W. H. ADSIT.

TIME CONTROLLED MECHANISM FOR OPERATING LIGHTS.

APPLICATION FILED FEB. 19, 1915.

1,189,651.

Patented July 4, 1916.

2 SHEETS—SHEET 1.

Fig. 1.

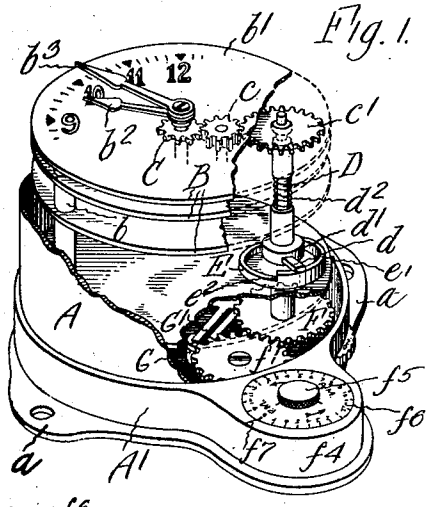


Fig. 2.

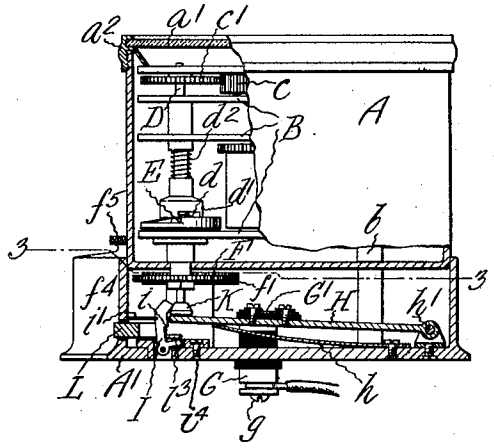


Fig. 3.

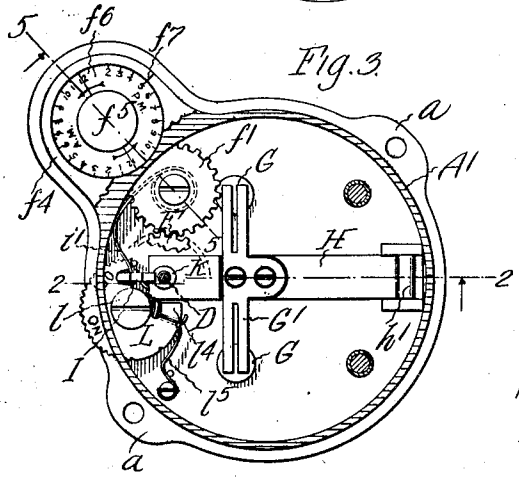


Fig. 4.

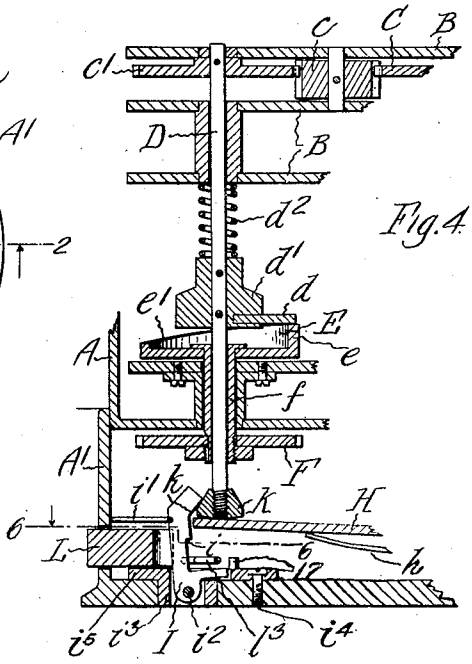
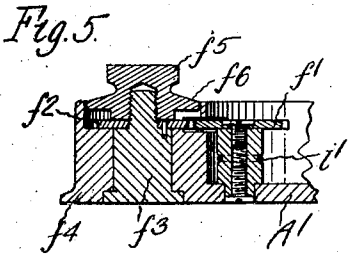


Fig. 5.



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2 SHEETS—SHEET 2.

Fig. 6.

