A. Gemunder. Sheet 1, 2 Sheets.

Crank Paddle.

No. 50,574. Patented Oct. 24, 1865.

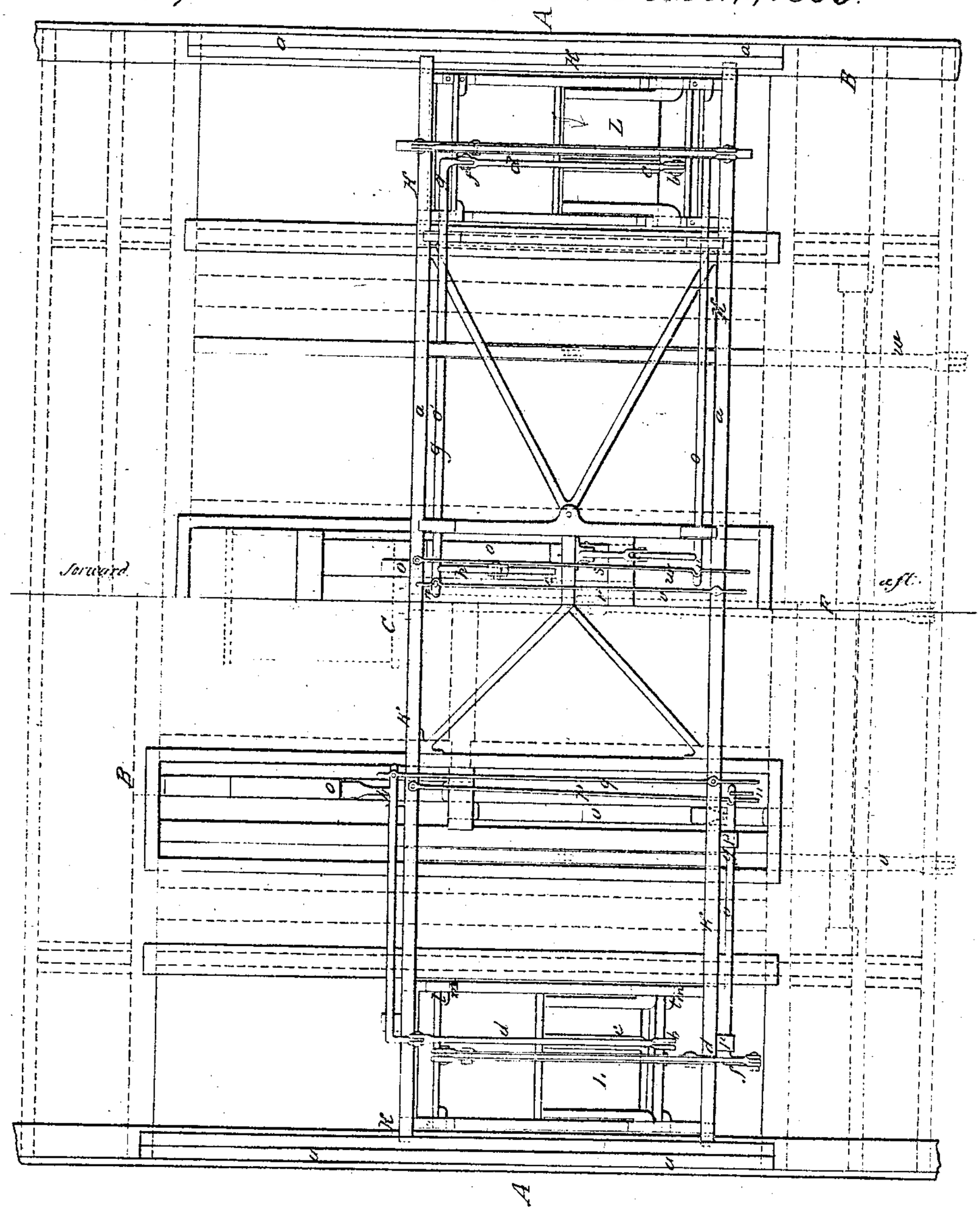

Fig. 1.

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A. Gemunder. Sheet 2, 2 Sheets.

Crank Paddle

No. 50,574. Patented Oct. 24, 1865.

Fig. 2.

