(No Model.)

J. THOMSON.

MECHANISM FOR CONTROLLING ACTION OF OSCILLATING DISKS.

No. 602,376. Patented Apr. 12, 1898.

Fig. 1.

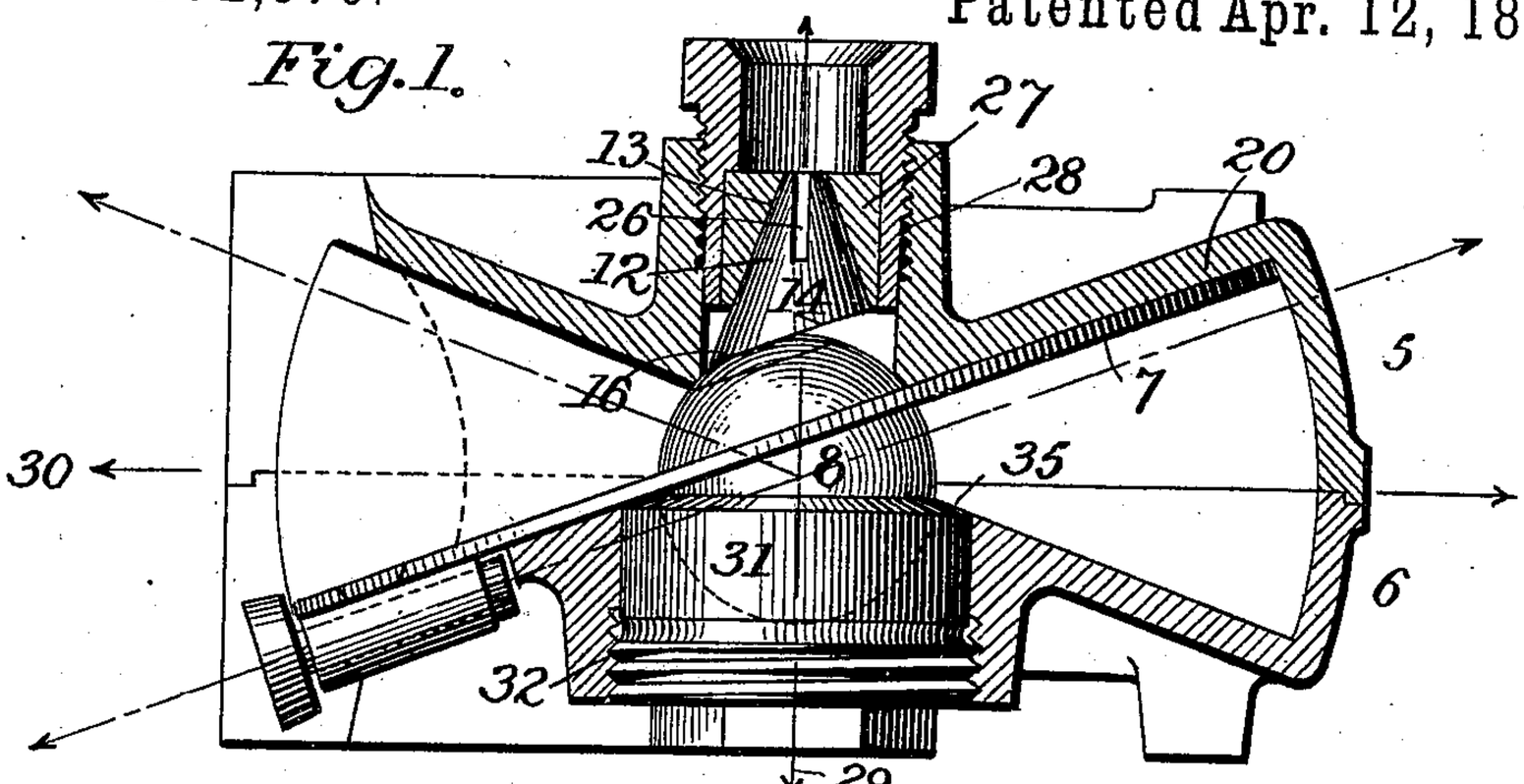


Fig. 2.

