

(No Model.)

3 Sheets—Sheet 1.

C. W. KELLOGG.  
PADDLE WHEEL.

No. 574,848.

Patented Jan. 5, 1897.

Fig. 1.

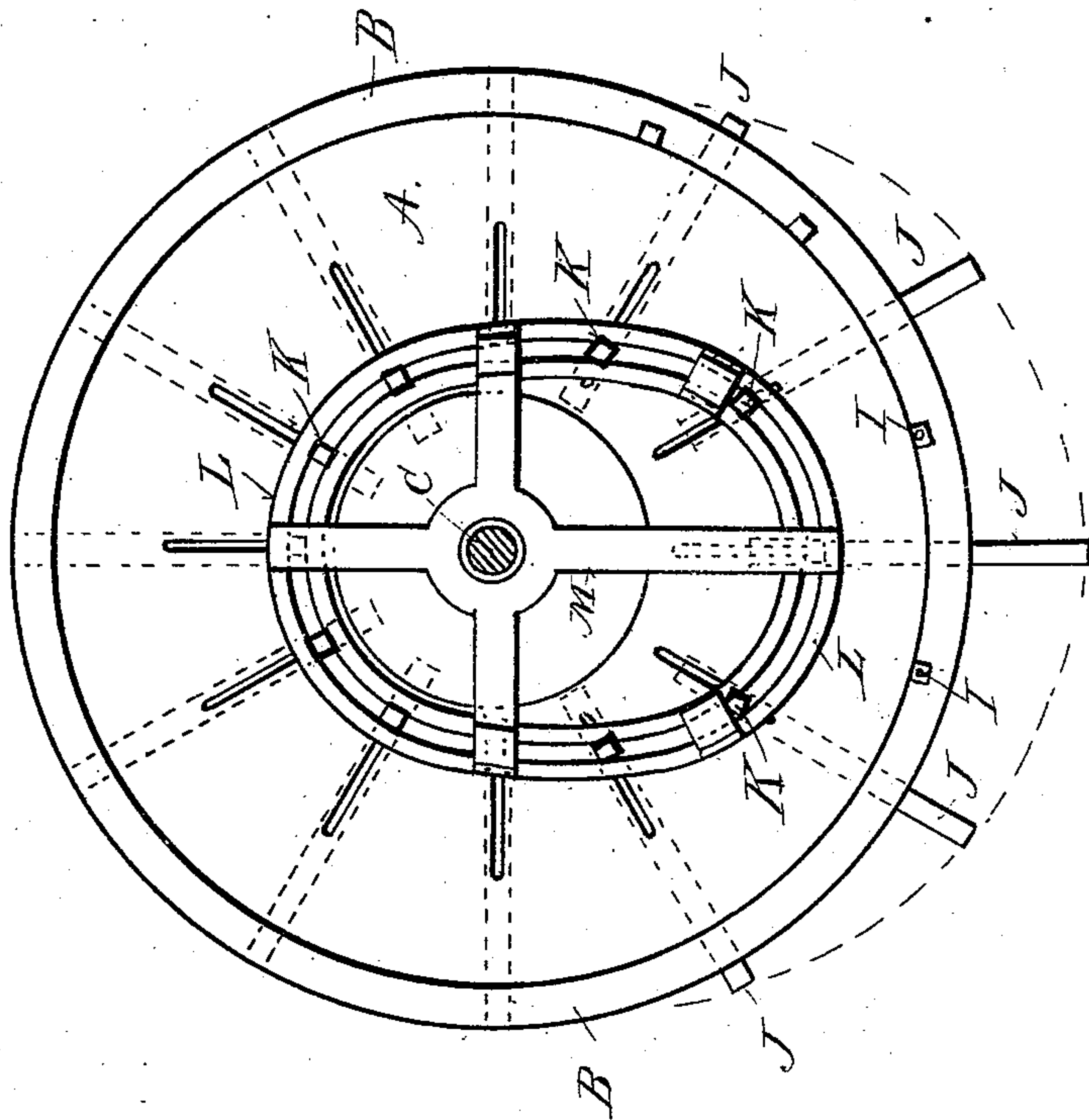
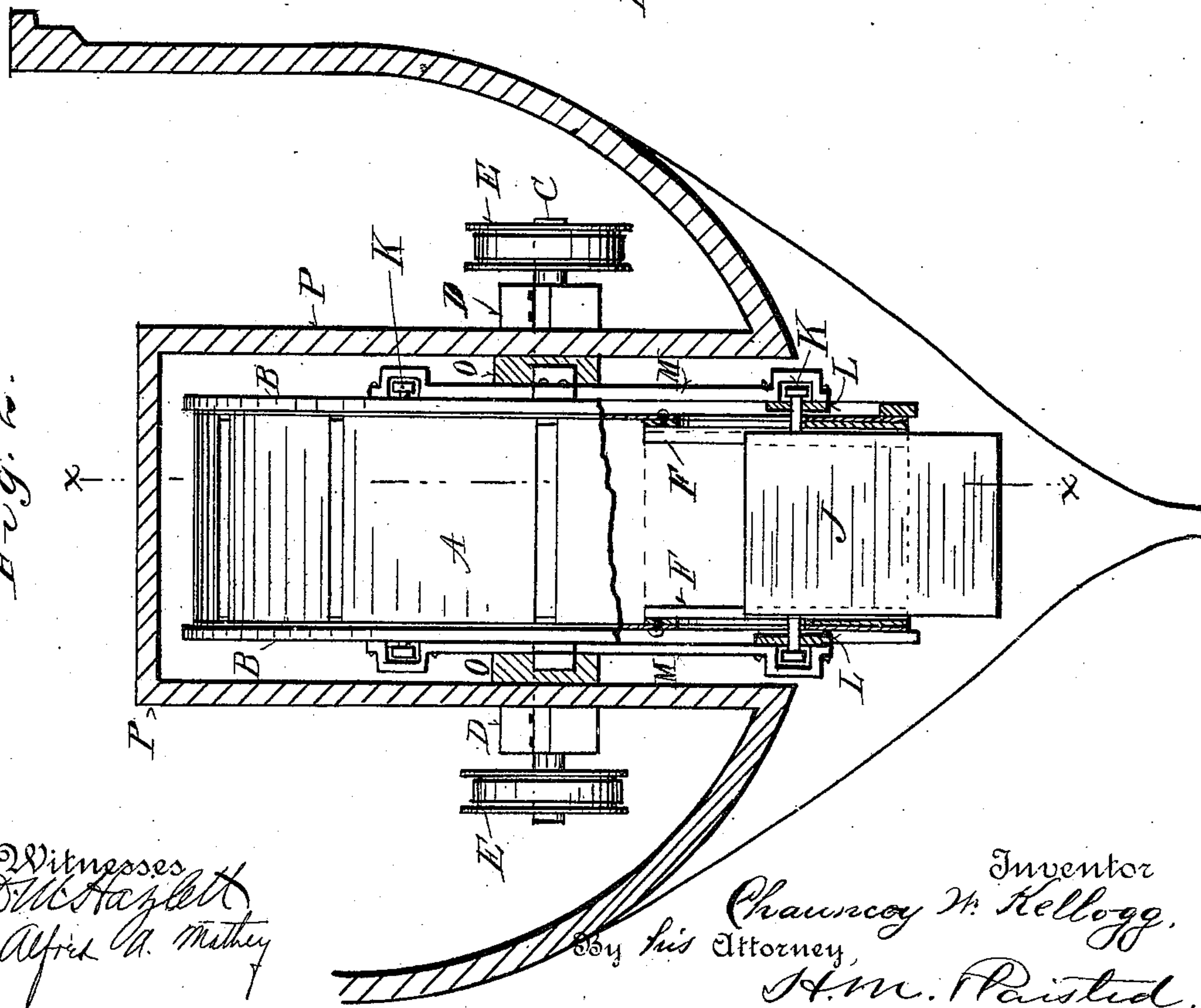


Fig. 2.



