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No. 850,687.

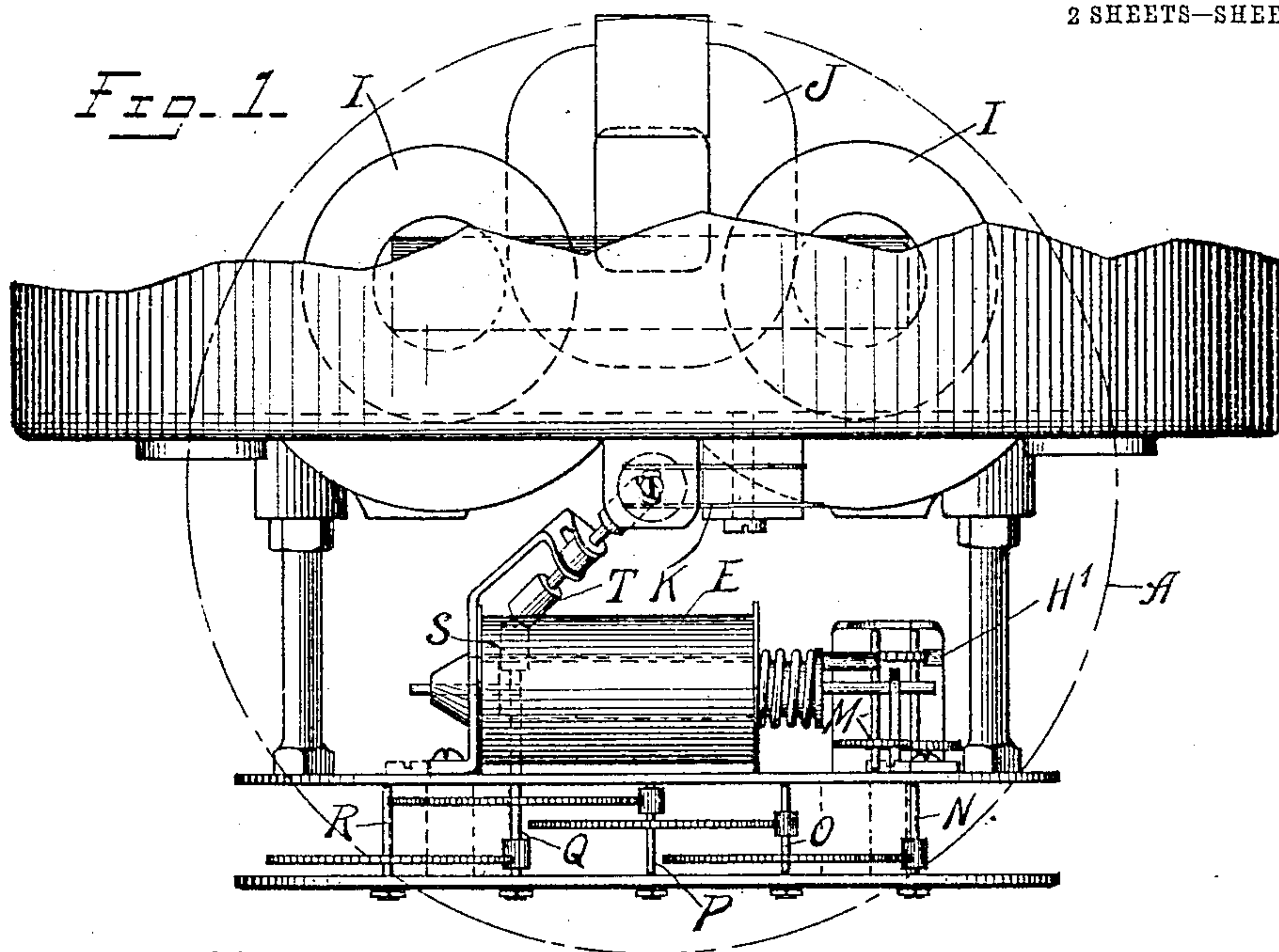
PATENTED APR. 16, 1907.

