

J. D. Sumner,

Rotary Meter,

Nº 67,928.

Patented Aug. 20, 1867.

Fig. 1.

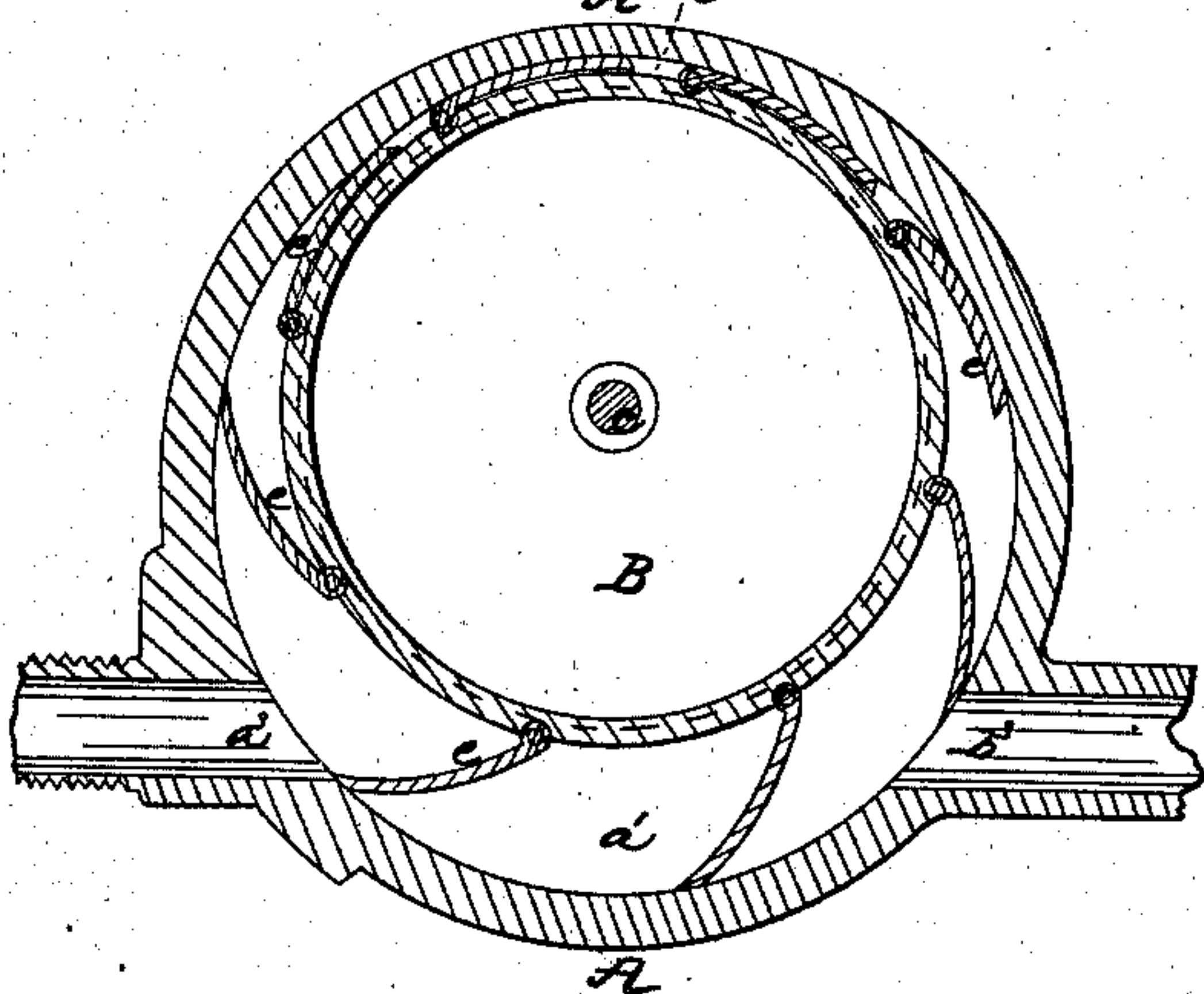


Fig. 2.