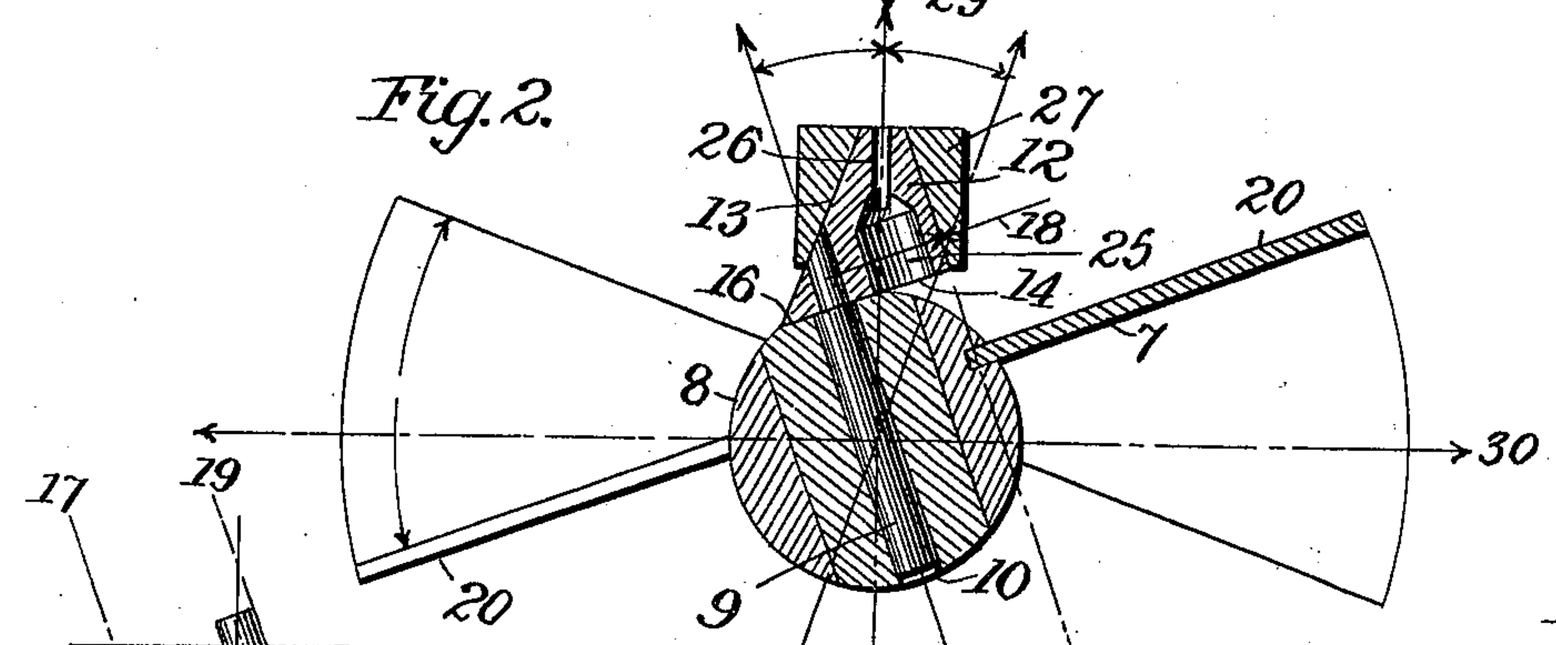


Fig. 6.

