Sheet 1-2 Sheets.

B. Densmore.

Rotary Water Meter.

No. 106,792. Patented Aug. 30, 1870.

Fig. 5.

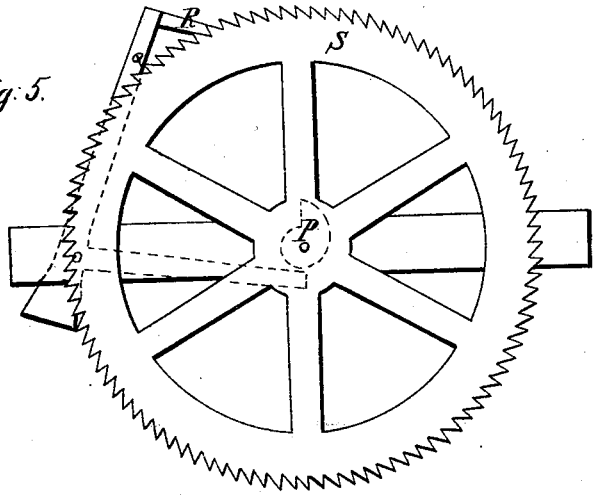
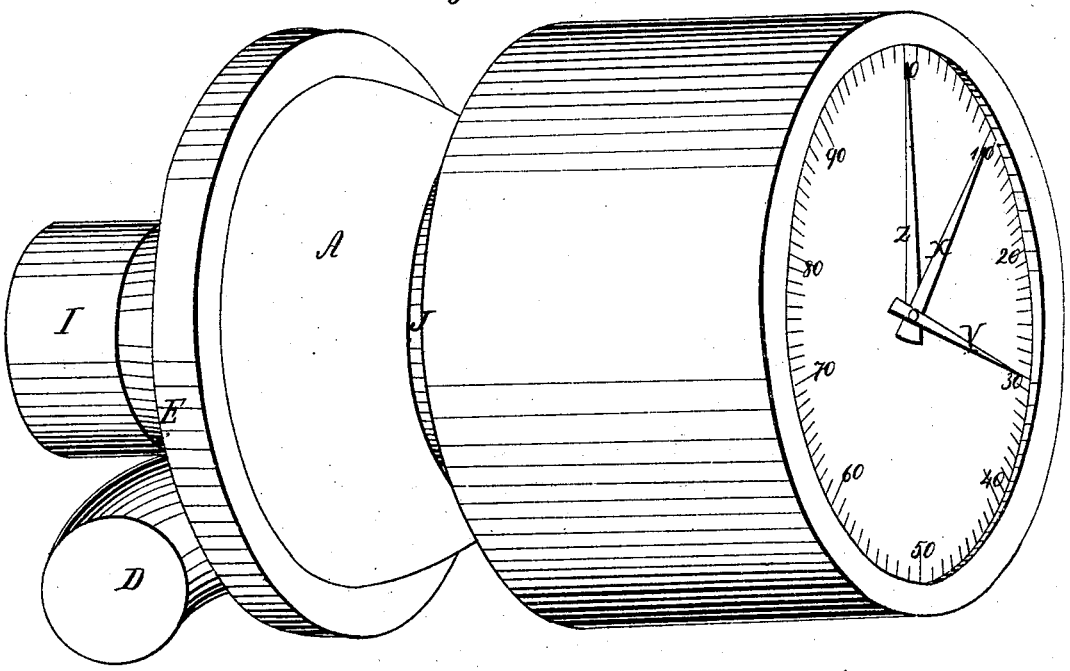


Fig. 1.



Witnesses;
George C. Densmore
Mary E. Densmore

Inventor;
Byron Densmore

United States Patent Office.

BYRON DENSMORE, OF NEW YORK, N. Y.

Letters Patent No. 106,791, *dated August* 30, 1870; *antedated August* 24, 1870.

IMPROVEMENT IN ADJUSTMENTS FOR PUMP-RODS.

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

I, BYRON DENSMORE, of the city of New York, in the State of New York, have invented certain Improvements in Adjustable Attachments for Varying the Stroke of Feed-Pumps for Steam-Boilers, and for other purposes, of which the following is a specification.

Description of the Accompanying Drawing.

Figure 1 shows the whole machine.

A is the pump.