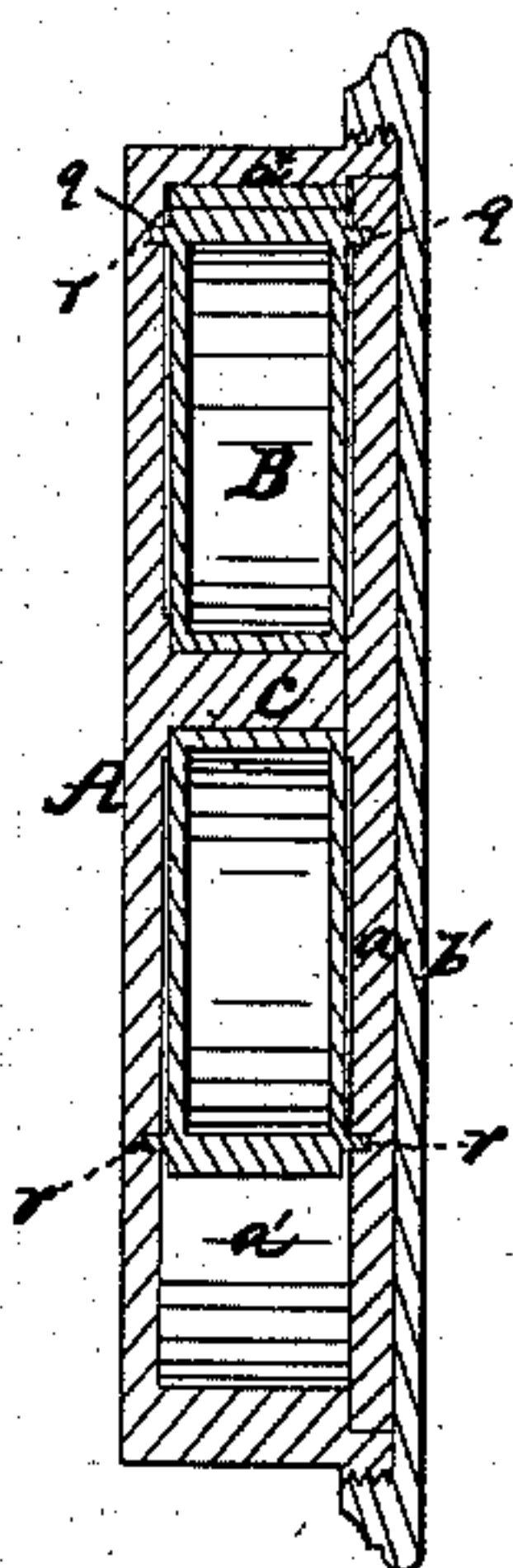


Fig. 3.