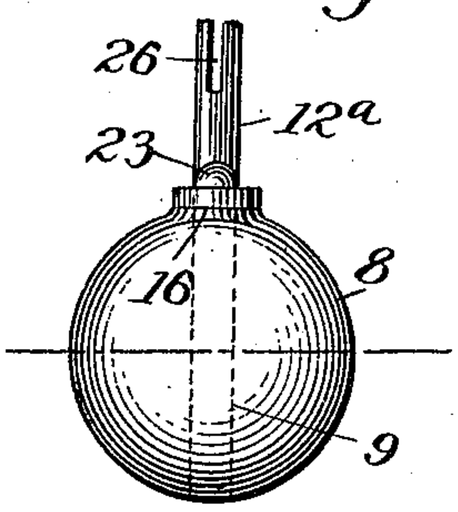


Fig. 5.

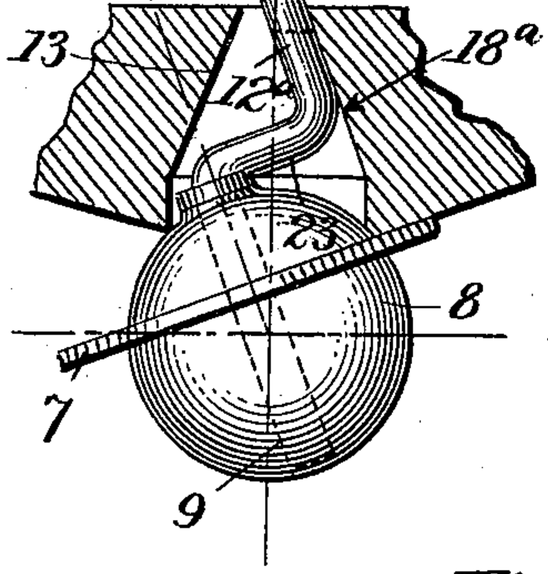


Fig. 3

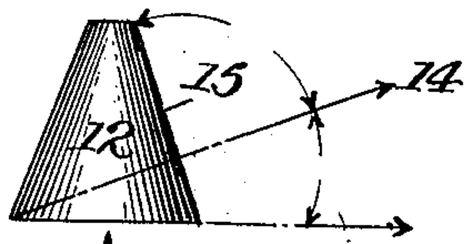
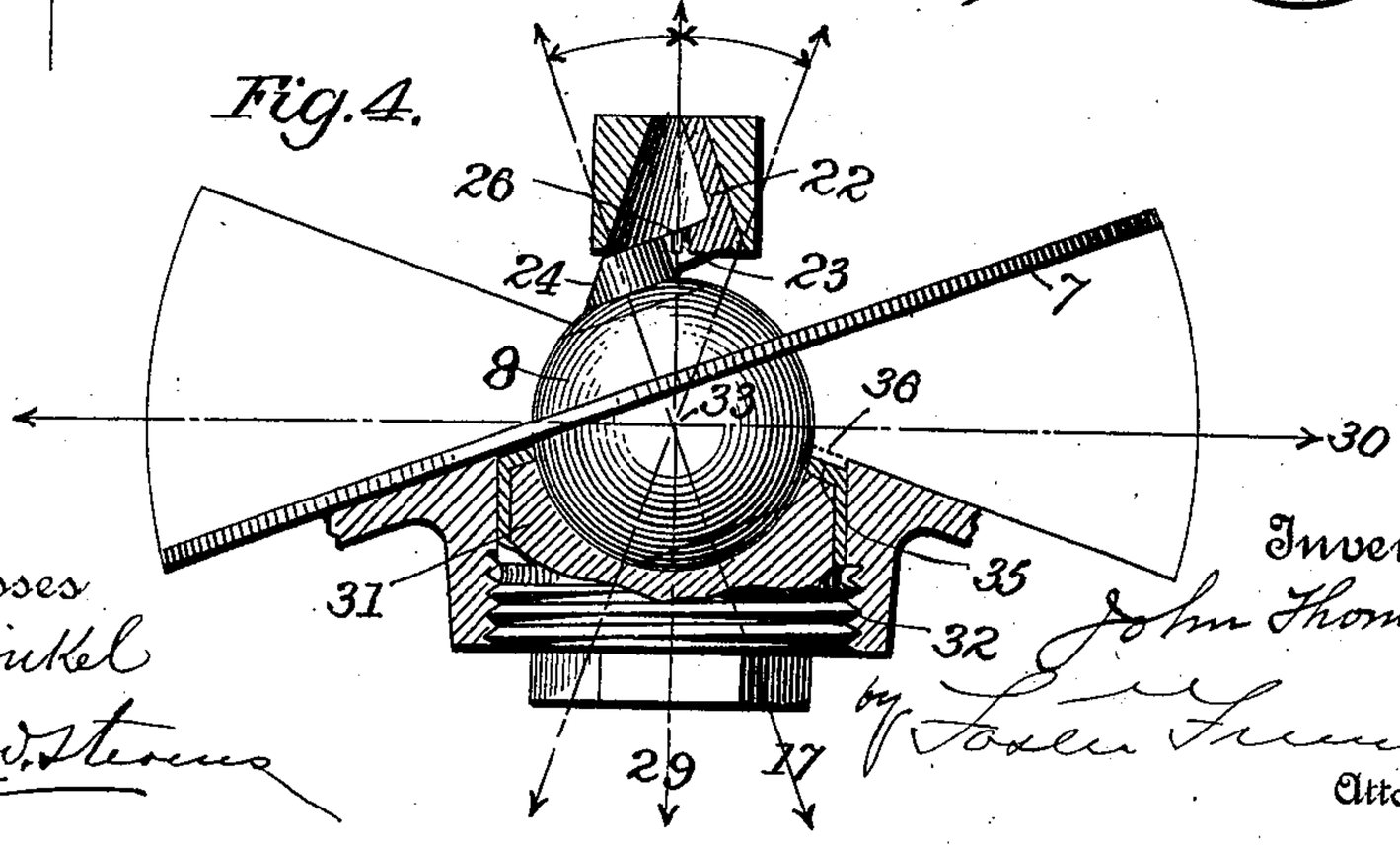


