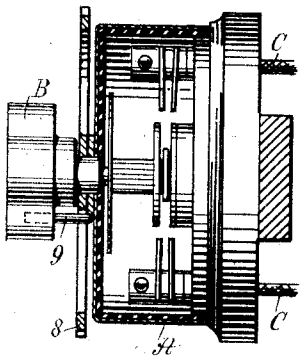
J. W. HANSEN.

CLOCK OPERATED ELECTRIC SWITCH

APPLICATION FILED FEB. 11, 1910.

**986,281.** Patented Mar. 7, 1911

Fig. 5



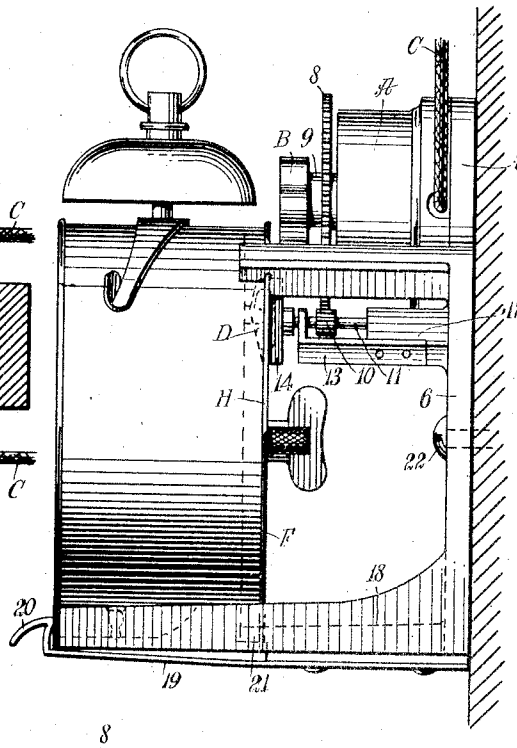




Fig. 1

Fig. 6

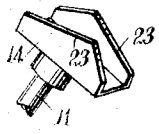



Fig. 2

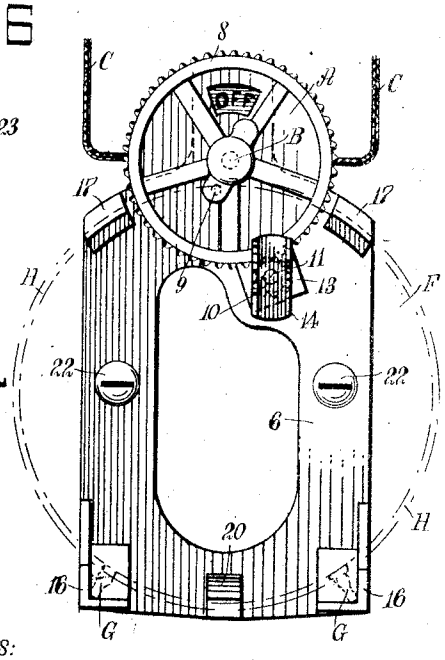



Fig. 3

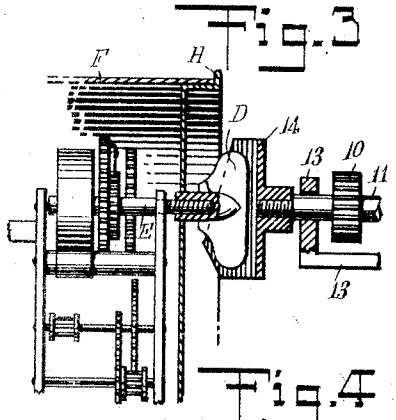
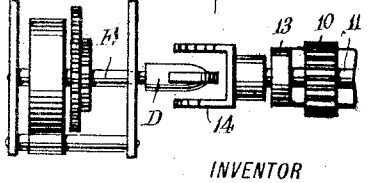



Fig. 4

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# UNITED STATES PATENT OFFICE.

