No. 794,084. PATENTED JULY 4, 1905.

F. DARLINGTON.

METER.

APPLICATION FILED OCT. 14, 1904.

2 SHEETS—SHEET 1.

Fig. 1.

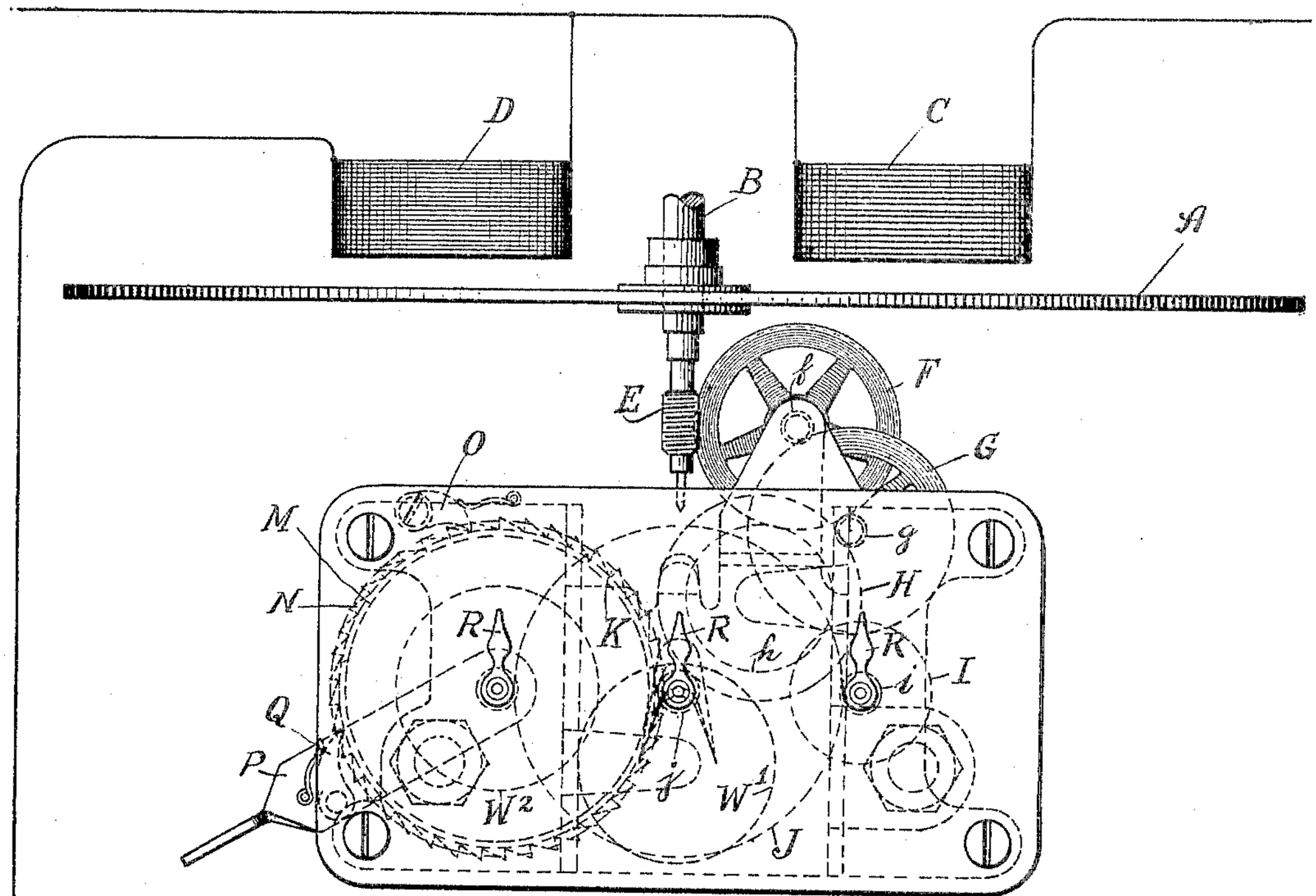
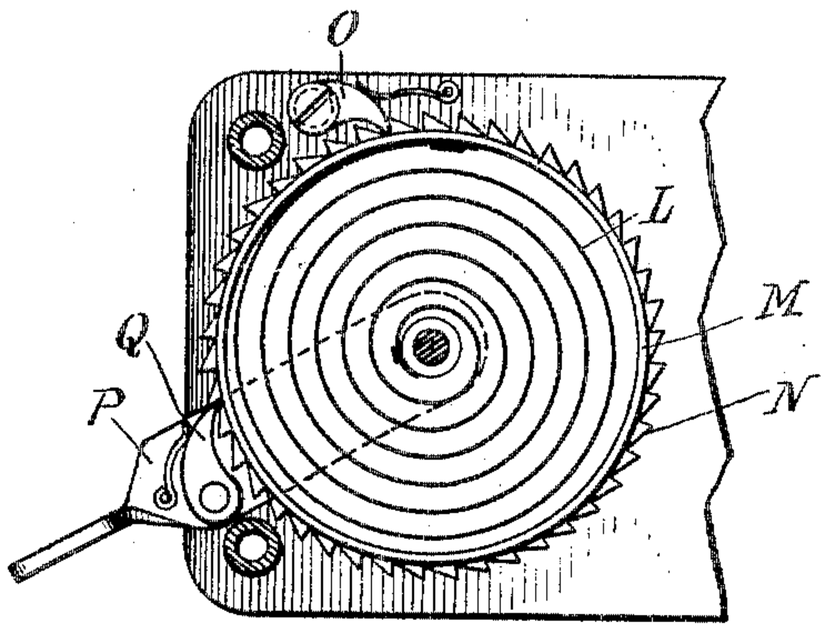


