M. B. ATKINSON.

Screw-Propellers.

No. 149,969. Patented April 21, 1874.

Fig. 1

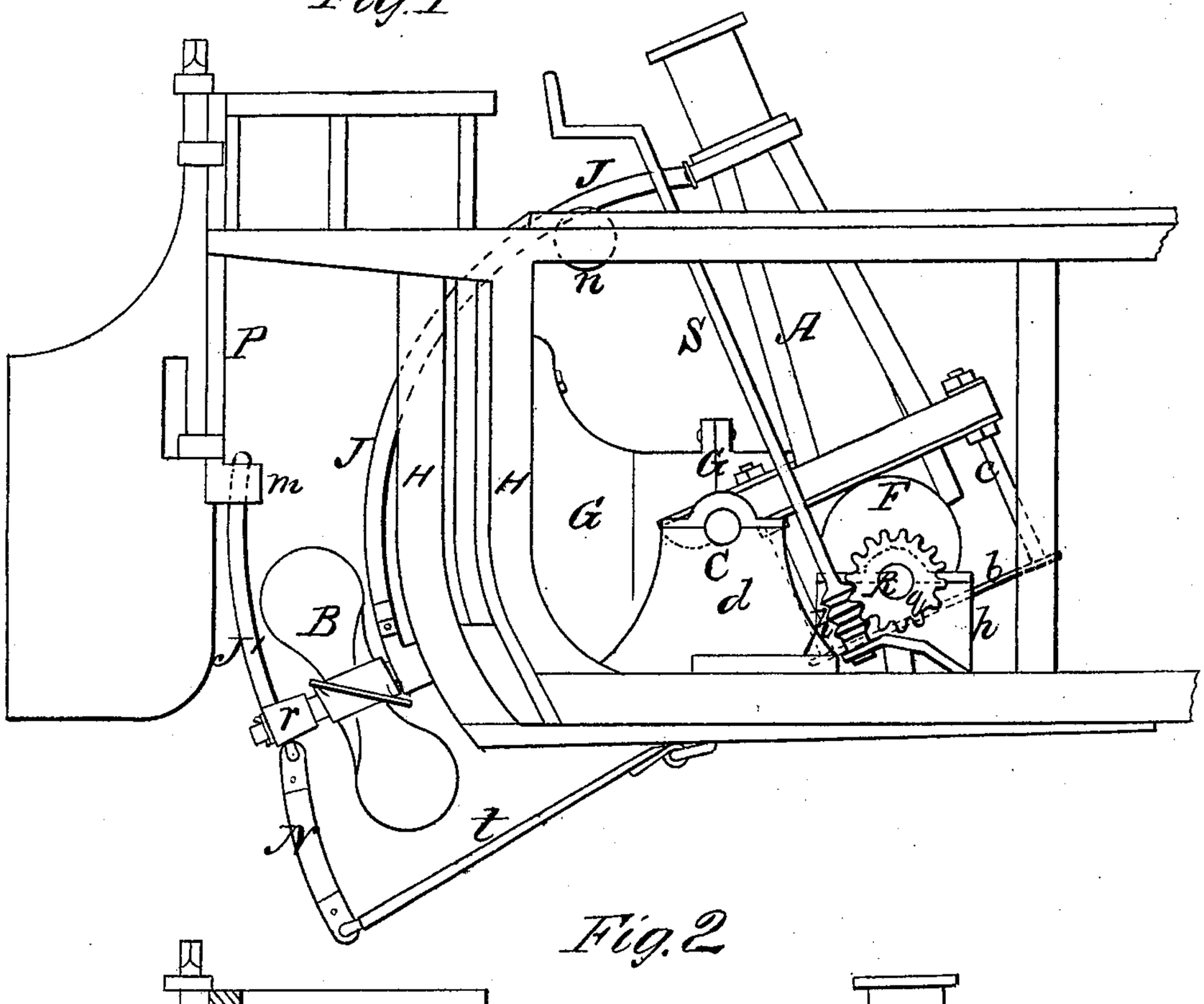
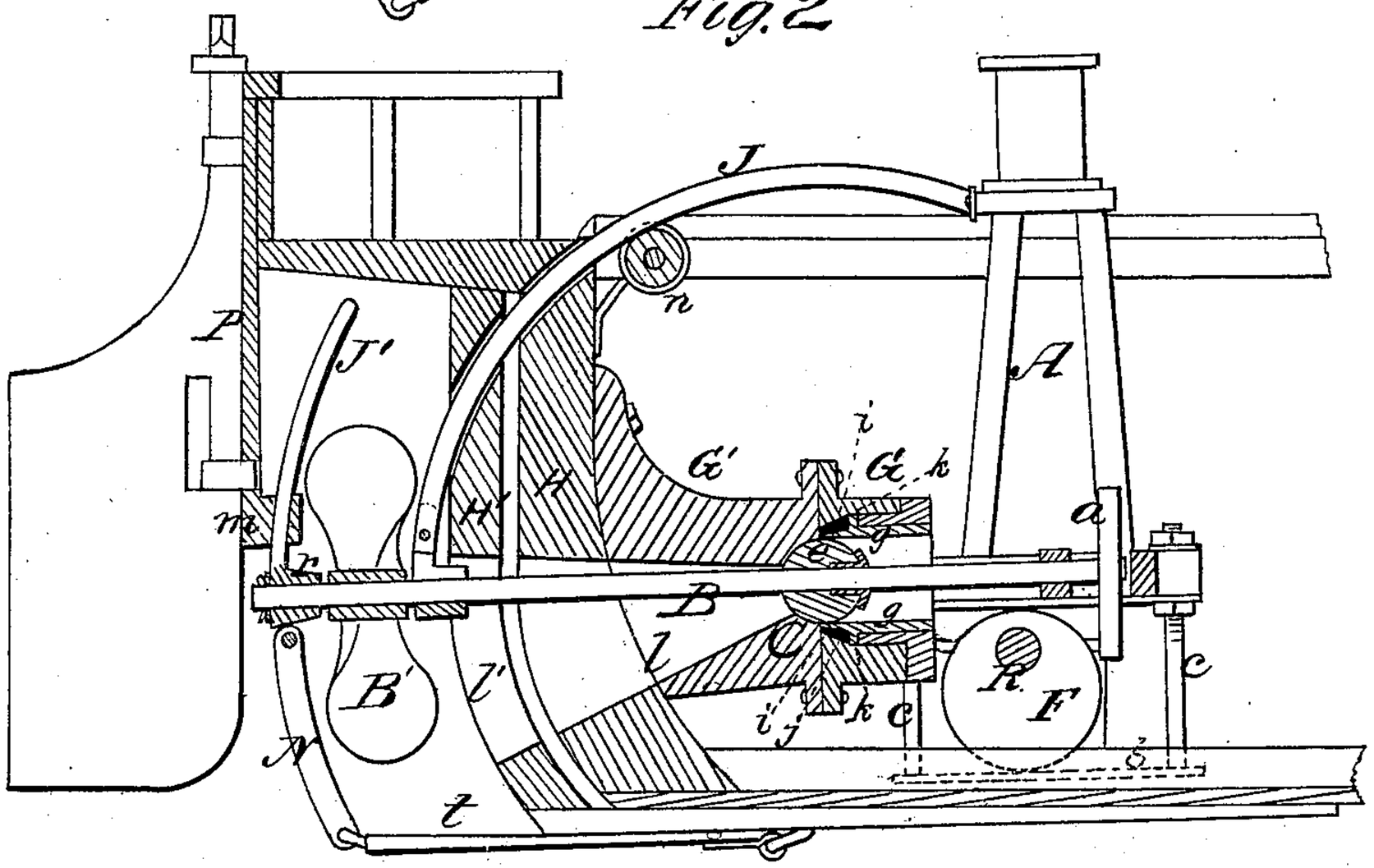


