No. 887,918. PATENTED MAY 19, 1908.

D. C. CAÑIZARES.

AUTOMATIC CUT-OFF FOR ELECTRIC CURRENTS.

APPLICATION FILED JUNE 26, 1905.

FIG. 1.

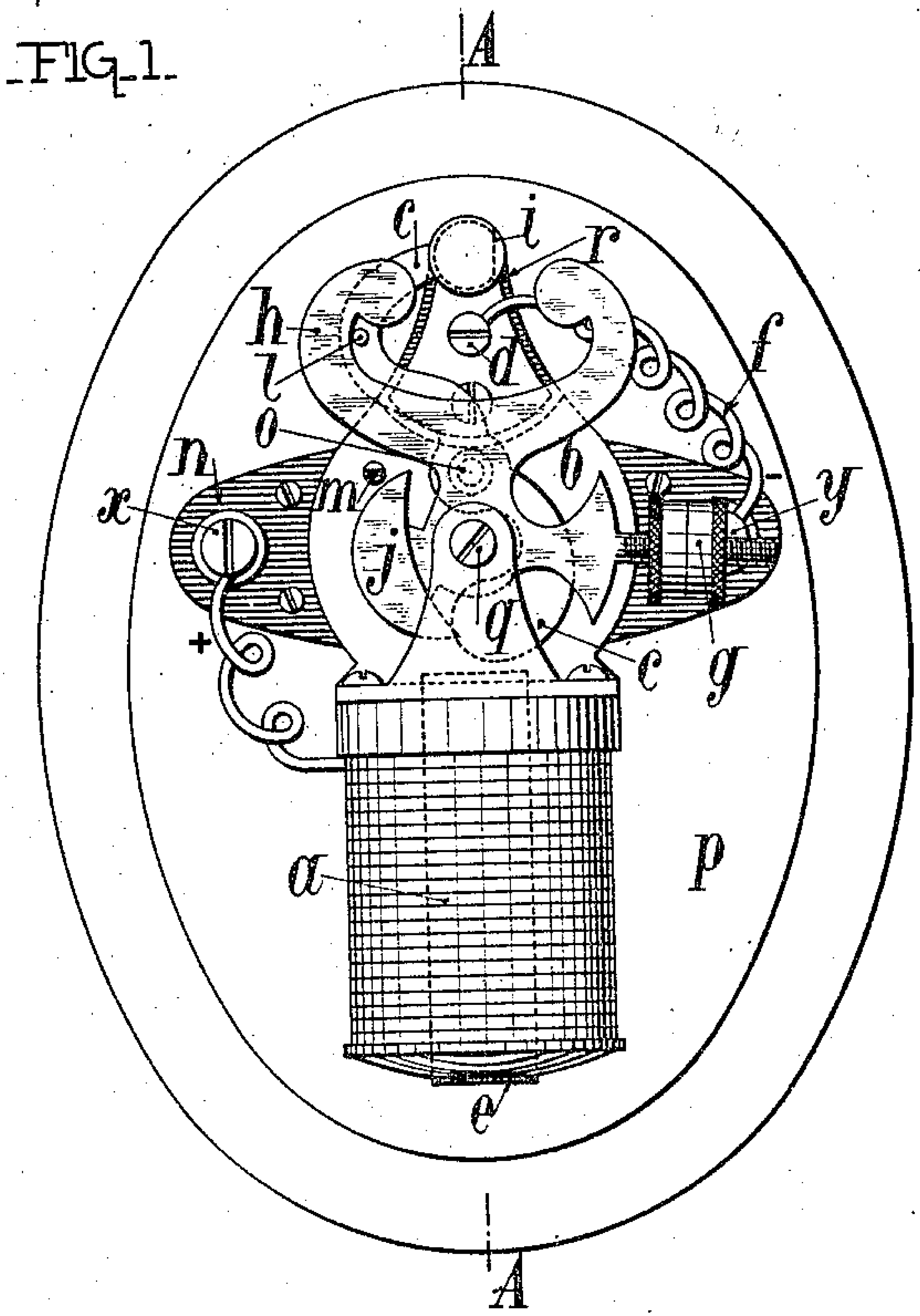


FIG. 2.

