

A. G. HOLMES.
 NUTATING DISK FOR METERS.
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951,787.

Patented Mar. 8, 1910.

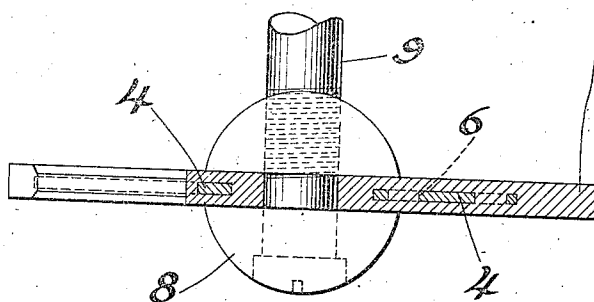
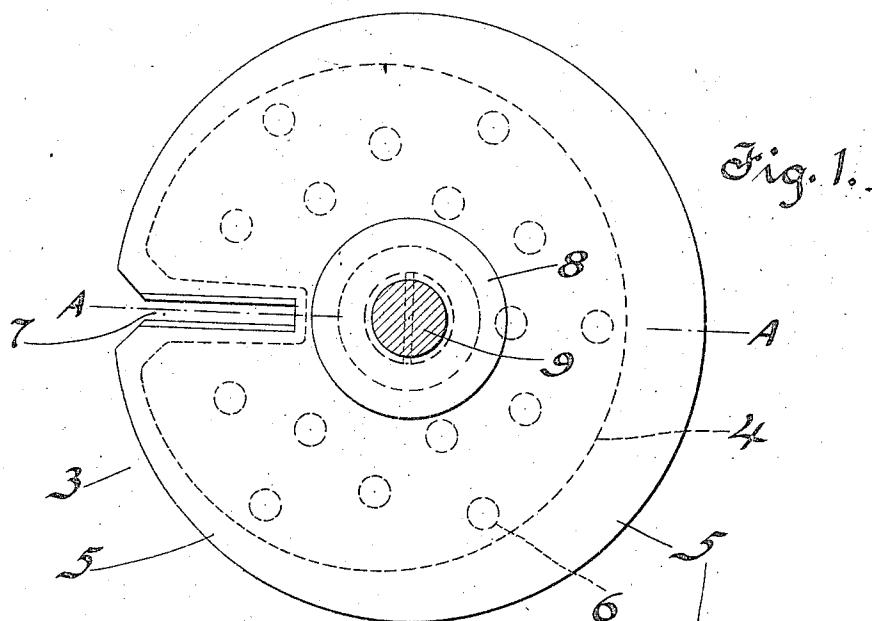


Fig. 2

WITNESSES:

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E. M. McArthur.

INVENTOR.
 Abram G. Holmes.
 BY *Geo. S. Green*
 HIS ATTORNEY IN FACT.

UNITED STATES PATENT OFFICE.

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NUTATING DISK FOR METERS.

951,787.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, ABRAM G. HOLMES, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have made a new and useful Invention in Nutating Disks for Meters, of which the following is a specification.

This invention relates to meters of the nutating or wobble disk type and more particularly to the nutating disks of such meters.

Owing to the construction of the nutating disk type of meter, it is necessary to provide a radially extending slot in the nutating disk into which a stationary partition, which separates the inlet from the outlet port of the meter, projects. Disks ordinarily employed are circular in form and are provided at the center with a ball which forms a support for the disk and which supports an operating post for the indicating apparatus of the meter. In providing the slot in the disk one half of the disk is caused to preponderate in weight over the other half. This unbalanced condition of the disk is detrimental to the operation of the meter and an object of this invention is to overcome this unbalanced condition to thereby improve the operation of the nutating disk type of meter.

A further object of this invention is the production of a metallically reinforced balanced nutating disk.

Hard or vulcanized rubber is particularly well adapted for use in meters and especially water meters and the disks thereof are ordinarily made of it. I sometimes find it advantageous, in order to obtain additional strength to provide a metallic reinforcing plate for each disk, which is preferably embedded within the vulcanized rubber.

In carrying out this invention I embed a metallic reinforcing plate in the nutating disk and either locate or form the same so that the preponderating weight of the unslotted half of the disk is overcome by the reinforcing plate and the disk is balanced, the reinforcing plate serving, in addition to the function of reinforcing, the function of balancing.

In the drawings accompanying this application and forming a part thereof: Figure 1 is a plan view of a nutating disk embodying

my invention; and, Fig. 2 is a section along the line A—A of Fig. 1.

The nutating disk 3 is preferably composed of vulcanized rubber and is provided with a metallic plate 4 embedded therein and lying within the confines of the plate and wholly covered by the vulcanized rubber. The plate is provided with a number of suitably disposed apertures 6 through which the vulcanized rubber extends, thereby joining the portions on opposite sides of the disk and as the rubber extends beyond the edges of the plate, it is protected from corrosion. As is now customary the disk is provided with a slot 7 and a ball 8 which forms a support for the disk. A post 9 adapted to operate the indicating apparatus of the meter is shown extending through the ball 8 but if desired this may be formed integrally with it.

As illustrated in the drawings, plate 4 is circular in form and is located eccentrically of the disk so that its center of gravity lies on the slotted side of the disk on a line passing centrally of the slot and extending through the center of the disk. The weight of the plate is so disposed relative to the center of the disk 3 that the slotted disk is perfectly balanced; that is, the plate is located so as to compensate for the reduction in weight caused by the slot 7. If desired the plate may be located concentrically with the disk and increased in thickness on the slotted side of the disk to compensate for the slot. The plate need not be circular in form, but if desired can be of some other shape, as the object of the invention will be accomplished if the slotted disk is balanced by the plate.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the device which I now consider to represent the best embodiment thereof, but desire to have it understood that the device shown is only illustrative and that the invention can be carried out by other means.

What I claim is:

1. A slotted disk and a reinforcing plate located so that the center of gravity of the disk and the plate together is coincident with the center of the disk.

2. A slotted disk and a reinforcing plate, located eccentrically thereof so that the cen-

ter of gravity of the disk and the plate together is coincident with the center of the disk.

3. A slotted disk and a plate embedded in
5 said disk and located eccentrically thereof so that the center of gravity of the disk and the plate together is coincident with the center of the disk.

4. A slotted disk and a plate embedded in
10 said disk and located so that the center of gravity of the plate and the disk together is coincident with the center of the disk.

5. A slotted disk and reinforcing means
15 for said disk located eccentrically thereof so that the center of gravity of the disk and the means together is coincident with the center of the disk.

6. A slotted disk and reinforcing means
20 therefor, located so that the center of gravity of the disk and the means together is coincident with the center of the disk.

7. A slotted disk and reinforcing means

embedded in said disk and located so that the center of gravity of said means and said disk together is coincident with the center of
25 said disk.

8. A slotted disk, reinforcing means embedded in said disk and located eccentrically thereof so that the center of gravity of said disk and said means together is coincident
30 with the center of said disk.

9. A slotted rubber disk and a metal plate embedded in said disk and located eccentrically thereof so that the center of gravity of the disk and the plate is coincident with
35 the center of the disk.

In testimony whereof, I have hereunto subscribed my name this 11th day of September, 1908.

ABRAM G. HOLMES.

Witnesses:

CHARLES W. MCGHEE,
E. W. MCCALLISTER.