W. STANLEY.

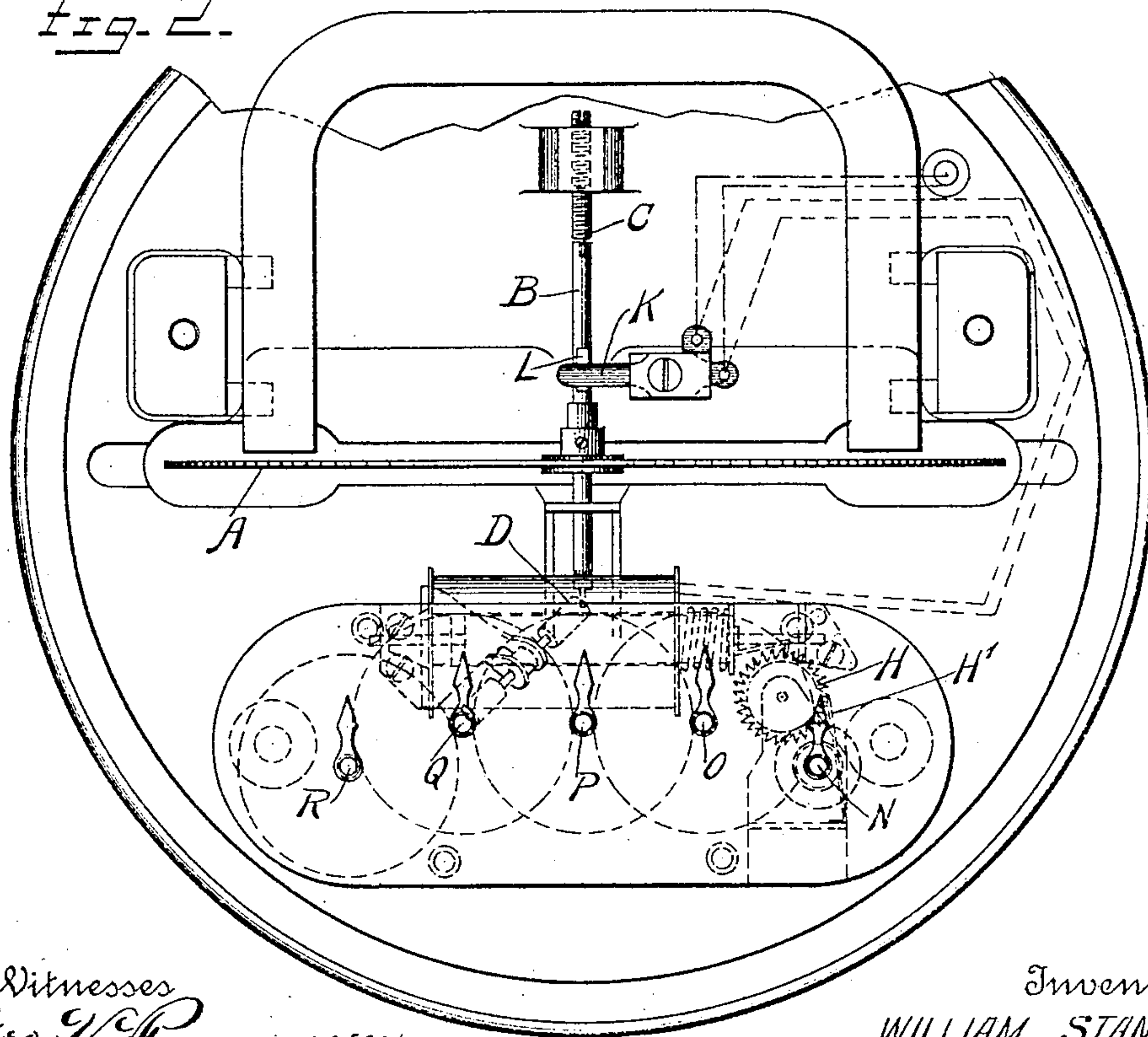
METER.

APPLICATION FILED NOV. 10, 1904.

2 SHEETS—SHEET 1.



*Fig. 2.*



Witnesses  
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2 SHEETS--SHEET 2.

Fig. 3.

