Feb. 22, 1955 G. A. JACKSON, SR., ET AL 2,702,840

AUTO LIGHT SWITCH AND BATTERY SAVER

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Fig. 1.

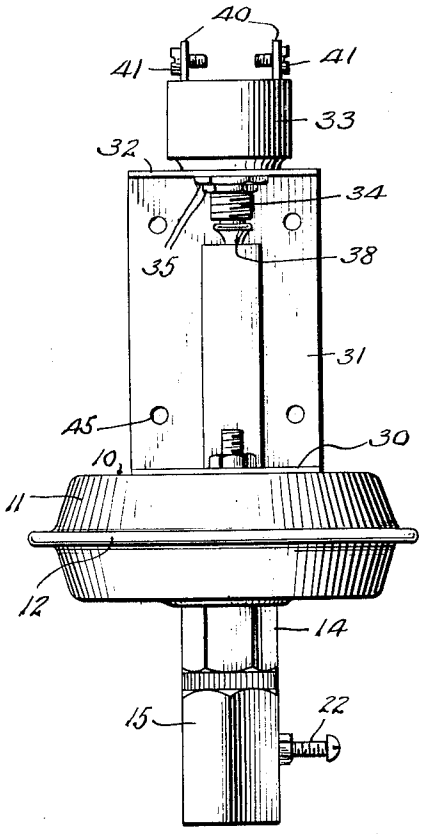

Fig. 2.

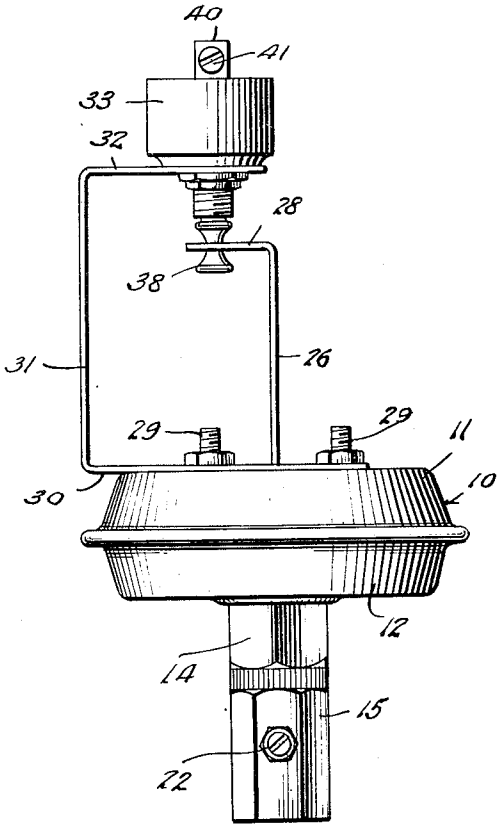

Fig. 3.

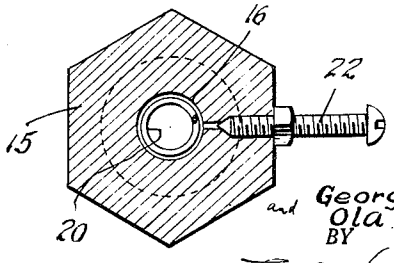

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Fig. 3.