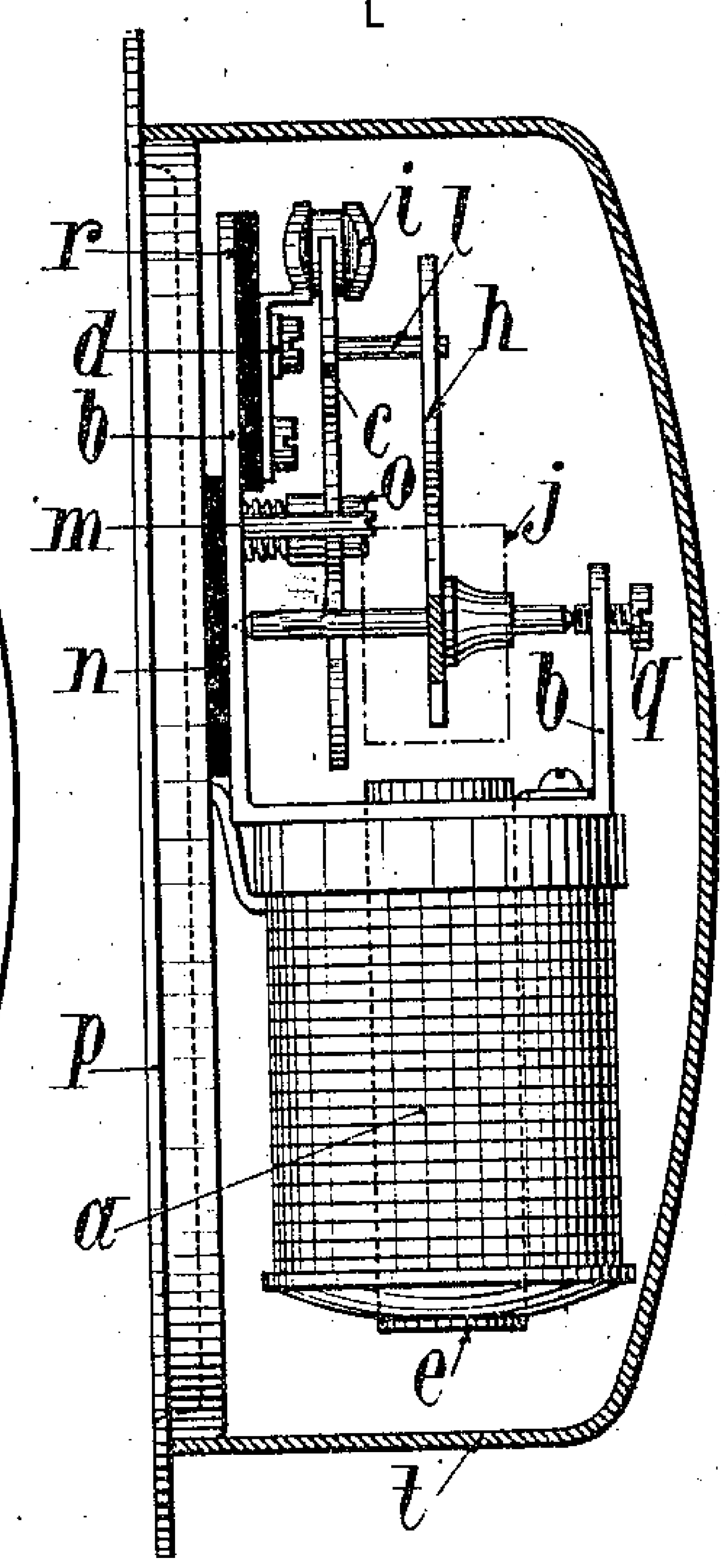


FIG. 3.

