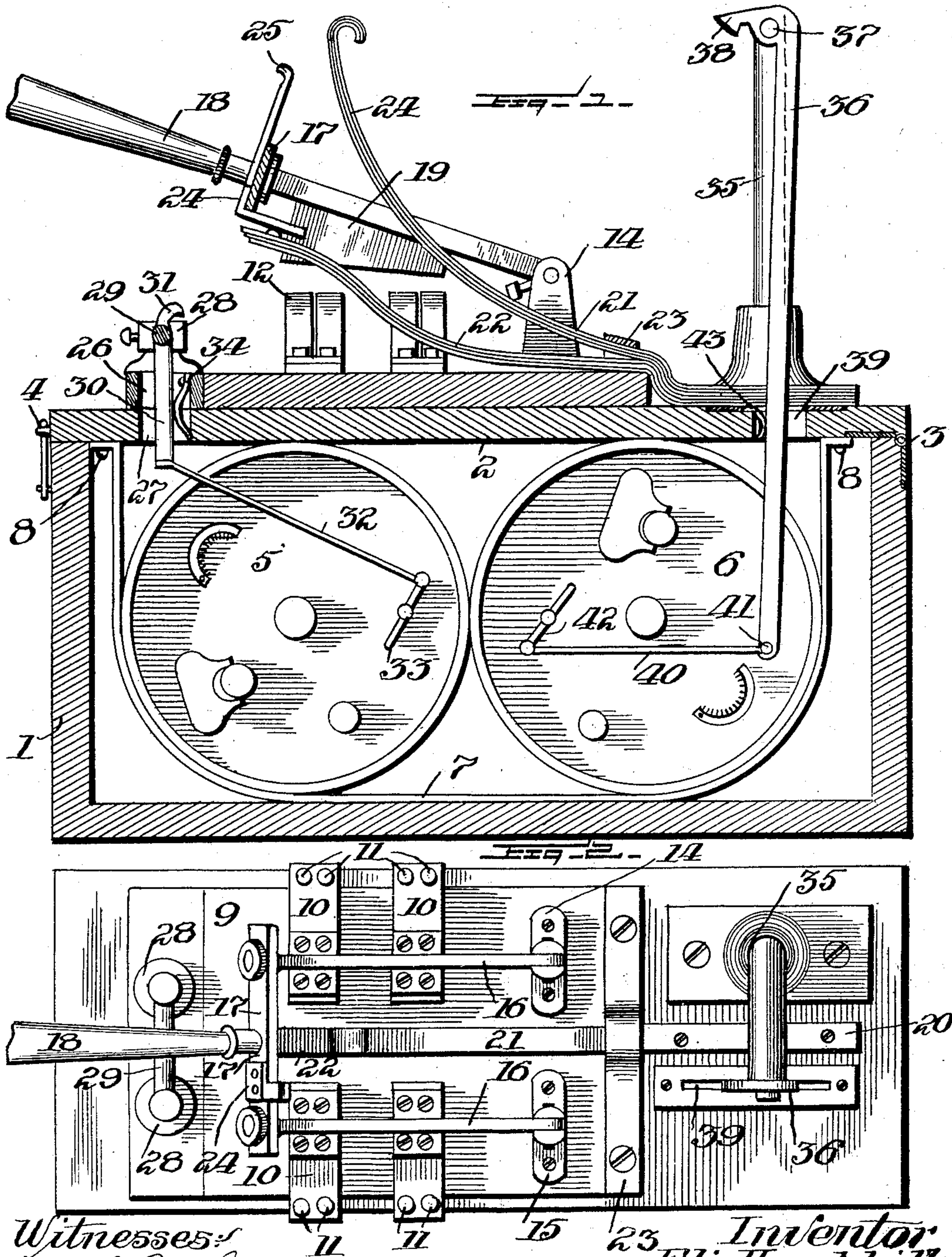


No. 725,444.

PATENTED APR. 14, 1903.

E. HEMPHILL.
ELECTRIC TIME SWITCH.
APPLICATION FILED JULY 15, 1902.

NO MODEL.



Witnesses:
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UNITED STATES PATENT OFFICE.

