W. A. KIRBY.

Propulsion of Canal-Boats.

No. 147,140. Patented Feb. 3. 1874.

Fig. 1.

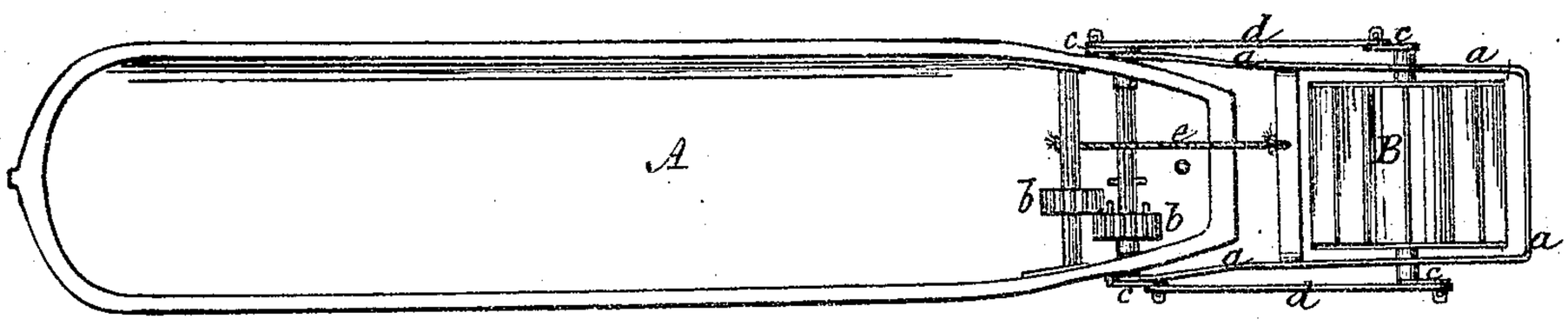
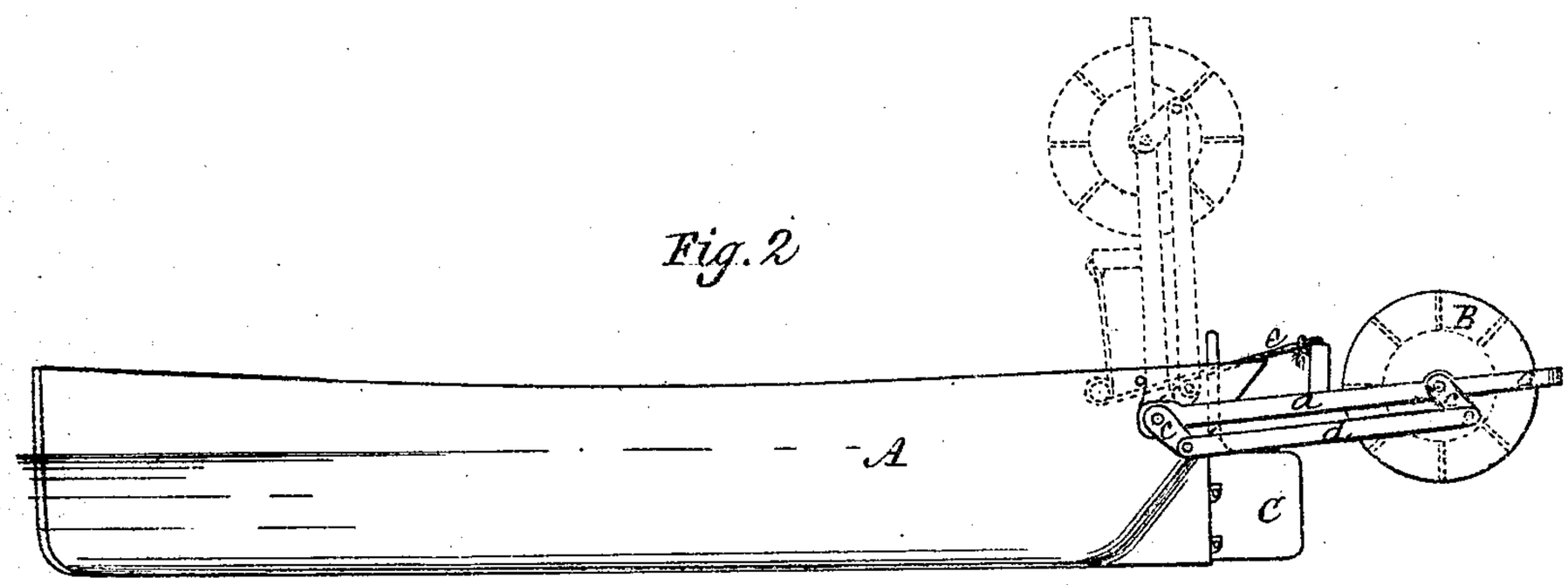


Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM A. KIRBY, OF AUBURN, NEW YORK.

IMPROVEMENT IN PROPULSION OF CANAL-BOATS.

Specification forming part of Letters Patent No. **147,140**, dated February 3, 1874; application filed March 7, 1873.

To all whom it may concern:

Be it known that I, WILLIAM A. KIRBY, of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Propulsion of Canal-Boats; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings making a part of this specification, in which—

Figure 1 represents a top plan of a canal-boat with a propeller arranged after my plan connected thereto. Fig. 2 represents a side elevation of the boat and propeller attached thereto after my plan, and also showing, in dotted lines, the propeller raised up, as in going into or through a lock.

I am aware that propellers and paddle-wheels of various kinds have been arranged and used at the stern of a canal-boat. I am also aware that propellers and paddle-wheels have been so arranged at the stern of a canal-boat that they may be raised up when entering or passing through a lock. I lay no claim to these things, either separate or combined.

My invention relates to the particular location of a propeller at the stern of a canal-boat, in relation to the swell which such boat creates by its passage through the water; and my invention consists in locating and operating the propeller behind or back of the swell created by the displacement of the water and the motion of the boat through the water.

To enable others skilled in the art to make and use my invention, I will proceed to describe the same with reference to the drawings.

The "swell," as it is termed, at the stern of a canal-boat as it passes through the water occupies a space of from six to ten feet at the stern, varying according to the width of the boat, its velocity through the water, and the amount of water displaced by the boat, and is generally within the distance or space above mentioned. The motion and direction of this swell is with the boat. It has not the velocity that the boat has, and therefore does not help to carry the boat forward; but it has a forward velocity of, say, half of the velocity of the boat, and to that extent does not act as a drag upon the boat, nor tend to draw the boat back, as it would do if its forward motion were destroyed.

Heretofore the stern propeller of a canal-boat has been placed within this swell or distance, as above mentioned, and its action there breaks up the water, reduces this swell, destroys its forward motion, draws away the water from the stern, so that it tends to draw or drag backward the boat; or, removing the water from under the stern of the boat, allows the stern to settle down, so that the boat must ascend a slight plane in moving forward.

Now I locate and operate my propeller behind this swell, so as not to disturb it, or as little as possible, and I thus attain all the advantages of this swell, and especially avoid its conversion into a drag upon the forward motion of the boat. I hinge this propeller to the boat, so that it may be raised up when passing into or through a lock, but this is not my invention.

My invention consists in locating and operating the propeller or paddle-wheel behind the swell created by the passage of the boat through the water.

A represents a canal-boat, and B the propeller or paddle-wheel for driving it, and which propeller is located and operated behind the swell created by the passage of the boat through the water, or so as not to influence or be influenced by it, this distance being equal to about half of the width of the boat, or, say, from six to ten feet.

I have shown the paddle-wheel as sustained upon hinged arms *a a*, and driven by gearing *b b*, cranks *c c*, and connecting-rods *d d*. I have also shown a cord or chain, *e*, which, by means of the driving power, winds upon a shaft or drum, and so raises and holds up the propeller and its appliances, as seen in dotted lines in Fig. 2, when entering or passing through a lock.

These devices may be changed at pleasure, or as convenience may require. The rudder C may occupy its ordinary position at the stern of the boat.

What I claim is—

The combination, with the boat, of a frame extending beyond and supporting the propeller abaft the swell created by the forward movement of the boat, and adapted to be raised out of the water and over the boat when passing through a lock, as described and represented.

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