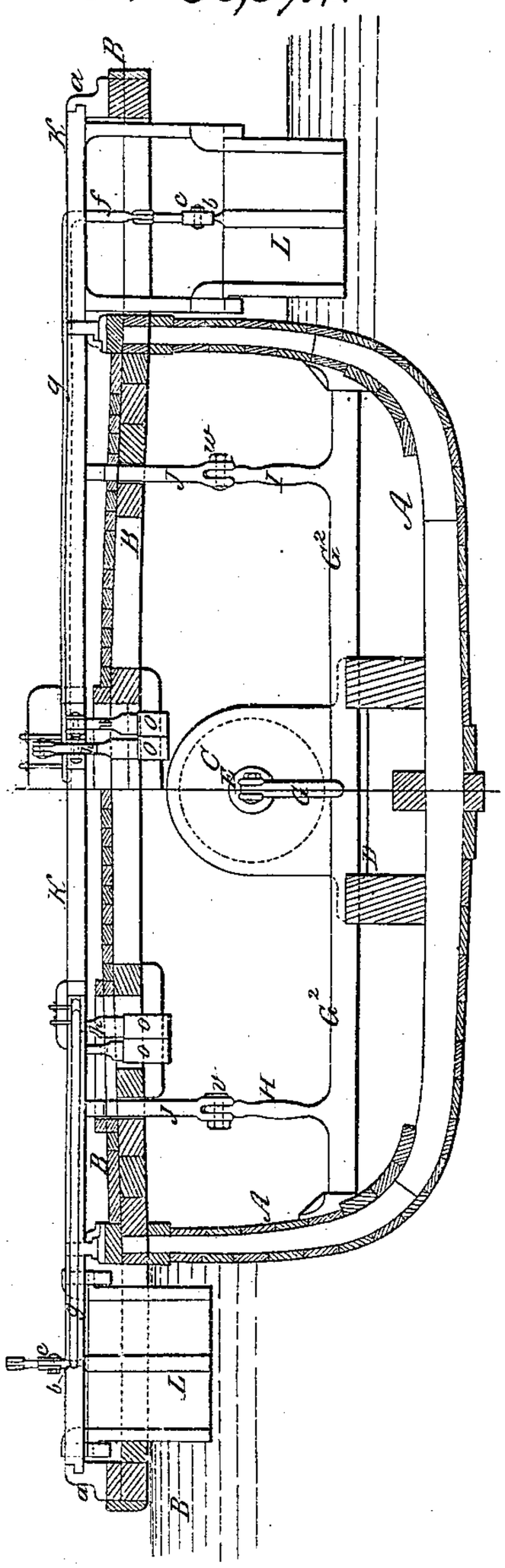


Fig. 3.

