No. 839,361. PATENTED DEC. 25, 1906.

I. S. CALLENDER & E. J. JOHNSON.

ELECTRIC TIME SWITCH.

APPLICATION FILED MAR. 7, 1904.

3 SHEETS—SHEET 1.

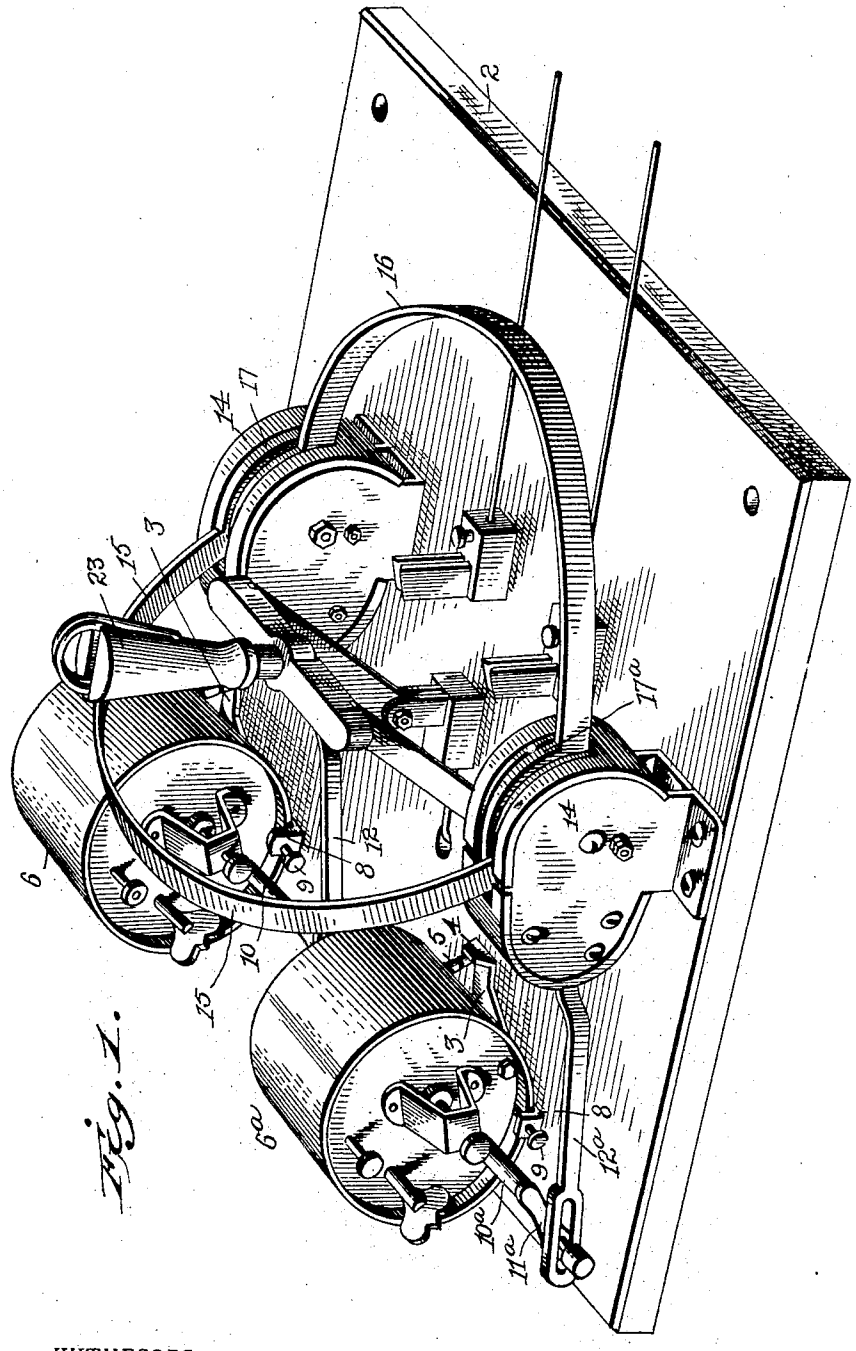

Fig. 1.

