A. LEE.

Improvement in Operating Screw-Propellers.

No. 132,588. Patented Oct. 29, 1872.

Fig 1.

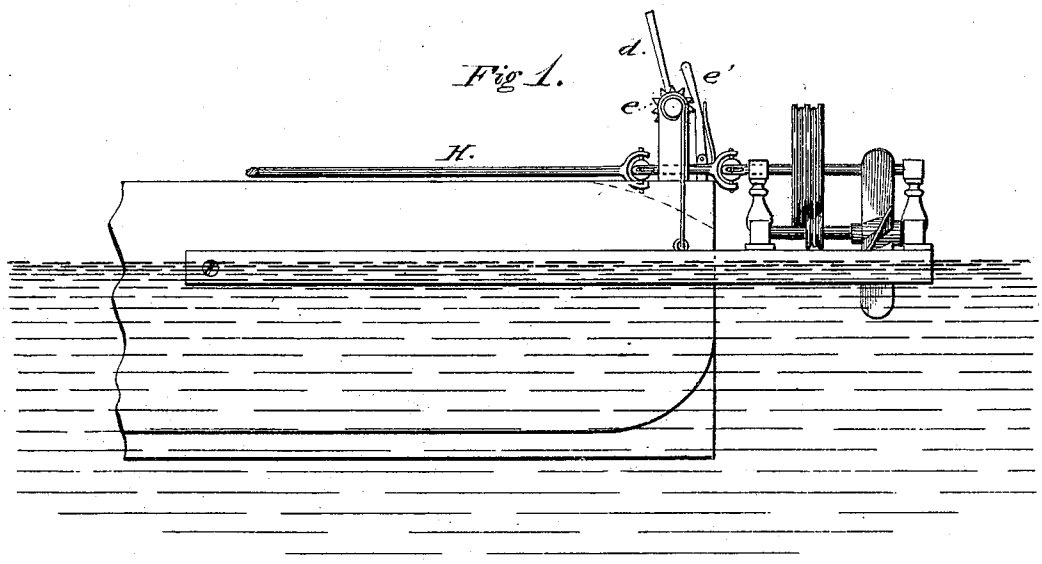


Fig 2.

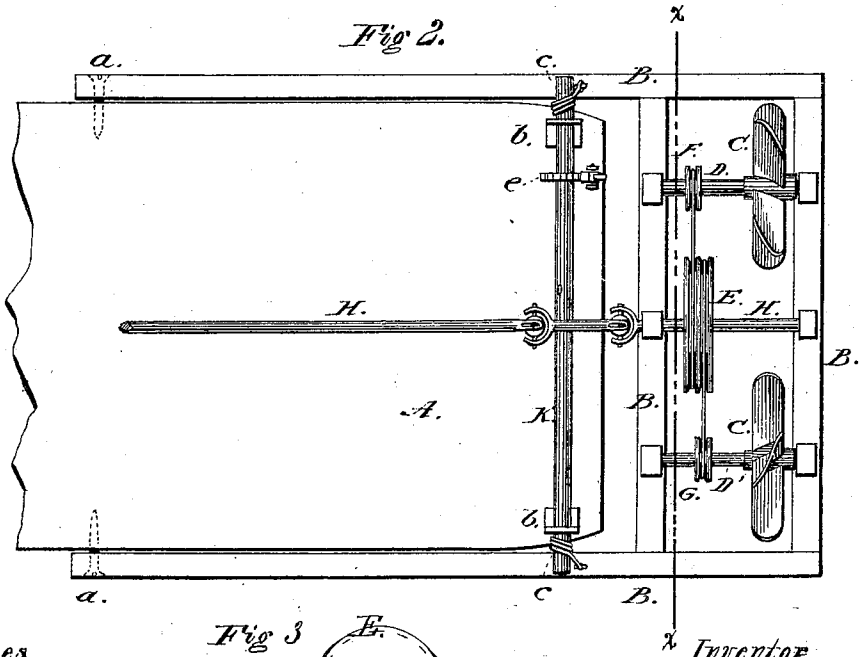
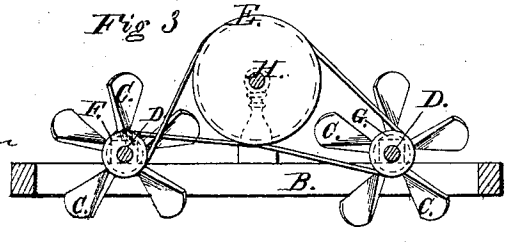


Fig 3



Witnesses.

