

(No Model.)

O. ERICSSON.
ELECTRIC METER.

No. 475,759.

Patented May 31, 1892.

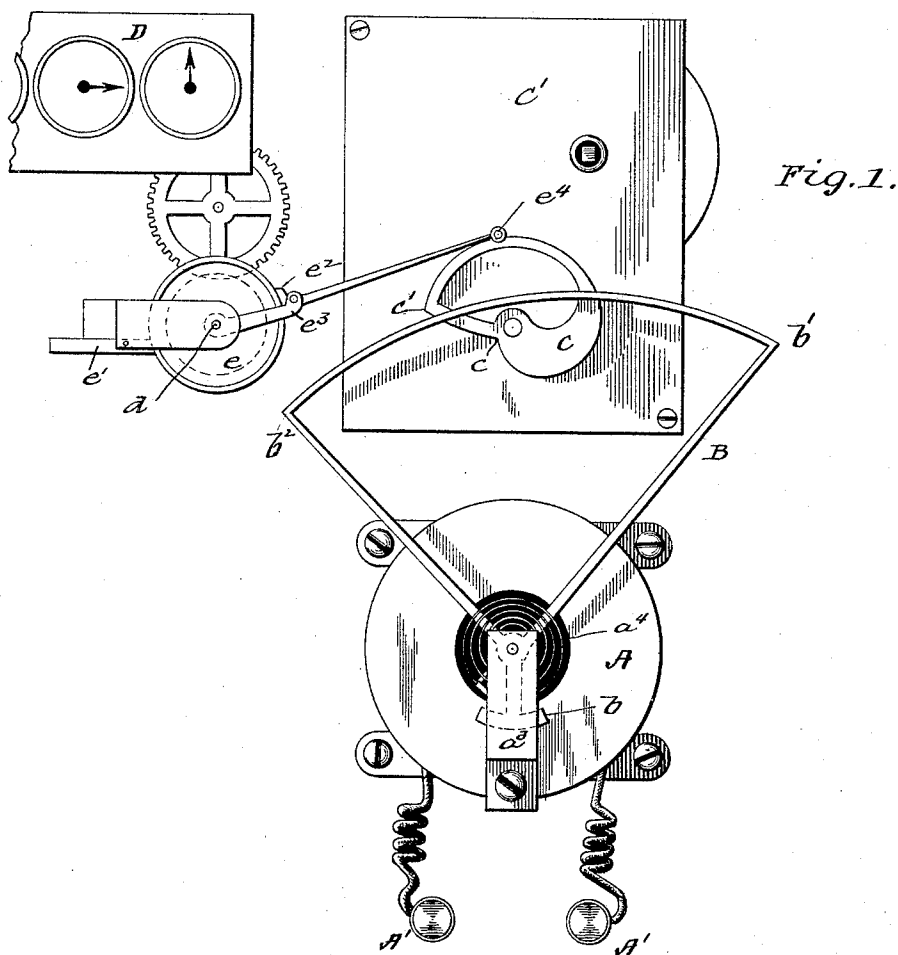
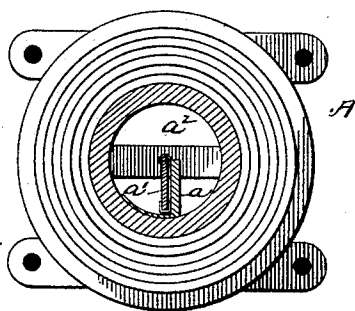


Fig. 1.



WITNESSES:

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ELECTRIC METER.

SPECIFICATION forming part of Letters Patent No. 475,759, dated May 31, 1892.

Application filed July 23, 1891. Serial No. 400,438. (No model.)

To all whom it may concern:

Be it known that I, OSCAR ERICSSON, a citizen of the United States, residing in Sioux Falls, in the county of Minnehaha and State of South Dakota, have invented certain new and useful Improvements in Electric Meters, of which the following is a specification.

This invention relates to electric meters, the object being to provide a meter simple in its construction and action and in which the element of friction in the working parts and amount of energy necessary to operate the apparatus is reduced to the minimum.

The invention consists in the details of construction, which will hereinafter be described and claimed.