Fig. 4.



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UNITED STATES PATENT OFFICE.

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MECHANISM FOR CONTROLLING ACTION OF OSCILLATING DISKS.

SPECIFICATION forming part of Letters Patent No. 602,376, dated April 12, 1898.

Application filed May 7, 1897. Serial No. 635,541. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Mechanism for Controlling the Action of Oscillating Disks, of which the following is a specification.

My invention relates to mechanism for controlling the action of oscillating disks, and is an improvement upon or an extension of the device described and claimed in my patent of April 27, 1897, No. 581,630.

Thus my invention consists in the various features of construction and arrangements of parts substantially as hereinafter more fully set forth, in which connection it may be said that the arrangement is especially designed to be used in connection with disk water-meters.

In the accompanying drawings, Figure 1 is a vertical section of a disk-chamber casing suitable for a water-meter, showing the essential features of my invention. Fig. 2 is a sectional diagram illustrating the details of construction and the principles of operation. Fig. 3 is a detail view to illustrate a method of constructing the conical thrust-block, and Figs. 4, 5, and 6 denote modifications in the construction.

Referring to the embodiment of my invention illustrated in the drawings, the disk-chamber casing is formed of the upper and lower sections 5 6, containing the disk 7 and ball 8.

The controlling device consists of the spindle 9, having a bearing 10 through the ball, and the conical thrust-block 12, connected to the spindle and having a conical bearing 13 in the interior of the casing.

The foregoing coincides with the broad elements already described in my patent aforesaid. Consequently a repetition of the description of its operation is not now deemed necessary.

