E. J. KLINGER.

DIMMER FOR ELECTRIC LIGHTS.

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1,356,293.

Patented Oct. 19, 1920.

Fig. 1.

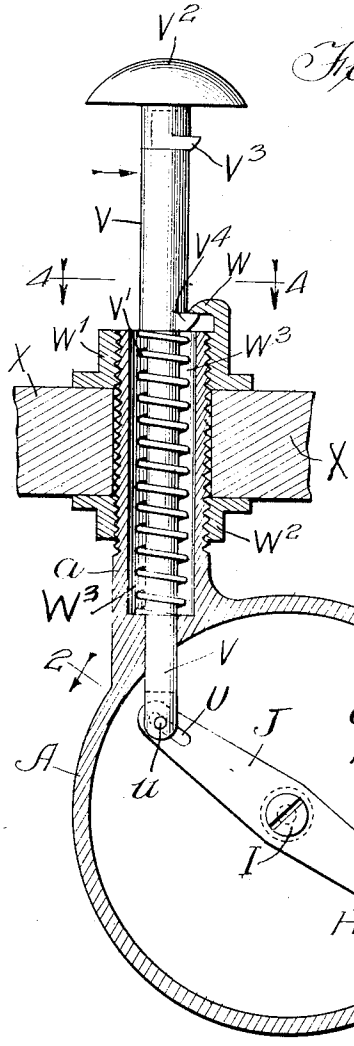


Fig. 2.

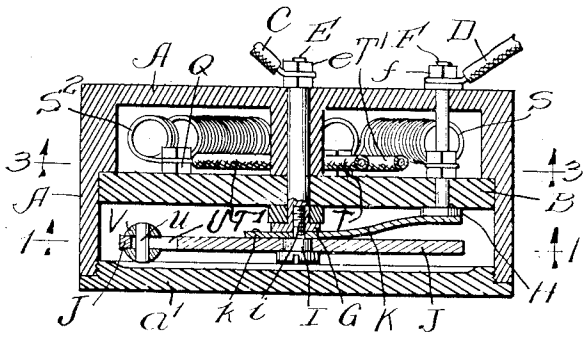


Fig. 4.

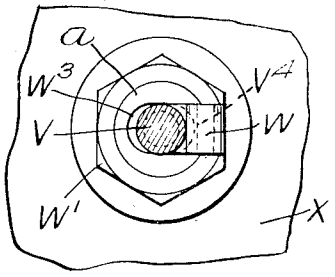
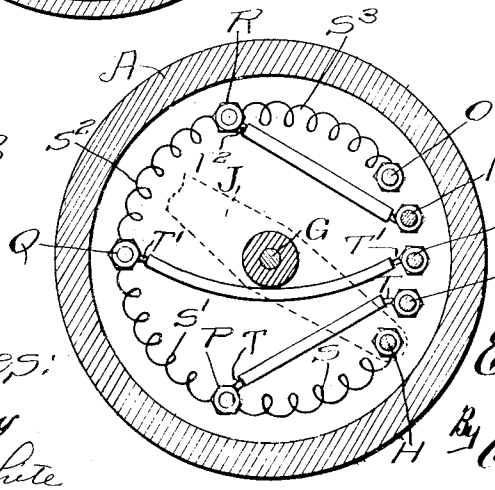


Fig. 3



Witnesses:

W. L. Kilroy

Harry R. L. White

Inventor:

Eugene J. Klinger,

By Charles Turner Brown,

Atty.

UNITED STATES PATENT OFFICE.

EUGENE J. KLINGER, OF SOUTH ELGIN, ILLINOIS.

DIMMER FOR ELECTRIC LIGHTS.

1,356,293. Specification of Letters Patent. Patented Oct. 19, 1920.

Application filed December 13, 1919. Serial No. 344,560.

To all whom it may concern:

Be it known that I, EUGENE J. KLINGER, a citizen of the United States, and a resident of South Elgin, in the county of Kane and State of Illinois, have invented certain new and useful Improvements in Dimmers for Electric Lights, of which the following, when taken in connection with the drawing accompanying and forming a part hereof, is a specification.

This invention relates to a dimmer for use on circuits having electric lamps thereon, and particularly on circuits established on automobiles whereof the head lights are elements.

Among the objects of this invention are to obtain a dimmer which is compact in form, easily operated by the foot, and by means of which the dimming of the headlights of an automobile may be more or less completely effected at the will of the operator, and which, when the lights are completely dimmed automatically maintains said lights in said dimmed condition until the operator desires to wholly or partially restore the lights to their undimmed and normal condition. Said restoration being effected by the operation of the pedal by means of which the dimming is accomplished.