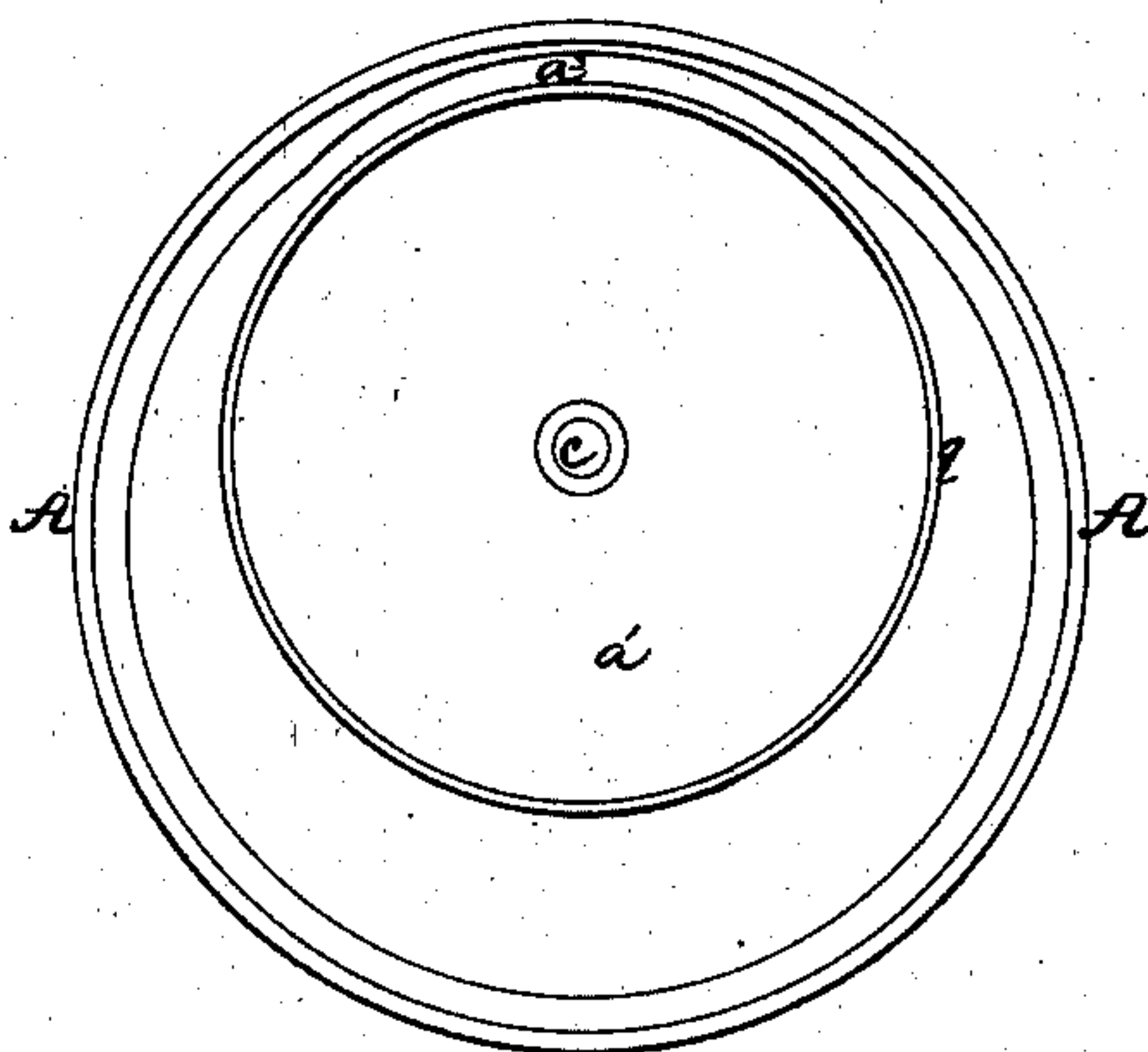
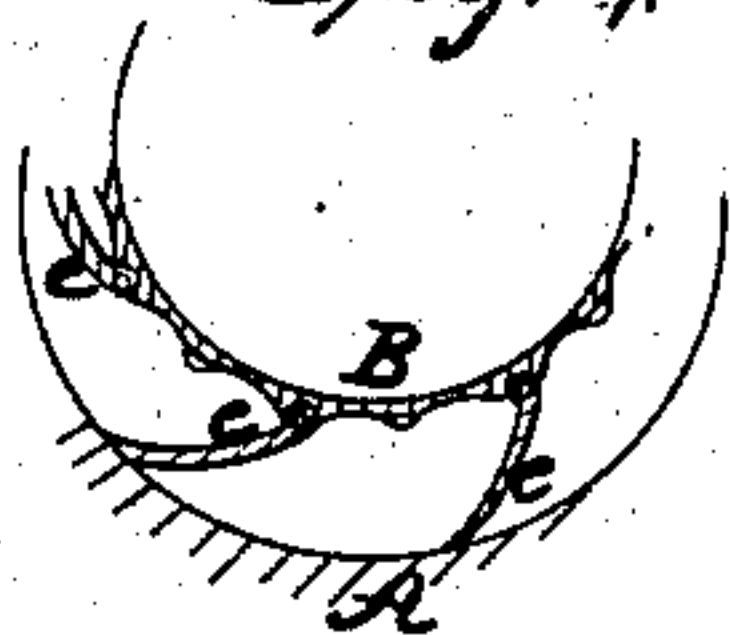


Fig. 4.



