

J. H. CLOW.

FEATHERING PADDLE-WHEELS.

No. 178.999.

Patented June 20, 1876.

Fig. 1.

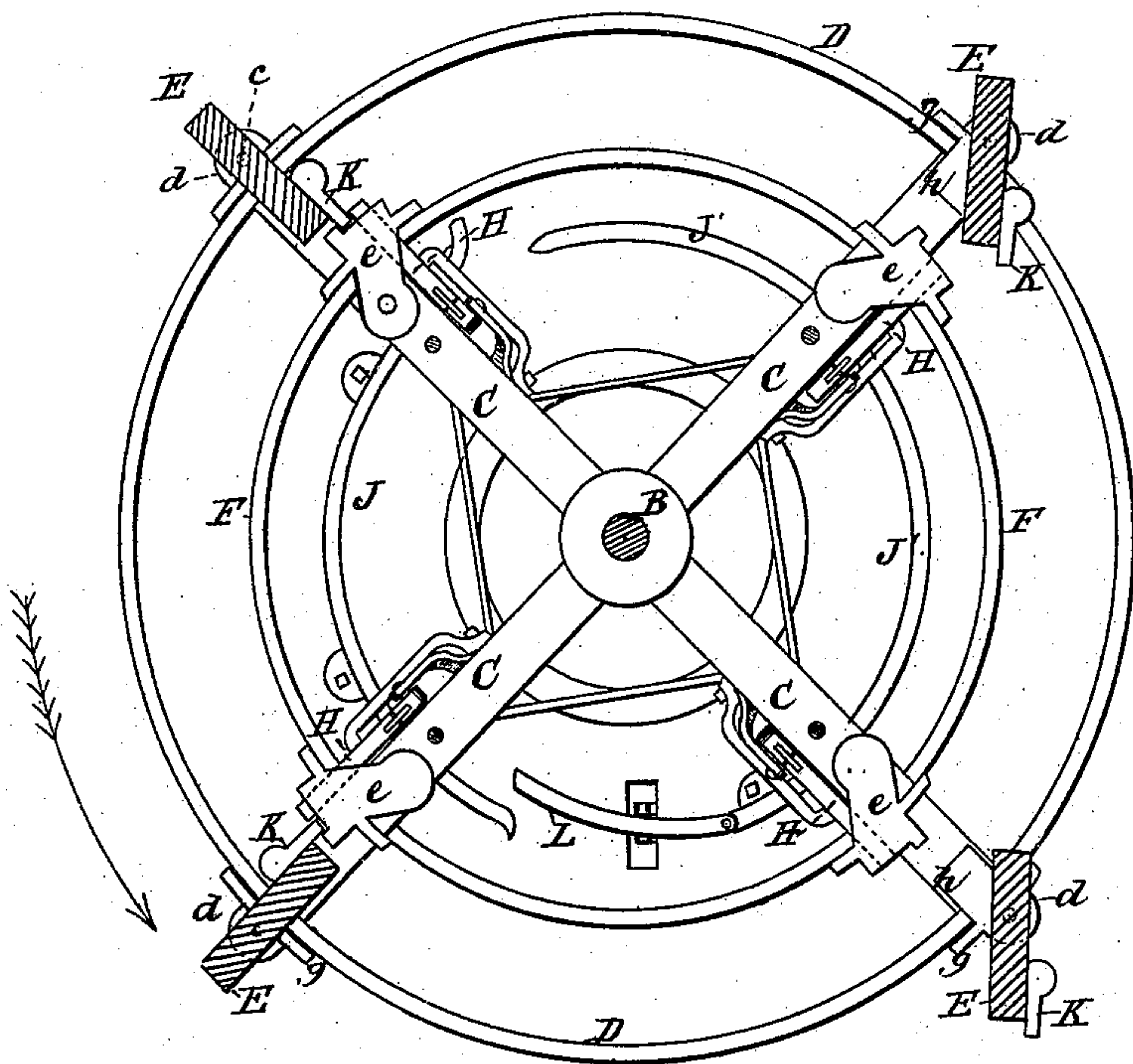
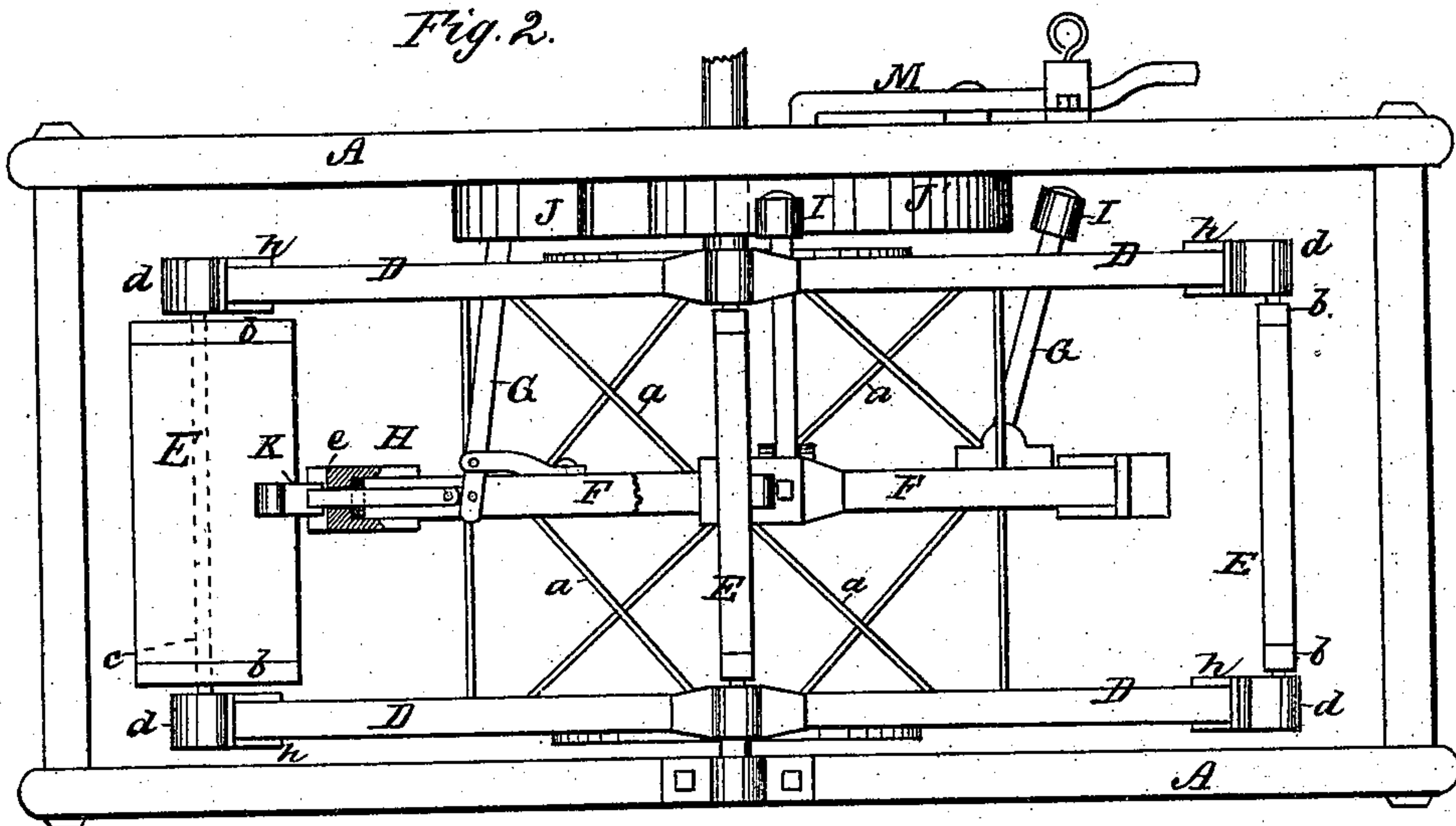


