

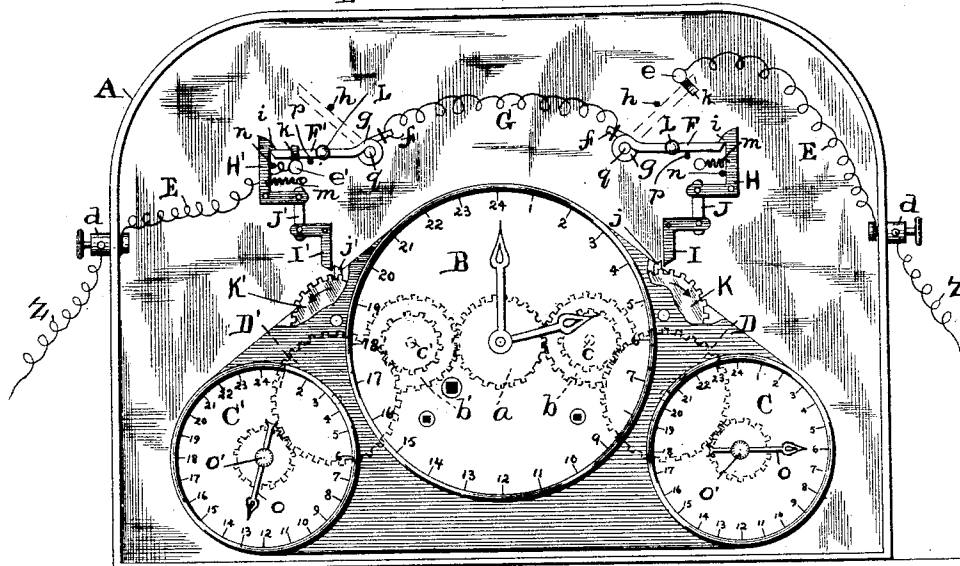
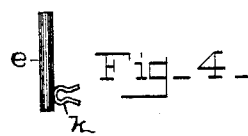
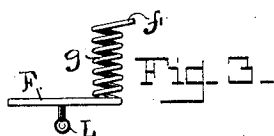
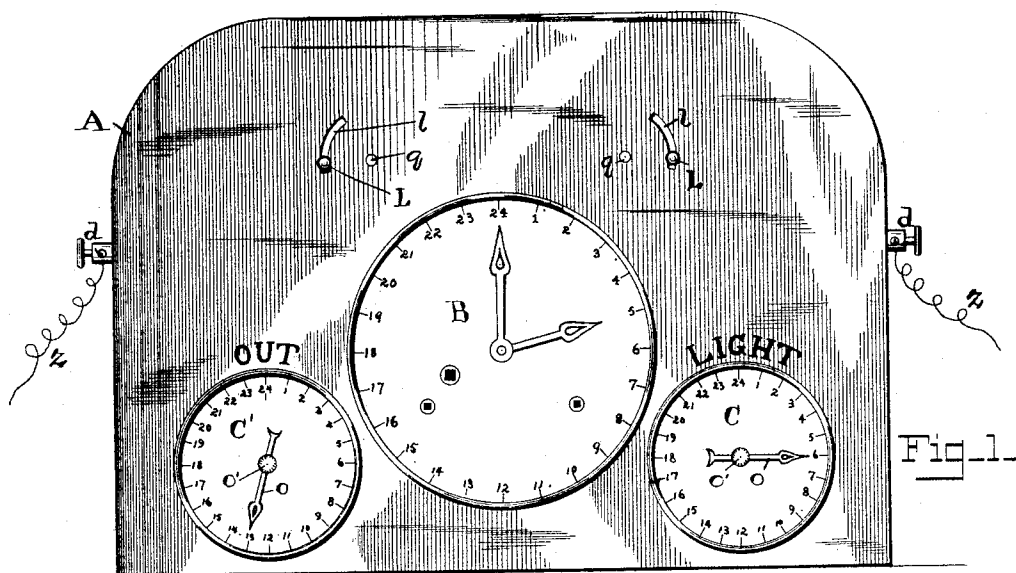
(No Model.)