WITNESSES

Edwin L. Yewell

Geo. M. Copenhaver,

INVENTORS

Ira S. Callender

Elmo J. Johnson

by their Attorney

W. B. Corwin

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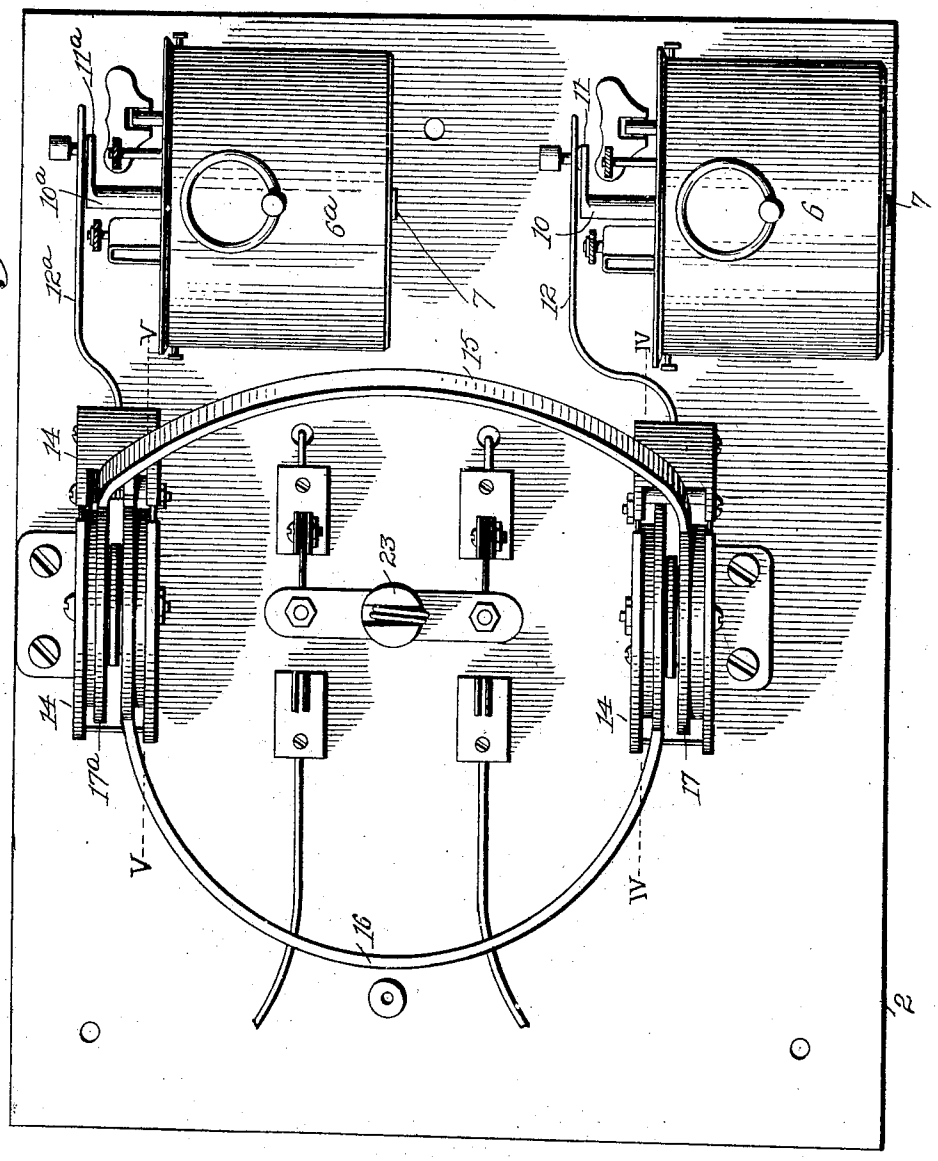
3 SHEETS—SHEET 2.

Fig. 2.



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3 SHEETS—SHEET 3.