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## CLOCK-OPERATED ELECTRIC SWITCH.

986,281. Specification of Letters Patent. Patented Mar. 7, 1911.

Application filed February 11, 1910. Serial No. 543,228.

*To all whom it may concern:*

Be it known that I, JULIUS W. HANSEN, a citizen of the United States, and a resident of Princeton, in the county of Gibson and State of Indiana, have invented a new and Improved Clock-Operated Electric Switch, of which the following is a full, clear, and exact description.

Among the principal objects which the present invention has in view are: to provide a power driven switch operating mechanism adapted to be actuated by a time mechanism; to provide means for connecting the alarm mechanism of an alarm clock with the switch mechanism of an electric switch, whereby the electric switch is operated by the alarm mechanism as and when the same is operated to inaugurate or discontinue an electric illumination; to provide a separate carrying frame and locking attachment adapted to receive in separable relation clocks of varied standard construction; and to provide a mechanism for operating the switch, simple in form, durable and efficient in construction.

One embodiment of the present invention is disclosed in the structure illustrated in the accompanying drawings, in which like characters of reference denote corresponding parts in all the views, and in which—

Figure 1 is a side elevation of an alarm clock and switch operating mechanism constructed and arranged in conformity with the present invention; Fig. 2 is a front elevation of the supporting bracket, switch, and switch operating mechanism forming part of the present invention, the clock being removed and its position indicated by broken lines in said figure; Fig. 3 is a fragmentary detail view on an enlarged scale, partly in section, of the alarm operating mechanism and the connection with the winding post thereof and the power pinion of the switch operating mechanism; Fig. 4 is a top view of the mechanism illustrated in Fig. 3; Fig. 5 is a detail view on an enlarged scale, and partly in section, of the electric switch casing and electric switch mechanism; and Fig. 6 is a detail view in perspective of the connection for the alarm mechanism arbor and the switch throwing device.

The class of novel results which the present invention has principally in view is that wherein the illumination is desired for a predetermined period of time, terminating when the owner or attendant is not present. One particular use to which the invention has been put has been that wherein the illumination of a store window is automatically terminated at a time long after the attendant has left the store. Other uses where it is desired to inaugurate the illumination at a certain time, are likewise herein provided for.

In adapting the invention to commercial purposes it has been incorporated in a structure illustrated in the accompanying drawings.

The switch A is of any known and approved construction. It is provided with a button B arranged to be manually rotated to connect and disconnect the switch terminals of the electric circuit wires C, C. The switch is provided with a suitable cover or casing, and a base which is fixedly mounted upon the upper extension 7 of a bracket 6. In the present adaptation of the invention the securement of the switch A to the bracket 6 is by means of screws or rivets. The switch in the present invention is arranged to be rotated by mechanical, as well as manual means. For this purpose there is loosely mounted on the arbor supporting the button B a large gear wheel 8. The gear wheel 8 is engaged by a pin 9, which is fixedly mounted in the button B and extended between the spokes, or other member, provided in the gear 8. When the gear 8 is rotated one of the spokes thereof impinges upon the pin 9, and by means of the said pin carries the button B with the gear 8 during the remainder of its rotation. The rotation of the wheel 8 is designed to be through an arc sufficient to throw the connecting members of the electric switch into or out of contact. In some cases this may require one quarter of the complete revolution or one half of the complete revolution. The gear 8 is driven by a pinion 10. The pinion 10 is mounted on a shaft 11, and is in toothed engagement with the gear 8. The pinion 10 is proportioned to the gear 8 to move the latter over the required arc to throw the switch A during the rotation of the winding arbor of the alarm clock used in conjunction with this invention. The shaft 11 is mounted in bearings formed in a post 12 on the one side and in a bracket 13 extended from and fixedly held upon the said post 12. To the outside of the bearing formed in the bracket 13 the shaft 11 is provided with a channeled key head 14, between the sides whereof the

winding key D of the alarm clock is extended. The type of alarm clock used in connection with the present invention is that wherein the fixed key D, and the arbor E connected therewith, turn backward when the alarm spring is released to expand. The turning backward of the key D impinges it upon the sides of the key head 14, and by it rotates the shaft 11 a sufficient number of times to cause the movement of the gear 8 over the necessary arc to throw the switch A.