The conical thrust-block 12, instead of having its base formed to correspond to the spherical contour of the ball, has a flat-surface base 14, produced at a right angle to the thrust-resisting surface, as 15, Fig. 3. The advantage of this is to reduce the friction of rotation betwixt the ball and the block, as the revolution is like that of a collar or shoulder where the surfaces 16 of the block and ball impinge. Moreover, as the thrust-block is centrally supported over the axis 17 of the spindle any wear at the shoulders 16 will not affect the performance of the thrust-block in that the thrust-resisting surfaces, as arrows 18, lie in a plane, as 19, parallel to that of the axis 17 of the spindle. Hence downward movement of the thrust-block in the direction of the axial line of the spindle will not permit the disk to leave the frustums 20 of the disk-chamber.

A consideration of the foregoing shows that the opposite and surrounding surface of the thrust-block does not play an important part. Hence, if desired, it may be partially removed or even considerably so, as shown at 22, Fig. 4, where the actual bearing-surface of the thrust-block becomes but the segment of a cone supported by an arm 23 to the shoulder 24 and thence to the spindle 9.

The object of the bore 25, Fig. 2, is to reduce the weight of the thrust-block.

The cross-slot 26 indicates a means of connection to a spindle, as for driving the internal gear-train of a water-meter.

To realize the most complete utility of this device, the thrust-block bearing 27 should be adjustable, as by the threaded portion 28, and also removable in a line 29 at a right angle to the medium plane 30 of the disk-chamber. So, too, the lower socket-bearing 31 for the ball should be capable of adjustment vertically, as by the screw-threads 32.

With the foregoing arrangement of parts the center 33 of the ball may be readily maintained in the plane 30 of the disk-chamber, a position essential to the best operation. Then the thrust-block bearing may be screwed down to bring any desired intimacy of contact between the thrust-resisting surfaces 18, Fig. 2, which in turn will produce a similar result with respect to the disk and the frustums of the chamber. A contingent advantage is that by entirely removing the thrust-block bearing 27 the thrust-block, together with its spindle, may also be withdrawn or inserted without separating the sections of the chamber.

When parts are first assembled, the construction of the socket-bearing 31 should be such that when it is adjusted to afford a proper bearing to the ball its beveled face 35, Fig. 4, shall not come up flush with the face of the frustum 20, as indicated in an exaggerated degree by the dotted line 36. In actual practice it is sufficient if the said beveled face 35 of the socket shall come up within a few thousandths of an inch of the face of the frustum, thus not forming a leakage-space sufficient to cause any appreciable fault in registration. When so arranged, any subsequent wear of the ball and socket may be taken up without setting the face 35 beyond the surface 36 of the frustums. In this wise any wear of the parts tending to lower the disk and ball in the direction of the vertical center 29 may be accurately and conveniently corrected without danger of tilting or tending to tilt the disk away from the frustums.

Figs. 5 and 6 denote a further extension in the detail of construction over that shown in Fig. 4, but without departing from the spirit and essence of my invention. Thus in these figures the thrust-block is represented as but a piece of wire 12^a, formed to lie parallel with the axis 17 of the ball-spindle, and except in the element of extent of bearing-surface afforded at the line of contact betwixt the cylindrical block and its conical bearing, as at 18^a, this alteration, modification, or development of the initial invention will prove effective in practice. Hence it is that I disclaim any intention of being strictly bound to the precise limits of the drawings or to the exact terms herein employed to describe the said drawings.

What I claim is—

1. The combination with the casing, disk and ball, of the thrust-block resting upon the ball, and having its base formed flat and to a right angle to the thrust-resisting surfaces.

2. The combination with the casing, disk, ball and conical thrust-block, of a bearing for said thrust-block capable of adjustment in the direction of the axis of the cone, substantially as set forth.

3. The combination with the casing, disk and ball, of the thrust-block and the adjustable bearing therefor, both of which are adapted to be removed from the exterior of the disk-chamber casing, substantially as described.

4. The combination with the casing, disk and ball, of the vertically-adjustable bearing having its exposed beveled face 35, set beneath the face of the frustum.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JOHN THOMSON.

Witnesses:
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