

J. SACHS.

AUTOMATIC ELECTRIC CIRCUIT CONTROLLER.

(Application filed Oct. 5, 1900.)

(No Model.)

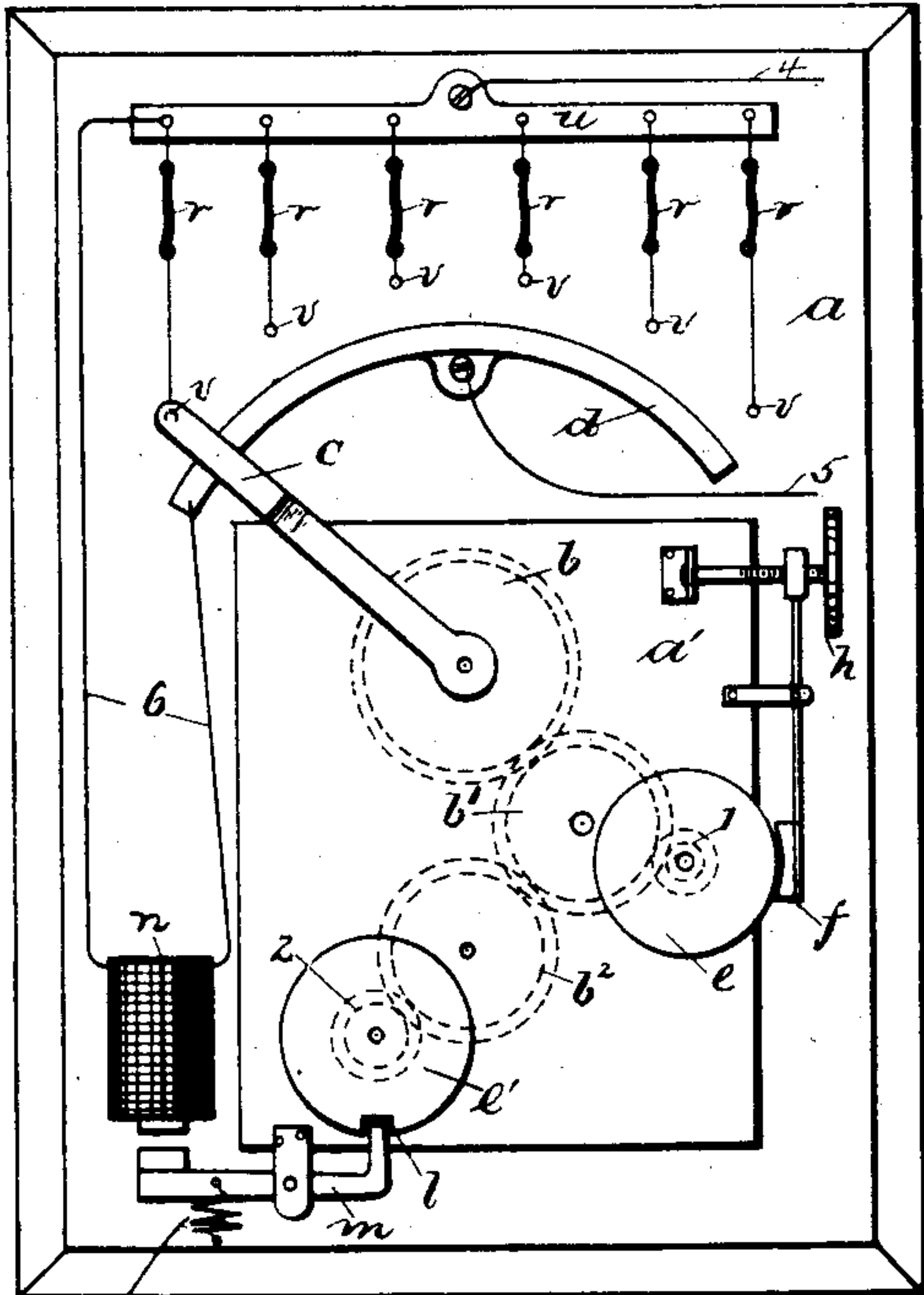
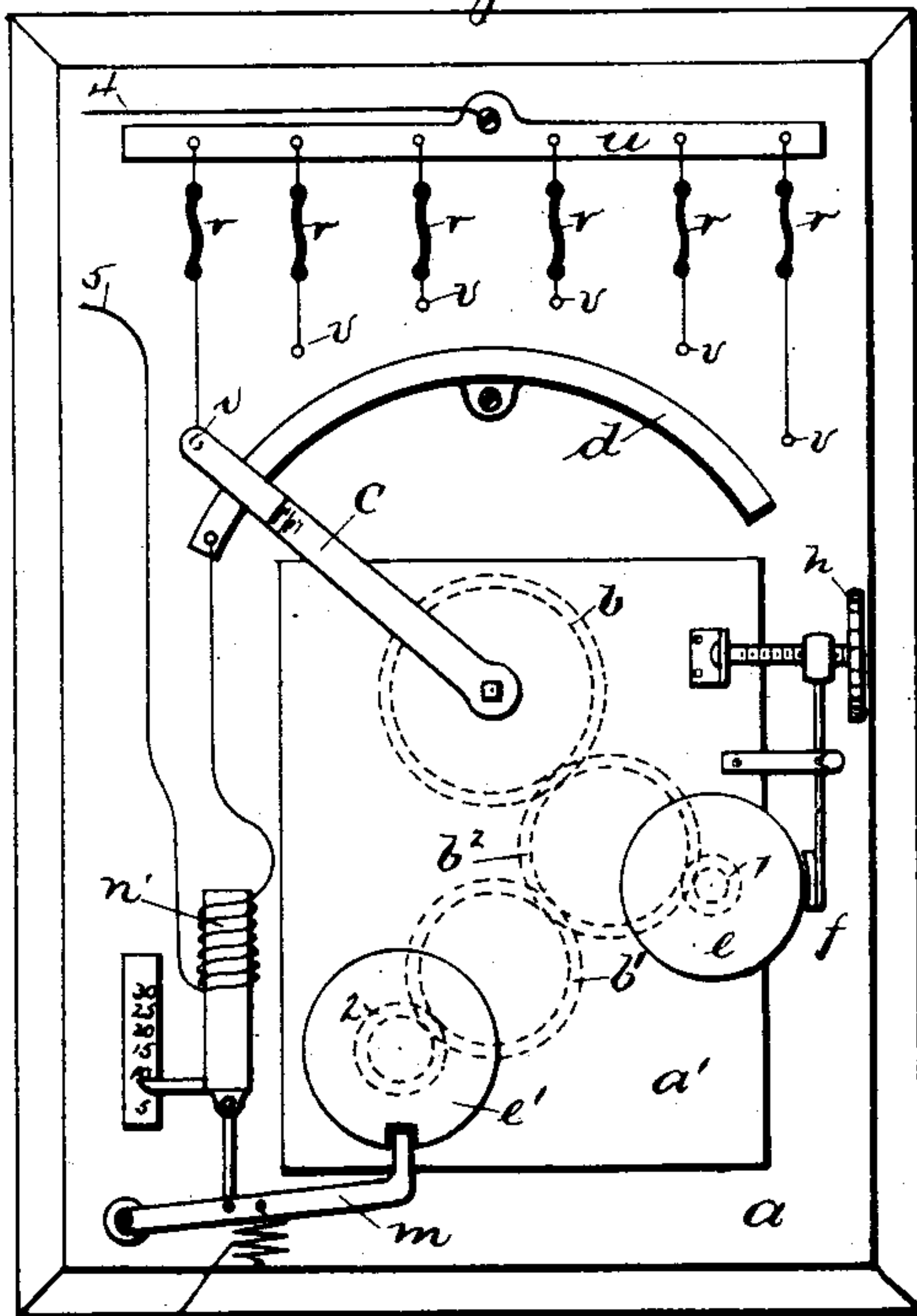