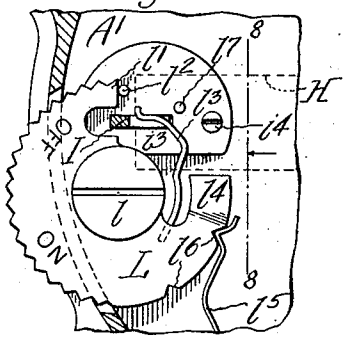


Fig. 7.

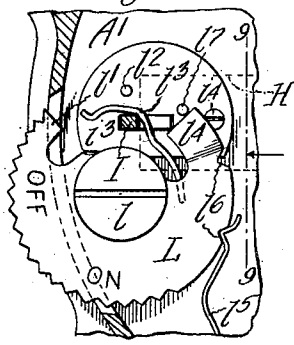


Fig. 8.

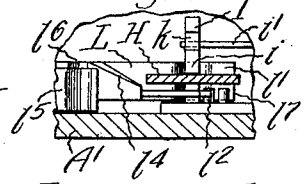


Fig. 9.

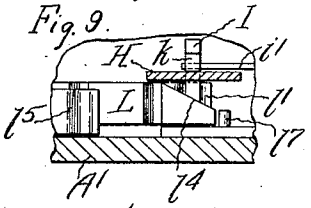
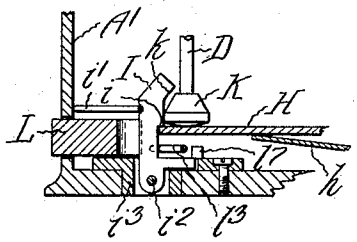


Fig. 10.



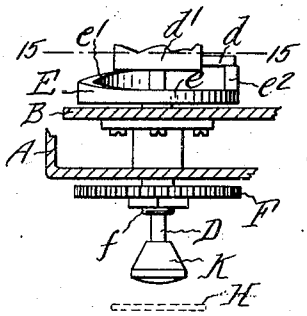


Fig. 11.

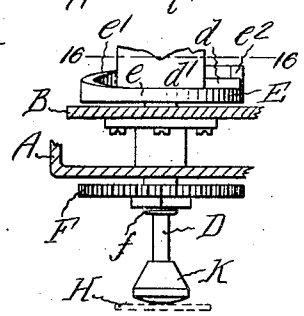


Fig. 12.

Fig. 13.

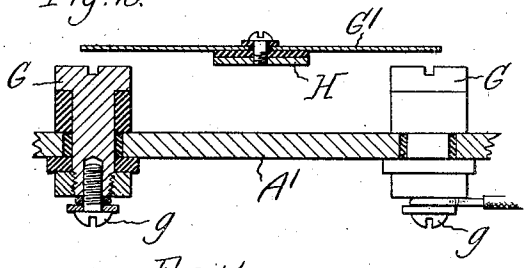


Fig. 14.

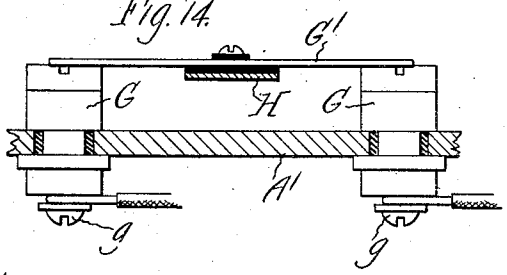


Fig. 15.

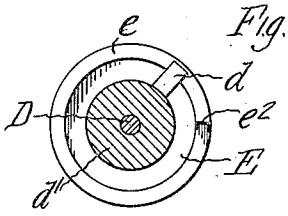
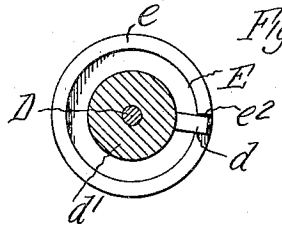


Fig. 16.



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UNITED STATES PATENT OFFICE.

WILLIAM H. ADSIT, OF BATAVIA, NEW YORK, ASSIGNOR TO JOHN FRANCIS THOMAS, OF BATAVIA, NEW YORK.

TIME-CONTROLLED MECHANISM FOR OPERATING LIGHTS.

1,189,651. Specification of Letters Patent. Patented July 4, 1916.

Application filed February 19, 1915. Serial No. 9,290.