J. H. CAUGHY.

AUTOMATIC ELECTRIC LAMP LIGHTER AND EXTINGUISHER.

No. 472,494.

Patented Apr. 5, 1892.



Witnesses:

Otto H. Ehlers.

Frank P. Davis

Fig. 2.

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By

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Attorney.

UNITED STATES PATENT OFFICE.

JOHN HENRY CAUGHY, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF TO FRANK J. CAUGHY, OF SAME PLACE.

AUTOMATIC ELECTRIC-LAMP LIGHTER AND EXTINGUISHER.

SPECIFICATION forming part of Letters Patent No. 472,494, dated April 5, 1892.

Application filed November 17, 1891. Serial No. 412,242. (No model.)

To all whom it may concern:

Be it known that I, JOHN HENRY CAUGHY, a citizen of the United States, residing at Baltimore city, in the State of Maryland, have invented certain new and useful Improvements in Apparatus for Automatically Lighting and Extinguishing Electric Lamps, of which the following is a specification.

This invention relates to an apparatus for automatically controlling electric lamps.

The object is to provide for automatically lighting and extinguishing lamps at predetermined times—as, for instance, in shop-windows and similar places where it is desired to have the lamps in operation only during a specified period.

With this end in view the invention consists in the novel features of construction and combinations of parts hereinafter described and claimed.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 shows a face view of the case in which the apparatus is contained. Fig. 2 shows a similar view with the case-front removed. Fig. 3 is a detail view of one of the spring switch-arms, and Fig. 4 a detail view of one of the contact-terminals.

The letter A designates the case, which contains the apparatus. In this case is a clock B, comprising an ordinary time-movement and two alarm-movements, one on each side.

a designates the hour-wheel of the clock, and *b b'* the wheels which gear with the said hour-wheel, turning on the posts *c c'* and releasing the alarm-movements in the well-known way, the said alarm-movements being set by turning the said posts *c c'*.

The dials *C C'* of the alarm-movements are preferably located outside the time-dial and at a lower part of the case. Trains of gearing *DD'* suitably connect the hands *o* of the alarm-dials with the setting-posts of the alarm-movement, so that by turning the milled knobs *o'* on said hands *o* the alarms may be set.

Wires *E* in the case connect through binding-posts *d* with the circuit *Z*, in which the lamps are located, and each wire has a suitable contact-terminal *ee'*. The circuit is completed by connecting these two terminals

through two switch-arms *F F'* and a wire *G*. The said arms are pivoted on suitable posts *q* and coiled around the same with their ends *f* secured, whereby the coiled portions *g* constitute springs, which hold the arms normally thrown upward with the outer end of one of them *F* in contact with the terminal *e* and the outer end of the other one *F'* out of contact with the other terminal *e'* with the circuit thus broken. Suitable stop-pins *h* limit the upward movement of the arms. The wire *G* connects with the secured ends *f* of the arms.

A latch *H* in the form of a bell-crank lever is pivoted to the case, so that a catch *i* on its upper end may take over the free end of the arm *F* and hold the latter down and out of contact with the terminal *e*. A similar lever *I* is pivoted at a lower point to the case *A*, and a link *J* connects the two levers. A cog-wheel *K*, which is in gear with one of the alarm-movements, has a lug *j* projecting from its periphery, which lug is arranged to trip the depending arm of the lever *I*. A similar system of levers *H' I' J'* is arranged in connection with the arm *F'* and the other alarm-movement and is for holding the said arm down and in contact with the terminal *e'*. A cog-wheel *K'* is in gear with this latter alarm-movement and has a lug *j'* to trip the lower lever *I'*. To make the contact between the arms *F F'* and terminals *ee'* positive, the latter are each provided with spring-jaws *k*, between which the switch-arms pass, spreading said jaws, and are thereby held.