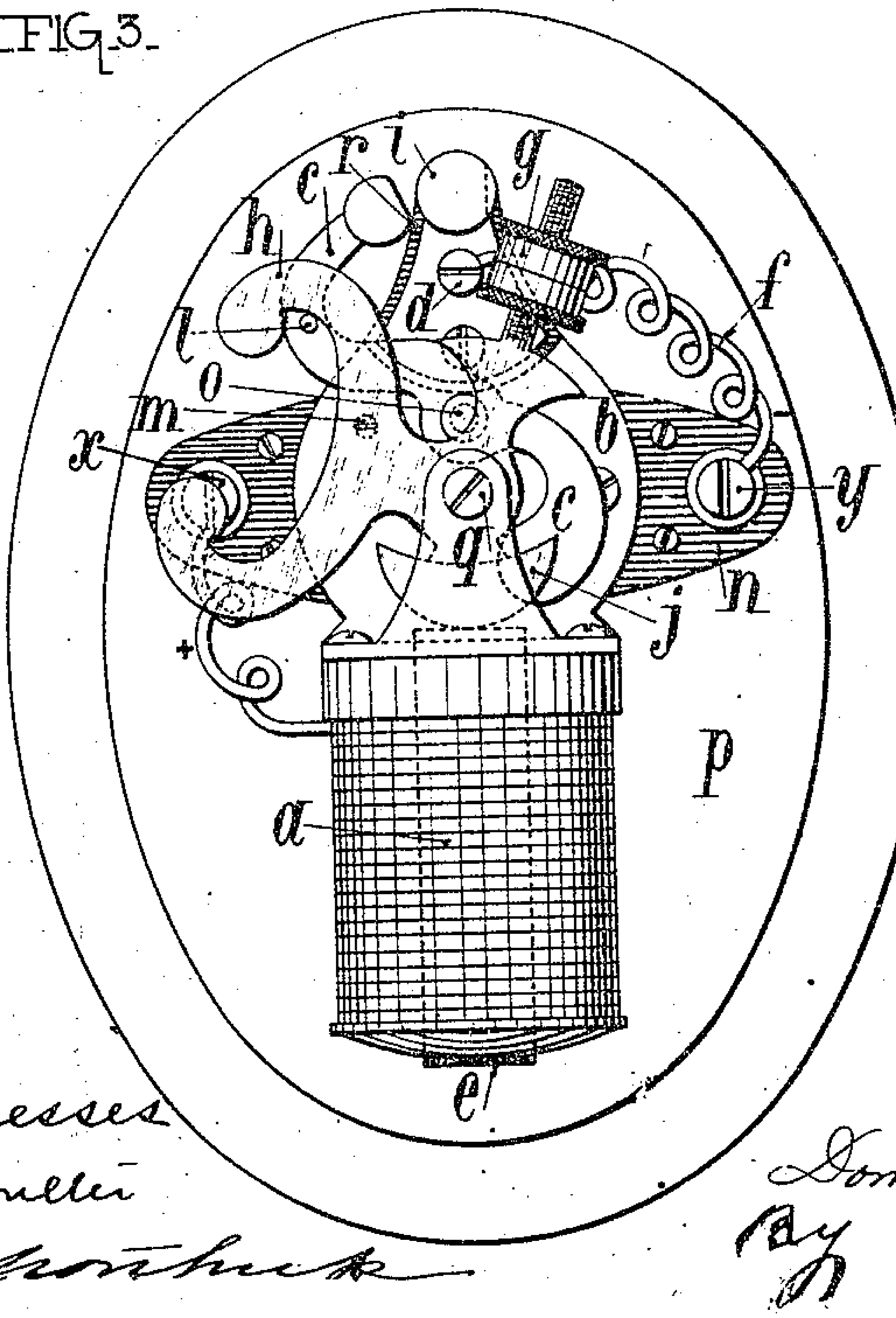
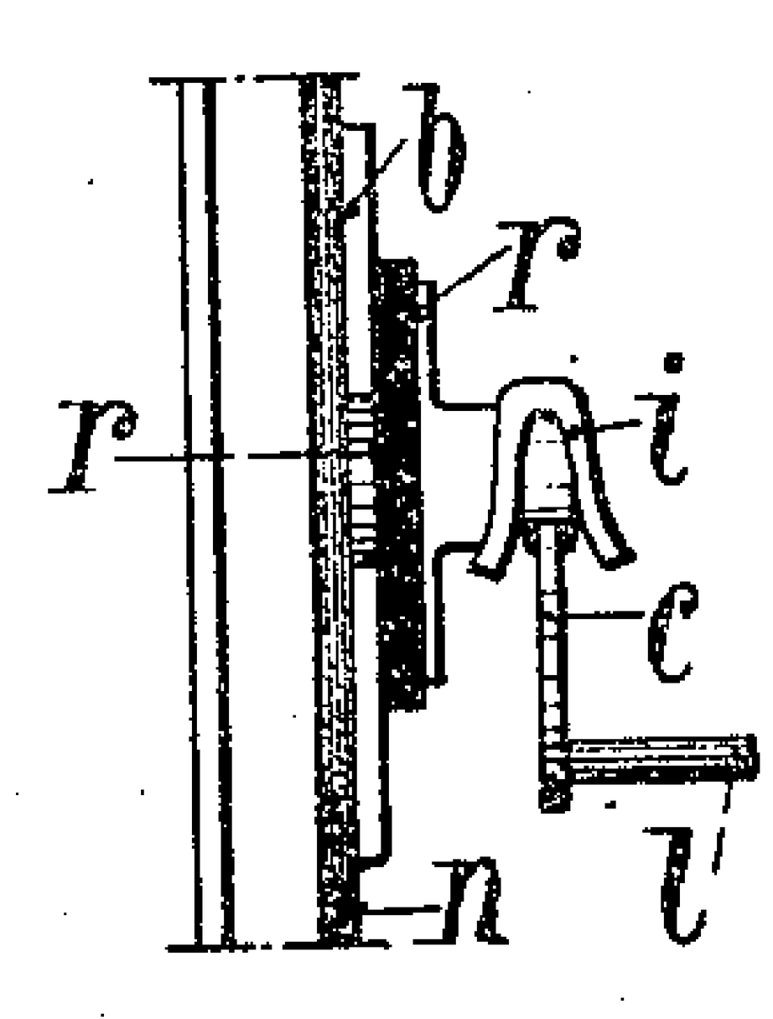


