(No Model.)

J. W. THOMAS.

STEAMBOAT AND WATER WHEEL.

No. 334,824. Patented Jan. 26, 1886.

FIG. 1.

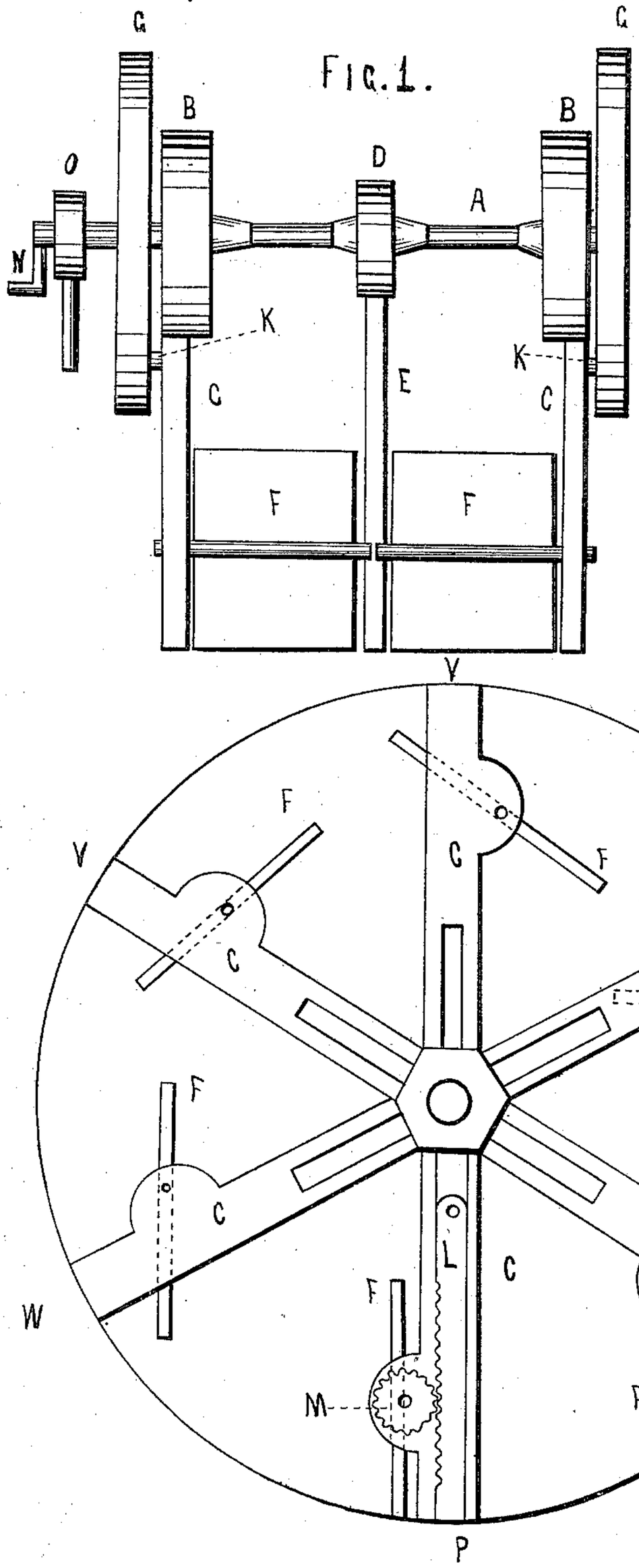


FIG. 2.

