

No. 684,913.

Patented Oct. 22, 1901.

J. M. CORDELL.

VALVE.

(Application filed Feb. 25, 1901.)

(No Model.)

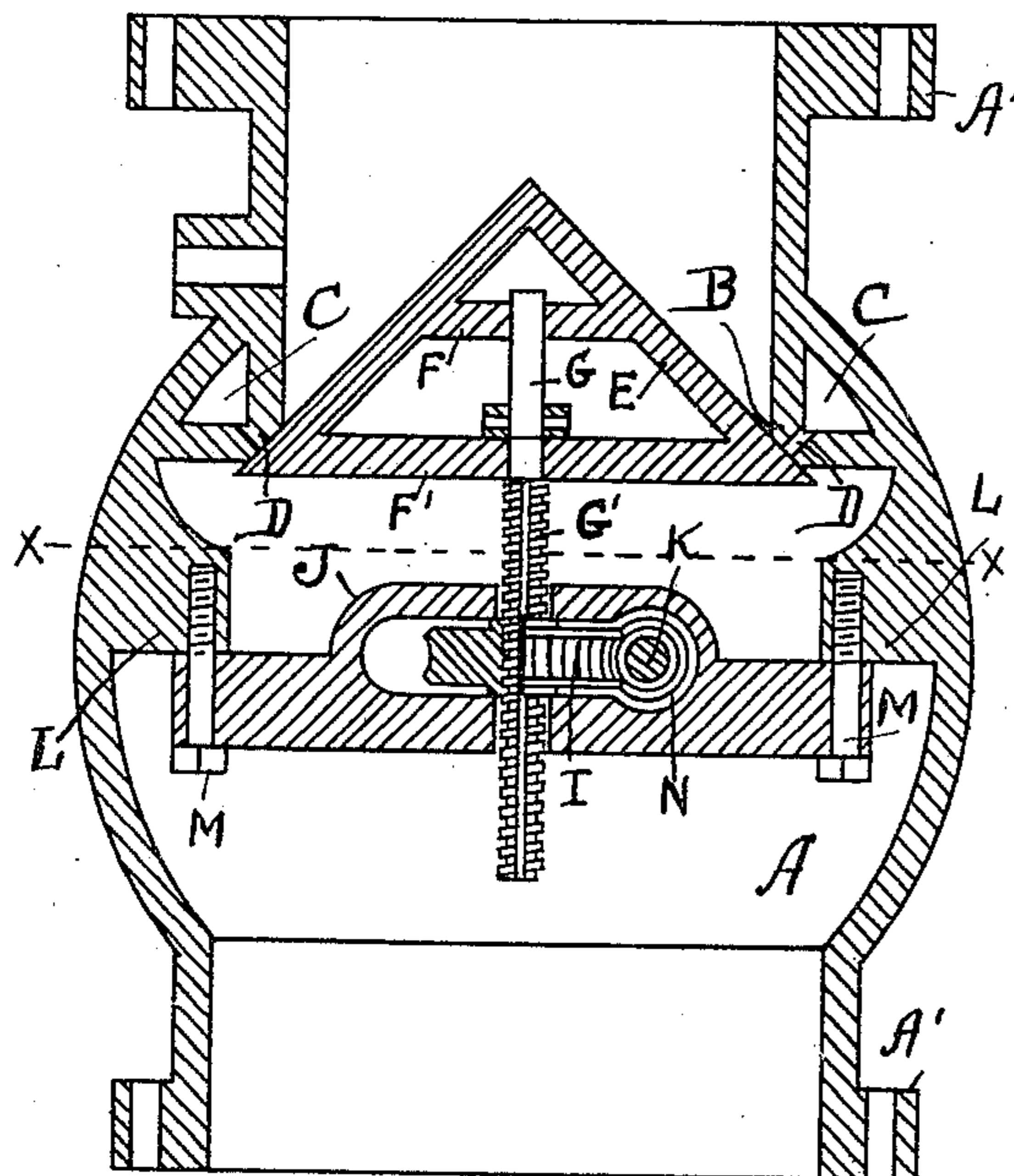


Fig. 2.

