is a large screw-shaft placed in a recess in the stern-post, working in a nut, H′, through the annular part of which the shaft B works freely. The object of this nut is to sustain the cylinder-frame, and all the parts of the propeller-frame, so that by elevating or depressing nut H′ all these will move with it accordingly. Screw H is operated by a cogged gear-wheel, I, driven by a similar gear-wheel, I′, operated by the hand-wheel and shaft J J′ on the deck of the vessel. K is a metallic plate, which protects and braces the stern-post covering the recess of the screw H, and, passing over the head of the post, returns downward to the deck. L is the segment of an arc for the link-motion, having within its slotted part the blocks *f′ f′*, connected to the eccentrics *e e* by the rods *f f*.

The operation of this invention is as follows:

The propeller-shaft D is driven from above by the cylinder C, through the connection of piston-rod *c*, pitman *c'*, and crank *d*, the eccentrics *e e* operating through the link-motion L by the adjustment of the rods *f f* to either side, to go ahead or reverse the propeller. The movement of the rudder horizontally carries the cylinder with it, while the adjustment of the nut H′ controls the vertical movement of the whole frame, so that the entire length of screw from H to H′ may be used to drop the propeller when in water deep enough to admit of it, and by the hinged joint of the plate G that plate, as it drags over a bar, snag, &c., or the sill of a lock, will lift the shaft B, the frame F F′, and cylinder, thus preventing any injury to them, and yet, by this arrangement of the plate G, the frame, with the propeller, will drop to a proper depth when again in deep water. The rudder-frame can be swung athwart ship, as shown in Fig. 3, so that all the apparatus will be protected when entering a lock.

Having described our invention, what we claim, and desire to secure by Letters Patent, is—

1. The combination, in an apparatus for propelling vessels, of a bar or plate hinged to the under side of the vessel, an automatically-moving vertical shaft, the lower end of which rests upon said hinged bar, and a propelling-cylinder, which is connected to and moves with said shaft, the parts being arranged to operate substantially as and for the purpose set forth.

2. The herein-described arrangement of mechanism for elevating the propeller and engine, and for allowing of the independent automatic rising of said propeller and engine, substantially as set forth.

3. The combination of the propeller-shaft D and the perforated movable vertical shaft, their arrangement with reference to each other being such as is described.

In testimony that we claim the foregoing as our own invention we affix our signatures in presence of two witnesses.

JERRY DORMAN.
THOMAS G. GOOD.

Witnesses:
C. M. CONNELL,
E. A. BULLEY.