To all whom it may concern:

Be it known that I, WILLIAM H. ADSIT, a citizen of the United States, residing at Batavia, in the county of Genesee and State of New York, have invented a new and useful Improvement in Time-Controlled Mechanism for Operating Lights, of which the following is a specification.

This invention relates to time controlled switches or mechanisms actuated by a clock or the like for lighting or extinguishing lights or lamps, and more particularly to mechanisms for use on motor vehicles for controlling the lighting and extinguishing of the lamps or lights of the vehicle.

One of the objects of this invention is to provide a clock controlled mechanism which can be used on a motor vehicle or the like and which can be set so as to cause the lighting of the lights of the vehicle at any desired time, and which will automatically extinguish the lights at the expiration of a certain time, so that the operator of the vehicle can leave the same standing without paying any attention to the lights.

Other objects of the invention are to produce a mechanism of this kind which will be thoroughly reliable in operation and which will not add materially to the size of a clock of this kind nor otherwise detract from the usefulness or accuracy thereof; also to provide convenient and readily operable means for placing the clock actuating mechanism into or out of operation; also to provide a mechanism which will extinguish the lights after the expiration of a certain period of time; also to improve the construction of mechanisms of this kind in the respects hereinafter specified.

In the accompanying drawings: Figure 1 is a perspective view of a clock provided with a light controlling mechanism embodying the invention, a part of the casing of the clock being broken away and the clock movement being omitted. Fig. 2 is an elevation thereof partly in section on line 2—2, Fig. 3. Fig. 3 is a sectional plan view thereof on line 3—3, Fig. 2. Fig. 4 is a fragmentary vertical section thereof on line 2—2, Fig. 3, on an enlarged scale. Fig. 5 is a fragmentary sectional elevation thereof on line 5—5, Fig. 3, showing a part of the setting mechanism. Figs. 6 and 7 are fragmentary sectional plan views on line 6—6, Fig. 4, showing in different positions the means for placing the light controlling mechanism into and out of operation. Fig. 8 is a fragmentary sectional elevation thereof on line 8—8, Fig. 6. Fig. 9 is a fragmentary sectional elevation thereof on line 9—9, Fig. 7. Fig. 10 is a fragmentary vertical section similar to Fig. 4, showing the switch lever in its operative position. Figs. 11 and 12 are fragmentary sectional elevations of the time controlling cam and switch actuating shaft, showing the shaft in different positions. Figs. 13 and 14 are sectional elevations of the current controlling device showing the same in the open and closed positions respectively. Figs. 15 and 16 are sectional plan views on line 15—15 Fig. 11, and line 16—16, Fig. 12, respectively.

The clock and the mechanism controlled thereby are arranged in a suitable casing which may be secured to the dashboard or other convenient place on a vehicle and may be of any suitable construction, that shown consisting of a shell or housing A containing the clock movement, and a casing A′ secured to the back of the housing A and provided with lugs a by means of which the clock and the mechanism controlled thereby can be secured on the dash of a vehicle. The front of the shell A is provided with a transparent face or plate a' secured in a rim a^2 which may be suitably secured on the shell. The clock movement is supported on a suitable frame consisting of a plurality of disks or plates B which are connected and spaced apart in the usual manner by means of posts b or the like. The outer of the plates B is provided with a dial or face b' provided with the usual numerals for indicating the time and over which the hour and minute hands b^2 and b^3 move. The works or clock movement which actuates the hands may be of any suitable or desired construction and is not shown since it constitutes no part of this invention. The clock mechanism is shown in the drawings with the dial facing upwardly, but the clock may be supported in any other manner, for instance, it may be secured to the dash of a car so that the dial will be in a substantially upright plane.

The mechanism for controlling the lights may be actuated from any desired part of the clock movement. In the construction shown the hour hand b^2 is provided with a

gear C connected thereto and movable therewith and which is geared by means of an idler c to a gear c' of the light-actuating mechanism. These gears are preferably so proportioned that the gear c' will make a complete revolution every twenty-four hours. The gear c' is secured on a switch-actuating shaft or member D which is slidably mounted in the clock frame, the idler c being of sufficient width to permit the gear c' to remain in mesh therewith throughout the movements of the shaft D. The inner end of the shaft D engages with a switch lever or other device for controlling the lights in such a manner that the lights will be lighted when the shaft is in its lower position, as shown in Fig. 10.