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*Chauncey W. Kellogg.*  
By his Attorney,  
*H. M. Paisted.*

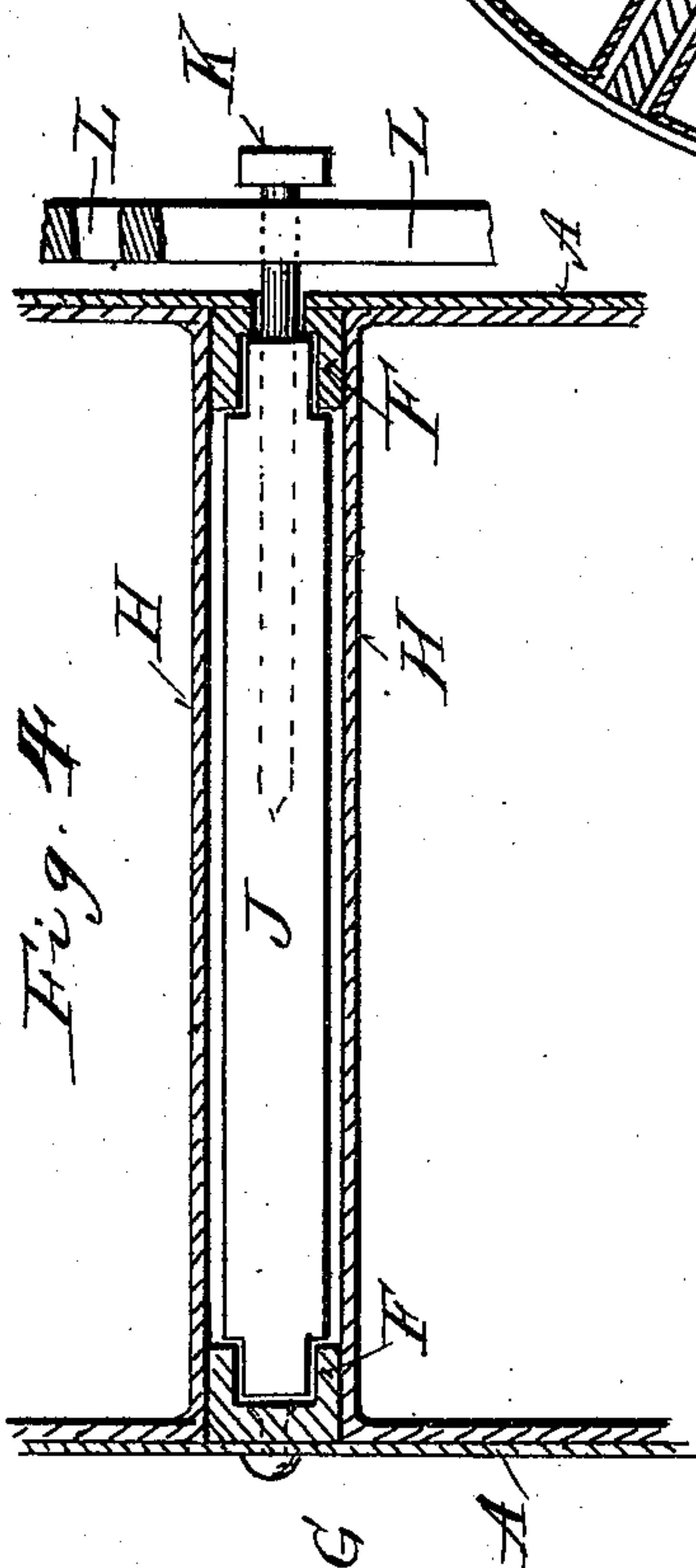
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Fig. 7.

