

CHARLES HOWARD.

Improvement in Paddle Mechanism for Boats.

No. 124,746.

Patented March 19, 1872.

Fig. 1.

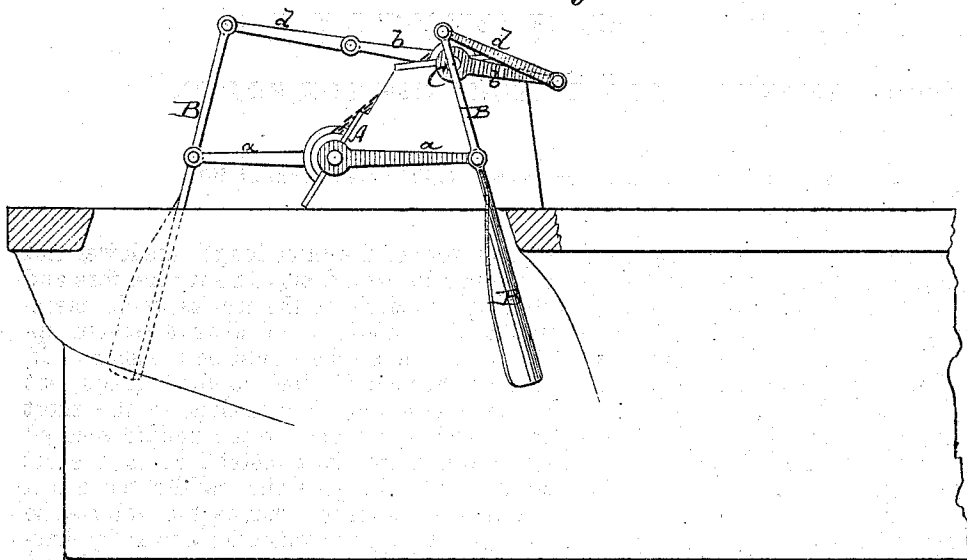
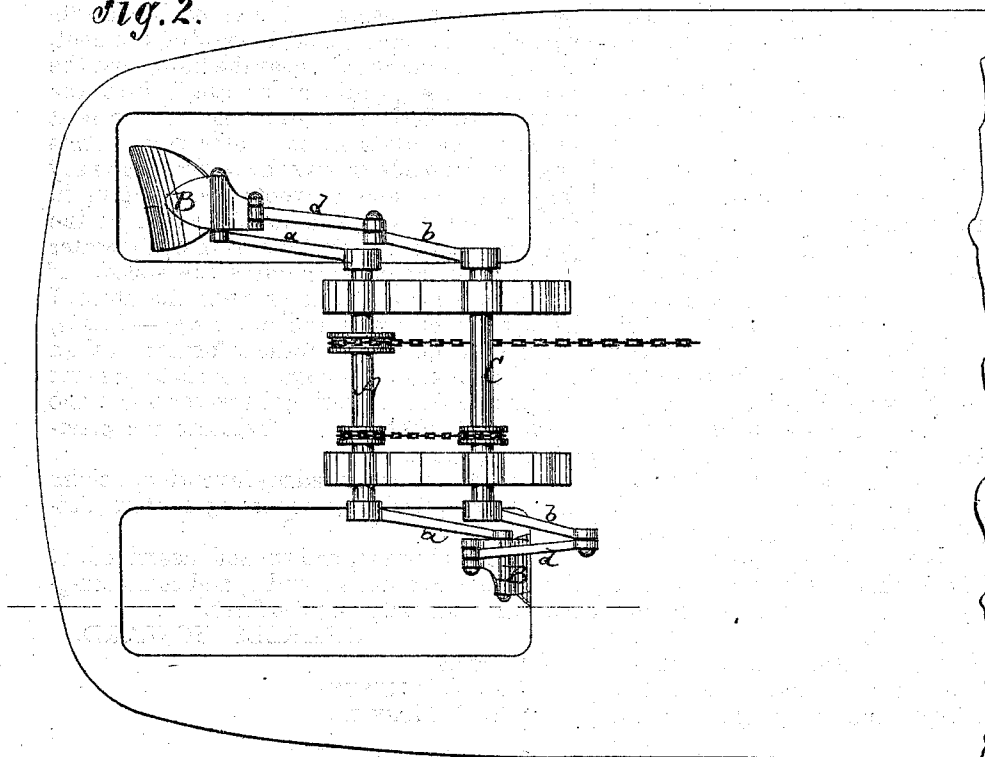


Fig. 2.



Witnesses:

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CHARLES HOWARD, OF NEW YORK, N. Y.

IMPROVEMENT IN PADDLE MECHANISM FOR BOATS.

Specification forming part of Letters Patent No. 124,746, dated March 19, 1872.

Specification describing a certain Improved Paddle Mechanism for Boats and Vessels, invented by CHARLES HOWARD, of the city, county, and State of New York.

My invention relates to an improved paddle mechanism for the propulsion of vessels and boats.

In the accompanying drawing, Figure 1 represents a side elevation of my improved paddle mechanism. Fig. 2 is a plan or top view of the same.

Similar letters of reference indicate corresponding parts.

A shaft, A, is arranged across the boat and connected in a suitable manner with a steam or other engine, which is supported on said boat. At the outer ends of the shaft A are cranks *a*, which work outside of the boat. On the outer end of each crank *a* is a gudgeon, on which fits a suitable box provided in the paddle B, near the center of same. Another pair of shorter cranks, *b*, is secured to the ends of a shaft, C, which is placed parallel to and over the other or main shaft, A. The outer end of each short crank *b* is attached to an arm, *d*, which connects it with the upper end of the paddle. These shafts A C are geared so that they turn alike, and the two cranks at each end always point in the same direction. When they revolve, the long crank, which is attached near the middle of the paddle, carries that part of the paddle further forward and aft than the short crank, which is attached to the upper end of the paddle, carries that end. This difference in the length of the cranks causes the lower end of the paddle to move further than the upper end; and, therefore, it makes a longer stroke than if both cranks were of the same length. By varying the relative lengths of these cranks, I make the paddle go into and come out of the water at any desirable angle. If the

cranks were of the same length the lower end of the paddle would move no further fore and aft than the circle of the cranks would measure, as the paddle would always remain upright, and the stroke would be too short. If, on the other hand, I had no upper crank, but had the arm that is attached to the short crank and upper end of the paddle secured by a stationary pivot, instead of to a short crank, it would give the paddle too much stroke, and cause it to strike the water at so great an angle as to waste its power by driving the water downward at the forward end of the stroke, and raising the water at the back end of the stroke. These paddles are designed for the stern, side, or bow of the boat. If they are placed at or near the bow, I set the blades of the paddle at an angle from the beam of the boat, the edge next to the boat being further aft than the outer edge. This angle of the blade throws the water diagonally from the bow, and prevents its piling up in front of the boat. The rapid motion of the paddles causes a partial lowering of the water at the bow, which accelerates the speed. If the paddle is placed at or near the stern, I have a slight angle the other way—that is, the outer edge of the paddle is further aft than the edge next to the boat. This is to prevent the paddle from lowering the water under the stern of the boat, and to facilitate the steering of the boat.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, shown and described, of the paddle B, cranks *a* and *b*, and connecting-rod *d*, for the purposes set forth.

CHARLES HOWARD.

Witnesses:

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