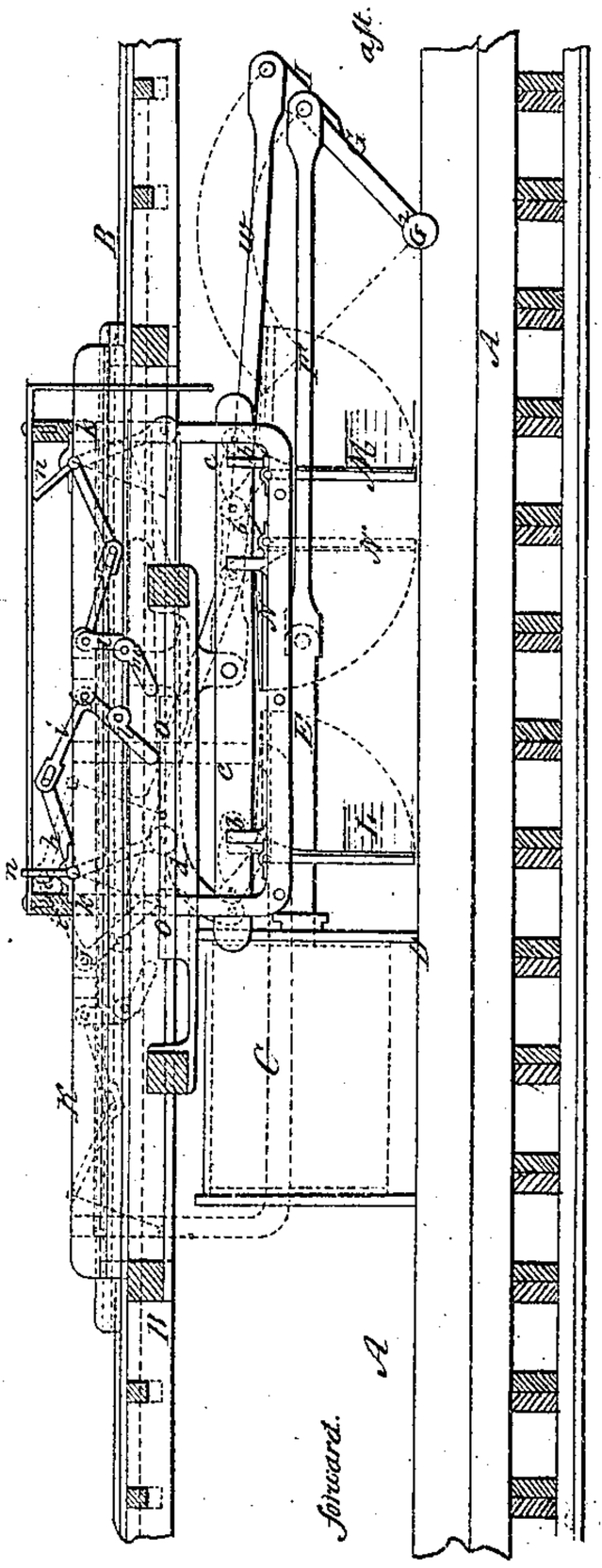
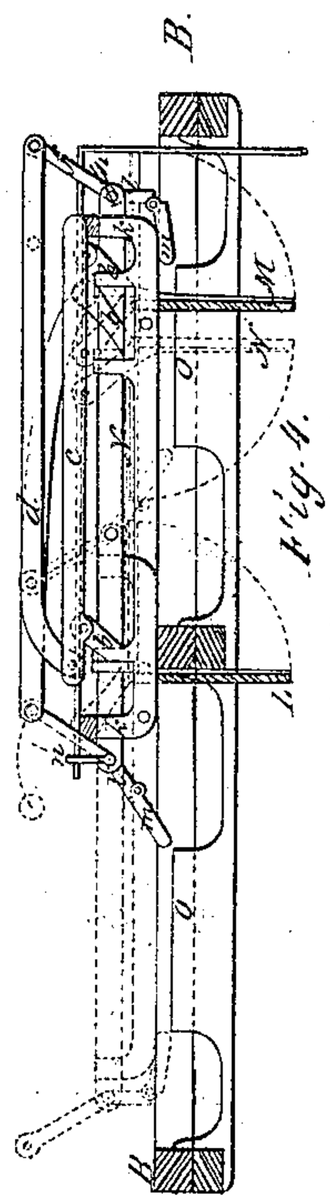


Fig. 4.



Witnesses.
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Andrew A. Todd.

Inventor.
Albert Gemunder.

UNITED STATES PATENT OFFICE.

ALBERT GEMÜNDER, OF NEW YORK, N. Y.

IMPROVED PROPELLING APPARATUS.

Specification forming part of Letters Patent No. **50,574**, dated October 24, 1865.

To all whom it may concern:

Be it known that I, ALBERT GEMÜNDER, of the city, county, and State of New York, have invented a new and Improved Apparatus for Preventing Slip in Paddles; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this application.

My invention relates to that kind of propelling mechanism or machinery which involves the use of paddles acting directly against the water during the actuating-stroke, and lifted clear of the water during the return-stroke. It has for its main objects to afford a simple, effective, and thoroughly practical means of operating paddles in this manner, and also, a ready means of backing, turning, and otherwise managing the boat by the paddles or propelling mechanism above; and to these ends my invention may be said to consist, first, in the employment of a reciprocatory frame carrying paddles, which are so arranged therein as to press square against the water during the motion of the reciprocatory frame in one direction, and move clear of the water during the motion of said frame in the opposite direction.

My invention consists, secondly, in the employment, in combination with the reciprocatory frame, of two paddles, or two sets of paddles, so arranged as to be capable of operation in opposite directions, and use separately for the purpose of driving the boat in different directions, as will be presently more fully explained.

My invention consists, thirdly, in the employment of two sets of paddles on each side of the boat, in combination with a mechanism for throwing into and out of operation each set, for the purpose of producing various combinations of motions in the paddles on opposite sides of the boat, to cause the latter to move in any desired direction or manner.

My invention consists, fourthly, in a peculiar method of operating the paddles by means of levers, which are so arranged, in connection with the reciprocatory frame, as that the latter in its motions will cause the former to come against stationary tripping-blocks, and so constructed that in coming against said tripping-blocks they will be vibrated going one way, and be unaffected going in the opposite direction.

