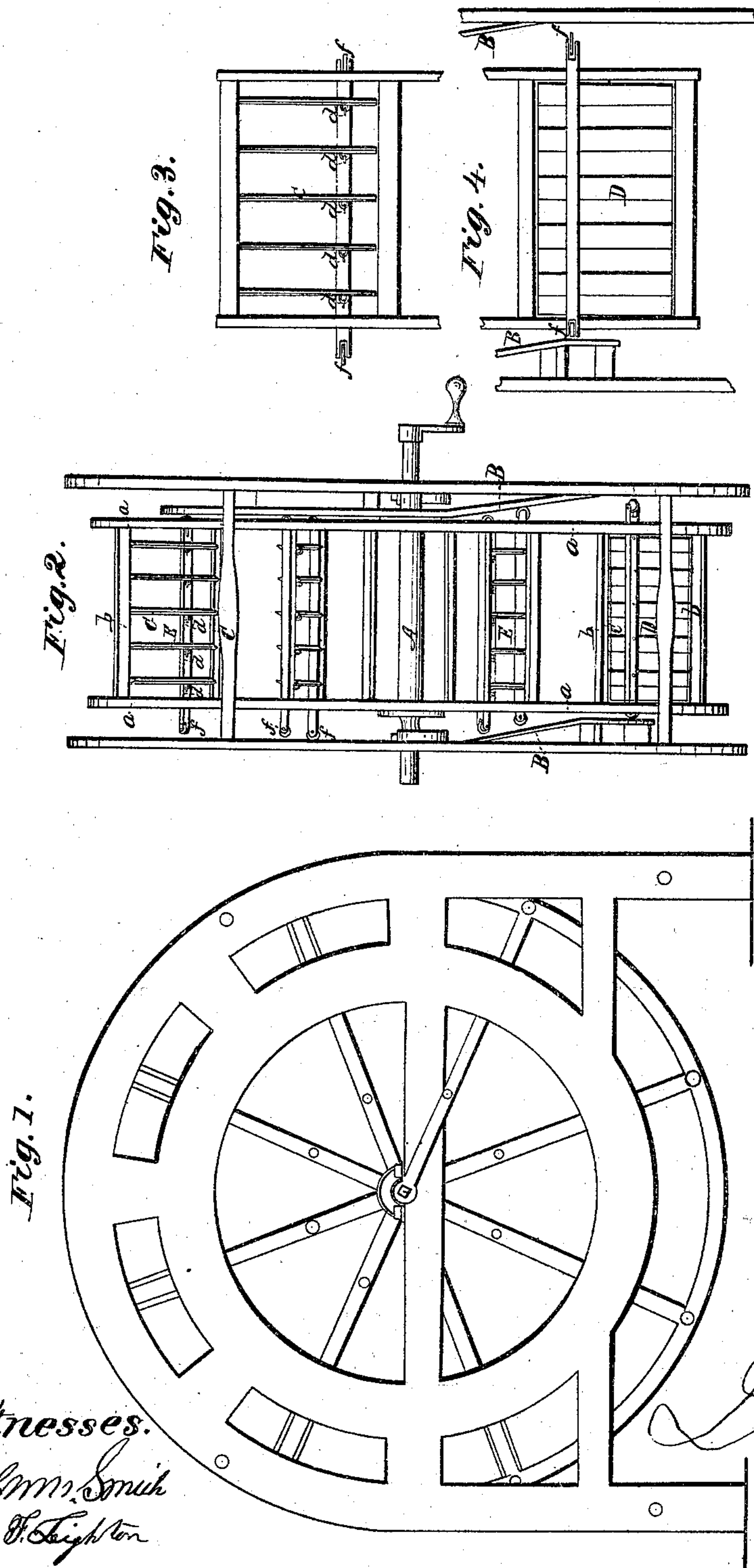


I. A. Norton. Paddle Wheel.

N^o 43,424.

