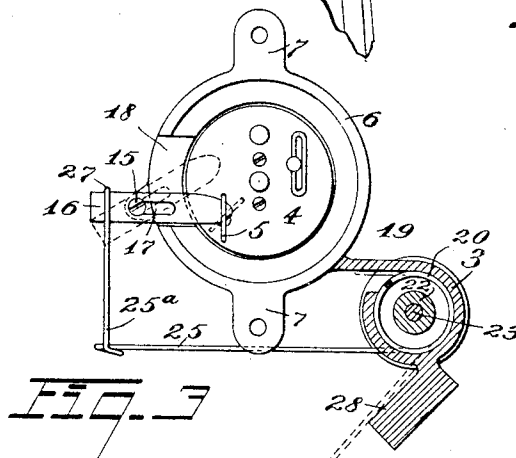
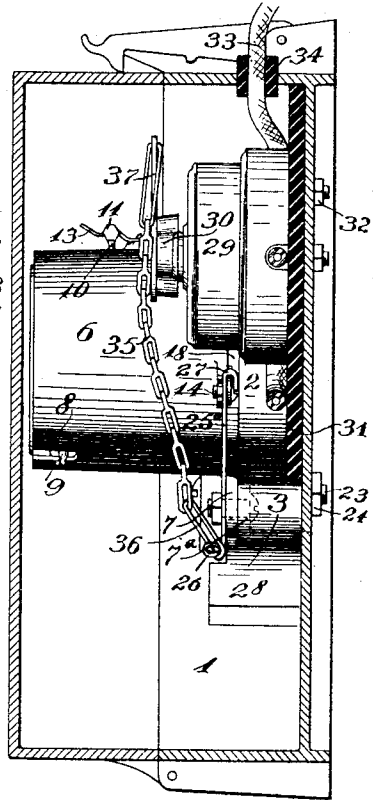
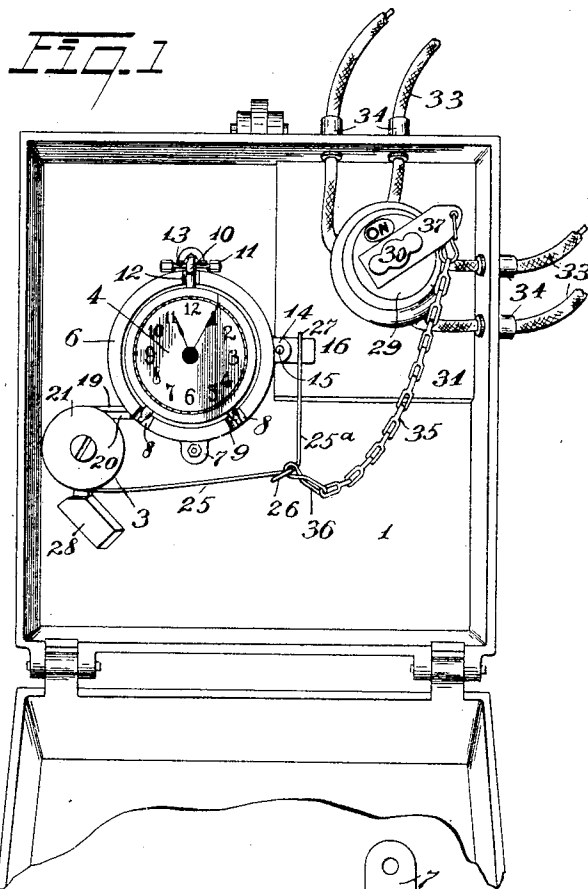


C. A. MANN.
TIME SWITCH.
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944,802.

Patented Dec. 28, 1909.



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UNITED STATES PATENT OFFICE.

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TIME-SWITCH.

944,802.

Specification of Letters Patent. Patented Dec. 28, 1909.

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To all whom it may concern:

Be it known that I, CHARLES A. MANN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented a certain new and useful Improvement in Time-Switches, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention relates to time switches, and has for its objects to provide means whereby a switch may be mechanically and positively operated from an ordinary time mechanism, such as a standard alarm clock, to turn the current off or on at a predetermined time according as occasion may require and to provide, in combination with the time mechanism, simple and effective means for so operating the said switch.

I accomplish the above objects by means of the construction shown in the drawings forming part hereof, wherein—

Figure 1 represents a front elevation of a box or casing having therein a switch, time mechanism, and means for operating the switch, the cover of the box being open; Fig. 2 represents a vertical sectional view taken through the cover and the base on which the switch is supported, and Fig. 3 represents a rear elevation of the time mechanism and a sectional view through the spring casing, illustrating the manner in which the spring which operates the switch is released at the end of a predetermined time interval.

Describing the parts by reference characters, 1 denotes a box or casing in which my mechanism is preferably inclosed. This box may be of metal and may have conveniently cast therewith a base 2 and spring drum or casing 3. The base 2 is adapted for supporting the time mechanism. This time mechanism, as shown herein, is a clock 4 of the ordinary alarm type, provided with an alarm arbor having a key loop 5 for winding the same. The alarm dial is omitted, as its construction is well understood by those conversant with the art. The clock is shown as cylindrical in shape and may be conveniently mounted in the cylindrical casing 6, having ears 7 by means of which it is secured to corresponding projections 7^a on the base 2. This casing may be slotted at the front end, as shown at 8, for the accommo-

dation of the legs 9 on the clock. To retain the clock in place in the casing, a stud 10 may be provided, having a cross bar 11. The stud is adapted to enter a slot 12 in casing 6, and to retain the clock in place, a spring 13 is carried by the casing 6, said spring being forked and being curved to conform to and grip the cross bar 11.