H. N. Hazard

J. M. Albertson

Inventor.

Amos Lee

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

AMOS LEE, OF WHITEMARSH, PENNSYLVANIA.

IMPROVEMENT IN OPERATING SCREW-PROPELLERS.

Specification forming part of Letters Patent No. **132,588**, dated October 29, 1872.

To all whom it may concern:

Be it known that I, AMOS LEE, of Whitemarsh, in the county of Montgomery, State of Pennsylvania, have invented certain Improvements in Propelling Vessels for Canal and other Navigation, of which the following is a specification:

My invention has for its object the raising and lowering of the propeller-wheels by a device fixed in the stern of the boat to keep said wheels at a certain depth in the water while in operation.

Description of Accompanying Drawing.

Figure 1 is a side elevation of a canal-boat with propellers attached. Fig. 2 is a plan of same. Fig. 3 is an end elevation.

General Description.

Similar letters of reference refer to corresponding parts in all the figures.

A is the vessel, which has attached to it loosely by pivots a frame, B, which is allowed to move, when necessary, in a vertical plane, to raise and lower the propellers attached thereto. C C′ are propeller-wheels formed of a hub and blades shear-shaped in the usual manner, to meet the water obliquely. These propellers are supported on shafts D D′ having suitable journal-bearings on the frame B, and move in a plane at right angles to their axes. The wheels move from or toward each other as it is desired that the vessel move forward or backward, and, by means of the hoisting and lowering device, they are kept a certain depth in the water, although the stern of of the vessel be depressed or elevated when crowding through the water. On a main shaft, H, is fixed a drum, E, which communicates with small pulleys F G by chains or cords. These pulleys communicate the motion given to the drum by the main shaft, and, as they are fixed to propeller-shafts, the wheels C C′ are driven to force the vessel along. One of the cords connecting the drum with pulleys is crossed to give a reverse motion to one of the wheels.

For convenience of illustration I give this particular sort of gearing; but, as I claim nothing in the manner of imparting motion to to the propeller-wheels, any suitable gearing may be used.

In arranging propellers for canal-boats the old propeller moving on a vertical shaft has had a serious effect upon the banks of the canal by underwashing caused by their nearness to the bottom. Another objection to such propellers is that the water is driven to the right or left, as the boat is moved up or down stream. To overcome this first objection I allow my wheels to be only partially submerged, and the second objection I do away with by either throwing the water toward the middle of the boat or separating it to both sides at once. By my arrangement of wheels I can crowd the boat rapidly through the water without serious damage to the banks of the stream.

In Figs. 1 and 2 I have shown a universal-joint coupling for the main shaft H, for which I do not claim originality, but which allows an independent relative movement to the boat and structure in which the propeller is fixed.

Standards *b b*, fixed to the deck of the vessel, support the shaft K, which serves as a windlass to raise or lower the propeller-frame so as to keep the paddles of the wheels at a proper distance under the water. Ropes or chains *c c′* connect the boat with the propeller-frame. A lever, *d*, is used to revolve the shaft, while the ratchet-wheel, controlled by the pawl *e′*, prevents a sudden downward movement of the propeller structure when the lever is released.

I do not claim any of the mechanical details shown and described, as I am aware that they are familiar to all, and old.

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

The combination of the pivoted frame B carrying one or more propeller-wheels, shaft K, ropes or chains *c c′*, lever *d*, ratchet *e*, and pawl *e′*, all arranged as described, whereby the propellers are raised and lowered, as and for the purpose set forth.

AMOS LEE.

Witnesses:
H. K. WEAND,
J. M. ALBERTSON.