(No Model.)

L. H. NASH.

DISK WATER METER.

No. 562,145. Patented June 16, 1896.

Fig. 1.

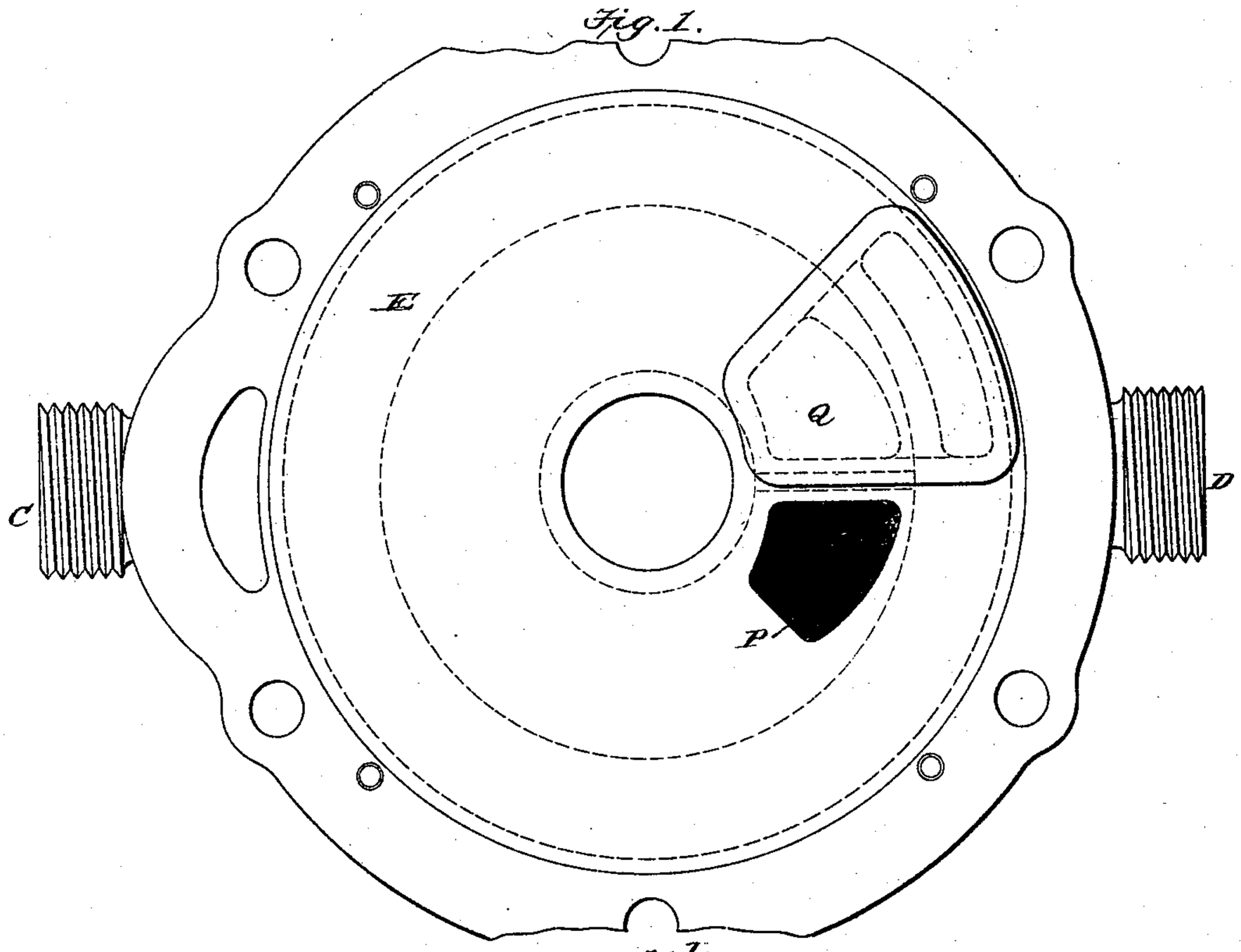
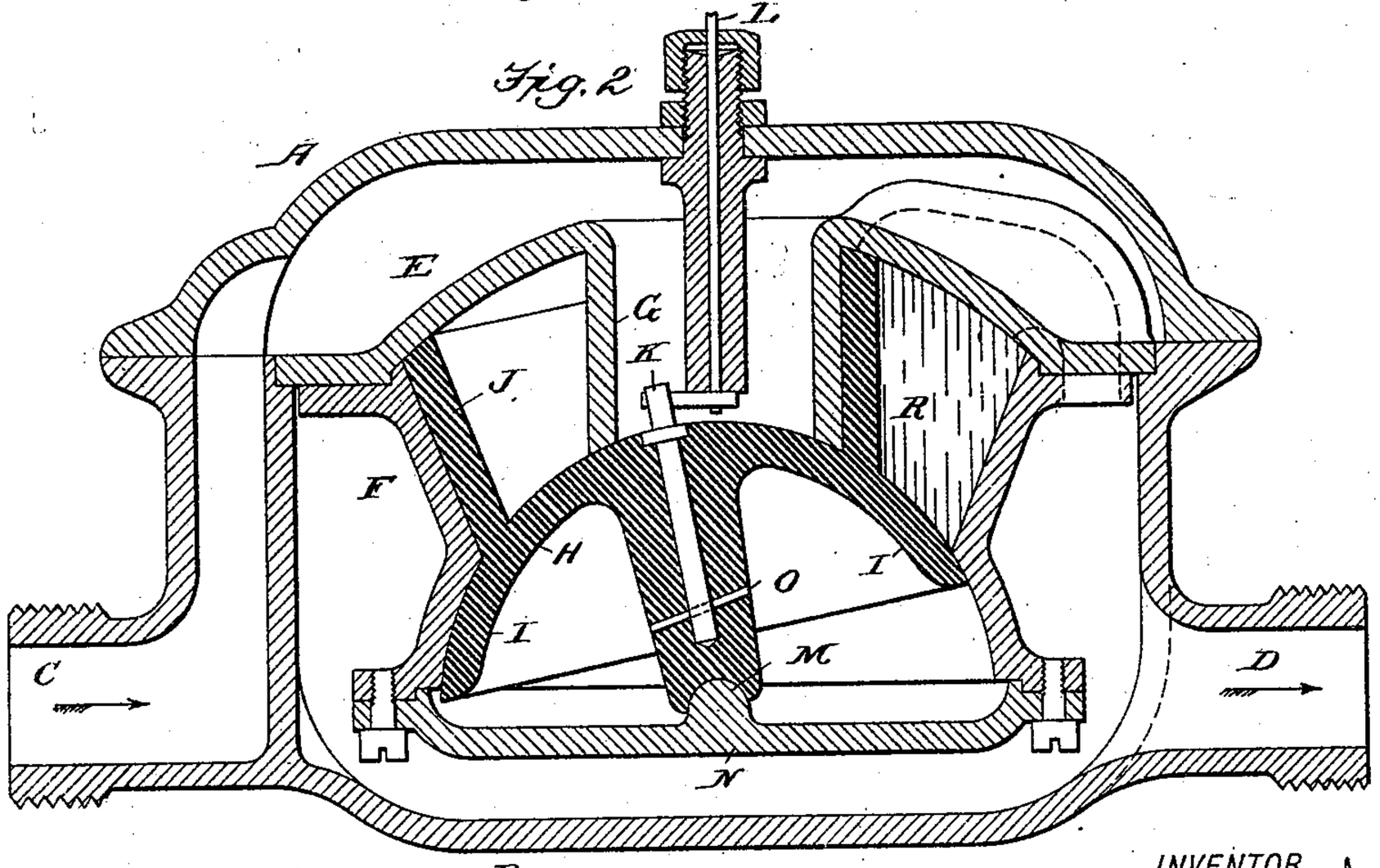