ELI HEMPHILL, OF AVALON, PENNSYLVANIA, ASSIGNOR OF ONE-THIRD TO
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ELECTRIC TIME-SWITCH.

SPECIFICATION forming part of Letters Patent No. 725,444, dated April 14, 1903.

Application filed July 15, 1902. Serial No. 115,648. (No model.)

To all whom it may concern:

Be it known that I, ELI HEMPHILL, a citizen of the United States of America, residing at Avalon, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Time-Switches for Electric Lights, of which the following is a specification, reference being had therein to the accompanying drawings.

10 This invention relates to certain new and useful improvements in time-switches for electric lights, and has for its object the provision of novel means whereby the electric lights used within a building or the like may be automatically lighted or turned out.

15 Another object of my invention is to provide a switch wherein I provide clock mechanism for operating said switch in disconnecting and connecting the currents of electricity for supplying the lights.

20 A still further object of my invention is to provide a time-switch which will be extremely simple in construction, strong, durable, comparatively inexpensive to manufacture, highly efficient in its operation, and one which may be used upon any form of light wherein an electric circuit is used.

25 With the above and other objects in view the invention consists in the novel construction, combination, and arrangement of parts to be hereinafter more fully described, and specifically pointed out in the claims.

30 In describing the invention in detail reference is had to the accompanying drawings, forming a part of this specification, and wherein like numerals of reference indicate like parts throughout both views, in which—

35 Figure 1 is a longitudinal section of the time-switch, and Fig. 2 is a top plan view of the same.

40 In the drawings the reference-numeral 1 indicates a casing having a hinged top 2.

45 The reference-numeral 3 indicates the hinges, and the numeral 4 represents the catch for locking the lid of said casing. Within said casing are secured the time-clocks 5 and 6, said clocks being of the ordinary alarm construction, and to hold said clocks within the casing I provide a metallic band 7, which passes around the clocks and is secured to the lid, as indicated at 8, so that

when the casing is opened the clocks will be lifted out so the same may be set and wound. Upon the top of said lid I secure a plate 9, said plate carrying plates 10, which carry the binding-posts 11. On the inner end of said plates 10 are the upwardly-extending metallic strips 12, which form the contacting-points for the connecting and breaking of the electrical circuit.

60 The reference-numerals 14 and 15 indicate standards carried upon the plate 9, said standards having arms 16 pivoted therein, these arms being connected by a strip 17, and to the center of said strip is secured the operating-lever 18. These arms 16 form a bridge in connection with the cross-bar 17, and to the under face of the strip 16 is secured the metallic plates 19. Upon the outer end of the casing, as indicated at 20, are secured the springs 21 and 22, said springs being further held by a metallic strip 23, carried upon the end of the plate 9. The spring 21 is semi-elliptical in form, and it extends upwardly at a slight angle, as indicated by the numeral 24 and shown in Fig. 1 of the drawings. The spring 22 extends outwardly and engages upon the under face of an angle-iron 24, carried by the cross-bar 17, the upper end of this angle-bar being hook-shaped, as indicated at 25. In the forward end of the plate 9 is formed an aperture 26, corresponding to an aperture 27, formed in the lid 2 of the casing 1, and upon each side of the aperture 26 are mounted the bearings 28, which in turn carry a shaft 29, and upon this shaft is mounted the lever 30, said lever having its upper end hook-shaped, as indicated at 31, and to the lower end of said lever is connected a bar 32, which extends downwardly at a slight angle and is connected to the alarm 33 of the clock mechanism carried by the clock 5.

85 The reference-numeral 34 indicates a spring mounted within the apertures 26 and 27, said spring bearing against the lever 30, the function of said spring to be hereinafter described.

90 The reference-numeral 35 indicates a standard mounted upon the rear end of the lid 2, and to the top of said standard is pivoted the bell-crank lever 36, said lever being pivoted, as indicated at 37, and carrying the hook-arm 38. The other arm of said bell-crank

extends downwardly through an aperture 39, formed in the rear end of the lid 2, said arm having its lower end connected to a lever or bar 40, as indicated at 41, the other end of the
5 bar 40 in turn being connected to the alarm mechanism 42, carried by the clock 6.