Fig. 2



WITNESSES
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UNITED STATES PATENT OFFICE.

MAHLON B. ATKINSON, OF GEORGETOWN, D. C., ASSIGNOR OF TWO-THIRDS HIS RIGHT TO HENRY G. WAGNER, OF SAME PLACE.

IMPROVEMENT IN SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **149,969**, dated April 21, 1874; application filed February 28, 1874.

To all whom it may concern:

Be it known that I, MAHLON B. ATKINSON, of Georgetown, in the county of Washington and District of Columbia, have invented a new and valuable Improvement in Boat-Propellers; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a side view of my device. Fig. 2 is a sectional view of the same. Figs. 3 and 4 are detail views.

This invention has for its object certain novel improvements on means for vertically adjusting the stern propelling-wheels of canal-boats, whereby these wheels can be submerged, whether the boats are heavily loaded or not loaded at all.

Before my invention, propellers have been made vertically adjustable for the purpose of keeping them under water at all times, and thus obtaining the full benefit of their propelling force, whether the boats draw a small or great amount of water. But in all such contrivances, a difficulty has been experienced, practically, in giving direct force to the propeller-shafts from the engines; also, in packing such shaft where it enters the vessel, and keeping out the water.

The nature of my invention and improvements consists, mainly, in the combination of an engine-frame with a vertically-adjustable propeller, when such frame and propeller are adjustable together; also, in the combination of an axially-adjustable bearing applied in a packing-box which is stationary with an engine-frame and propeller-shaft which are together vertically adjustable, as will be hereinafter fully explained.

The following is a description of my invention:

In the accompanying drawings, A designates an engine-frame, on which is mounted the cylinder, in which works the piston that communicates rotary motion to a propeller-shaft, B, through the medium of a pitman-rod (not shown) and a crank-wheel, *a*, on the rear end of said shaft. The bed of the engine-frame is mounted on an auxiliary frame, which is composed of longitudinal bars *b*, connected to the bed by means of posts *c c*. There are four of these posts *c*, and they have nuts applied on them above and below the said frame-bed, for the purpose of adjusting the bars *b b* nearer to this bed when the occasion requires. The stern end of the engine-frame bed has rigidly connected to it a shaft, C, the axis of which is at right angles to the longitudinal plane of the boat. This shaft C, which is movable with the engine-frame, is supported by pillow-blocks, *d*, which are secured to the frame-timbers of the hull, in which blocks the shaft C is free to oscillate. There is a cylindrical enlargement, *e*, on the oscillating shaft C, arranged centrally between the longitudinal beams constituting the bed of the engine-frame, through which enlargement the propeller-shaft passes diametrically, and is suitably packed therein to prevent the ingress of water. This cylindrical enlargement has its bearings in a packing-box, G, of a vertically-slotted bracket, G′, which latter is rigidly secured to the dead-wood H, as shown in the drawings. The arc J passes through the stern-post and dead-wood, and is rigidly secured to the upper end of the engine-frame A, and at *n* I apply a grooved roller, which affords a guide and a rolling bearing for said arc. Between the two arcs J J′ is the propeller B′, which may be of any well-known kind. The arc J′ is movable through a guide, *m*, formed on the lower end of a rudder-post, P, and the lower end of this arc is rigidly secured to the rear journal-box *r*. N designates a link, which connects the journal-box *r* to a guard-rod, *t*, which is pivoted at its front end to the keel. The object of the guard-rod is to protect the propeller from coming in contact with obstructions that may be on the bottom of the canal. R designates a horizontal shaft, which is journaled in pillow-blocks *h*, and which has two eccentrics, F, keyed on it. These eccentrics are applied between the engine-frame bed and the bars *b*, and are intended for raising and depressing the said frame and the propeller. This adjustment can be made from the deck of

the boat by means of a cranked rod, S, carrying on its lower end a worm-screw, *p*, which engages with the teeth of a spur-wheel on one end of the shaft R. The bars *b* are adjustable by means of the nuts on posts *c c*, for the purpose of compensating for any wear of the eccentrics.

It will be seen from the above description that the engine-frame and propeller-shaft are both adjustable about the axis of the horizontal shaft C, and that the propeller is firmly braced and sustained.

What I claim as new, and desire to secure by Letters Patent, is—

1. The propeller-shaft B, supported inside of the boat by an oscillating shaft, C, said shaft B being rigidly screwed to, and vertically moved with, the engine-frame A, in combination with the supporting-arc J, applied outside of the boat, substantially as described.

2. The combination of an oscillating shaft' C, which is packed to prevent the entrance of water into the boat, with a propelling-shaft, B, which passes through said shaft C, and through the dead-wood of the boat, and which is rigidly secured to the frame to which the engine is applied, the propeller-shaft and the engine-frame being both movable together, substantially as described.

3. The eccentrics F on shaft R, combined with main and the auxiliary engine frames, which are vertically adjustable with the propeller-shaft B, substantially as described.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

MAHLON B. ATKINSON.

Witnesses:

GEORGE E. UPHAM,

ROBERT EVERETT.