The longitudinal movement of the shaft, in the construction shown, is effected by means of an arm d engaging with a cam E. The arm d, as shown, extends outwardly from a hub or sleeve d' secured on the shaft D, and a spring d^2 arranged between the hub d' and one of the plates B normally presses the arm d against the cam E. The cam E is preferably of the construction shown, comprising a disk having a circular flange e which extends parallel with the shaft and concentric therewith, the end of the flange forming the cam face against which the arm d bears. The cam face comprises a gradually sloping portion e' and an abrupt or shouldered portion e^2. The arm d during the rotation of the shaft D travels upwardly on the gradually sloping portion e' until it comes to the abrupt portion e^2, at which point the spring d^2 forces the shaft D downwardly to actuate the light controlling device.

The gradually sloping portion of the cam need not extend completely around the cam but can begin at any desired distance from the abrupt portion thereof, depending upon the time during which it is desired to keep the lights lighted.

In order to regulate the time at which the arm d comes to the shouldered portion e^2 of the cam for causing the lighting of the lights, the cam E is made adjustable relatively to the arm d. Any suitable mechanism may be employed for this purpose. In the construction shown, a sleeve f is rigidly secured on the cam E and a gear F is secured to the lower end of the sleeve. This gear meshes with a gear f', suitably journaled in the casing A', which in turn meshes with a gear f^2, Fig. 5, secured on a bearing pin or pivot f^3 journaled in an extension f^4 on the casing A'. A knob or handle f^5 is secured on the pin f^3 preferably by means of a screw-thread so as to facilitate the assembling and taking apart of this part of the mechanism, and is provided with a graduated dial portion f^6. The dial is provided with graduations which can be placed in registration with a notch or mark f^7 on the extension f^4 of the casing A' to set the cam E in any desired position relatively to the arm d of the shaft D. By means of the construction described the light controlling device will be actuated at the time for which the dial f^6 is set.

The above described mechanism actuates a light controlling device, which, in the construction shown in the drawings, comprises a device for closing and opening an electric circuit to cause the lighting and extinguishing respectively of the lights. The current for causing the lighting of the lights enters and leaves the casing A' through two stationary switch members G G suitably insulated from the casing A', and adapted to be connected to the conductors of the circuit by means of binding screws g or the like. In order to close the light actuating circuit the two switch members G G are electrically connected by means of a movable switch member G' adapted to be moved into and out of engagement with both of the members G. The movable switch member G' is mounted on and insulated from a light controlling member or switch lever H which is normally held in a position to hold the switch member G' out of contact with the members G by means of a spring h. One end of the switch lever is pivoted at h' on the casing A' and the other end of the lever is adapted to be engaged by the shaft D.

When the shaft D moves to its lower position it moves the switch lever H into its circuit closing position and the lever is held in this position by means of a dog or latch I having a shoulder i adapted to engage the end of the switch lever H, as shown in Fig. 10. The latch I is pivotally mounted on the casing A' and is yieldingly pressed by means of a spring i' into position to engage the switch lever. In the construction shown, the latch is pivoted at i^2 in a collar i^3 which is secured in a hole in the casing A' by any suitable means, such as a screw i^4 extending through a flange i^5 of the collar and secured to the casing A'.

The inclined portion e' of the cam E is so formed as to move the shaft D upwardly so as to release the switch lever from its circuit closing position after a certain period of time. In order to prevent destructive arcing when the circuit is broken, means are provided to insure a quick opening of the switch. This is accomplished in the construction shown by providing the latch I with an inclined or cam face k adapted to be engaged by a knob or projection K on the shaft D. When the shaft D moves away from the switch lever the lever will be held in its closed position by the latch until the knob K engages the inclined face k on the latch I and swings the same on its pivot against the action of the spring i' to move

the shoulder i out of engagement with the switch lever. The spring h will then quickly move the switch lever into position to open the circuit.

