

(No Model.)

J. THOMSON.
DISK WATER METER.

No. 556,113.

Patented Mar. 10, 1896

Fig. 1.

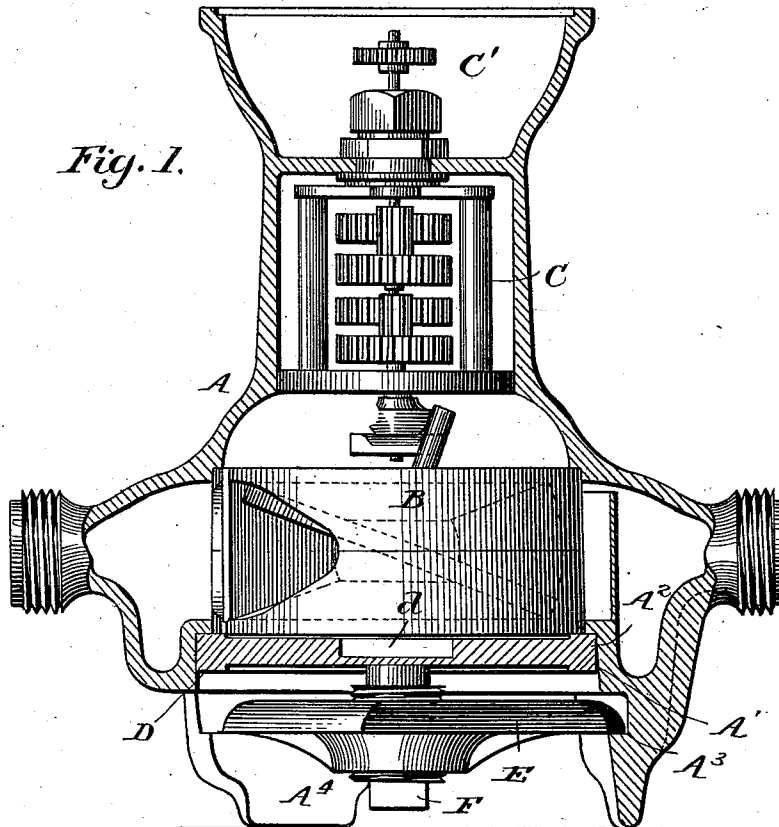
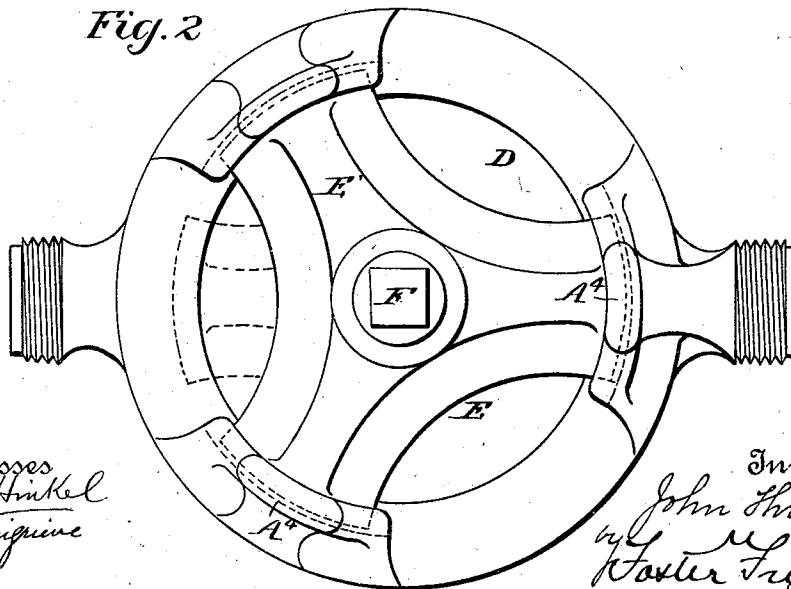


Fig. 2



Witnesses
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DISK WATER-METER.

SPECIFICATION forming part of Letters Patent No. 556,113, dated March 10, 1896.

Application filed October 30, 1894. Serial No. 527,475. (No model.)

To all whom it may concern:

Be it known that I, JOHN THOMSON, a citizen of the United States, residing at Brooklyn, Kings county, State of New York, have invented certain new and useful Improvements in Disk Water-Meters, of which the following is a specification.

My invention relates to disk water-meters, and has for its object to simplify and cheapen the construction of such meters, and more particularly in relation to the securing of the inclosing cap or head to the casing and the adaptation thereof to relieve the main casing if frozen; and to these ends my invention consists in the features of construction and arrangement of parts having the mode of operation substantially as hereinafter set forth.

Referring to the accompanying drawings, Figure 1 is a vertical section of a typical form of meter embodying my invention, and Fig. 2 is a bottom plan view thereof.