The reference-numeral 43 indicates a spring similar in construction and performing the same function as the spring 34, carried by
10 the forward end of the lid.

The operation of my improved switch is as follows: As the mechanism shown in Fig. 1 indicates that the current is broken by means of the metallic plate 19 being disengaged from the strips 12 and held so by means of the
15 spring 22, it being desired to set my improved time-switch the clocks 5 and 6 are set at a predetermined time at which the lights are to be lighted or turned out, and it being de-
20 sired to light the lamps the arm 18 is pulled downwardly until the hooked end 31 of the lever 30 engages the cross-bar 17, thus holding the arms 16 down, contacting the plate 19 with the metallic strips 12, and while these
25 plates are in contact the electric lights will be lighted until the alarm mechanism carried by the clock 5 is operated, which will move the alarm-arm 33, disengage the hook 31 from the cross-bar 17, and allow the operating-arm
30 18 to move upwardly, this operation being facilitated by means of a spring 22, thus breaking the circuit, causing the lights to be extinguished, and the spring 34 will return the arm 30 to its normal position preparatory to
35 its next use.

The mechanism I have just described and the operating of the same is that employed when the lights are supposed to be lighted and it is desired to extinguish the same, and
40 the mechanism which I employ to light the lights is operated similarly. The lever 18 is pulled rearwardly, engaging the spring 21, this movement being continued until the hooked end 25 engages beneath the hooked
45 arm 38, and the clock being set at a predetermined time the alarm will be operated, which will cause the lever 36 to be pulled forward, releasing the angle-bar 24, and the spring 21 will force the arm 18 forward until
50 the hooked end 31 engages the cross-bar 17, locking the same and completing the circuit by means of the metallic plate 19 engaging the metallic strips 12, thus causing the lamps to be lighted. This arm 18 will be held in
55 this position until the alarm carried by the clock 5 is operated, thus releasing the same.

It will be noted that this time-switch may be used with a single alarm or a double alarm, and, for the purpose of illustration, if it is de-
60 sired to light the lamps of a building at nine o'clock and extinguish the same at twelve o'clock the switch may be set at six o'clock and the lights will be lighted at the desired time and extinguished at twelve.

65 While I have shown the most practical embodiment of my invention, it will be obvious

that various changes may be made in the details of construction without departing from the general spirit of my invention.

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

1. In a device of the character set forth, the combination of a time-controlled switch, means whereby said switch may be thrown to
75 a closed position, means for automatically locking the same in said position, means for releasing said switch from its locked position to open the same, and means for locking said switch in its open position, substantially as
described.

2. In a time-controlled mechanism, the combination of a casing, a switch secured to the casing, a pair of locking means therefor, means for automatically throwing said switch
85 into locked engagement with one of the locking means, means for automatically releasing the same, and means for automatically moving said switch into and out of engagement with the other locking means, substan-
90 tially as described.

3. In a device of the character described, the combination of a switch, means for locking said switch in a closed position, means for throwing said switch to an open position,
95 when released, means for locking said switch in an open position, and means for throwing said switch to a closed position and overcoming the second-named means, substantially as described.

4. The combination with a pair of locking means spaced apart, a switch-arm arranged between the said locking means, said switch-arm being adapted to be moved manually into
105 engagement with one of the said locking means, means for releasing the said switch-arm for engagement with the said last-named locking means, and means for automatically swinging the said arm into and out of engagement with the other locking means, substan-
110 tially as described.

5. In a device of the character described, the combination of a casing, a lid hinged thereto having a clock-movement secured to the same, means connected with said clock-movement
115 whereby said switch is automatically closed and opened at a predetermined time, substantially as described.

6. In a time-controlled mechanism, a casing, a lid hinged thereto, a switch secured on
120 said lid, a clock-movement secured to the said lid and within said casing, means actuated by said clock-movement and extending through said lid whereby the said switch is automatically closed and opened at a prede-
125 termined time, substantially as described.

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

ELI HEMPHILL.

Witnesses:

JOHN NOLAND,
E. E. POTTER.