

G. W. FREE.
TIME CONTROLLED SWITCH.
APPLICATION FILED FEB. 15, 1911.

1,008,634.

Patented Nov. 14, 1911.

Fig. 1.

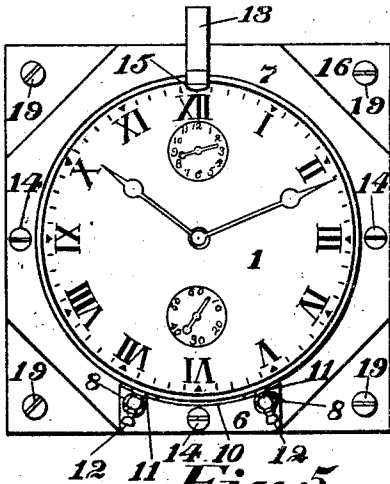


Fig. 2.

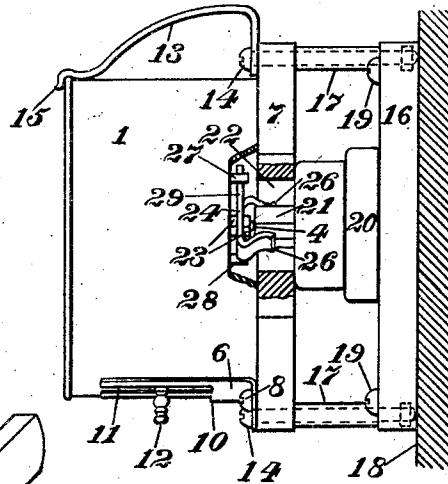


Fig. 5.

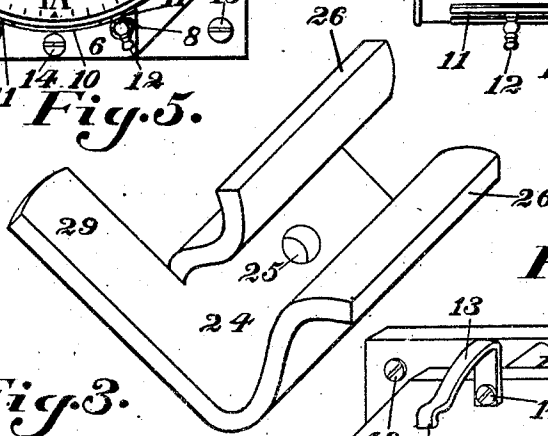


Fig. 4.

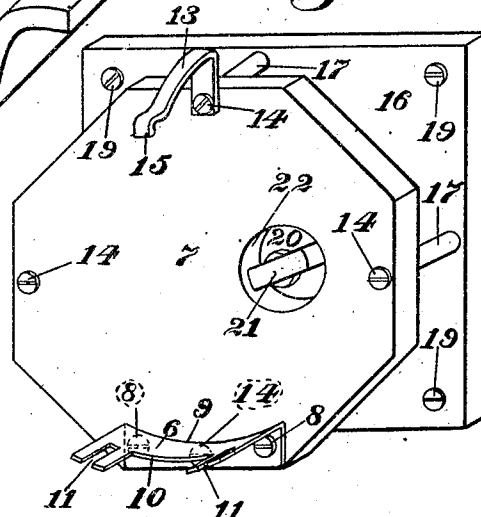
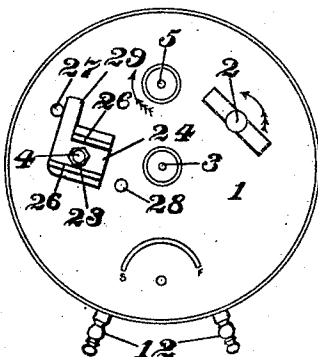


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE W. FREE, OF ST. LOUIS, MISSOURI.

TIME-CONTROLLED SWITCH.

1,008,634.

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To all whom it may concern:

Be it known that I, GEORGE W. FREE, a citizen of the United States, residing at the city of St. Louis, State of Missouri, have invented certain new and useful Improvements in Time-Controlled Switches, of which the following is a specification.

This invention relates to improvements in automatically-operated switches for controlling electric circuits, particularly those of electric lamps which are intended to burn for a predetermined length of time, and has for its object to provide an improved device of this character that is adapted to be used in connection with an alarm-clock. Further this invention consists of the novel features of construction and arrangement of parts hereinafter described and pointed out in the claim.

In the accompanying drawings forming part of this specification, in which like numbers of reference denote like parts wherever they occur, Figure 1 is a front elevation of an alarm-clock equipped with my improved switch-controlling device; Fig. 2 is a side elevation of same; Fig. 3 is a rear elevation of the clock with the device attached thereto; Fig. 4 is a perspective view of the clock-supporting means; and Fig. 5 is a perspective view, on an enlarged scale, of the switch-operating member.

In carrying out the present invention an ordinary alarm-clock 1 having the usual time winding and setting shafts 2 and 3 and the usual alarm winding and setting shafts 4 and 5, respectively, is used. A bracket 6 is preferably formed of a metal plate that may be cut and bent into the desired shape by means of a sheet-metal press (not shown) or other suitable means and is fastened to a board 7 or piece of slate or other insulating material by screws 8, or the like. The part 9 of bracket 6 projects outwardly from the board 7 and forms a seat for the clock 1, being preferably concaved to conform to the curvature of the base of said clock. Said part 9 of bracket 6 is cut away at 10, so as not to use more metal than is absolutely necessary for the purpose of supporting the clock 1, and contains a pair of elongated notches 11 to allow the feet 12 of clock 1 to extend therethrough, said notches extending substantially parallel to each other and being formed in the front edge of the part 9, so that the clock can be slid into place.