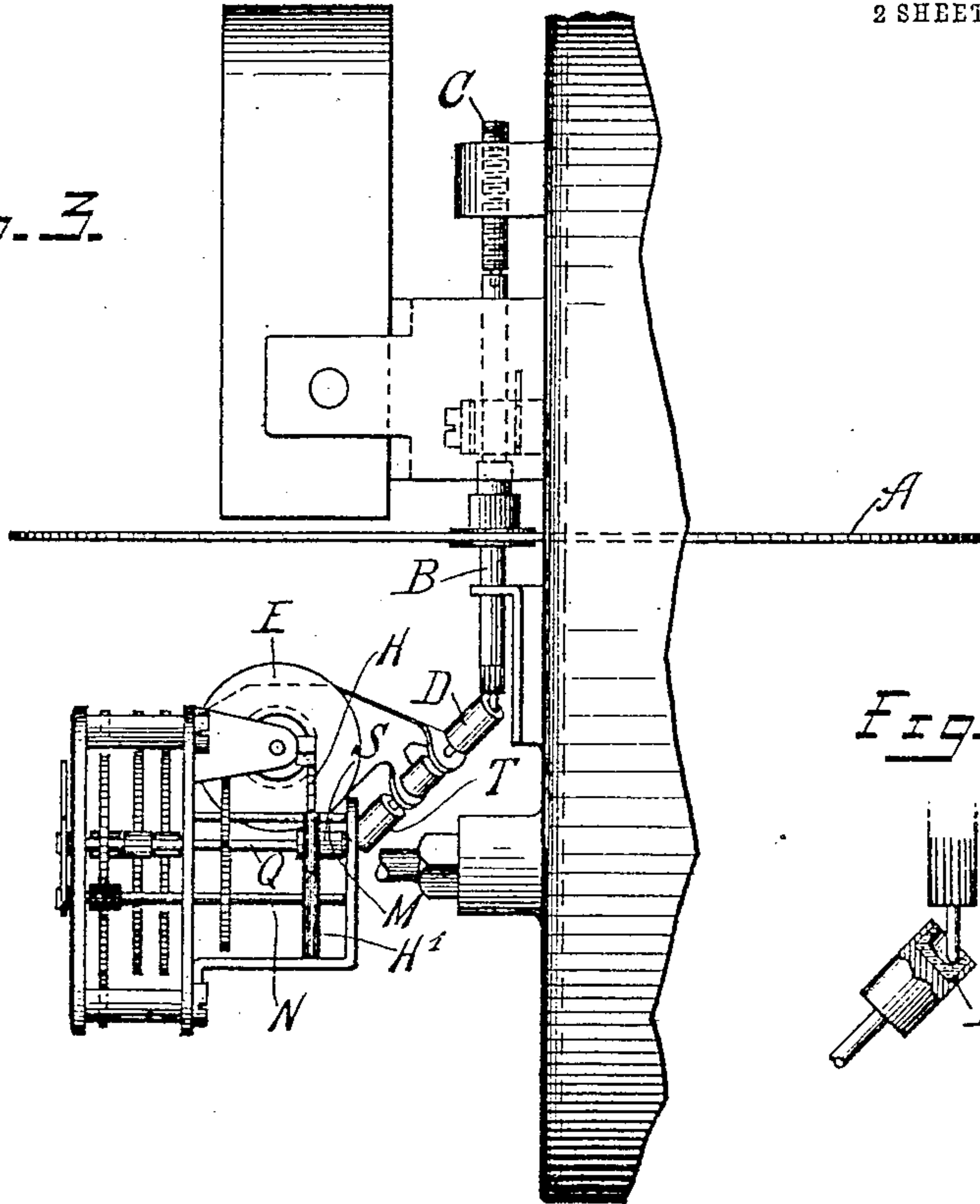


Fig. 5.