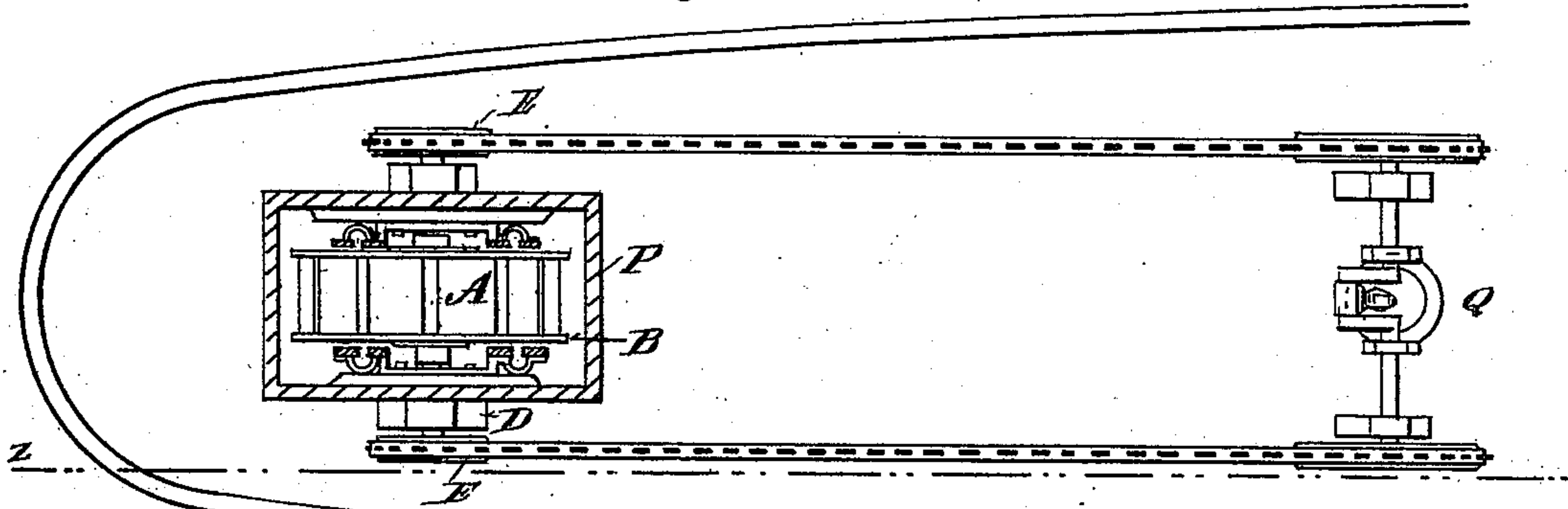


Fig. 8.

