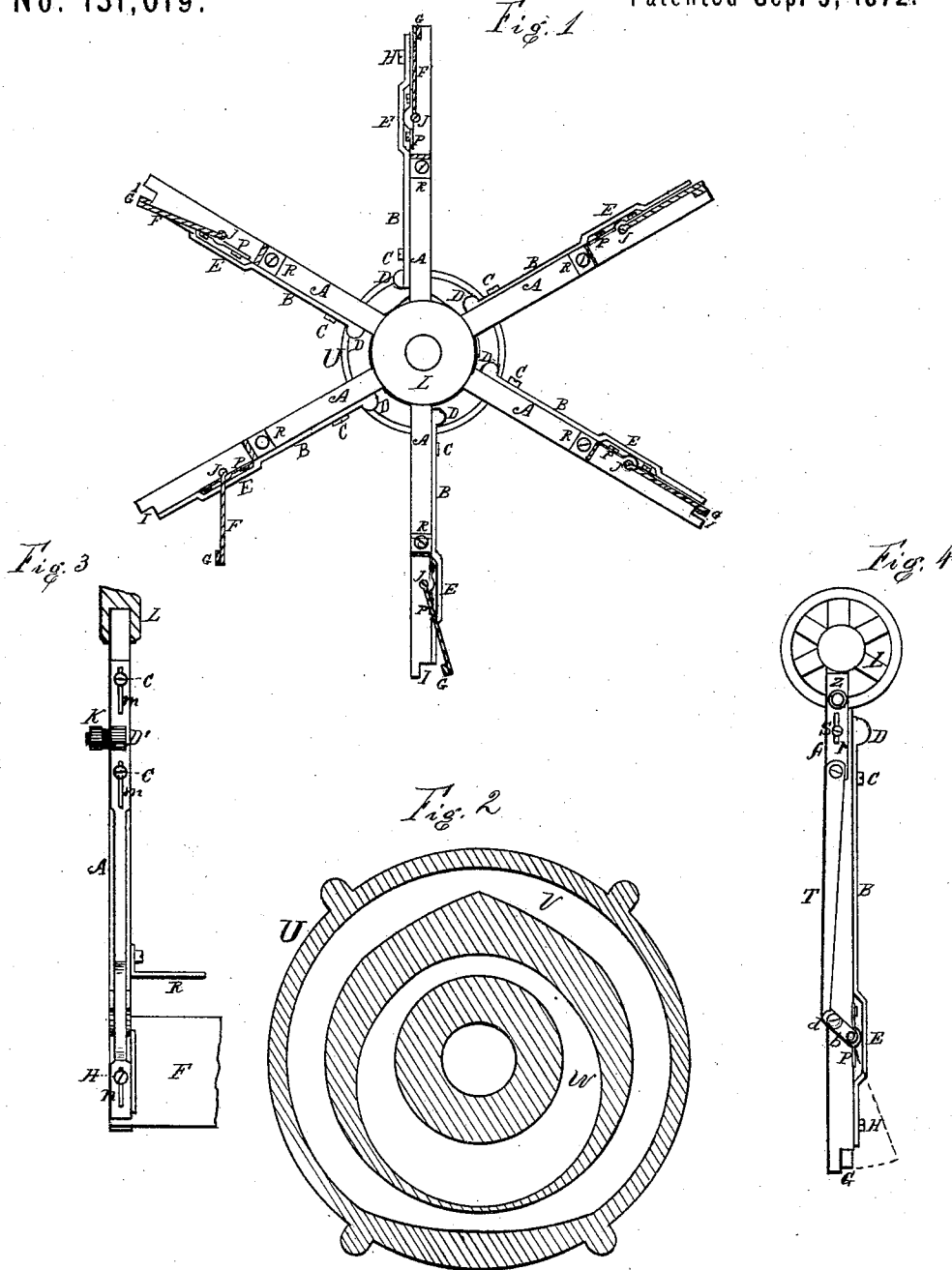


M. T. MILES.
 Improvement in Feathering Paddle-Wheels.
 No. 131,019. Patented Sep. 3, 1872.



Witnesses
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MOSES T. MILES, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN FEATHERING PADDLE-WHEELS.

Specification forming part of Letters Patent No. 131,019, dated September 3, 1872.

SPECIFICATION.

I, MOSES T. MILES, of Chicago, in the county of Cook and State of Illinois, have invented an Improvement in Paddle-Wheels, of which the following is a specification:

The present invention relates to an improvement in that class of paddle-wheels which are so arranged that the paddles or floats are held nearly vertical while in the water; the object, of course, being to avoid the lift of water by the paddles as they are coming out of it. Its nature consists in the novel construction and combination of the mechanism for accomplishing that purpose as hereinafter fully described and shown.

In the drawing, Figure 1 is a sectional elevation of my improved paddle-wheel; Fig. 2, elevations of the cams by means of which, and friction-rollers, the slide-plates and pivoted connecting-rods are made to operate the paddles; Fig. 3, a view of one arm of the paddle and its attachments; Fig. 4, a view of the outer side of one of the arms.

L represents the hub of the wheel, and A the arms which, taken separate from the attachments, are constructed similarly to those now in common use. The paddles run from arm to arm, and are pivoted to them at J J, &c., by any convenient means which will allow them to swing down from the arms, as shown in Fig. 1. The outer ends of the paddles are provided with lugs G, which, when the paddles are held parallel with the arms, fit into notches I in the ends of said arms. By means of this arrangement the paddles are very strong at the point of contact with the arms, and when the wheel is run backward the paddles will not buckle or twist. The means for turning the paddles or "feathering them" consist of connecting-rods T, which are pivoted to slides *f*, Fig. 4, and to short crank-rods *b*, forming toggle-levers. The opposite ends of the short connecting-rods *b* are rigidly fastened to the shafts or pivots J of the paddles F, so that when the rods T turn the rods *b* the paddles will be turned as shown in Fig. 1. The means for so moving the slide *f* outwardly and inwardly on

the arms as to operate the connecting-rods T *b*, consist of friction-rollers Z, Fig. 4, pivoted to the outer sides of said slides F, and arranged to travel in suitable cams *w*, Fig. 2, fastened to the wheel-house, the shaft of wheel passing through the center of cams, as shown by the enlarged drawing, Fig. 2. If the wheel is to be a large one, and great strength be required, cams may be arranged on both sides of the wheel, and both sets of arms may have rollers, slides, and connecting-rods. The means for holding the paddles in firm positions when the wheel is turned backward consist of slides B, which, as shown in Fig. 3, are slotted at *m n*, so that they may have reciprocating movements on the bolts H C, and at the proper time shut over the lugs G on the paddles and hold the latter in place in notches I, and loosen the lugs when the wheel is to move forward. The slides B are driven by friction-rollers *k* running in a suitable cam, V, the arrangement being such that these slides do not interfere with the movement of the connecting-rods T *b*, Fig. 4, as the arms are separate and distinct. The slides B are bent at E to pass over the boxes P of the pivots of the paddles, this construction being necessary to make the parts compact and simple. If it be advisable not to hold the rollers K to their work entirely round the cam V, springs may be inserted between the slides B and arms A, to hold them in position until the proper time for the rollers to strike the cam.

I do not claim a pivoted paddle nor the cams, as they have been used before; but

I claim—

1. The combination of the arms A provided with notches I, paddles F provided with lugs fitting at the proper time into said notches, the slides B, rollers K, and cam V, as set forth.

2. The combination of the paddles and arms, constructed as described, the slides F, rollers Z, connecting-rods T *b*, and cam *w*, as described.

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