Each switch-arm has a knob *L*, which extends through an arc-shaped slot *l* in the front of the case, and the said arms are set by means of these knobs, which are moved through the slots. The latches *H* are actuated by springs *m* and limited by suitable stop-pins *n*, and the arms *F F'* are also limited in their downward movements by stop-pins *p*.

The apparatus is set by moving the knobs *L* downward through their respective slots, whereby the arm *F* is caused to take behind the catch of the latch *H* and the arm *F'* behind the latch *H'*, the said latches being beveled on the upper side, so that the arms will force them back against the tension of the springs *m* until said arms pass the catches *i*,

when the latter spring back over them and hold them down. With this adjustment of the parts it will be seen that the circuit is broken.

5 The operation is as follows: Supposing it is desired to light the lamps at six o'clock in the evening and extinguish them at one o'clock. The hand of the dial C is set at six o'clock and that of the dial C' at one o'clock. Now when
10 the hour of "six" arrives the alarm-movement set for that hour is released and revolves the cog-wheel K in the direction of the arrow. This causes the lug *j* to trip the lever I and throw it outward, which raises the upper end
15 and pushes up the horizontal arm of the latch H. This throws the catch *i* clear of the arm F, releasing the latter, which flies up against the contact-terminal *e* and between the jaws *k*, by which it is held. The circuit being now
20 closed, the lamps are lighted and remain so until the circuit is broken, as will now be described. When the hour of "one" arrives, the movement set for that hour is released and revolves the wheel K', whose lug *j'* trips the
25 lever I', which causes the release of the arm F' by the latch H', and said arm flies up and out of contact with the terminal *e'*, breaking the circuit and extinguishing the lamps.

30 By my arrangement it will be seen that the lamps may be automatically lighted and extinguished at predetermined times, so as to be in operation during any length of time desired.

35 The clock is preferably adapted to make the circuit of its dial once in twenty-four hours, and the dials are all marked accordingly. This is for the purpose of setting the apparatus a day ahead, if desired.

40 To apply the device to a system of lamps, the circuit-wire is cut and the ends simply joined to the binding-posts *d*.

45 It is evident that many changes may be made in the details of construction here shown and described, and my invention is not limited in this respect.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. An apparatus for making or breaking an

electric circuit at a predetermined time, comprising a clock provided with an alarm-movement, a spring-actuated switch-arm in the circuit, a pivoted latch to separately engage and hold said switch-arm against the spring action, and means actuated by the alarm-movement for tripping the latch, and thereby disengaging it from the switch-arm and releasing the latter.

2. An apparatus for making or breaking an electric circuit at a predetermined time, comprising a clock provided with an alarm-movement, a spring-actuated switch-arm in the circuit, a pivoted latch to separately engage said switch-arm and hold it against the spring action, and a cog-wheel in gear with the alarm-movement and having a lug projecting from its periphery to trip the latch and thereby disengage it from the switch-arm and release the latter.

3. An apparatus for making or breaking an electric circuit at a predetermined time, comprising a clock provided with an alarm-movement, a pivoted and spring-actuated switch-arm in the circuit, a latch in the form of a bent lever to engage and hold the switch-arm, a similar lever jointed to said latch, and a cog-wheel in gear with the alarm-movement and having a projection or lug to trip said lever, and thereby cause the latch to release the switch-arm.

4. An apparatus for making or breaking an electric circuit at a predetermined time, comprising a clock provided with an alarm-movement, a pivoted and spring-actuated switch-arm in the circuit, a spring-actuated latch having a catch at one end to take over and hold the switch-arm and beveled on its upper side, a knob on the catch projecting through a slot in the case, and a cog-wheel in gear with the alarm-movement and provided with a projection or lug to trip the said latch, and thereby release the switch-arm.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN HENRY CAUGHY.

Witnesses:

FRANK P. DAVIS,
CHAS. B. MANN.