Fig. 4.



Witnesses
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2 SHEETS—SHEET 2.

Fig. 2.

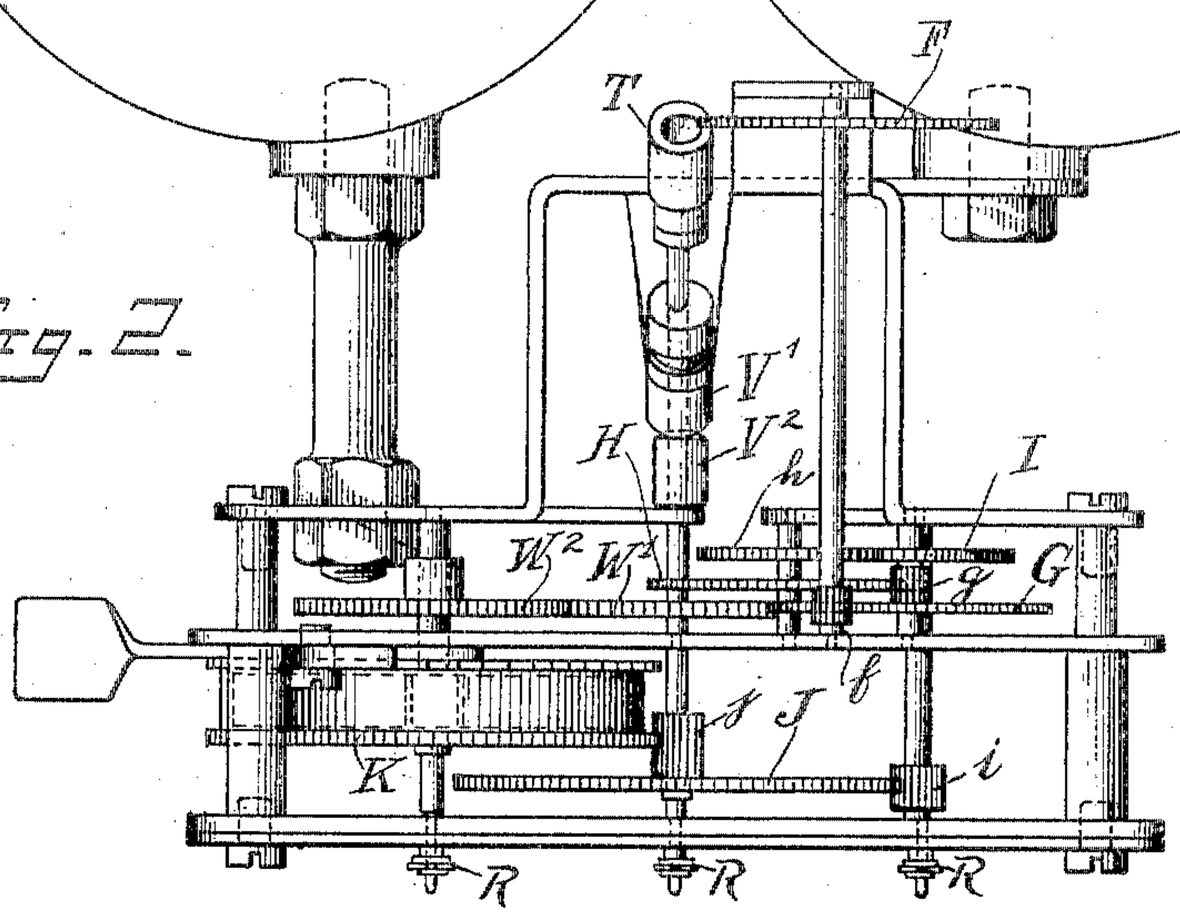
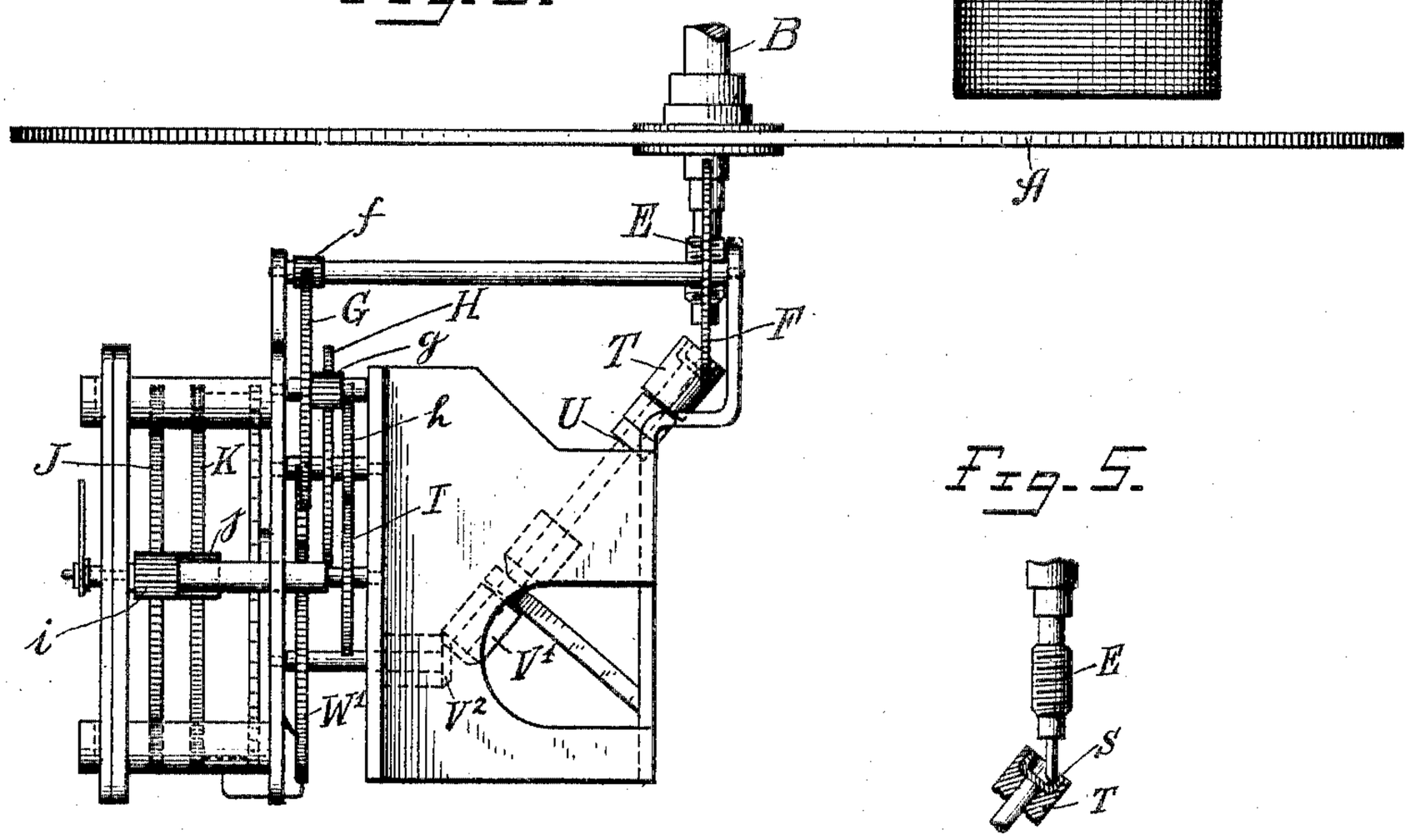


Fig. 3.



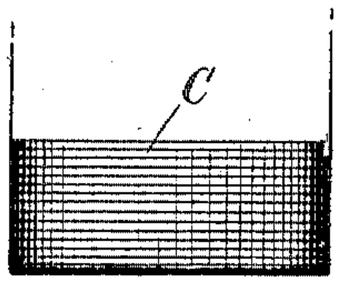


Fig. 5.

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No. 794,084. Patented July 4, 1905.

UNITED STATES PATENT OFFICE.

FREDERICK DARLINGTON, OF GREAT BARRINGTON, MASSACHUSETTS.

METER.

SPECIFICATION forming part of Letters Patent No. 794,084, dated July 4, 1905.

Application filed October 14, 1904. Serial No. 228,401.