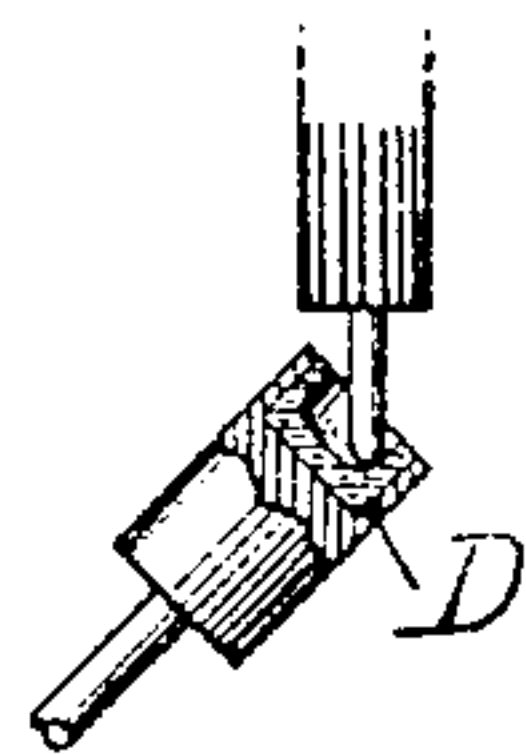
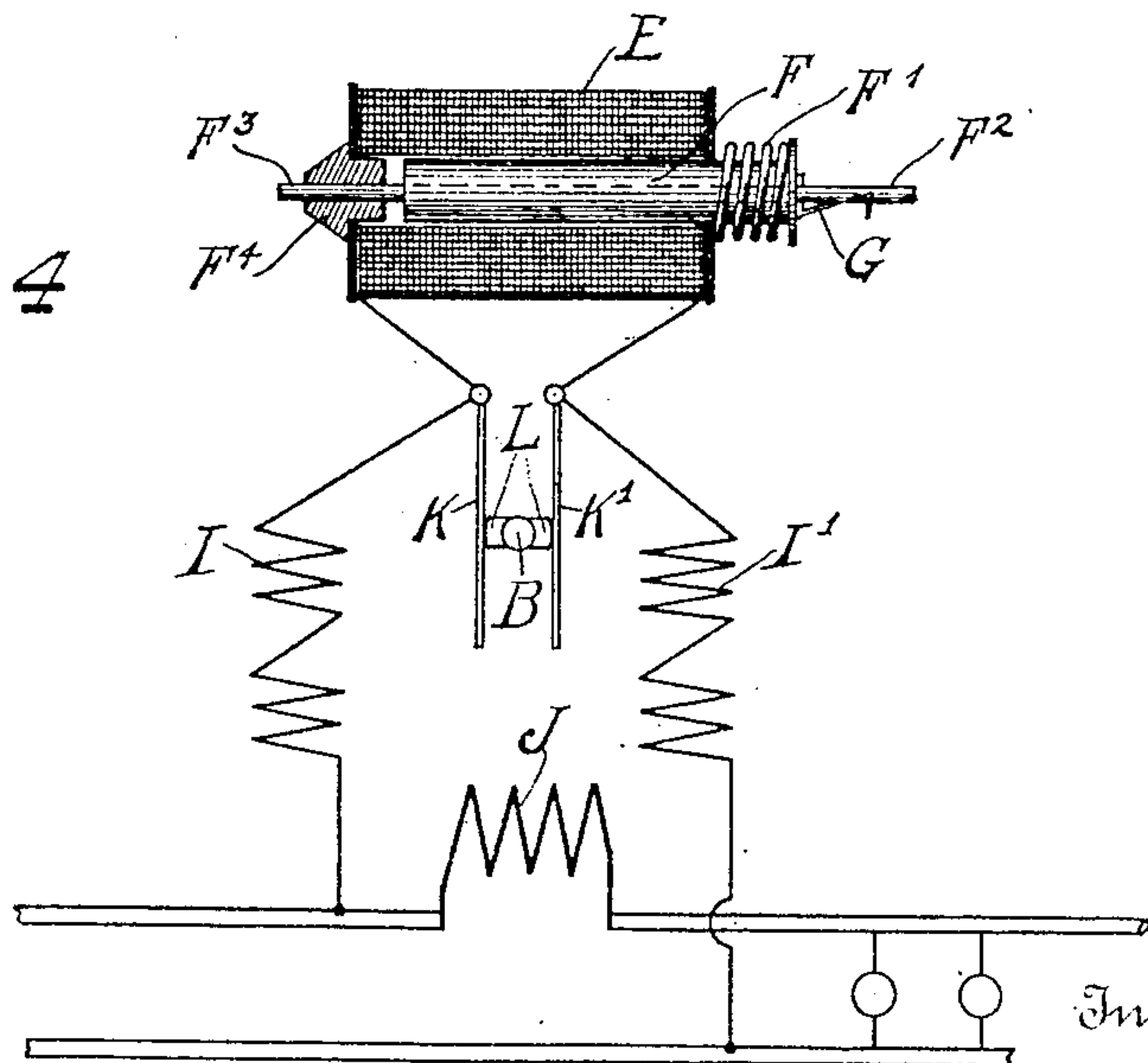


Fig. 4.



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# UNITED STATES PATENT OFFICE.

WILLIAM STANLEY, OF GREAT BARRINGTON, MASSACHUSETTS, ASSIGNOR  
TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

## METER.

No. 850,687.

Specification of Letters Patent.

Patented April 16, 1907.

Application filed November 10, 1904. Serial No. 232,123.

*To all whom it may concern:*

Be it known that I, WILLIAM STANLEY, a citizen of the United States, residing at Great Barrington, county of Berkshire, and 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 improvements in meters, and has for its object to relieve the meter-disk of the load imposed upon it by the registering-train, so that the motor device of the meter is no longer relied upon to transmit power to any extent whatsoever, but simply furnishes a revolving body the number of whose revolutions is counted by a registering device operated by power transmitted by other means. This results in more perfect registration and a higher degree of efficiency.