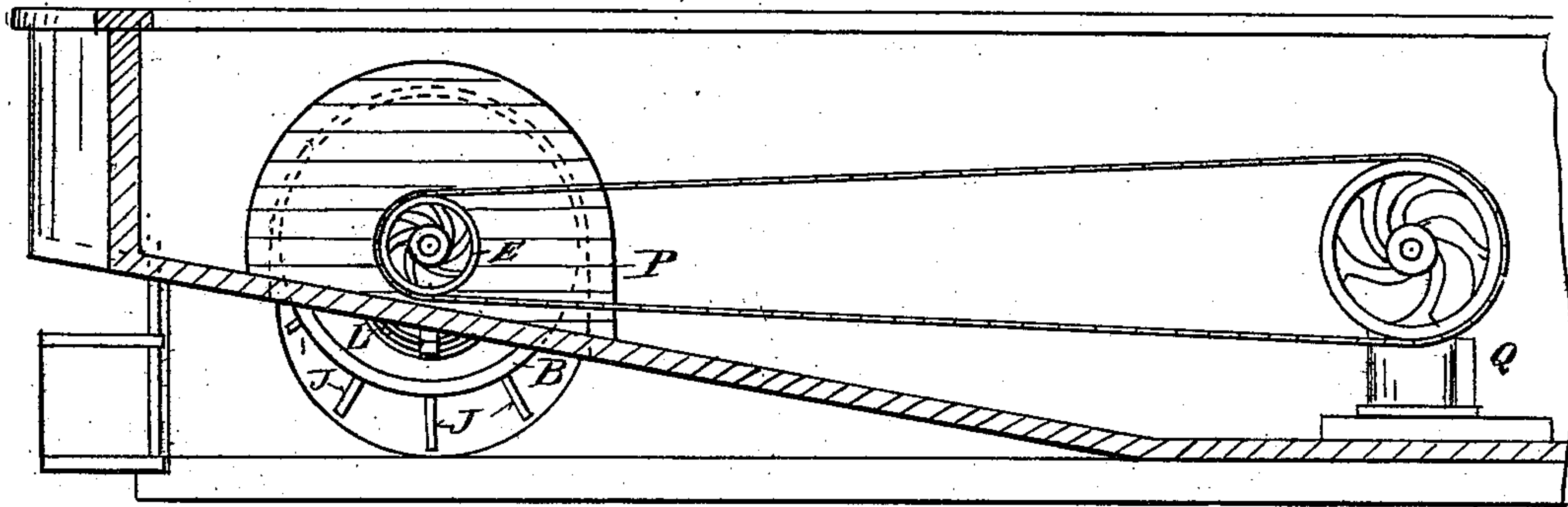
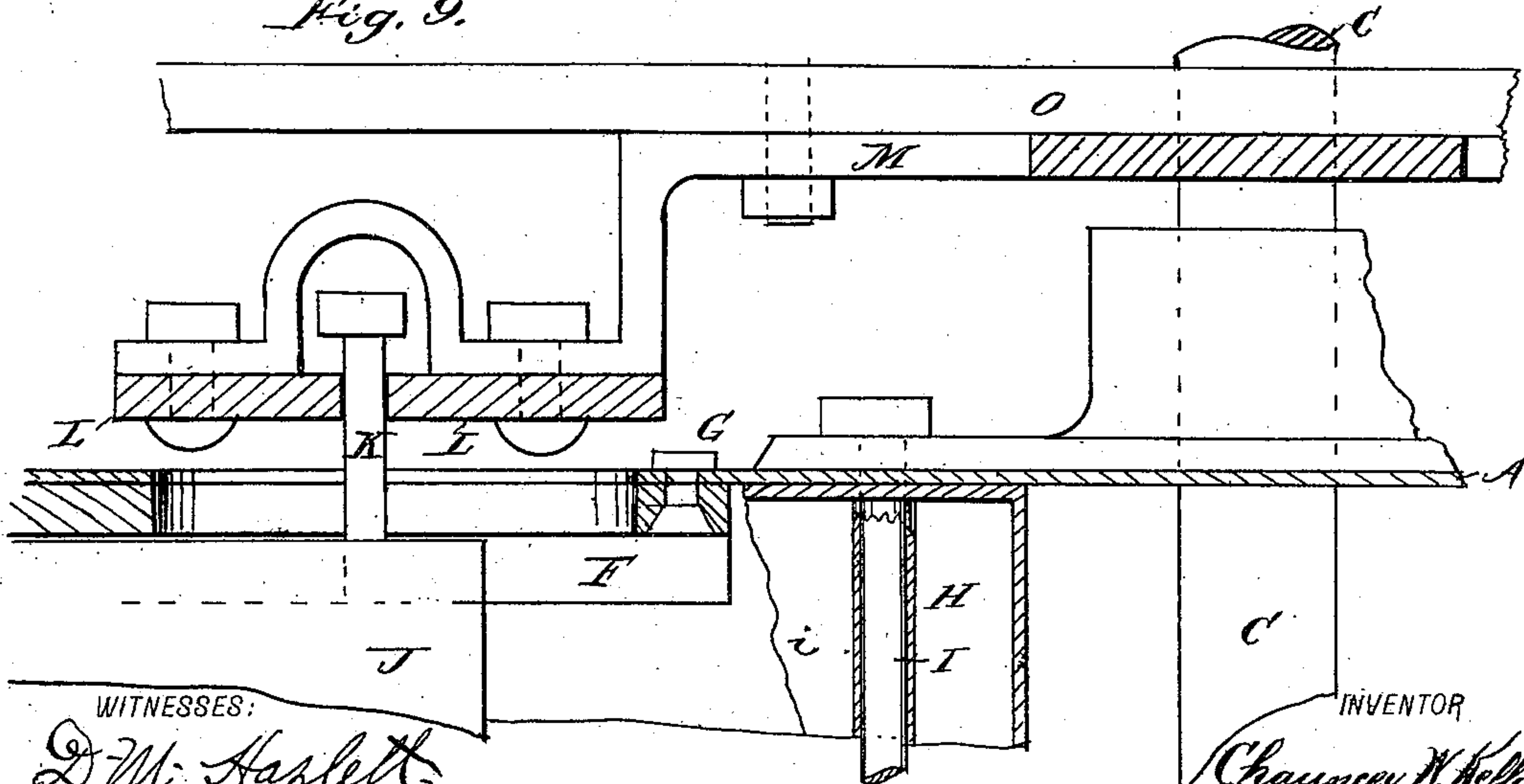