Fig. 2.



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WITNESSES:

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His ATTORNEYS.

UNITED STATES PATENT OFFICE.

LEWIS HALLOCK NASH, OF SOUTH NORWALK, CONNECTICUT, ASSIGNOR TO THE NATIONAL METER COMPANY, OF NEW YORK, N. Y.

DISK WATER-METER.

SPECIFICATION forming part of Letters Patent No. 562,145, dated June 16, 1896.

Application filed January 13, 1894. Serial No. 496,733. (No model.)

To all whom it may concern:

Be it known that I, LEWIS HALLOCK NASH, a citizen of the United States, residing at South Norwalk, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Disk Water-Meters, of which the following is a specification.

My present invention relates to nutating-piston water-meters; and it consists of certain novel parts and combinations of parts pointed out in the claims concluding this specification.

In an application filed by me on December 23, 1893, which bears Serial No. 494,559, I have described in general terms the meter shown in the accompanying drawings and have broadly, but not specifically, claimed the form here shown.

The following is a description of the accompanying drawings:

Figure 1 is a top view of a meter with the cover removed; and Fig. 2 is a vertical section through the same, the cover being in place.

The following is a description of the structure illustrated in said drawings:

A is the upper case, and B the lower case, of the meter.

C is the inlet-spud, and D the outlet-spud.

The meter-chamber proper is formed by a plate E, having a spherical interior surface, by a plate F, forming a conical surface, and a plate G, forming a cylindrical surface for the measuring-chamber. The piston is composed of a ball H, having a circumferential joint-forming flange I I and provided with a displacing-flange J, forming a cone with the apex downward.

K is a pin projecting from the ball-bearing of the piston, operating through the spindle L the registering mechanism of the meter. The piston is supported on a spherical projection M from the plate N.

O is a pin to fasten the pin K in position.

R is a diaphragm or abutment which the piston is slit to straddle.

The water enters through the spud C, passes through the inlet-port P, Fig. 1, thence through the meter-chamber, causing the piston to move with a motion of nutation, and thence out through the outlet-port Q and the outlet-spud D.

In the meter above described the cylindrical surface G of the measuring-chamber is contained partly within the conical surface F. The relation of these parts might, as far as some of the features of my present invention are concerned, be altered so that the cylindrical surface should be on the outside and the conical surface on the inside, as is shown in Fig. 12 of my said pending application.

In the drawings I have shown a piston having a spherical joint-forming flange extending the entire way around the displacing-flange, but, if preferred, this flange might be reduced to a radial extension under the abutment, substantially as shown by me in a pending application filed March 21, 1893, bearing Serial No. 467,008. Although in the drawings I have shown the piston as conical with one of the case side walls cylindrical, my invention as far as some of its features are concerned is not limited to these details, as it covers also cases in which both of the side walls of the chamber are conical, as in Fig. 5 and in Figs. 12, 13, 14, and 15 of my said pending application, Serial No. 494,559, filed December 23, 1893; and also in the drawings of my pending applications, Serial Nos. 496,734 and 496,735, filed of even date herewith.

Various other modifications might be adopted without departing from the spirit of my invention and without exceeding the scope of the concluding claims.

Many of the details illustrated and above described are not essential to the several features of my invention. This will be indicated in the concluding claims where the omission of an element or the omission of reference to the detail features of the elements mentioned is intended to be a formal declaration of the fact that the omitted elements or features are not essential to the inventions therein severally covered.

What I claim is—

1. In a nutating-piston water-meter, the combination of a piston and a case having a spherical surface and opposite side surfaces, one of said side surfaces being conical and the other being cylindrical.

2. In a nutating-piston water-meter, the combination of a piston and a case having a spherical surface and opposite side surfaces, the inner side surface being cylindrical and the outer side surface being conical with its apex downward.

3. In a nutating-piston water-meter, the combination of a conical piston and a case having a spherical surface and opposite side surfaces, one of said side surfaces being conical and the other being cylindrical.

4. In a nutating-piston water-meter, the combination of a piston having a spherical flange projecting outwardly from the displacing portion of the piston and making joint with the lower edge of the lower side surface and a case having a spherical surface and opposite side surfaces, one of said side surfaces being cylindrical and the other conical.

5. In a nutating-piston water-meter the combination with a measuring-chamber of a piston having a flange forming a spherical surface projecting outwardly from the displacing portion of the piston.

6. In a nutating-piston water-meter the combination with a measuring-chamber of a piston forming a spherical surface projecting outwardly from the displacing portion of the piston and a chamber in the case below the measuring-chamber in which said flange operates.

7. In a nutating-piston water-meter a measuring-chamber formed with side surfaces and a spherical surface combined with a piston having a spherical flange projecting outwardly from the displacing portion of the piston and making joint with the lower edge of the lower side surface.

8. In a nutating-piston water-meter the combination of a measuring-chamber with a piston provided with a flange having a spherical surface projecting outwardly from the displacing portion of the meter and a ball-bearing in the case on which the piston is supported.

9. In a nutating-piston water-meter the combination of a piston having a spherical joint-forming portion with a case having inner and outer side surfaces both making joint with said spherical portion of the piston on the same hemisphere thereof.

LEWIS HALLOCK NASH.

Witnesses:
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