To those accustomed to country driving in automobiles, it is well known that at times a slight dimming of the headlights for a brief period is desirable; at other times greater dimming is required; and occasionally a very considerable dimming for a comparatively long period of time is necessitated; and that at such times the foot of the operator should be removed from the dimming pedal, to be in readiness for operation of the foot brake, or the clutch of the automobile.

The manner in which I obtain the several desired results above recited is embodied in the construction which is illustrated in the drawings aforesaid, in which

Figure 1 is a vertical section on line 1—1 of Fig. 2;

Fig. 2 is a section on line 2—2 of Fig. 1;

Fig. 3 is a section on line 3—3 of Fig. 2, and

Fig. 4 is a section on line 4—4 of Fig. 1.

All of said sections are viewed in the directions indicated by arrows.

A reference character applied to designate a given part indicates said part throughout the several figures of the drawing, wherever the same appears.

A represents the shell or case of the device, said shell being provided with the externally screw threaded neck *a*, and the cover a^1. B represents a partition in shell A, C and D, respectively represent an incoming and an outgoing wire to the device, said wires being obtained by simply cutting a line wire of the headlight circuit, and attaching the ends obtained thereby to binding posts E and F, as by nuts *e*, *f*. The binding post E is provided with head G, which is illustrated in section in Fig. 2, and binding post F is provided with a similar head, lettered H. I represents a pivot which serves as the fulcrum of lever J, and is provided with external screw threads, *i*, engaging with corresponding internal screw threads in one end of binding post E, as is illustrated in Fig. 2. K represents a resilient member of electric conducting material, which forms a bridge adapted to close the several circuits of the device, as is hereinafter more fully set forth; and is secured to lever J, (as by rivet *k*) to be moved by the movement of said lever. L, M, N and O, respectively represent terminals, with which one end of resilient conductor or member K is successively put into electric contact upon the turning of said lever J on its fulcrum I, in the manner hereinafter described. It is to be observed that the resilient member K is of sufficient width, relative to the spaced relation of said terminals, that in moving from one of said terminals to the adjacent one thereof said member is in electric contact, at all times, with one or both of said adjacent terminals. P, Q and R are additional terminals, to which the resistance coils S, S^1, S^2, and S^3, are electrically connected. The resistance coil S is in electrical contact at one end thereof with head H of binding post F and at the other end with terminal P. T represents an electrical conductor which is in electric contact at one end with terminal P and at the other end to terminal L. The resistance coil S^1 is in electric contact, at one end, with terminal P and at the other end with terminal Q. T^1 represents an electrical conductor which is in electric contact at one end with terminal Q and at the other end with terminal M. Resistance coil S^2 is in electric contact at one end to terminal Q and at the other

end with terminal R, and resistance coil S^3 is in electric contact at one end to said terminal R and at the other end to terminal O. T^2 represents an electric conductor which at one end is in electric contact with terminal R and at the other end with terminal N.

The lever J is illustrated as provided with a slot U, and *u* represents a pin which is secured in the end of plunger or pedal V, to extend through said slot. V^1 represents a coiled spring which yieldingly holds pedal V in its normal condition, as is illustrated in Fig. 1. V^2 represents the head of pedal V, with which head the foot of the operator contacts to operate said pedal. V^3 represents one member of a latch which is secured on said pedal, and W represents a latch member arranged to co-act with latch member V^3, when pedal V is depressed to its limit of movement. V^4 illustrates a latch member on pedal V which co-acts with latch member W to limit the upward movement or travel of said pedal.

The neck *a* of the casing being provided with external screw threads, as recited, to secure the device in place to the floor of the body of an automobile, (a section of said floor being illustrated in Fig. 1 and designated by letters X, X), nuts W^1 and W^2, are placed thereon and turned to place against said floor, as is illustrated in said Fig. 1.

The several parts of the dimmer being in the position illustrated in Fig. 1, the circuit in which the head lights are elements, comprises the wire C, (Fig. 2), binding post E, pivot I secured therein, resilient conductor K, head H and binding post F, and the conductor D. The light circuit is at this time continuous, without resistance coils being cut thereinto, and the head lights are in their normal light giving condition.