FIG. 4.



Witnesses

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[illegible]

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UNITED STATES PATENT OFFICE.

DOMINGO CERVERA CAÑIZARES, OF PARIS, FRANCE.

AUTOMATIC CUT-OFF FOR ELECTRIC CURRENTS.

No. 887,918. Specification of Letters Patent. Patented May 19, 1908.

Application filed June 26, 1906. Serial No. 267,087.

To all whom it may concern:

Be it known that I, DOMINGO CERVERA CAÑIZARES, a subject of the King of Spain, residing at Paris, in the Republic of France, have invented a certain new and useful Automatic Cut-Off for Electric Currents, of which the following is a specification.

The apparatus according to this invention is intended to prevent electric current from exceeding a predetermined maximum, that is to say, as soon as the current reaches or exceeds that maximum, the apparatus automatically cuts off the current.

The apparatus is chiefly intended to be used by subscribers supplied with current from electric stations and only having a right to a limited amount of light or to a motive power not exceeding a given horse power. It is intended to be installed at each subscriber's by the company which supplies the current by contract. It can also be used wherever it is desired to limit the intensity of the electric current.

A construction of the automatic cut-off according to this invention is illustrated, by way of example, in the accompanying drawing, in which:

Figure 1 is a front view of the apparatus during the transmission of current, that is to say, in its ordinary working position; Fig. 2 is a section on the line A—A of Fig. 1; Fig. 3 shows the apparatus at the moment when the current is cut-off, owing to the supply having exceeded the maximum, and Fig. 4 shows part of the apparatus in side elevation.