To enable those skilled in the art to make and use my invention, I will proceed to describe fully the construction and operation of my new propelling machinery, referring to the accompanying drawings, making part of this application, and in which—

Figure 1 is a plan or top view of a vessel showing my improved paddle arrangement. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a vertical longitudinal section, showing one mode of arranging the mechanism, in which the connecting-rod is below the rock-shaft, whereby a transferring of the action of the same on the tripping-blocks is needed. Fig. 4 is the same as Fig. 3, showing the connecting-rod above the rocking shaft, leaving out the connection.

Similar letters in the several views indicate the same parts of the apparatus.

A is the hull of the boat, and B the lower deck. C is a horizontal engine, which is set on a suitable frame and bed-plate, D, in the usual manner.

The engine and its connections not forming any part of my present invention, I need not give any description here of it.

The piston E of the engine is connected by a pitman, F, to the arm G of a rock-shaft, G^2, which is arranged horizontally across the boat near its bottom, and to which are secured two other arms, H I, the ends of which are connected by pitmen *v w* to the stands J J of the horizontally-reciprocatory frame K. This frame K, as seen clearly at Figs. 1, 2, is arranged so as to move on ways *a*, running longitudinally on the deck B, and carries with it the paddles L, M, and N. These paddles are hung on pivots in the ends of frame K, so as to turn, as indicated by the dotted circles. Each paddle is provided with an arm, *b*, projecting from its top edge and pivoted to a bar, *c*, which in turn is pivoted near one end to one end of a lever, *d*, the other end of which is pivoted to the crank *f* of a horizontal shaft, *g*. The shafts *g* extend along toward the center of the boat, and are provided at their inner ends with a crank each, *h*. The crank *h* is connected to the rigid end *i* of the angle-lever *j*, which latter has one arm hinged to turn in one direction,

and be rigid when pressed in the opposite direction, as shown at *l* in Figs. 3 and 4.

O are tripping-blocks, which are arranged fast in such a position that the hinged arms *l m* will come against them in the proper manner.

On the inner ends of shafts *g* are projecting pins *n*, which catch into the clutch-bars *p q r s* respectively, for the purpose of holding up out of the water and out of operation, any or all the paddles, while the traveling frame K is in motion.

The operation of the several parts will be comprehended from a brief description.

The engine drives the oscillating or rock-shaft G^2, which, through the medium of the arms H I and pitmen *v w*, imparts the requisite reciprocation to the frame K. As this frame K reciprocates (carrying with it the paddles and all their machinery) the arms *l m* of angle-levers *j* come against the trip-blocks O at each forward stroke of frame K, and cause the paddles to be lifted up (above the water) through the medium of shaft *g* and levers *c d* and crank *f*. During each backward stroke of frame K, the paddles L M bear against the water and propel the boat. It will be understood that in going forward, as just explained, only the paddles L M are used. When it is desired to back, the paddles L M are clutched into levers *p s* while up (out of the water) and there retained, and the other set of paddles, N, are unclutched from levers *r q* and allowed to operate, whereby the boat is moved in an opposite direction. The angle-levers of this set of paddles, and the paddles themselves, are arranged the reverse of the other set.

When it is desired to turn the boat around in either direction different sets of paddles—that is, one set pushing forward and another pushing backward—are made to operate on the two sides of the boat.

It will be seen that with the machinery described the boat may be moved in any direction with facility, while at the same time the most economical expenditure of power is effected by the action of the paddles without any slipping, and the whole machinery is operated directly from a single engine arranged low down in the boat, and the entire apparatus is under the ready control of the engineer.

Having described the construction and operation of my invention, so that those skilled in the art can make and use it, what I claim as new, and desire to secure by Letters Patent, is—

1. A reciprocating frame, or its equivalent, constructed and operating substantially as described.

2. The employment, in combination with the said reciprocating frame, or its equivalent, of two or more paddles so arranged as that either may be used separately to drive backward or forward, substantially as set forth.

3. The employment of two or more paddles (operating in opposite directions) on each side of the boat to be used separately, substantially as and for the purpose hereinbefore set forth.

4. The combination of a pivoted paddle, with the above-described levers, or their equivalent, for lifting such paddle out of the water during the forward stroke, in the manner substantially as hereinbefore set forth.

ALB. GEMÜNDER.

Witnesses:

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J. W. BUTLER.