B is the crank that drives it.

C is the fulcrum of the lever D, so attached that the lever revolves on it.

E and F are screw-nuts, working on the lever D.

These nuts and the fulcrum C have journals on each end, working in boxes attached to the connecting-rods G, H, and I.

The lever D is screwed its whole length. From 1 to 2 it is a left-hand screw, of coarse lead. From 2 to 3 it is right-hand, and has a fine lead; or the leads of both may be alike.

The nuts E and F come together at 2. Then the pump has its full stroke.

To reduce the stroke, turn the lever D with the crank L, so that the nuts E and F go apart, and, while E is traveling to 3, F will go to 1. Then the pump has its shortest stroke.

I claim as my invention—

The lever D, in combination with the attachments E, F, and C, arranged and operated as specified, for varying motions.

BYRON DENSMORE.

Witnesses:

MARY E. DENSMORE,

ABRAHAM ODELL.

UNITED STATES PATENT OFFICE.

BYRON DENSMORE, OF NEW YORK, N. Y.

IMPROVEMENT IN WATER-METERS.

Specification forming part of Letters Patent No. **106,792**, dated August 30, 1870; antedated August 24, 1870.

To all whom it may concern:

Be it known that I, BYRON DENSMORE, of the city and State of New York, have invented new and useful Improvements in Water-Meters; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making part of this specification, in which—

Figure 1 is a perspective view; Fig. 2, a section through the center, lengthwise of the shaft; Fig. 3, a section of the cup, showing the stop G. Fig. 4 is a transverse section, showing the buckets C C C C C C; Fig. 5, a view of the ratchets and cams and pawls and levers that work the hands.

The outside of the cup A is a spherical segment, formed by a great and a small circle; but the inside is slightly tapering to give clearance to the buckets in passing the stop G. The wheel B revolves in this cup.

The buckets C, six in number, (may be more or less,) are attached to the wheel B by means of a hinge, as at | | | | | |, Fig. 4.

The inlet D is through the cover E, so that the stream strikes directly against the bucket and opens it, if it does not open from its own gravity, and the current holds it open till it passes the outlet F, when the bucket closes from its own weight, and remains closed while passing the stop G.

The cup H is a part of the wheel B, and is made water and air tight, and large enough to balance the weight of the wheel, to take its weight off from the bearings of the shaft K.

I and I are oil-cups, for the purpose of storing oil to oil the bearings of the shaft. The boxes *a a* of the shaft are sawed through on the under side, as at 2 2, Fig. 2.

The pinion L is attached to the shaft K and meshes into the wheel M, which meshes into the pinion N of the wheel O. To the center of the wheel O is attached the eccentric P. One end of the elbow Q rests up against the under side of this eccentric, and is borne down by it until the end of the elbow passes the large part of the eccentric; then it rises from its own weight to the point nearest to the shaft. On the other end of the elbow Q is attached the pawl R, which works into the notches on the ratchet S, and the cam that works the ratchet T is attached to the center of the ratchet S, and the ratchet W is worked by a cam attached to the center of the ratchet T. These ratchets have each one hundred notches.

The cog-gearing is so adjusted as to give the wheel O one revolution to every cubic foot of water discharged. A revolution of the wheel O moves the ratchet S one notch. A revolution of the ratchet S moves the ratchet T one notch. A revolution of the ratchet T moves the ratchet W one notch.

The face is divided into one hundred parts. The hand Y is attached to the ratchet S by means of a shaft that passes through the other two ratchets. The hand X is attached to the ratchet T by means of hollow shaft, and the hand Z is attached to the ratchet W in a similar manner, so that the hand Y moves one division of the dial for every cubic foot of water discharged. The hand X moves one division for every hundred cubic feet, and the hand Z moves one division for every ten thousand cubic feet, discharged.

I claim as my invention—

1. The inlet D, buckets C, arms B, shell A, and stop G, as set forth.

2. The oil-cups I I and extended slotted boxes *a a*, as specified.

3. The arrangement of an indicating-register, substantially as shown, with a meter, consisting of the buckets C, shell A, and stop G, as and for the purposes shown and described.

BYRON DENSMORE. [L. S.]

Witnesses:

GEORGE C. DENSMORE,

MARY E. DENSMORE.