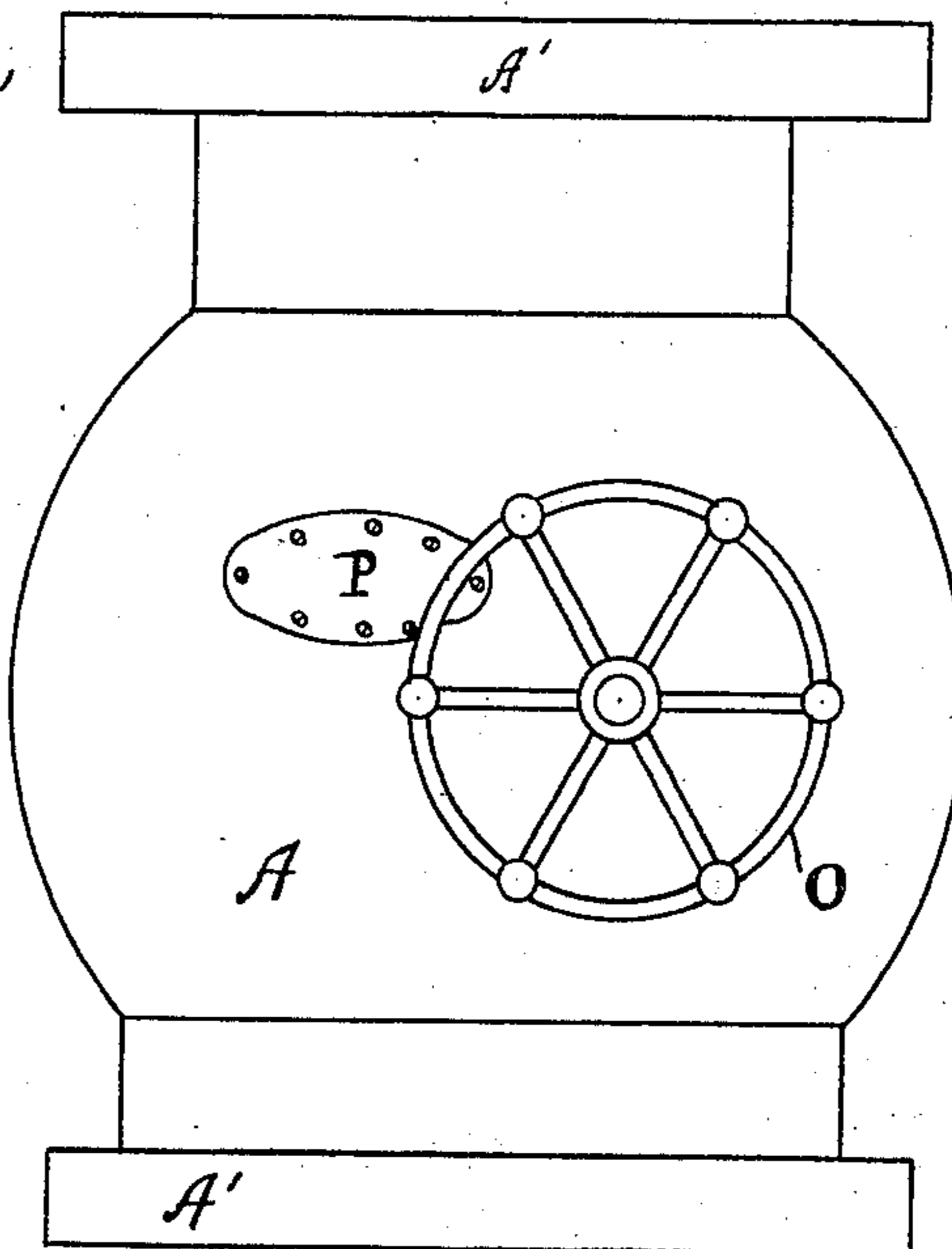


Fig. 1.