Upon the pedal V being depressed the lever J is thereby turned on its fulcrum I, and if said depression is continued to the limit of travel thereof the resilient conductor K is successively moved into electric contact with terminals L, M, N and O. When said resilient conductor K is in electric contact with terminal L, said headlights circuit, comprises, as before, the binding post E, pivot I, conductor K, terminal L, conductor T, terminal P, resistance coil S, head H and post F, and conductor D. The head lights are at this time partially dimmed by the resistance coil S being cut into the circuit, as described. When conductor K is in electric contact with terminal M the conductor T^1 and resistance coils S and S^1 are in said headlights circuit and the headlights are still further dimmed. When said conductor K is in electric contact with terminal N the conductor T^2 and resistance coils S^2, S^1 and S are in said head lights circuit. And when said conductor K is in electric contact with terminal O the resistance coils S^3, S^2, S^1 and S are all in said circuit, and the head lights are thereby dimmed to the limit of the device.

It will be observed that the cylindrical passage W^3, through the neck *a* is larger, in at least one diameter thereof, than the diameter of the pedal V and spring V^1; said difference being sufficient to permit transverse movement of the spring and pedal so that member V^3 of the latch may travel by member W to engage therewith; and by a slight movement of the foot of the operator said members are engaged. When it is desired to release said members from engagement a movement of the foot of the operator in the opposite direction, (to the left as pedal V is viewed in Fig. 1) is made, and said release effected.

I claim:

1. In a dimmer, a case consisting of a cylindrical wall of insulating material, provided with an externally screw threaded neck, a bottom to said case and a hollow post to said bottom, a partition in said case and a cover to one end of the case, said bottom, hollow post, partition and cover of insulating material, a post of electric conducting material extending through said bottom, hollow post and partition and secured rigidly in place, a lever of insulating material fulcrumed on said post between said partition and cover, a longitudinally movable pedal extending through said neck and associated with said lever to control its fulcrumed position, means positioned in said neck to yieldingly hold said pedal and lever in normal position, a binding post, a series of terminals in spaced relation to said binding post, a series of resistance coils, the first thereof in electric contact with said binding post and the last in electric contact with the last one of said series of terminals, an additional series of terminals in electric contact with said series of coils and in electric connection with said first terminals, in combination with a yielding electric conductor associated with said lever to be in electric connection with said first post when said lever is in normal position and to successively be in electric connection with said first terminals on said lever being turned on its fulcrum to the limit of its travel.

2. In a dimmer, a case consisting of a cylindrical wall of insulating material, provided with an externally screw threaded neck, a bottom to said case and a hollow post to said bottom, a partition in said case and a cover to one end of the case, said bottom, hollow post, partition and cover of insulating material, a post of electric conducting material extending through said bottom, hollow post and partition and secured rigidly in place, a lever of insulating material fulcrumed on said post between said partition and cover, a longitudinally

movable pedal extending through said neck and associated with said lever to control its fulcrumed position, means positioned in said neck to yieldingly hold said pedal and lever in normal position, a binding post, a series of terminals in spaced relation to said binding post, a series of resistance coils, the first thereof in electric contact with said binding post and the last in electric contact with the last one of said series of terminals, an additional series of terminals in electric contact with said series of coils and in electric connection with said first terminals, in combination with a yielding electric conductor associated with said lever to be in electric connection with said first post when said lever is in normal position and to successively be in electric connection with said first terminals on said lever being turned on its fulcrum to the limit of its travel, and means associated with said lever to latch said lever in said limit of travel position.

3. In a dimmer, a case consisting of a cylindrical wall of insulating material, provided with a neck, a bottom to said case and a hollow post to said bottom, a partition in said case and a cover to the open end of the case, said bottom, hollow post, partition and cover of insulating material, a post of electric conducting material extending through said bottom, hollow post and partition and secured rigidly in place, a lever of insulating material fulcrumed on said post between said partition and cover, a longitudinally movable pedal extending through said neck and associated with said lever to, control its fulcrumed position, means positioned in said neck to yieldingly hold said pedal and lever in normal position, a binding post, a resistance coil comprising a plurality of sections, one end of said coil in electric connection with said binding post, a yielding electric conductor mounted on said lever and in electric connection with said first post and said binding post, and means to successively bring said yielding electric conductor into electric contact with said sections on the turning of said lever on its fulcrum against the resiliency of said means to yieldingly hold the lever in normal position.

EUGENE J. KLINGER.

Witnesses:

CHARLES TURNER BROWN,

EDWARD J. ROCHE.