This cut-off comprises a vertical plate or support *p* to which is secured a bracket *b* insulated from the plate *p* by an ebonite or other plate *n*. On the bracket is mounted a coil *a* having a movable core *e*. To the bracket a switch lever *c* mounted on a stud or spindle *o* is pivoted a bifurcated balance beam *h*, provided with a balance weight *j* having the shape of a cylindrical sector and a movable and adjustable weight *g*, is mounted on a spindle *q* pivoted in the bracket *b*. The periphery of the part *j* is so situated relatively to the spindle *q* that when a current of normal intensity passes through the coil, and the part *j* is in the position shown in Fig. 1, one of its ends is held by the counter-weight *g* away from the core *e* while on the contrary, the central portion of the said part *j* has the tendency of coming nearer to the core *e* when a strong current passes through the electro-magnet, as shown in Fig. 3. The forked part *i* of the switch is insulated from the bracket *b* by an ebonite plate *r* and carries a terminal *d* connected to the terminal *y* by a wire *f*. The whole is inclosed in a casing *t* which may be sealed.

The cut-off is inserted into the circuit of an electric installation, in series with the lamps or with the motor to which the current is to be supplied by means of the terminals *x* and *y*. The current enters through the terminal *x* (Fig. 1) passes through the coil *a*, the bracket *b*, the switch lever *c*, switch contact *i*, the terminal *d*, the wire *f* and passes out through the terminal *y*. It attracts in its passage the core *e* which acquires a greater or less attractive power according to the intensity of the current passing through the coil *a*.

If the current is to be limited say to an extent sufficient to give 20 candle power, the apparatus is set by means of the two nuts *g*, by adjusting them to a greater or less distance from the center of oscillation of the lever *h*, until the balance weight armature *j* of the said lever is no longer attracted by the core *e* of the electro-magnet when current sufficient for that candle power passes through the apparatus If this limit be exceeded, that is to say, for instance, if one lamp too many be thrown into the circuit, the attractive force of the core *e* of the electro-magnet will increase to such an extent that it will attract the armature *j* on the lever *h* which will then swing leaving its normal position, shown in Fig. 1 and its right arm will suddenly strike the switch lever *c* by means of the pin *l* and force the said switch lever against the stop *m* quickly separating its upper end from the fork *i* whereby the current will be cut off. The electro-magnet becomes at once de-magnetized and the lever *h* returns, under the influence of the balance-weight *g*, into its original position (Fig. 1), and its left arm raises the switch lever *c* so that the top of the latter again engages with the fork *i*, thus allowing the current to pass again.

The automatic operation of swinging the balance lever *h* and consequently the switch lever *c*, will be repeated so long as there is any excess of current. But as soon as this excess disappears, the parts will immedi-

ately resume and keep their normal position under the influence of the balance weight *g*.

What I claim as my invention and desire to secure by Letters Patent is:—

1. An automatic electric cut-out comprising a supporting plate, a bracket mounted on and insulated from said plate, an electromagnet supported by said bracket, a balance lever pivoted in said bracket, an adjustable counterweight, a segment-shaped armature on said balance lever and a switch lever operated by said balance lever, substantially as set forth.

2. In an automatic electric cut-out of the kind described, the combination of a swinging armature, a pivoted plate, segment-shaped armature on one side of said plate, an adjustable balance weight on the other side of said plate, and fork-shaped switch-contact operating arms intermediate the armature and balance weight, substantially as set forth.

3. In an automatic cut-out of the kind described a swinging armature and switch contact operating device consisting of a pivoted plate, provided with a segment-shaped armature on one side and an adjustable balance weight on the other side and fork-shaped switch-contact operating arms intermediate the armature and balance weight, a switch contact plate, and a pin mounted thereon and adapted to engage the fork-shaped arms substantially as set forth.

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

DOMINGO CERVERA CAÑIZARES.

Witnesses:

HANSON C. COXE,

GEORGES BONREUIL.