To all whom it may concern:

Be it known that I, FREDERICK DARLINGTON, a citizen of the United States, residing at Great Barrington, in the county of Berkshire, State of Massachusetts, have invented certain new and useful Improvements in Meters, of which the following is a full, clear, and exact description.

My invention relates to meters in which a tally is kept of the number of revolutions of a main shaft or body and the consumption during any given period is computed therefrom, and has for its object to produce a meter in which the counting apparatus or register-train shall be operated by power supplied from another source than that which causes the main shaft to revolve, so that no power is transmitted from the main shaft to the registering-train, and also has for its object to reduce the friction of the main shaft on its bearing by continually presenting a new wearing-surface to the end of said shaft and automatically moving said wearing-surface by power from a separate source.

My improvement is capable of use in various kinds of meters and similar apparatus, and its use is not confined to induction wattmeters, such as hereinafter described.

While other sources of power may be employed, I prefer to use a spring similar to a clock-spring, which tends to cause the registering-train to move independently of the main shaft, and such an embodiment of my invention is described below, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of a meter embodying my invention. Fig. 2 is a plan view of the same. Fig. 3 is a side view with rear connecting parts removed so as to more clearly show the train. Fig. 4 is a detail of the spring-drum. Fig. 5 is a detail of the rotating bearing and lower end of shaft.

Referring to the drawings, which show my invention in connection with an induction wattmeter, A is a conducting-disk, preferably aluminium, mounted on the shaft B.

C and D represent diagrammatically the coarse-wire coil in series with the work-circuit and the fine-wire coil in shunt thereto.

E is a worm upon the shaft B, with which engages the worm-wheel F. This wheel is part of the train F *f* G *g* H *h* I *i* J *j*, which terminates in the wheel K. The wheel K has its shaft connected to the spring L, whose outer end is connected to the spring-drum M. This spring-drum is provided with ratchet-teeth N, with which a pawl O, mounted on the stationary frame, engages. A pivoted lever P carries another pawl Q, which also engages with said ratchet-teeth N, so that by moving the lever P up and down the spring L is wound up and when wound restrained by the pawl O. On the shafts of the wheels H I J indicating-pointers R are provided in the ordinary way. The spring L supplies the power for operating the registering-train, and the electric motive device is thereby entirely relieved of this work. The worm E simply allows the worm-wheel F to revolve under the action of the spring L and does not operate the worm-wheel or the counting apparatus, of which it forms a part.

The shaft B is supported by a revolving cup-shaped jewel S, which is carried in a setting T on staff U. Staff U is revolved by the action of bevel-gears V′ V². The gear V² is driven by the shaft to which the spring L is attached through the gears W′ W². The work of revolving the jewel S is therefore entirely removed from the electric motive device of the meter and performed by the power transmitted from the spring L. The revolution of the cup-shaped jewel results in continually presenting a new wearing-surface to the end of the shaft B.

The rewinding device permits the spring L to be rewound at any time; but the spring capacity should preferably be sufficient for service for a number of years. This capacity is obtainable through connecting the spring to the shaft of the low-speed pointer geared as I have shown.

What I claim is—

1. In a meter, the combination of a body rotated by the flow to be measured, a registering-train for recording the number of revolutions of said body, and a spring for supplying driving power to said registering-train, said rotating body being continuously engaged by said train and continuously restraining the

action of said spring and permitting said train to move only proportionally to the rotation of said body.

2. In a meter, the combination of a body rotated by the flow to be measured, a registering-train for recording the number of revolutions of said body, and a spring for supplying driving power to said registering-train, said rotating body having a worm with which a gear of said registering-train engages, said gear being kept in continuous engagement with said worm by the action of said spring.

3. In a meter, the combination of a body rotated by the flow to be measured, a registering-train for recording the number of revolutions of said body, a spring for supplying driving power to said registering-train, said train engaging said rotating body and said spring being thereby continuously restrained and means for rewinding said spring independently of the rotation of said body.

4. In a meter, the combination of a body rotated by the energy to be measured, a registering-train rotated by power from another source than said rotating body but controlled thereby, a movable bearing for the shaft of said rotating body and means for continuously moving said bearing, said means being actuated by power supplied from said external source.

5. In a meter, the combination of a body rotated by the energy to be measured, a registering-train geared to said body but rotated by power supplied from a spring connected to said train, said rotating body acting to control the movement of said registering-train, a movable bearing for the shaft of said body and means for continuously moving said bearing said means being actuated by power supplied by said spring.

Signed at Great Barrington, Massachusetts, this 12th day of October, 1904.

FREDERICK DARLINGTON.

Witnesses:

J. F. RAIFSTAUGER,

WILLIAM MCELHINNEY.