In my Patent No. 520,197 I have shown and claimed an arrangement of the parts that can all be maintained in proper position and a water-tight joint be secured by a single inclosing cap or head-piece, this head being screwed into the bottom portion of the main casing. In order to form the thread in the main casing quickly and cheaply, as by a simple tap, it is necessary to make the casing of composition or bronze, as it is impracticable to form the screw-threads in an ordinary iron case at the same speed and by the same process as in ordinary brass.

It is one of the objects of my present invention to provide means for securing the inclosing cap or head so that it can be used with a casing made of ordinary cast-iron or other cheap material, the parts being so arranged as to require little or no tooling or manipulation, and at the same time so that the operating parts shall be inclosed by a waterproof closure, which, however, can be quickly and readily removed or adjusted in position. Furthermore, it is well known that water-meters are liable to injury from the freezing of the water, which on expanding disrupts or destroys the main casing of the meter unless provision is made to overcome this danger. This danger has been overcome in a manner

set forth in my patent above referred to, which has proved effective; but in that arrangement there are a number of practical objections to the use of ordinary cast-iron, such as the exposure of the iron thread to rust and the increased cost of forming it in iron, all of which is a disadvantage in constructing meters cheaply and economically.

My present invention is intended more especially to avoid all these objections, and I will now proceed to describe the preferred manner of embodying it and attaining these objects.

In the accompanying drawings I have shown a typical form of meter, in which A is the main casing.

B is the disk-casing, containing the nutating disk and diaphragm arranged in a manner well understood in this class of meters.

C is a reducing-train of spur-gears, operated by the disk and operating a registering device, which may be connected to the spur-gear C', but is not shown herein.

The main casing is preferably made of such a shape that the gear-train and the disk-casing can be readily slipped into position, being passed through the opening A' in the bottom of the main casing, and the disk-casing is preferably made slightly tapering, so that it can be readily slipped in place and the whole casing can be tooled in one adjustment.

The opening A' is closed by the closing cap or head D, which in this instance is shown as fitting freely in a recess A², its face making a water-tight joint by contact on a yielding gasket. In order to hold this head or cap in its position, I provide a strut E, which in the present instance is shown as having three arms E', which are adapted to be swung side-wise into recesses A³, formed in the projections A⁴ of the main casing, which projections are also used in the present instance as standards or feet for supporting the meter. This strut is provided with means for holding the head tightly in position, and I have shown in the present instance, and prefer to use, a single central screw F, which is fitted to a screw-hole in the central portion of the strut and bears against the central portion of the head, and which may be readily tightened to secure

the parts in position, as will be readily understood, the thrust of the screw being exerted upon the head and resisted by the strut bearing in the recesses in the frame.

- 5 With this construction it will be seen that the parts can be readily and quickly assembled, being simply dropped into position and the screw tightened when the parts are all in proper adjustment.
- 10 To remove the parts, it will be observed that it is only necessary to loosen the screw F, when all the parts can be removed for inspection or otherwise. This construction requires no screw-threading in the casing or
- 15 other delicate work, and as a result I am enabled to use ordinary cast metal for the casing, if desired, and the cost is reduced to a considerable extent without lessening the utility or practicability of the meter.
- 20 In order to adapt the head to yield under a definite pressure, as in the case of freezing, the head D is recessed on one or both sides, as shown at *d*, which recess is shown as being practically in the center of the head adjacent
- 25 the bearing of the screw F. This recess can be made of the proper depth, so that under a given pressure in the meter it will yield or shear out, permitting the head to be driven downward toward or upon the strut, and this,
- 30 of course, will permit the disk-casing to yield and to be forced outward, so that none of the parts will be retained under sufficient tension to allow the bursting of the main casing or injury to the other parts of the meter from
- 35 the expanding force of the freezing water. It will be seen that under such conditions the only part injured will be the disk or head, which can be readily replaced at little cost, and all the parts are prevented from falling
- 40 entirely out of the main casing to be injured or lost. Furthermore, it will be seen that this arrangement produces the ideal strain upon the yielding part, it being truly central,

and it can, therefore, be readily constructed to yield under a certain definite pressure. 45

I do not deem it necessary to further set forth the advantages of this construction, as they will readily be appreciated by those skilled in the art, and it will be understood that while I have illustrated a specific form 50 of casing and appliances my invention can be readily adapted to other forms without material change or departure from the principles thereof.

What I claim is—

1. In a water-meter, the combination with 55 a main casing containing an internal casing with operative parts, of a closing-head adapted to support the internal casing, a strut, having arms adapted to engage the main casing, 60 and a screw between the strut and head for holding the latter in position, substantially as described.

2. In a water-meter, the combination with 65 the main casing having standards and recesses therein, and the internal casing containing operating parts, of a closing-head for the casing, a strut mounted in the recesses of the standards and a screw mounted in the strut bearing against the head, said head acting 70 as a support for the internal casing, substantially as described.

3. In a water-meter, the combination with 75 a case inclosing the operative parts, of a closing-head having a recessed portion, and a strut and screw bearing on the head adjacent said recessed portion, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of 80 two subscribing witnesses.

JOHN THOMSON.

Witnesses:

J. F. COFFIN,
MEYER KRASNAR.