Means are provided which can be operated at will to place the clock-controlled light actuating mechanism into or out of operation. In the construction shown for this purpose, a disk, wheel or member L is provided which is pivotally mounted at l on the casing A'. A portion of this disk is cut away, forming a shoulder or stop l' which is adapted to engage with a stop pin l^2 secured on the casing A' to limit the movement of the disk L in the direction in which the disk is turned when it is desired to permit the clock controlled mechanism to actuate the lighting system. The disk L is provided with a spring or cam l^3 which is adapted to engage the latch I to move the same against the action of the spring i' and to cause the latch to release the switch lever when the disk L is turned to the left, as shown in Figs. 6 and 7. This spring or cam, in the construction shown, is so shaped that the outer extremity thereof engages the latch I and releases the same at the first part of the movement of the disk toward the "off" position. The disk is then free to move into the "off" position without having the spring l^3 engage the latch, until the disk reaches the extremity of its movement in this direction, when an intermediate portion of the spring l^3 engages the latch and holds the same in its released position as shown in Fig. 7. The disk also has an inclined face or part l^4 which is adapted to engage the underside of the switch lever H to raise the lever into its circuit opening position and to hold the same in this position. When the disk L is in the position shown in Fig. 6 the operation of the light controlling mechanism is not interfered with. When it is desired to prevent the operation of the light controlling mechanism or to extinguish the lights the disk is moved into the position shown in Fig. 7, in which the spring l^3 moves the latch I out of its holding position and releases the switch lever H, and the inclined face l^4 of the disk L then engages the switch lever so as to prevent the movement of the same into its circuit closing position. The disk L is releasably held in either of its two positions by means of the spring l^5 mounted on the casing A and adapted to engage in either of two notches l^6 in the edge of the disk L. l^7 represents a stop pin to limit the movement of the disk in the direction to extinguish or prevent the lighting of the lights. The disk is arranged to extend outside of the casing A', where it can be readily actuated, and the words "Off" and "On" are marked thereon so as to respectively appear outside of the casing when the disk is in position to prevent the actuation of the lights by the clock controlled mechanism or in position to permit this actuation.

By means of the clock controlled mechanism described, the operator of a vehicle can set the mechanism to cause the lighting of the lights at any desired time, for example, the time stated by a local ordinance, and can then leave the car standing without paying any further attention to the lights, which will be automatically taken care of by the mechanism. The mechanism will also extinguish the lights after a certain interval of time, for example, after day-break, so that the vehicle can be left entirely alone and the owner will not be in danger of violating any local requirements or laws.

The mechanism described is of simple and inexpensive construction and reliable in operation and has the advantage of being easily set to light the lights at any desired time. In case the mechanism is not required to light the lights, the disk L can readily be moved to the off position so that the lights are in no way interfered with by the clock-operated mechanism. The mechanism is compact in construction so that the size of clocks usually employed on the dashes of vehicles is only very slightly increased by the addition of the mechanism described.

I claim as my invention:

1. The combination with a clock movement, of a shaft rotated by said clock movement, means for causing endwise movement of the shaft at predetermined parts of the rotation thereof, a light controlling member adapted to be placed into operative and inoperative positions, and means for holding said light controlling member in one of said positions, said shaft placing the member into position to be engaged by said holding means by movement in one direction and releasing the holding means by its movement in the other direction to permit said light controlling member to move to its other position.

2. The combination with a clock movement, of a shaft rotated by said clock movement, means for causing endwise movement of the shaft at predetermined parts of the rotation thereof, a light controlling member adapted to be placed into operative and inoperative positions, and a latch for holding the controlling member in one of said positions, said shaft having a part adapted to engage said latch for releasing the same to permit the controlling member to move to the other of said positions.

3. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam for causing the endwise movement of said shaft and having an inclined portion and an abrupt portion, a light controlling member adapted to be engaged by said shaft when the same

moves over the abrupt portion of the cam to place said member into operative position, and means for holding the controlling member in operative position, said shaft having a part adapted to engage said holding means for releasing the same to permit the controlling member to move into inoperative position.

4. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam for causing the endwise movement of said shaft, a light controlling member adapted to be engaged by said shaft to place said member into operative position, a latch for holding the controlling member in operative position, said shaft having a part adapted to engage said latch for releasing the same to permit the controlling member to move into inoperative position.

5. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam for causing the endwise movement of said shaft and having an inclined portion and an abrupt portion, a light controlling member adapted to be engaged by said shaft when the same moves over the abrupt portion of the cam to place said member into operative position, a latch for holding the controlling member in operative position, and means actuated by said shaft while in engagement with the inclined part of said cam to release the latch to permit said controlling member to move into inoperative position.

6. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam having an inclined portion for causing endwise movement of said shaft and an abrupt portion, means for yieldingly pressing said shaft into engagement with said cam, a switch controlling member arranged in operative relation to said shaft and adapted to be moved into operative position when said shaft moves toward the same by moving over said abrupt portion of the cam, a latch for holding said member in operative relation, and coöperating parts on said latch and said shaft for releasing said latch when said shaft is moved away from said controlling member by the inclined portion of the cam.

7. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam for causing endwise movement of said shaft, a switch controlling member adapted to be moved into its operative position by said shaft, a latch for holding said controlling member in its operative position, and means operable at will for releasing said latch.

8. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam for causing endwise movement of said shaft, a switch controlling member adapted to be moved into its operative position by said shaft, a latch for holding said controlling member in its operative position, and means operable at will to release said latch and to positively hold said controlling member in its inoperative position.

9. The combination with a clock movement, of a shaft rotated by said clock movement and slidable endwise, a cam for causing endwise movement of said shaft, a switch controlling member adapted to be moved into its operative position by said shaft, a latch for holding said controlling member in its operative position, and a part having an arm adapted to disengage the latch from said member and a part for holding the actuating member out of operative position, said part when in one position preventing the actuation of said controlling member by said shaft and when in another position permitting such actuation.

10. In a clock controlled mechanism, the combination of a casing for said mechanism, a clock movement in said casing, a shaft rotated by said clock movement and movable endwise, a cam for causing the endwise movement of said shaft, a light controlling switch lever adapted to be actuated by said shaft, means extending to the exterior of said casing and operable at will for permitting or preventing the actuation of said light controlling switch, and means operable from the exterior of the casing for adjusting the position of said cam for controlling the time of actuation of said switch lever.

11. The combination with a clock movement, of an actuating member rotated by said clock movement, a cam member engaged by said actuating member, one of said members being adjustable relatively to the other member for causing endwise movement of the actuating member at predetermined parts of the rotation thereof, a light controlling member adapted to be placed into operative and inoperative positions, and means for holding said light controlling member in one of said positions, said actuating member placing the light controlling member into position to be engaged by said holding means by movement in one direction and releasing the holding means by its movement in the other direction to permit said light controlling member to move to its other position.

12. The combination of a light controlling device, an actuating member therefor, a cam face engaged by said actuating member, a clock movement for causing said actuating member to travel over said cam face whereby said actuating member is moved in one direction, means for moving said actuating member to move the controlling device when said actuating member

passes off of said cam face, a latch for holding said controlling device when moved by said actuating device, and means operating when said actuating device is moved by said cam for releasing said latch.

13. The combination of a light controlling device, an actuating member therefor, a cam face engaged by said actuating member, a clock movement for causing said actuating member to travel over said cam face whereby said actuating member is moved in one direction, means for moving said actuating member to move the controlling device when said actuating member passes off of said cam face, a latch for holding said controlling device when moved by said actuating device, and means connected to said actuating device for releasing said latch when the actuating device is moved by said cam.

14. The combination of a light controlling device, an actuating member therefor, a cam face engaged by said actuating member and adapted to move said actuating member in one direction, said cam face having an inclined portion and an abrupt portion, a clock movement for moving said actuating member over said cam face, said actuating member engaging said light controlling device when passing over said abrupt portion of the cam to place said device into its operative position, a latch for holding said controlling device in its operative position, and means actuated by said actuating member while in engagement with the inclined part of said cam to release said latch to permit the controlling device to return to its inoperative position.

15. In a clock-controlled mechanism, the combination of a casing for said mechanism, a clock movement in said casing, a cam for moving said member in one direction, a light controlling switch lever adapted to be actuated by said actuating member, means extending to the exterior of said casing and operable at will for permitting or preventing the actuation of said light controlling switch lever, and means operable from the exterior of the casing for adjusting the position of said cam for controlling the time of actuation of said actuating member.

Witness my hand, this 17 day of February, 1915.

WILLIAM H. ADSIT.

Witnesses:
FRANK THOMAS,
THOS. S. MUNSELL.