A spring 13 is secured to the upper part of board 7 by means of one of the bolts 14, which support said board, and extends over the top of the clock 1, the end 15 of said spring being bent downwardly to hook over the upper edge of the face of the clock 1, so as to hold said clock firmly in place on bracket 6. In order to set the clock 1 in place, the end 15 of spring 13 is raised sufficiently to allow the top of the clock to pass therebeneath when the clock is slid into place upon the bracket 6, and, when it is desired to remove the clock, the end 15 of spring 13 is raised sufficiently to disengage the clock, thereby allowing the clock to be withdrawn from the bracket 6. The bolts 14 are secured to a board 16 or piece of slate or other insulating material, and pass through spacing sleeves 17, or the like, by means of which the boards 7 and 16 are spaced apart. The board 16 is preferably square and is fastened to the wall 18 or other support by screws 19, or the like. The advantage in using an octagonal board 7 and a square board 16 is that access to the screws 19 can be had at all times in order to attach the board 16 to or remove same from the wall 18, without the necessity of having to disconnect the board 7 from the board 16. An ordinary cut-off or snap switch 20, which controls the circuit of the electric lamp or lamps (not shown), is fastened to the board 16 by any suitable means, and its button 21 projects into an opening 22 in board 7.

The alarm-winding shaft 4 of the clock 1 is screw-threaded to receive a lock-nut or lock-nuts 23 by means of which a member 24 is rigidly fastened to shaft 4, said member containing an opening 25 to allow said shaft to pass therethrough. It is preferable to use two lock-nuts 23 and to solder same to shaft 4 after same have been tightened against the member 24 which is located therebetween. The member 24 is preferably made of a piece of sheet-metal that may be readily formed into the desired shape by means of a sheet-metal press (not shown) or other suitable means. The ends 26 of the member 24 are bent so as to extend substantially parallel to each other and, also, to project outwardly from the back of the clock 1 and are spaced apart, so that, when the clock is placed in the proper position upon bracket 6 as hereinabove described, the ends 26 of member 24 project into the opening 22 in board 7 and embrace the button

21 of switch 20 in such manner as to cause said button to revolve with shaft 4, when said shaft is released to rotate at the time at which the alarm is set. In order to allow the button 21 to enter the space between the two ends 26 of member 24 the edges of said ends are flared. A stop-pin 27 and a stop-pin 28 are attached to the back of the clock 1 and are located in the path of movement of the arm 29 borne by member 24. The stop-pins 27 and 28 limit the movement of the arm 29 so that the alarm shaft 4 of clock 1 is allowed only to rotate through the proper part of a revolution that is necessary to revolve the button 21 of switch 20 to a position to turn the circuit off. When the shaft 4 is rotated by revolving member 24 in a clockwise direction, Fig. 3, so as to move the arm 29 from stop-pin 27 to stop-pin 28, and the button 21 of switch 20 is rotated to turn the circuit on, the member 24 holds the ends 26 in position to embrace the button 21, when the clock 1 is placed in the proper position upon bracket 6, as hereinabove described. When the alarm-winding shaft 4 is released to rotate at the time at which the circuit is to be closed, same rotates in a counter-clockwise direction, Fig. 3, and thereby moves arm 29 from stop-pin 28 to stop-pin 27, with the result that the ends 26 of member 24 rotate the button 21 of switch 20 sufficiently to turn off the circuit.

It should be understood that by changing the positions of the stop-pins 27 and 28 and the member 24 the device can be used for turning the circuit on automatically at a predetermined time.

The operation of the apparatus is largely evident from the above description, but may be summarized as follows: The time at which the lamp or lamps in the circuit with the switch 20 shall be extinguished is set in the usual manner by the alarm-setting shaft 5, and the alarm-winding shaft 4 is rotated by turning member 24 so that arm 29 moves from stop-pin 27 to stop-pin 28. After the button 21 of switch 20 is rotated to the position to turn on the circuit, the clock 1 is set in position upon bracket 6, as hereinabove described. When the alarm shaft 4 is re-

leased same returns to its normal position and causes the ends 26 of member 24 to revolve the button 21 of switch 20 to the proper position to turn off the circuit and thereby to extinguish the lamp or lamps automatically.

From the foregoing description of this invention, it will be evident that a simple, efficient, and inexpensive device is provided, its adaptation to an ordinary snap or cut-off switch now in general use being particularly advantageous for automatically extinguishing an electric lamp or lamps, which may be used to light show cases, stores, office buildings, etc., for a predetermined length of time during the day or night. Thus the necessity of employing personal service for turning off the circuit, as is customary, is obviated.

I claim:

In a device of the type set forth, in combination with a clock having an alarm-winding shaft, a board for attachment to a support, a switch attached to the board and having a revoluble button, a second board extending over the front face of the switch to protect same and being rigidly secured to the first named board and being formed with an opening to receive said button, a bracket on the second named board to support the clock base, a central spring arm having a down-turned end secured to said second named board at the top thereof and having its free end inclined toward the clock and formed with a hook-shaped extremity which engages over the front edge of the clock, a member consisting of a plate of substantially L-shape having an aperture to receive the clock alarm winding shaft, one arm of said plate having its sides bent outwardly to lie parallel with each other and engaging on opposite sides of the switch button, and a pair of stop pins carried by the clock for engagement with the opposite sides of the other arm of said plate.

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

GEORGE W. FREE.

Witnesses:

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