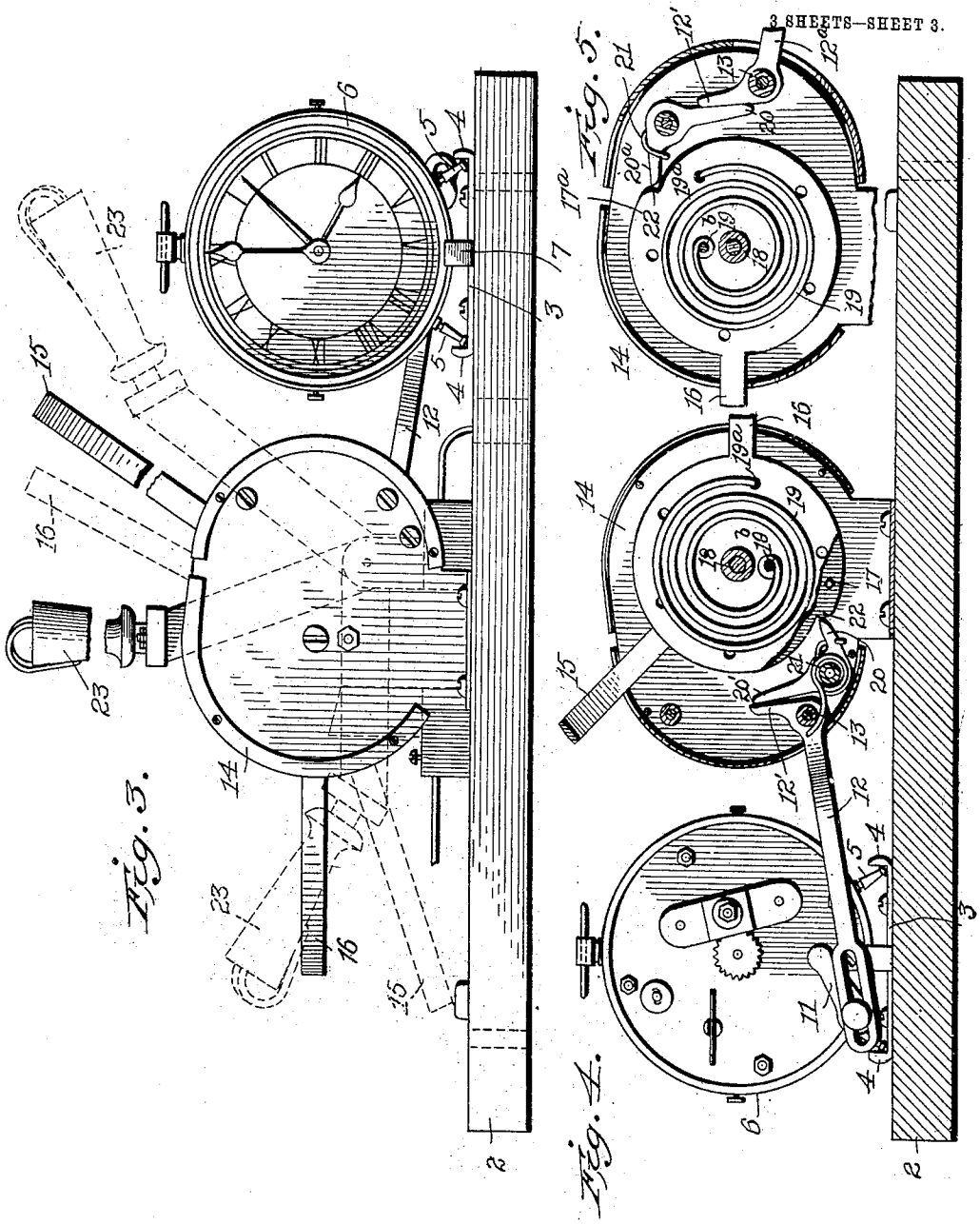

Fig. 3.

Fig. 4.

Fig. 5.

WITNESSES

Edwin L. Yewell

Geo. M. Copenhaver.

INVENTORS

Ira S. Callender

Edwin J. Johnson

by their Attorney

W. B. Corwin

UNITED STATES PATENT OFFICE.

IRA S. CALLENDER, OF GALESBURG, AND ELMO J. JOHNSON, OF CHICAGO, ILLINOIS.

ELECTRIC TIME-SWITCH.

No. 839,361. Specification of Letters Patent. Patented Dec. 25, 1906.

Application filed March 7, 1904. Serial No. 196,860.

To all whom it may concern:

Be it known that we, IRA S. CALLENDER, of Galesburg, in the county of Knox, and ELMO J. JOHNSON, of Chicago, in the county of Cook, State of Illinois, have invented certain new and useful Improvements in Apparatus for Operating Electric Switches; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable those skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

Our invention relates to apparatus for automatically operating an electric switch either to make or break the circuit at any previously-determined time; and the principal object of the invention is to construct a switch controlling or operating mechanism provided with suitable clock mechanism by means of which the switch may be closed automatically at any desired hour to close the circuit and automatically opened at a later hour to break said circuit, or said mechanism may be made simply to close or to break the circuit through the switch, the circuit being afterward broken or closed through the switch by hand.