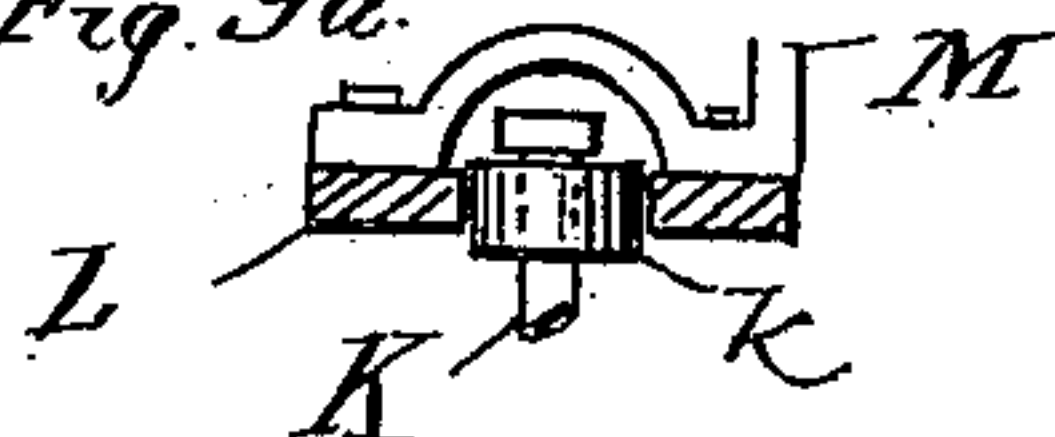
Fig. 9.



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Fig. 9a.



INVENTOR

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# UNITED STATES PATENT OFFICE.

CHAUNCEY W. KELLOGG, OF ST. LOUIS, MISSOURI.

## PADDLE-WHEEL.

SPECIFICATION forming part of Letters Patent No. 574,848, dated January 5, 1897.

Application filed August 10, 1896. Serial No. 602,261. (No model.)

*To all whom it may concern:*

Be it known that I, CHAUNCEY W. KELLOGG, a citizen of the United States, residing at St. Louis, State of Missouri, have invented certain new and useful Improvements in Paddle-Wheels, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to certain new and useful improvements in paddle-wheels, the peculiarities of which will be hereinafter fully described and claimed.

In the accompanying drawings, on which like reference-letters indicate corresponding parts, Figure 1 represents a side view of my wheel; Fig. 2, an edge view, partly in section, and a cross-section of the vessel to be propelled thereby; Fig. 3, a vertical section on the line *x x* of Fig. 2; Fig. 4, an enlarged section on the line *v v*, Fig. 3; Fig. 5, a detail of the blade-guide; Fig. 6, a partial section of a vessel longitudinally; Fig. 7, a plan view with the well in section; Fig. 8, a section on the line *z z*, Fig. 7; Fig. 9, a detail of the spider-cross-bar connection to cam, and Fig. 9<sup>a</sup> a detail of the spider-arm and channel-rings.

