J. Burson,

Paddle Wheel

No. 49,226. Patented Aug. 8, 1865.

Fig. 2

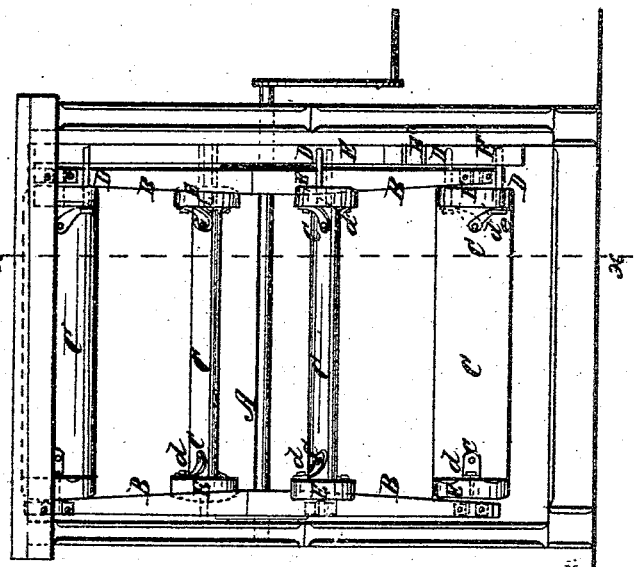


Fig. 3

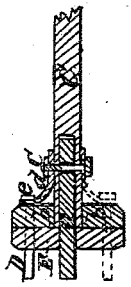
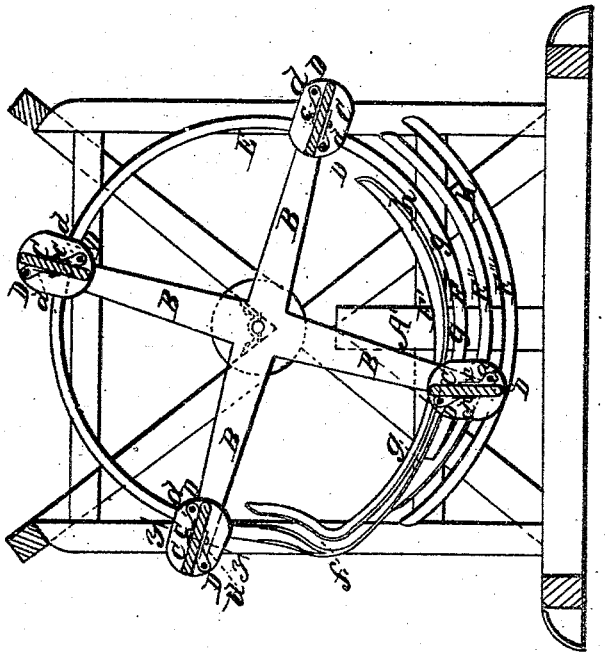


Fig. 1



Witnesses

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UNITED STATES PATENT OFFICE.

JAMES BURSON, OF YATES CITY, ILLINOIS.

IMPROVED FEATHERING PADDLE-WHEEL.

Specification forming part of Letters Patent No. 49,226, dated August 8, 1865.

To all whom it may concern:

Be it known that I, JAMES BURSON, of Yates City, in the county of Knox and State of Illinois, have invented a new and Improved Paddle-Wheel; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side sectional view of my invention, taken in the line *x x*, Fig. 2; Fig. 2, an end or edge view of the same; Fig. 3, an enlarged section of a portion of one of the buckets, taken in the line *y y*, Fig. 1.

Similar letters of reference indicate like parts.

This invention relates to a new and improved paddle-wheel of that class which are provided with feathering buckets; and it consists in a novel and improved means for operating the buckets, and in an improved construction and arrangement of certain parts pertaining thereto, whereby several advantages are obtained over other paddle-wheels of the same class, as hereinafter set forth.

A represents the shaft of the wheel, and B the arms of the same, there being four arms represented at each side of the wheel; but more may be used, if necessary.

C represents the buckets, which are hung on journals *a* at the ends of the arms B, the journals being allowed to turn freely in their bearings. At one end of each bucket C there are two guide-rods, D D, one being in a plane or line in front of the bucket and the other behind it. These guide-rods pass through oval end pieces, E, which have checks *b b* at their inner side, between which checks the ends of the buckets are fitted, and secured by bolts *c*, which pass through braces *d* and through the journals *a*, which pass centrally into the ends of the buckets. (See Figs. 2 and 3.) The braces *d*, at the ends of the buckets where the guide-rods D are attached, are secured to the check-pieces by the rods D, which pass through the braces and have nuts *e* on their inner ends. By this mode of construction a strong substantial bucket is obtained, with its journals and guide-rods all firmly attached.

To the side of the vessel or wheel-house there are attached ways, which, in connection with the guide-rods D D, serve to feather or turn the buckets. One of these ways, E, is nearly a circle, it having a short crook or turn, as shown at *f*, and its lower part, as shown at *g g g*, is a portion of rather a larger circle than the other parts. The other way, E′, is placed above the lower part of E, and corresponds to its curvature, as clearly shown in Fig. 1. Underneath E there is a way, E″, which is eccentric with E, forming with the latter what may be termed a "curved V." Underneath E″ there is a way, E‴, which is concentric with E″. These several ways are not attached separately to the side of the vessel or wheel-house, but are secured to a framing, A′, which is secured to the former, so that by detaching said framing all of the ways may be removed at once and replaced without any difficulty. As the wheel rotates the guide-rods D pass through the spaces *h h* between the ways E E′ and E″ E‴, and cause the buckets to assume a vertical position as they leave the water, thereby avoiding the lift attending the ordinary fixed buckets, and the buckets are turned a quarter-revolution, so as to be in the same plane with the arms B, by means of the crook or turn *f*. This turning or movement of the buckets is necessary in order that they may have a proper position in entering the water. The upper part of way E retains them in this position. The buckets are turned from a radial position relatively with the shaft A to a vertical position as they pass under the shaft A, and rise at its rear, as will be seen by referring to Fig. 1.

By this simple arrangement it will be seen that the buckets may be feathered with but little friction, and in case the ways should become worn, broken, or require repairs at any time they may be readily detached and repaired and new ones substituted without taking a vessel into dock or having it hauled out of the water.

I claim as new and desire to secure by Letters Patent—

1. A plurality of cam-guides for feathering the buckets, as herein specified.

2. In combination with the aforesaid cam-guides, the guide-rods D D, attached to opposite sides of the buckets, in the manner described.

JAMES BURSON.

Witnesses:
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