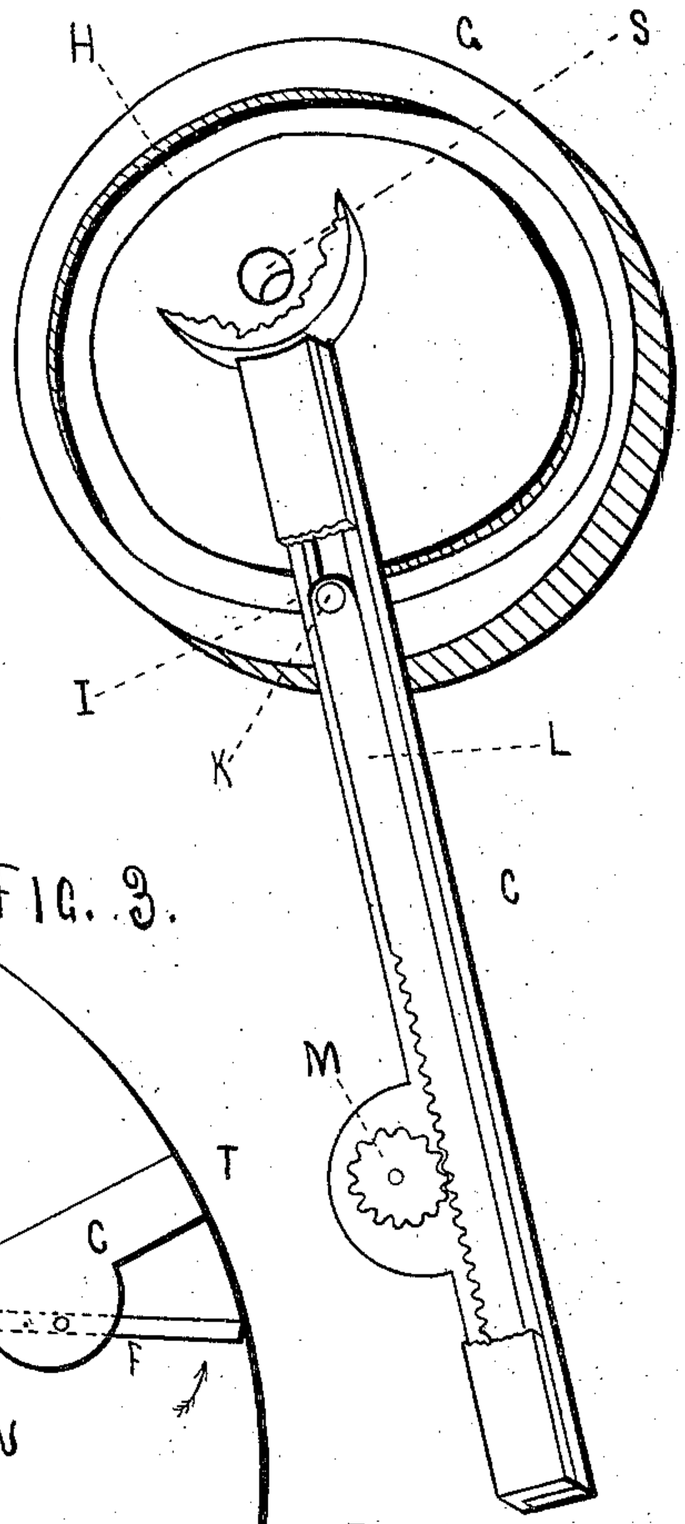
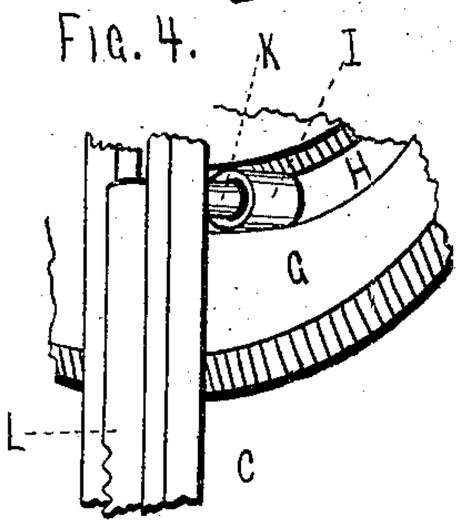


FIG. 3.

FIG. 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

JAMES W. THOMAS, OF MUNCIE, INDIANA.

STEAMBOAT AND WATER WHEEL.