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOHN H. CLOW, OF ORANGE, WISCONSIN.

IMPROVEMENT IN FEATHERING PADDLE-WHEELS.

Specification forming part of Letters Patent No. 178,999, dated June 20, 1876; application filed May 15, 1876.

To all whom it may concern:

Be it known that I, JOHN H. CLOW, of Orange, in the county of Juneau and State of Wisconsin, have invented a new and Improved Paddle-Wheel; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing, forming part of this specification, in which—

Figure 1 is a vertical section; Fig. 2, a plan view.

My invention relates to certain improvements in that class of paddle-wheels designed for the propulsion of boats, in which the paddles are pivoted upon one side of the center, so as to feather or move edgewise in rising from the water so as not to carry dead-water.

My invention consists, mainly, in the particular construction of a locking-bolt, arranged to be operated by a lever and cam, and located in the central part of the wheel, so as to engage with the middle part of the paddle, and lock or release the same at the proper time.

In the drawing, A is a frame-work, which represents the frame-work of the side of a steamer which carries the wheel. B is the central shaft of the wheel, which is journaled in said frame-work. C are the radial arms strongly braced together by rods *a*, and D are the rims of the wheel, which are made, preferably, of iron, and firmly fastened to the extremities of the radial arms by means of the bearings *d* for the paddles, which bearings are made with extensions *g g*, that fit the outer circumference of the rims, and are bolted to the same, and the projections *h h*, which extend down upon both sides of the radial arms and are bolted thereto.

The paddles E consist of boards, of the proper size and strength, firmly held in end caps *b*, and pivoted in bearings *d* by a rod, *c*, which runs all the way through the paddle, and is located to one side of the center, so as to cause the paddle to hang perpendicularly. The object of extending the rods *c* all the way through is to make a strong connection, while the end caps prevent splitting.

Between the two sets of arms and rims C D is arranged, upon the same shaft, a smaller

central wheel, F, which is constructed in a manner similar to the large wheel. To this wheel is pivoted a set of levers, G, one for each paddle, which levers are pivoted to and operate a sliding bolt, H, at one end, and terminates in a friction-roller, I, at the other, which, as the wheel revolves, engages with a cam upon the side of the steamer, and alternately projects and withdraws the bolt. The said bolts are arranged beside the arms of the small wheel and slide through boxes *e*. K is a catch, which is attached to the edge of the paddle at the middle, and projects so as to be caught between the locking-bolt H, when projected, and the projection *f* formed upon the boxes *e* upon the opposite side of the locking-bolt, the said catch being upon the edge of the paddle farthest from the pivot, and weighted so as to hang properly, and catch at the proper time. The cam is made in two parts, J J', and in going ahead the levers G engage with the inside of J and the outside of J'. The effect of cam J then is to throw the levers inwardly and the bolts outwardly, thus locking the paddles before they enter the water, and until they are about to leave the same. As they pass from J to J', however, the motion of the levers is reversed, withdrawing the bolt and allowing the paddles to assume a perpendicular position from their own gravity, and to move edgewise through the water in rising, so as to carry no dead water.

In backing, with the wheel constructed as described, the two parts of the cam J J' are connected and made continuous by a pivoted switch, L, moved by a hand-lever, M, upon the side of the boat, and when in this position the levers run inside the cam throughout their entire revolution, and, as the buckets are held locked, their action in backing is like that of the ordinary wheel, in which there is no feathering.

By means of this construction of wheel I save a large amount of power, and consequently the expense of producing it, and am enabled, also, to secure a greater degree of speed. The wheel is, furthermore, simple and strong in its construction, and as the paddles are locked at a point farthest from the pivot,

they are better adapted to meet and withstand the resistance of the water, and are consequently more durable.

Having thus described my invention, what I claim as new is—

1. The paddles E, pivoted eccentrically to the main wheel, and having a catch, K, in combination with the central smaller wheel F, the locking-bolts H, levers G, and cams J J', as and for the purpose described.

2. The combination, with the paddles E, the

radial arms C, and rims D, of the bearings d, having extensions g g fitting the rim, and projections h h bolted to the arms, substantially as and for the purpose described.

3. The combination, with the cams J J', of the pivoted switch L and lever M, as and for the purpose described.

JOHN H. CLOW.

Witnesses:

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