Fig. 1.

Fig. 2.



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JOSEPH SACHS, OF HARTFORD, CONNECTICUT.

AUTOMATIC ELECTRIC-CIRCUIT CONTROLLER.

SPECIFICATION forming part of Letters Patent No. 711,790, dated October 21, 1902.

Application filed October 5, 1900. Serial No. 32,069. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH SACHS, a citizen of the United States, residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Improvement in Automatic Electric-Circuit Controllers, of which the following is a specification.

The object of my present invention is to provide an automatic electric-circuit controller wherein after the circuit has been broken by an excess current blowing a fuse or otherwise opening the circuit said circuit is remade automatically in an appreciable period of time.

In my present invention I provide an automatic electric-circuit controller with means for performing progressive and successive circuit-closing operations, whereby after the circuit is opened it is closed again in an appreciable period of time, and I provide means for adjustably varying the time periods, which devices are hereinafter more particularly set forth.

In the drawings, Figures 1 and 2 represent by diagrammatic elevations forms of my invention.

Referring to Fig. 1, *a* represents the base of the controller-block. *a'* is a spring-motor, in which *b* represents the spring-barrel, actuating the wheels *e* and *e'* by means of the gears *b'* and *b''* and pinions 1 and 2. The regulator *f* bears frictionally upon the periphery of the wheel *e*, the pressure thereon, and consequently the speed of the motor, being regulated by the thumb-screw *h*. The periphery of the wheel *e'* is notched at *l*. The bus-bars *u* and *d*, connected to the base, have connected to them the lead-wires 4 and 5. Adjacent to the bar *u* are arranged a series of contact-studs *v*. Each one of these contact-studs *v* is connected to the bar *u* by a fuse *r* of any suitable character. The arm *c* is carried by the key-stem of the motor-spring and is of such length as to extend over and bear upon the bar *d* and at the same time make contact with one at a time of the studs *v*. The electromagnet *n* is shunted across the bars *u* and *d* by means of the wires 6. The pivoted lever *m* carries at one end the armature of the magnet *n* and at the other is provided with a hook to engage the notch *l* in the periphery

of the wheel *e'*. With the controller set as in Fig. 1 and assuming that 4 is the + lead it is evident that the path of the current is from lead 4 through bar *u*, fuse *r*, stud *v* to bar *d* and lead 5 by the way of the arm *c*, a portion of the current being shunted through electromagnet *n*. The resistance of the coil of magnet *n* is preferably so high, however, that this shunted current is almost inappreciable and will not energize the magnet *n* sufficiently to attract the armature. When the fuse is blown, the whole current passes from the bar *u* by wire 6 to and through the electromagnet *n*, magnetizing the same and causing it to attract the armature, whereby the hook at the other end of lever *m* is drawn out of the notch *l*. The wheel *e'* is thus released and the spring-motor set in operation. The motor is so geared that for one complete revolution of the wheel *e'* the end of the arm *c* is moved from one contact-stud *v* to the next. It is evident that where the arm *c* comes in contact with the second stud the broken circuit is remade, passing through the second fuse, and the armature is released, permitting the hooked end of lever *m* to be drawn into the notch *l* of the wheel *e'* by means of the springs *s* and the motor stopped. By adjusting the pressure of regulator *f* on the wheel *e* the period between breaking and remaking the circuit may be frictionally regulated, and with any given adjustment said period is always constant.

In Fig. 2 is shown a bar and coil *n'*, practically an ammeter in series with the bus-bars *u* and *d* and used instead of the magnet *n* shown in Fig. 1. Any excess current sufficient to blow a fuse will release the wheel *e'*, acting through the bar and coil *n'* and lever *m*. When *e'* has made a revolution, the arm *c* has made contact with the next stud, the circuit is remade, and the motor stopped by the hook on the bar *m* engaging the notch in the periphery of wheel *e'*.

It will be understood that I do not limit myself to these forms of the devices, as there are many for accomplishing the same result. Any form of fuse may be used, and their current-carrying capacity may be alike or may be varied either one way or the other.

This device is especially adapted in connection with resident and store circuits to pre-

vent the surreptitious addition of further lights where the consumer contracts and pays for a given number of lights, because with my improvement where the given number of lights is exceeded the circuit is broken at the automatic current cut-off and is remade after an appreciable period when the lights again burn up to the given number and are again cut where that number is exceeded.

10 I claim as my invention—

1. In an automatic electric-circuit controller, the combination with a base, of a plurality of fuses, an arm adapted to bear successively upon the terminals of said fuses to complete the circuit, mechanical devices released electrically by the blowing of a fuse whereby the said arm is set in motion, and said motion is stopped when the said arm makes contact with the next fuse in an appreciable period, and means for regulating the said period, substantially as set forth.

2. In an automatic electric-circuit controller, the combination with a base, of a plurality of fuses, a motor, an arm actuated by said motor and bearing successively upon the terminals of said fuses, and adjustable devices acting to control the speed of movement of said arm, electrical connections and means whereby said motor is started by the blowing of a fuse and is stopped by said arm closing the circuit again through the next fuse in an appreciable period, substantially as set forth.

3. In an automatic electric-circuit controller, the combination with a base, of a plurality of fuses and means for electrically connecting the same, an arm adapted to bear successively on the terminals of said fuses to complete the circuit, mechanical devices released electrically by the blowing of a fuse whereby

said arm is set in motion and said motion is stopped when said arm makes contact with the next fuse in an appreciable period, and means for regulating said period, substantially as set forth.

4. In an automatic electric-circuit controller, the combination with a base, of a plurality of fuses and means for electrically connecting the same at one end to a common contact, an arm adapted to bear successively on the other terminals of said fuses to complete the circuit, mechanical devices released electrically by the blowing of a fuse whereby said arm is set in motion and said motion is stopped when said arm comes in contact with the terminal of the next fuse in an appreciable period, and means for regulating said period, substantially as set forth.

5. In an automatic electric-circuit controller the combination with a base, of a plurality of fuses and means for electrically connecting the same at one end to a common contact, a motor, an arm actuated by said motor and bearing successively upon the opposite terminals of said fuses, and adjustable devices acting to control the speed of movement of said arm, electrical connections and means whereby said motor is started by the blowing of a fuse and is stopped by said arm closing the circuit again through the next fuse in an appreciable period, substantially as described.

Signed by me this 25th day of September, 1900.

JOSEPH SACHS.

Witnesses:

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BERTHA M. ALLEN.