Referring to the accompanying drawings, Figure 1 represents a front elevation of my improved meter, some of the parts being shown conventionally. Fig. 2 is a simple section of the solenoid through which the current to be measured flows.

Referring to the drawings by letter, A represents a solenoid-magnet provided with an interior pole-piece *a* and a rotating armature *a'*. The armature is mounted concentrically upon a shaft having its bearings in a strip *a²* and a bracket *a³*. The terminals of the coil are connected to binding-posts *A'*, which are in the circuit carrying the current to be measured.

B is a frame or plate forming the sector of a circle the center of which is eccentric to the armature *a'*. The sector, however, is mounted rigidly upon the shaft of the armature and is rotated thereby. The weight of the sector is very light, and is preferably made of aluminium. It is counterbalanced upon the shaft by a weight *b*. A light coiled spring *a⁴* is attached at one end to the armature-shaft and at the other end to the bracket *a³* or to some other fixed point and exerts its power to hold the armature against the pole-piece *a*. When in this position, the point *b'* of the sector is located about in a vertical line above the shaft.

C represents a cam rotated at a constant speed by a clock-work *C'* or other suitable motor. The cam occupies a plane parallel to the plane of the sector B, and its periphery

extends from a point *c* close to its shaft to a point *c'* at the greatest distance from the shaft. From the point *c'* to the point *c* there is a sudden fall.

D is a dial-recording mechanism geared to a shaft *d*. The latter carries a smooth wheel *e*, upon the periphery of which bears a pawl *e'*, which prevents movement in one direction. *e²* is another pawl pivoted to a bracket *e³* swinging upon the shaft *d*. The pawl bears upon the periphery of wheel *e*, and when forced in an upward direction engages with the wheel and carries the same with it. This pawl occupies a plane between the plane of the sector B and the cam C, and extends into a position to engage with the peripheries of the sector and the cam, a cross-pin *e⁴* being provided at the extreme end of the pawl, the ends of which engage, respectively, with the said sector and cam.

The operation of the meter is as follows: When no current is flowing through the solenoid, the armature occupies the position illustrated in Fig. 2 and the point *b'* is holding the lever *e²* in its highest position just clear of the longest radius of the cam C. If the cam is rotating, it therefore has no effect upon the recording mechanism. Suppose, now, that the current is turned on, the sector B is immediately thrown to the right, allowing the pawl *e²* to fall to a lower position. If the current is strong enough, the sector will be thrown to the extreme right until the point *b²* is just below the pin *e⁴*, in which position the said pin will be in line with the shortest diameter of the cam C. Each time the cam goes around it picks up the pin *e⁴* from whatever position it may be placed in by the sector B and carries it to the end of its upward stroke, the movement being imparted to the wheel *e* and finally to the recording mechanism *d*. The stronger the current in the solenoid A the farther to the right will the sector be and the longer will be the stroke of the pawl *e²*. The cam may be caused to make a complete revolution once a minute, which will be often enough to record the condition of the circuit; but this may be varied.

I am aware that it is not new to operate a counting mechanism by the combined or re-

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sultant movements of two elements, one of which is controlled by the current measured and the other by a constant motor, and hence I confine myself to the exact mechanism specified in the following claims.

Having thus described my invention, I claim—

1. The combination, with a recording mechanism, of a lever or pawl through which motion is transmitted to the same, a continuously-rotating cam adapted to move said lever, and another cam or sector controlled by the current to be measured, regulating the distance which said cam moves said lever, substantially as described.

2. The combination, with a recording mechanism and a wheel, as *e*, in gear therewith, of a pawl bearing upon said wheel, a continuously-rotated cam imparting a stroke to said pawl,

an eccentric sector determining the length of stroke imparted to the pawl by the cam, and an electro-magnetic apparatus controlling the sector, substantially as described.

3. In an electric meter, the combination, with a recording mechanism and a lever through which motion is transmitted to the same, of two cams, one driven by a constant motor and the other by the current measured, and one imparting the effective movement to the lever and the other regulating the extent of such movement, as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

OSCAR ERICSSON.

Witnesses:

SILAS E. BLAUVELT,
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