SPECIFICATION forming part of Letters Patent No. 334,824, dated January 26, 1886.

Application filed July 7, 1884. Serial No. 137,251. (No model.)

To all whom it may concern:

Be it known that I, JAMES W. THOMAS, a citizen of the United States, residing at Muncie, in the county of Delaware and State of Indiana, have invented a new and useful Steamboat and Water Wheel, of which the following is a specification.

My invention relates to improvements in steamboat and water wheels in which the paddles are made to enter the water, make the stroke, and pass out of the water in a perpendicular position, by means of a peculiarly shaped stationary eccentric groove, and a system of cogs operating in the hollow spokes of the paddle-wheel; and the object of my improvement is to increase the utility and power of steamboat and water wheels by making available to the direct stroke all of the power applied, and under the present system misappropriated to the purpose of overcoming the weight and resistance of the water.

Heretofore steamboat and water wheels have ordinarily had the paddles set solid, parallel with the spokes, thus meeting the resistance of the water in entering or emerging, losing much of the power by the resistance of the water; and it is to obviate this objection by dropping the paddles edgewise and lifting them in the same position, removing all resistance and giving a clear, straight stroke forward or backward from the moment of entrance to that of departure from the water, that our invention is designed. I attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the steamboat or water wheel and stationary eccentric grooves, showing but one paddle. Fig. 2 is the stationary irregular eccentric groove and hollow paddle-spoke, with a hole in stationary eccentric for the axle of wheel. Fig. 3 is a vertical end view of the steamboat or water wheel with interior of one spoke exposed; and Fig. 4 is a section each of stationary eccentric groove and spoke and trundle-wheel of latter.

Similar letters refer to similar parts throughout the several views.

On the steamboat or water wheel axle A, by means of hubs B B and the hollow spokes C C, with the supporting hub and spoke D E, are held in position in the wheel the revolving paddles F F, but one set of which are shown in Fig. 1.

G G are stationary eccentrics with irregular elliptical groove H, Fig. 2, on inner side.

I I are trundle-wheels operating in the groove H on the pins K K, set solid in the rack-bar cog L, Figs. 2, 3, and 4, which works on the cog-wheel M, Figs. 2 and 3, in which are set solid the axles of the paddles F F.

N is an ordinary crank, by which power is applied, and O an ordinary eccentric.

The operation of my device is as follows: When power is applied at the crank N, or by water to the paddles, paddle and spoke at P, Fig. 3, pass to position at R. Turning further, trundle-wheel I, Fig. 2, is forced by groove H farther from axle-center S, pushing rack-bar L toward the end of hollow spoke C and turning cog-wheel M and paddle F to right, as indicated by arrows. Upon turning further the greatest distance from axle to eccentric groove is passed, and the trundle-wheel I, approaching the axle by the bar L, turns the paddle F back to position at T, and the positions shown at V V V are assumed, when, beginning to draw further from the center again, the paddle assumes a perpendicular, which it retains on the equidistant section of groove passed over from W to R.

I am aware that prior to my invention eccentrics have been used for operating paddle-wheels, so that they will enter and pass through the water in a vertical or substantially vertical position. I therefore do not broadly claim such mechanism; but

What I do claim as my patent, and desire to secure by Letters Patent, is—

1. The combination, in a paddle or water wheel, of the hub provided with an irregular eccentric-groove, paddles pivoted in said wheel, having their journals provided with a gear-wheel, and a toothed rack supported in the wheel engaging said gear-wheel and operated by the cam-grooves, in the manner and for the purpose described.

2. The combination, in a paddle or water wheel, of the hub thereof provided with an

irregular eccentric groove, paddles journaled in the ides of the wheel and in a central hollow spoke, the said journal provided with a gear-wheel, and a toothed rack-bar supported in the said hollow spoke engaging said gear and having its inner end fitted with a roller or thimble projecting into the eccentric groove, which is operated thereby to move the toothed racked bar back and forth in the manner and for the purpose set forth.

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Witnesses:
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