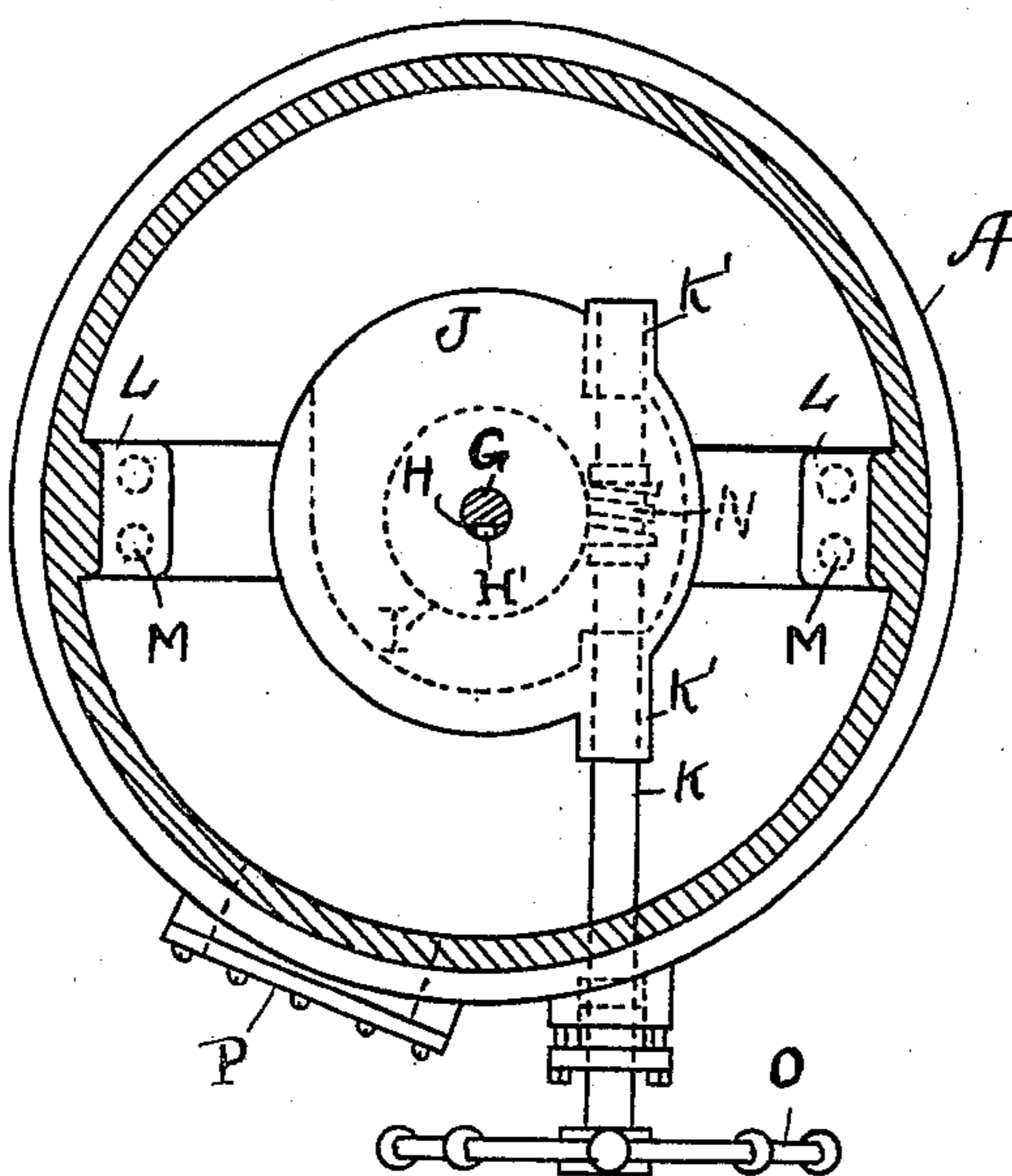


Fig. 3.

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UNITED STATES PATENT OFFICE.

JAMES M. CORDELL, OF DAYTON, OHIO.

VALVE.

SPECIFICATION forming part of Letters Patent No. 684,913, dated October 22, 1901.

Application filed February 25, 1901. Serial No. 48,705. (No model.)

To all whom it may concern:

Be it known that I, JAMES M. CORDELL, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Valves; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in valves, and comprises a valve which is especially adapted for use in connection with refineries in apparatus for treating fish and other matter in large quantities for the purpose of extracting oil therefrom and separating the solid matter for the purposes of fertilizer. Tanks are used in which the fish or other matter is first introduced, and the oil or liquid is extracted therefrom, after which the solid matter and portions of the liquid are deposited in a steam-drier, in which said matter is dried and subsequently is produced in the form of a powder or meal which is suitable for fertilizer. The connection between the tanks from which the oil is extracted and the drying-receptacle consists of a series of pipes in which valves are placed, through which more or less solid matter mixed with liquid passes. Heretofore considerable trouble has been experienced in providing a valve that would not clog up, and thereby become inoperative in a short space of time.