The purpose of the device is to enable a storekeeper or other person having occasion to use the device to set the clock mechanism so that the device will automatically operate the electric switch in a lamp or other electric circuit to light the lamps at the desired hour and later at the desired time to automatically open said switch, whereby the lamps will be extinguished. It will thus be seen that by the use of our invention a storekeeper, for example, may lock up and leave his store before dark and later at the proper time for which the clock mechanisms have been set or arranged the lights will be turned on and out without requiring his presence or that of any other person.

In the drawings, Figure 1 is a perspective view of our improved electric switch-operating apparatus. Fig. 2 is a top plan view of the same. Fig. 3 is a side elevation. Figs. 4 and 5 are vertical sectional views on the lines IV IV and V V of Fig. 2, respectively.

2 is a base of slate or other suitable material, to which are secured the clock-holding spiders 3, having lugs 4 for engaging the feet 5 of ordinary small alarm-clocks 6 6^a and with overhanging lugs 7 for engaging the face-rims of the clocks, and lugs 8, through which extend screws 9 for engaging the rear clock-rims.

10 10^a are extensions of the ordinary alarm-winding arbors of the clocks, with arms 11 11^a at their extremities, said arms 11 11^a being slidably connected to the ends of the levers 12 12^a, pivoted at 13 to the casings 14, containing the mechanisms for operating the bails 15 16, by which the switch-blades are shifted to make and to break the electric circuit. Said bail-operating mechanisms comprise circular plates 17 17^a, loosely mounted on the shafts 18, extending across the interior of the casings 14, said plates being provided with spiral springs 19, one end 19^a of the spring being attached to the plate and the other end 19^b being connected to the side of the casing, so that when the bails are moved to operative positions the springs will be put under tension ready to throw the bails when released by the mechanism about to be described. Pivotally mounted between the sides of the casings 14 are the triggers 20 20^a, provided with springs 21, by which the triggers are thrown behind the shoulders 22 on the plates, so as to lock the plates against movement.

The operation of our device is as follows, the parts being in the positions shown in Figs. 1 and 3 with the switch-blades raised and the circuit broken and the bails locked in operative position. The alarm of clock 6 is now set for the hour at which it is desired to light the lamps should the circuit be a lighting one. When such hour arrives, the alarm mechanism is released and the arbor 10 turns, pulling up by means of the arm 11 the outer end of the lever 12. The upward movement of the outer end of this lever imparts an inward movement to the other and shorter arm 12′ of said lever, causing it to impinge against the arm 20′ of the trigger 20 and move the trigger out of the path of the shoulder 22 on the plate 17. The spring 19 will now exert its force, turning the plate and throwing the bail 15 against the handle 23 of the switch and carrying the handle down until the switch is closed, when the lights will be put in circuit, the positions of the switch-blades and of the bail after such operation being shown by the dotted lines at the left of Fig. 3. The

clock 6^a having been set at the hour it is desired the lights shall be extinguished, when such hour arrives the bail 16 will be released by the trigger 20^a (in a manner similar to that just described with reference to the bail 15) and will throw the handle 23 of the switch upwardly, breaking the circuit, the positions of the switch-blades and of the bail 16 after such operation being shown by the dotted lines at the right of Fig. 3.

The advantages of our invention will be readily apparent. Its use effects a saving in labor and in consumption of electricity, and it is cheap, simple, durable, not liable to get out of order, and is positive and efficient in its action.

It will be manifest that changes may be made in the form, construction, and arrangement of the parts of the apparatus without departing from the spirit of the invention as defined in the following claims.

We claim—

1. In an electric-switch-operating apparatus, a base, an electric switch mounted on said base, two casings also mounted on the base, plates inclosed by said casings said plates being connected by an intervening switch-operating bail, spiral springs attached to the casings and to said plates for operating the plates and bail, a trigger for holding said plates in operative position, a clock mechanism, and means actuated by the clock mechanism for moving said trigger out of the path of said spring-actuated plates so as to cause the bail to engage and shift the switch.

2. In an electric switch-operating apparatus, a base, an electric switch mounted on said base, two casings also mounted on said base, two plates inclosed in each of said casings, said plates being connected in pairs by two intervening switch-operating bails, spiral springs attached to the casings and to said plates for operating the plates and swinging the bails, triggers for holding said plates in operative positions, two clock mechanisms, and means actuated by the clock mechanisms for moving said triggers out of the path of said spring-operated plates so as to cause the bails at different times controlled by the clock mechanisms to shift the switch into closed and open positions.

In testimony whereof we have hereunto set our hands.

IRA S. CALLENDER.
ELMO J. JOHNSON.

Witnesses:
E. CORSEPIUS,
W. E. PHILLIPS.