14 denotes a projection carried by the casing 6. This projection is provided with a stud 15 and on this stud is slidably mounted a latch 16, said latch being provided with a slot 17 adapted to be applied to the body of the stud. As will appear more particularly from Fig. 3, the casing 6 is provided with a slot 18 permitting rotary movement of the latch 16 on its pivot. The parts are so arranged that the inner end of the latch 16, when said latch is pushed inwardly along the stud, will engage the key loop 5 when the latter is in vertical position and will be prevented from rotating on its pivot by said loop.

Attention has been invited to the drum or casing 3. This is preferably cast with the base 2, a wall 19 connecting said drum and said base. A spiral spring 20 is coiled within said drum and the wall 19 forms an abutment for one end of the spring. The other end of the spring projects through a slot at the top of the drum. This slot may be conveniently formed beneath a cap 21 having formed therewith a cylindrical extension 22. The bolt 23 passes through this extension and through the bottom of the casing 1 and is secured to the bottom of said casing by means of a nut 24. The extension 23 is of such length as to provide a slot between the under side of the cap 21 and the upper edge of the drum or casing 3. Through this slot projects the operating end of the spring 20. This operating end comprises two branches 25 and 25^a arranged at substantially right angles to each other, the wire being looped at the intersection of said arms, as shown at 26, thereby strengthening the bend at this place and forming a convenient means for attaching the switch operating connection thereto. The end of the branch 25^a is provided with a hook 27, which is adapted to be applied to the outer end of the latch 16.

28 denotes a stop for the branch 25, said stop being conveniently cast with the bottom of the casing 1 and with the drum 3 and

base 2. The spring is so formed that the branch 25 when disconnected from the latch 16 will bear against the stop 28.

Within the casing 1 is located the switch 29. This switch may be of the ordinary type, provided with a button 30 for operating the same and having a plurality of circuit-opening and closing brushes projecting from the spring stem to which the button is attached, as is ordinary in switches for local incandescent lamp circuits. As is well known, these switches are arranged to alternately make and break the circuit at each successive quarter revolution of the switch stem by the button 30. The switch is shown as mounted upon a block of insulating material 31 on the base of the casing and is secured to said base by means of the bolts 32. Conductors 33 extend through the casing leading to and from the switch and being insulated from the casing by means of bushings 34.

As a convenient means for operating the switch stem from the spring, I provide a flexible connection 35, shown as a chain having a loop 36 at one end adapted to be applied to the loop 26 on the spring. The opposite end of 35 is connected to an arm 37, said arm being conveniently formed of a sheet metal plate having an aperture shaped to conform to the button 30.

The operation of my apparatus is as follows: Suppose it is desired to automatically open the switch at a predetermined time. The alarm clock will be set for this time and will be wound, care being taken that the loop 5 shall be left in such position that the end of the latch 16 may be inserted thereinto. The latch is then slid along its stud until its rounded end enters the loop, as shown in full lines in Fig. 3. The hook 27 on the branch 25^a of the spring is then applied to the outer end of the latch. The loop 36 is applied to loop 26, as shown in Figs. 1 and 2, and the arm 37 is applied to the button 30. When the time has elapsed for which the alarm is set, the arbor on which the loop 5 is mounted unwinds, disengaging the latch. This disengagement is facilitated by the rounding of the inner end of the latch. Thereupon the spring within the drum 3 acts through the flexible connection 35 and arm 37 to turn the button 30 and break the circuit. The stop 28 will be so arranged with relation to the length of arm 37 and the throw of the spring arm 24 as to insure a sufficient rotation of the button 30 and its stem to break the connection between the brushes on said stem and the brushes on the switch members operating therewith. The position of the spring arms 25, 25^a, and latch 16 after the above operations are shown in dotted lines in Fig. 3.

The device shown herein is extremely

economical of production, while it is of marked efficiency in operation. By its use, simple but effective means are provided for automatically making or breaking an electric circuit, as occasion may demand, without any other attention than the setting of the alarm and the connections between the same and the switch button.

Having thus described my invention, what I claim is:

1. The combination, with a switch, of a clock having an alarm arbor provided with a loop, a sliding pivoted latch having a rounded end adapted to engage said loop, a spring, a connection between said spring and said switch for operating the same, and spring-restraining means connecting the spring with said latch.

2. The combination, with a switch having a button for rotating the same, of a clock having an alarm arbor provided with a loop, a sliding pivoted latch having a rounded end adapted to engage said loop, a spring, a flexible connection between said spring and said button for imparting rotary movement to the same, and spring-restraining means connecting the spring with said latch.

3. The combination, with time mechanism having a part adapted to be moved at a predetermined time, of a pivoted member adapted to engage said part, a switch, an operating member for said switch, a spring having two angularly disposed branches, one of said branches being connected to said pivoted member, and a flexible connection between the junction of said branches and the switch-operating member.

4. The combination, with time mechanism having a part adapted to be moved at a predetermined time, of a pivoted member adapted to engage such movable part, a spring having a pair of angularly disposed branches, a loop connecting said branches, a switch having an operating member, and a flexible connection between said loop and said members.

5. The combination, with time mechanism having a part adapted to be moved at a predetermined time, of a pivoted member adapted to engage such movable part, a coiled spring having an arm projecting therefrom comprising a pair of angularly disposed branches, a connection between the remoter branch and said member a stop for the other branch, a switch having an operating member, and a flexible connection between said spring arm and the latter member.

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

CHARLES A. MANN.

Witnesses:

G. A. GINTER,
J. C. HERMANN.