The letter A designates a revoluble drum of sheet metal stiffened by rings B and mounted on a shaft C, supported in bearings D, secured to the sides of the well P or otherwise. Inside the drum are located slotted guides F, riveted, as at G, to the drum and substantially radial.

Between the guides are wedge-shaped hollow sections H, fastened by cross-bolts I, which also serve to strengthen the drum. These hollow sections fill up the interior of the wheel by water-tight compartments, so as to exclude the water from the interior of the wheel and allow it to be run at any desired depth or even submerged. Blades J are slidingly mounted in these guides, as shown in Fig. 4, and have side pins K, that extend through the slots and the sides of the drum, which are also slotted, as shown in Fig. 1. These pins are preferably bolts, so they may be screwed in and out, as desired. Fig. 9<sup>a</sup> shows a friction-roller *k* mounted thereon.

On the shaft are mounted pulleys E, by which the drum is belted to the source of power, such as a gasolene or other motor.

Other driving connections than belts may be used.

On each side of the revoluble drum is a slotted cam L, elliptical in shape, with its upper center concentric with the shaft and the other center dropped below the shaft a distance corresponding to the radial travel of the blades. Two parallel rings conveniently form this cam, which is supported on the cross-bars M, secured to the blocking O or other stationary part.

Additional cross-pieces may be employed, as shown, if necessary.

The ends of the bars are looped, as shown, to allow the heads of the pin-bolts to pass under. Thus the cam is fixed adjacent to each side of the revoluble drum.

As the drum is rotated the pin-bolts travel around the channel in the slotted cam and force the blades outward and downward from the drum in which they are sheathed during the upper half of their revolution, as shown in the figures. The drum is thus compacted in size. The blades are shot edgewise into the water as they descend and withdrawn as they rise. Thus they do not waste the power by forcing the water downward and lifting it upward, as in ordinary water-wheels. The drum turns smoothly through the water, and the blades are shot out at the proper time to produce the best propulsion.

The motor Q is preferably run by gasolene.

The plan view, Fig. 7, shows the connection between the motor and the propeller-shaft by link belt. Other operative connections may be employed.

I do not confine myself to the exact construction shown.

Referring to the hollow sections H once more, the bolts pass through tubes *i*, so as to keep the sections quite water-tight. Other means may be employed. It is one of the main features of my invention to provide such sections to keep the water out of the wheel, thus avoiding waste of power from clogging water.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a vessel, the combination with a shaft, a revoluble drum thereon, interior slotted guides radially located, and water-tight com-

partments between said guides, of blades slidingly mounted in said guides, having pins projecting through said slots, an elliptical slotted cam forming a groove with which  
5 said pins are engaged, and concentric with said shaft at its upper portion, a fixed support for said cam, a motor, and operative connections between said motor and said drum to rotate the latter.

10 2. The combination with a paddle-wheel having radially-slidable blades with laterally-projecting pin-bolts, of an elliptical cam composed of two parallel rings forming a slotted channel for said bolts, a stationary spider  
15 cross-bar supporting said rings and looped at the ends above said channel, and means to rotate said wheel.

20 3. The combination with a main shaft, of a paddle-wheel mounted thereon consisting of a drum with radial side slots, concentric, water-tight compartments alternating with said slots and forming the outer face of the

drum and radial passages, slotted guides in said passages, radially-slidable blades with laterally-projecting bolts, an elliptical cam 25 composed of two parallel rings forming a slotted channel for said bolts; a stationary spider cross-bar supporting said rings, and looped at their ends above said channel, and means to rotate said wheel. 30

4. In a paddle-wheel, the combination with the sides, and cross-bolts from side to side, of wedge-shaped water-tight compartments located between said sides and having tubes 35 traversing the compartments to allow the passage of said bolts without penetrating said compartments, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

CHAUNCEY W. KELLOGG.

Witnesses:

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