

L. F. A. LEGOUGE.

PROPELLING CANAL-BOATS, &c.

No. 173,549.

Patented Feb. 15, 1876.

Fig. 1.

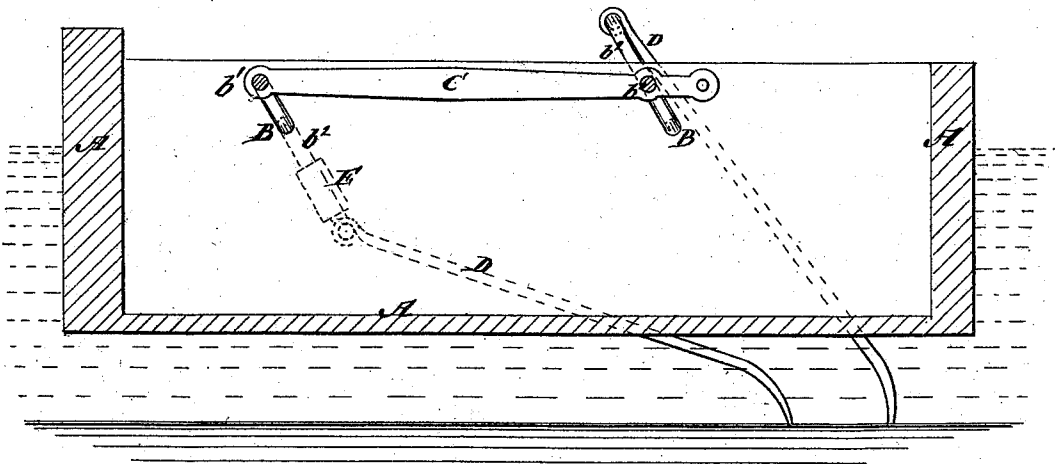
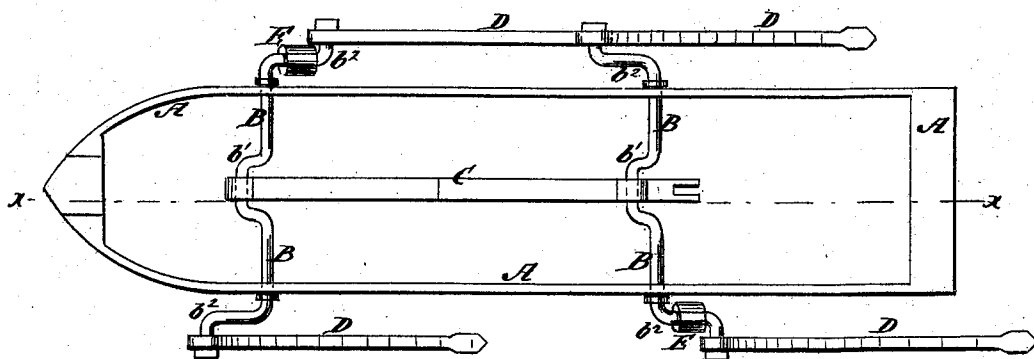


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

LOUIS F. A. LEGOUGE, OF WHEATLAND, CALIFORNIA.

IMPROVEMENT IN PROPELLING CANAL-BOATS, &c.

Specification forming part of Letters Patent No. **173,549**, dated February 15, 1876; application filed October 2, 1875.

To all whom it may concern:

Be it known that I, LOUIS F. A. LEGOUGE, of Wheatland, in the county of Yuba and State of California, have invented a new and useful Improvement in Propellers, of which the following is a specification:

Figure 1 is a vertical section of my improved propeller, taken through the line *xx*, Fig. 2, and shown as applied to a boat. Fig. 2 is a top view of the same.

Similar letters of reference indicate corresponding parts.

The object of this invention is to furnish an improved propeller for boats in canal and river navigation, for road-steamers, steam-plows, &c., which shall be simple in construction, inexpensive in manufacture, effective in operation, and which, when applied to boats, shall prevent any loss of power by "slip," shall prevent the washing away of the banks, and may be applied with facility to old boats as well as new.

The invention consists in an improved propeller, formed by the combination of the crank-shafts, the connecting-bar, the side bars, and the balancing-weights with each other, as hereinafter fully described.

I will describe my propeller as applied to a boat.

A represents the boat. B are two parallel shafts, which are placed across the boat A, and revolve in bearings attached to the framework of said boat. Upon the centers of the shafts B are formed cranks *b*¹, to which is pivoted a connecting-bar C, so that the said shafts B may move together. One end of the connecting-bar C is designed to be connected with the piston-rod of a steam-engine to give motion to the shafts B. Upon the ends of the shafts B are formed cranks *b*², to the ends of which are pivoted the upper ends of rods D. The lower ends of rods D rest upon and are so formed as to take hold of the ground, and thus push the boat forward. The cranks *b*², upon the opposite ends of the same shaft and

upon the adjacent ends of the two shafts, project in opposite directions, so that a rod, D, upon each side of the boat may be working while the other rods are moving forward. E are weights attached to the cranks *b*² to balance the cranks *b*¹ *b*² and give uniformity to the motion of the shafts B. The weights E may be attached to arms or wheels attached to the shafts B within the boat, so as to act also as fly-wheels.

I am aware that a pair of push-bars has been used, with an alternating motion, so as to push on one side at a time; but I cause a pole to push on each side at the same time, and without intermission; also, that the push-bars have been jointed, so that, in order to regain their pushing position by a reciprocating motion, a frictional resistance was created against the water, while my revolving motion causes the poles to regain their working position with little or no friction; also, that straight poles have been thus used, but they are liable to slip, thus failing to receive and transmit the motive power properly to the boat. The last difficulty is obviated by making my push-bars D to curve at the end on the front side.

Having thus described all that is necessary to a full understanding of my invention, what I claim as new is—

1. The two middle-cranked shafts B B, connected by rod C, in combination with four poles, D, the two of a pair arranged on the reversed cranks of their shaft, and causing the diagonally-opposite poles of different shafts to operate together, as and for the purpose specified.

2. The combination, with crank-shafts B and poles D, of the weights E, arranged on different shafts and on opposite sides of boat, as and for the purpose set forth.

LOUIS F. A. LEGOUGE.

Witnesses:

CLAUDE CHANCE,
JOHN LANDIS.