The object of the present invention is to construct a valve which will meet all requirements in apparatus of this character. It has not been deemed necessary to illustrate the apparatus in the drawings, as it comprises no part of the present invention and is of well-known construction.

In a detail description of my invention reference is made to the accompanying drawings, of which—

Figure 1 is a vertical side elevation of my improved valve. Fig. 2 is a vertical sectional elevation of the same. Fig. 3 is a transverse section on the line $x x$ of Fig. 1.

The valve-casing consists of a globe-body A and flanges A', by which the said valve-

casing is secured between the ends of piping. (Not shown.) The interior of said casing is provided with an annular valve-seat B and an annular chamber C, with a plurality of ports D extending from said chamber to the valve-seat.

E designates a cone-shaped valve pointing upwardly and having transverse bridges F and F'. This valve seats upwardly against the valve-seat B. The valve-stem G passes through the bridges F and F' and is secured thereto in any suitable manner to operate the valve in both directions. The lower portion of said valve-stem is provided with a screw G' and a spline H, into which a key H' on the housing J projects to prevent the valve from being given any rotary movement through the operations of the worm-gearing, herein-after described. The tapering surface of the valve is an essential feature in the construction thereof, as thereby the matter deposited on the sides of the valve is prevented from finding a permanent lodgment thereon, as would be the case if any portion of the valve-surface was flat. The matter coming in contact with the slanting surface of the valve readily passes down through the opening between the valve and the seat.

I is a worm-wheel placed in a horizontal position within the housing J. The screw G' passes through the axis of the worm-wheel I, which is also screw-threaded to engage the same.

K is a shaft lying at right angles to said worm-wheel I and having bearings K' on opposite sides of the housing J. The housing J is secured to interior lugs L on opposite sides of the casing by means of screws M, which pass through opposite sides of the housing and penetrate said lugs. The shaft K has a worm N, which engages with the worm-wheel I, and thereby the said worm-wheel may be moved in either direction to raise or lower the valve. The shaft K, upon which the worm N is located, passes out through the front portion of the casing and is provided with a hand-wheel O, by means of which the said shaft is operated. Suitable pipe connection is made with the chamber C for the introduction of steam or water for the purpose of keeping the valve-seat B and the valve-surface adjacent thereto free from any

accumulations of matter that would otherwise prevent a proper seating of the valve or a proper opening between the valve and said seat.

5 The object and purpose of the housing J is to protect the gearing from accumulations of any solid matter—such, for example, as fish-bones, fish-heads, &c. Access may be had to remove such matter from the upper side of
10 the housing whenever necessary by means of a hand-hole, which is closed by a cover P, the same being located on the side of the valve on which the hand-wheel is placed.

Having described my invention, I claim—

15 1. In a valve of the character described, the combination of a valve-casing having an annular seat therein, an annular chamber surrounding said seat, a series of ports forming a communication between said chamber
20 and valve, a cone-shaped valve in said casing, a stem connected to said valve, a portion of said stem being screw-threaded, a housing within the valve-casing below the valve through which the said screw-threaded por-
25 tion of the stem projects, a worm-wheel inclosed within said housing and having a screw-threaded engagement with the screw portion of the stem and by means of which the said stem is actuated to open or close the
30 valve, a worm-shaft projecting through said housing and engaging the worm-wheel, and

an exterior hand-wheel by means of which the said worm-shaft is actuated to transmit the necessary movements to the valve.

2. In a valve for the purposes specified, the 35 combination of a valve-casing having an annular valve-seat therein, an annular chamber surrounding said valve-seat, a plurality of ports forming communications between the valve-seat and said chamber, a cone-shaped 40 valve within said casing, a valve-stem connected to said valve, a portion of said valve-stem being provided with screw-threads, a housing within said valve-casing, supports projecting from opposite sides of the valve- 45 casing to which said housing is secured, means for preventing the valve-stem from rotating under the movement imparted thereto, a worm-wheel inclosed within the housing and engaging with the screw-threaded portion of 50 the valve-stem, a worm-shaft journaled in the casing and engaging with the worm-wheel, and a hand-wheel by means of which the said worm-shaft is rotated to impart movement to the valve-stem, to open or close the valve. 55

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

JAMES M. CORDELL.

Witnesses:

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