The following is a description of a meter embodying my invention, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the parts of a meter embodying my invention. Fig. 2 is a front elevation thereof. Fig. 3 is a side elevation. Fig. 4 is a diagram of circuits, showing the train-operating magnet in section; and Fig. 5 is a view of a detail.

Referring more particularly to the drawings, which show an alternating-current meter, A represents the meter-disk, mounted upon the shaft B, which has its upper end guided by the adjustable pivot C and its lower end supported by a revolving jewel-bearing D. The registering-train is operated by the independent electromagnetic device or solenoid E, having a movable iron core F, preferably laminated, to which is attached a spring-pawl G, which engages the teeth of the star-wheel H, whose shaft is geared to the first wheel of the registering-train. Surrounding the core F is a spring F', bearing against a flange carried by the core and also against the end of the solenoid and acting to withdraw the core slightly from the solenoid when the solenoid is deenergized. The core also carries two guide-pins F<sup>2</sup> F<sup>3</sup>, which are supported in suitable guides, so as to properly center the core. The left-hand end of the solenoid has within it a magnetic plug F<sup>4</sup>, which acts as the guide for the pin F<sup>3</sup> and also strengthens the action of the solenoid upon the core F. The solenoid E is included in the

shunt-circuit in series with the ordinary fine-wire shunt-coils I I'. The coil J is the ordinary coarse-wire coil in series with the lamps. At points between the coils I I' and the solenoid E are located two metallic brushes K K', which in certain positions of the shaft B are engaged by the cross-piece L, of conducting material, mounted thereon so as to short-circuit the solenoid E. From this it will be seen that as the shaft D revolves the cross-piece L makes and breaks contact with the brushes K K' twice during each revolution. The solenoid E is thus demagnetized and magnetized twice during each such revolution, with the result that the star-wheel H is actuated by the pawl G so as to revolve a distance of two teeth during each revolution of the disk. The star-wheel H is prevented from rotating in the wrong direction by the detent H'. Motion is communicated from the star-wheel H through the gear M on the shaft connected therewith to the registering-train, consisting of the gearing on the shafts N O P Q R, each one of which carries an indicating-pointer, as shown. The shaft Q is prolonged and has on its rearward end a bevel-gear S, which meshes with a bevel-gear T, carried by the shaft which carries the rotating jewel-holder D. The rotating jewel-holder also is thereby caused to rotate by the action of the solenoid E with its reciprocating core, so that the burden of revolving this is also removed from the revolving portion of the meter. The motor device of the meter is therefore entirely relieved from the burden of transmitting power for any purpose.

My invention admits of various modifications whereby other devices controlled by the rotating member of the motor device are caused to register the rotations of the disk without being operated thereby. The arrangement I have shown, however, constitutes a simple and efficient means for accomplishing this result and removes the difficulties heretofore experienced in electric meters having a rotating disk, particularly those encountered where the meter is used on very light loads.

What I claim is—

1. In a meter, the combination of energizing-coils connected in permanently-closed circuits, a body adapted to be rotated thereby continuously in the same direction, a registering-train, an independent electromag-



netic device located in a shunt-circuit and in series with a resistance and adapted when energized and deenergized to operate said train, and means cooperating with said body for periodically short-circuiting said electromagnetic device.

2. In a meter, the combination of shunt-energizing coils and series-energizing coils, a body adapted to be rotated thereby continuously in the same direction, a registering-train, an independent electromagnetic device in series with said shunt-coils and operating said train, and means cooperating with said body for periodically short-circuiting said electromagnetic device.

3. In a meter, the combination of shunt-energizing coils and series-energizing coils, a body adapted to be rotated thereby, a registering-train, an independent electromagnetic device operating said train consisting of a solenoid having a reciprocating core and a pawl engaging said train, said solenoid being

in series with said shunt-coils, and means cooperating with said body for short-circuiting said solenoid so as to energize and deenergize the same.

4. In a meter, the combination of shunt-energizing coils and series-energizing coils, a body adapted to be rotated thereby, a registering-train, an independent electromagnet device operating said train and consisting of a solenoid having a reciprocating core and a pawl engaging said train, means cooperating with said body for controlling the circuit of said electromagnet device so as to energize and deenergize the same, and a revolving bearing geared to said train and actuated by said solenoid.

Signed at Great Barrington, Massachusetts, this 5th day of November, 1904.

WILLIAM STANLEY.

Witnesses:

HERBERT M. SMITH,  
EDWARD H. CLARK.