Patented Jul. 5, 1864.



Witnesses.
Cm. Smith
Geo. H. Lighton

Inventor.

I. A. Norton

UNITED STATES PATENT OFFICE.

LEWIS A. NORTON, OF HEALDSBURG, CALIFORNIA.

IMPROVED PADDLE-WHEEL.

Specification forming part of Letters Patent No. 43,424, dated July 5, 1864.

To all whom it may concern :

Be it known that I, LEWIS A. NORTON, of Healdsburg, county of Sonoma, and State of California, have invented a new and Improved Steamboat Paddle-Wheel, called "Norton's Paddle-Wheel;" and I do hereby declare that the following is a full, clear, and exact description, together with its construction and operation, reference being had to the annexed drawings, making a part of this specification.

The nature of my invention consists in placing any given or necessary number of paddles working longitudinal to the shaft. Each paddle is hanging on a pivot. The lower end of the paddle is fastened by the lower pivot to a bar running horizontally with the shaft and attached to the ends of the arms, and the upper ends of the paddles, by the upper pivots, are attached to a bar running from arm to arm of the wheel, as last described. These paddles are so arranged as to open and close in the following form: There is a bar running across the paddles, to which each one is attached, which is called the "shackle-bar." On each end of this bar is placed a friction-roller and on the side of the boat craft or cam, as the case may be, at the point where the paddles are to close to form the bucket to perform labor. The rotary motion of the wheel brings the end of the shackle-bar with the friction-roller against the incline plane, thereby driving the friction-roller longitudinally, and causes the paddles thereby to form a complete bucket. When the necessary labor has been performed, the friction-roller on the other end of the shackle-bar comes in contact with a like incline, as before, which the paddles open edgewise to the water, thereby doing away with all resistance or lift in raising them out of the water. After labor the bucket remains in this open condition through both the air and the water to the necessary point in the water, when it is again closed as before.

To enable others skilled in the art to make use of my invention, I will proceed to describe its construction and operation.

I construct my wheel in the usual form in every respect, up to the attaching of the float or bucket to the opposite arms. At the lower extreme of the arms I attach a bevel bar, pre-

senting sharp edges to the water, and at a proper distance up the arms I place another cross-bar perforated with holes at proper distances, in which the pivots of the paddles play. Upon the edge of each paddle is attached a small knee, arising sufficiently high to permit the shackle-bar to play above the arms. To these knees the shackle-bar is attached. The shackle-bar has also friction-rollers attached to each end.

In order to open and close the paddles, I attach two cams or inclines, one on the side of the boat, when I wish the paddles to open and close and form the bucket. In performing its revolution the friction-roller on the shackle-bar strikes the incline and closes the paddles, forming a perfect bucket. When a revolution has been performed, and before the wheel has commenced to lift water, the opposite friction-roller strikes the opposite incline, throwing the feather-edge of the paddle to the water or air, in which open order they pass to the point of labor, offering no resistance to air or water.

In the drawings, Figure 1 is a front elevation. Fig. 2 is an end view. Fig. 3 represents the paddles open. Fig. 4 represents the paddles closed.

In Fig. 2, A is the shaft. B is the incline. C are the paddles opened. D are the paddles closed. E is the shackle-bar, *a a* are the arms. *b b* are the lower cross-bars. *c c* are the upper cross-bars. *d d d d* are knees; *f f f f*, friction-rollers.

In Fig. 3, C represents the paddles open. *f f* are the friction-rollers.

Fig. 4 represents the paddles shut. D represents the paddles closed. *f f* are the friction-rollers. B B represent the inclines or cams for the friction-rollers to run upon.

What I claim as my invention and improvements in paddle-wheels is—

A series of radial rotating floats, pivoted as described, in combination with the shackle-bar E and stationary cams B B, which operate the shackle-bar and floats, as described.

L. A. NORTON.

Witnesses:

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