In the operation of a switch employing the elements herein described and shown, the clock F is removed from the bracket 6 to be wound or set. In being thus removed, the key D of the alarm is withdrawn from engagement with the key head 14. To hold the clock F in position on the bracket 6, and in operative relation with the key head 14, there are provided channeled arms 16, 16, 17, 17 and 18. The arms 17, 17 are each provided with a groove in line with and adapted to receive in holding relation the flanged edge H with which clocks of this type are generally provided. When the flanged edge H is disposed with relation to the arms 17, 17, as stated, the lower portion of the barrel of the clock extends between the arms 16, 16, and the legs G, G of the said clock then rest in the channels of the arms 16, 16, and in guided relation thereto.

The clock body is prevented from extending forward out of engagement with the arms 16, 16 by a spring latch 19, the head 20 whereof extends upward and over the front edge of the clock frame, as seen in Figs. 1 and 2 of the drawings. The rearward extension of the bottom of the clock F is regulated by the arm 18. The arm 18 is extended forward to aline with the grooves in the arms 17, 17, and is provided with an overhanging extension 21 adapted to protrude over the rear edge of the clock frame to the more securely hold the same in said position. It will be understood that while I prefer the form of bracket wherein the arm 18 is used, the same is not essential to the operation of this invention.

The bracket 6, and arms 16, 16, 17, 17 and 18, and the post 12, are preferably formed from one piece, the back plate or frame of which is pierced to receive screws 22, 22, whereby the fixture is mounted upon the standing structure of the room in which the switch is desired.

It will be understood that when the clock F is removed from the bracket 6, the button B may be manually operated as freely as if the gears 8 and 10 were not connected therewith. It will also be understood that the disposition of the switch may be so arranged that the operation of the alarm mechanism may be to discontinue the illumination instead of, as hereinbefore described, to cause the illumination.

The many advantages to which a structure of the character therein described is adapted is obvious, as well as the wide extent of the applications to which the same may be put.

It is to provide a connection for the switch operating mechanism arranged to form a junction with the alarm clock winding key D, that the key head 14 is provided with the opposite sides having the oppositely pitched cut-away portions 23, 23. The high points on these sides are extended on both sides of the center of the shaft 11. The result of this construction is that in all positions of the key D, the extensions thereof force the key head 14 to aline therewith, thus securing admission of the key into the key head.

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

1. A clock operated electric switch comprising a clock having a rotary spring actuated shaft extended beyond the clock casing and provided at the outer end thereof with a winding device; a stand for said clock having arms extended and arranged to hold the same in fixed position; a detaining spring to hold the clock on said stand; a transmission shaft mounted in said stand in line with the said rotary shaft of said clock; means mounted on the end of said transmission shaft adapted to engage the said winding device on said spring actuated shaft; a gear pinion fixedly mounted on said rotary transmission shaft; and an electric switch having a rotary switch arbor provided with an enlarged gear wheel adapted to mesh with the said gear pinion.

2. In a clock operated electric switch, a switch mechanism having a rotary arbor and an exposed handle for manually operating the same; a wall stand for said switch adapted to be fixedly mounted upon a building structure; a rotary power multiplying transmission shaft mounted in bearings in said stand and having fixedly secured thereon a gear pinion; a connecting head fixedly mounted on the end of said transmission shaft; and an enlarged gear wheel fixedly mounted on the arbor of said switch and meshed with the said pinion.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JULIUS W. HANSEN.

Witnesses:
CHARLES A. UNNEWEHR,
HENRY JOHNSON.