Witnesses.

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JAMES D. SUMNER, OF LEXINGTON, MASSACHUSETTS.

Letters Patent No. 67,928, dated August 20, 1867.

IMPROVEMENT IN WATER-METERS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Be it known that I, JAMES D. SUMNER, of Lexington, in the county of Middlesex, and State of Massachusetts, have invented an improved Water-Meter; and do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, making part of this specification, and in which—

Figure 1 is a vertical and longitudinal, and

Figure 2 is a vertical and transverse section of a water-meter constructed in accordance with my invention.

Figure 3 is a side elevation of its interior or liquid-measuring chamber.

The object of this invention is to produce a durable and reliable apparatus for measuring the volume of liquid passing through a pipe, one great object next to its accuracy and durability being its simplicity and consequent cheapness of construction, this being a great desideratum, whether used in great numbers by companies, or by individuals and for family use.

The invention consists in a circular box or case, having a rotating disk or drum disposed within it eccentrically, supplied with a number of vanes applied to it, the whole being as hereinafter described and referred to.

In the drawings above referred to, A denotes a circular box or case, having an inner cap-plate, a , and an outer cover, b^1 , applied to it, as shown in fig. 2, and provided with inlet and outlet pipes or ports, a^3 , b^3 . Within the case A, a disk or drum, B, is situated, and so as to rotate freely upon a stationary stud or standard, c , extending from the inner face of the case A, this pin c being situated eccentrically with respect to the case A, as shown in figs. 1 and 2 of the drawings, or so as to leave considerable space between the lower edge of the disk B and the bottom of the chamber a^1 of the case A. A series of pendulous floats or vanes, $e e e$, &c., is hinged to the periphery of the disk B in such manner that their free extremities shall drop by their own gravity (or be thrown by centrifugal force generated by the revolutions of the disk) against the interior surface of the chamber a^1 of the case A, this chamber having at its upper part a recess or extension, a^2 , leading out of it and making part of it, this recess a^2 forming an arc of a circle whose radius is less than that of the chamber a^1 , but equal to that of the disk B and its vanes, the same being in order that the outer surface of two or thereabouts of the vanes shall rotate in close proximity to or against the boundary of the said recess, and prevent the passage of any great amount of liquid between them, which would not be the case were the recess a^2 of the same radius as that of the chamber a^1 . The inner wall of the case-chamber a^1 , as well as the inner face of the cap-plate a , has a circular groove, g , cut in it concentric with the stud c , this groove being for the reception of a fin or lip, r , formed upon each side of the disk B, as shown in fig. 2 of the accompanying drawings, the object of the groove and lip being to prevent the passage of water or other matter around the axis of the disk. A suitable indicating mechanism to indicate the number of revolutions of the disk B is to be suitably attached to the apparatus. The current of water or other liquid rushing into and through the case A by the inlet a^3 and outlet b^3 , will impinge against the upper surface of the vane next adjacent to and below the inlet opening a^3 , and put the disk B in revolution, each successive vane, as it passes beyond the inlet, being subjected to the action of the flowing liquid, and receiving an impetus therefrom, thus keeping up a continued revolution of the disk. The amount of liquid passing through the case A at each revolution of the disk being determined, and the indicator giving the number of its revolutions, the flow of liquid is determined with great accuracy. As this indicating mechanism above referred to is similar to others now in use, and forms no part of my invention, I have not deemed it necessary to exhibit it in the drawings. It may be found in practice that the vanes will adhere by capillary attraction to the periphery of the disk B, and allow the liquid to pass through the case A without rotating it. To remedy this difficulty the periphery of the said disk may be scored or recessed beneath the vanes, as shown in fig. 4 of the drawings, which is a section of a portion of the disk and its vanes.

The above-described meter may be applied to advantage to liquor-casks, as well as to vessels of various descriptions for holding liquids.

I claim the combination of the disk B, flanged or tongued at or near its periphery, and carrying the vanes or floats e , with the case A recessed and grooved in its interior, substantially in the manner and for the purposes herein set forth.

JAMES D. SUMNER.

Witnesses:

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