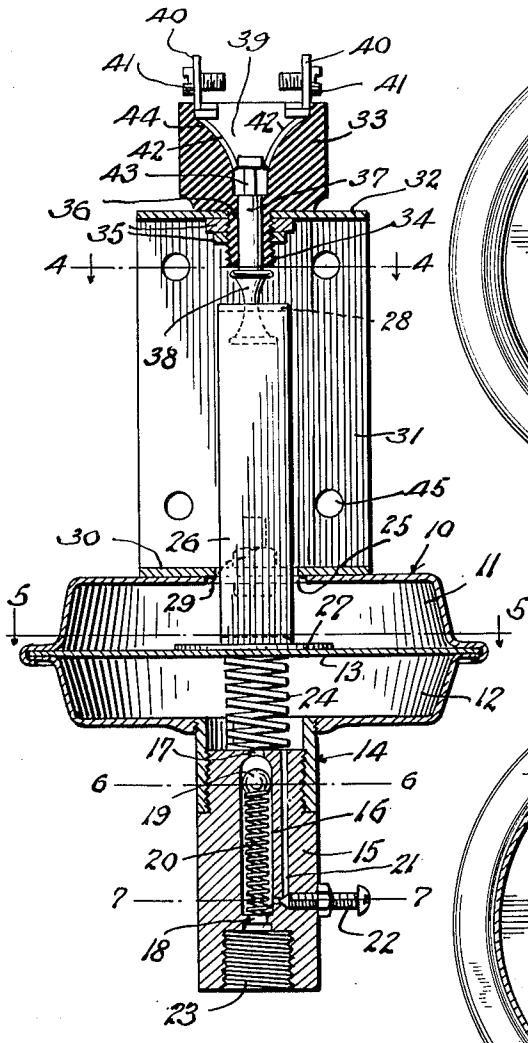


Fig. 4.

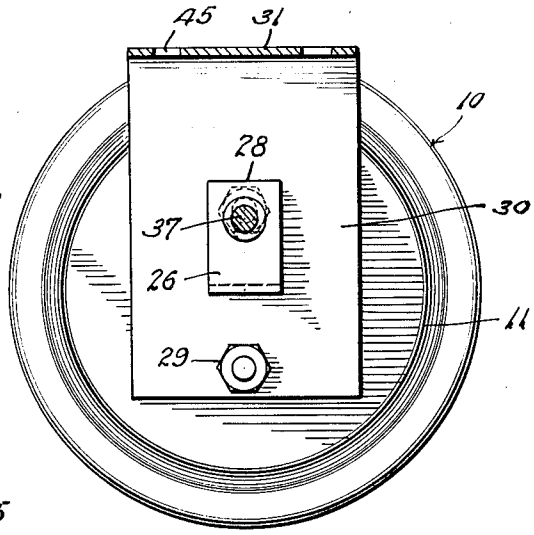


Fig. 5.

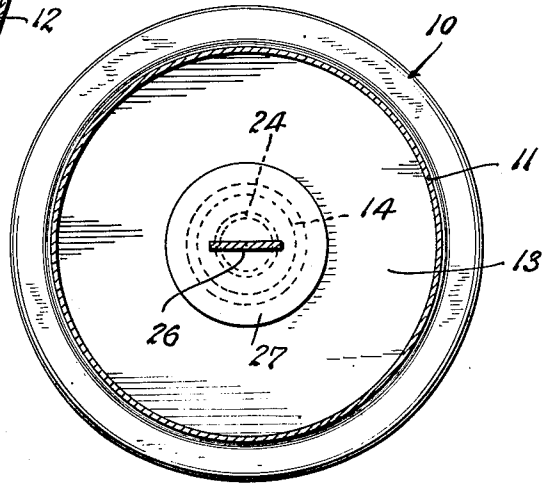
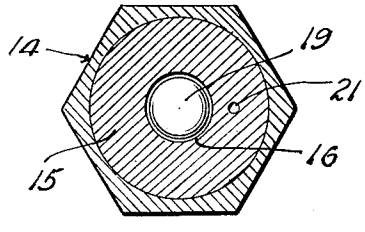


Fig. 6.



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2,702,840

AUTO LIGHT SWITCH AND BATTERY SAVER

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Application June 13, 1952, Serial No. 293,256

1 Claim. (Cl. 200—83)

This invention relates to a circuit control for automobiles and has special reference to a lost time control for the lamp and spark plug circuits of an automobile.

One important object of the invention is to provide a control device of this kind, by means of which lamps left burning will be automatically cut off when the ignition switch is closed.

A second important object of the invention is to provide a circuit control of this character wherein the cutting off of a lamp circuit, upon opening of the ignition switch, will be effected at a time interval after such opening of the ignition switch, so that a person will have time and opportunity to leave the automobile, as in a garage, and leave the immediate vicinity of such automobile while the lamps are still energized.

A third important object of the invention is to provide a novel means whereby the time interval above referred to may be regulated at the will of the user.

A fourth important object of the invention is to provide a circuit controller of this character which will simultaneously control other circuits than the lamp circuit.

The invention consists in general of certain novel details of construction and combinations of parts, hereinafter fully described, illustrated in the accompanying drawings, and particularly claimed.

In the accompanying drawings like characters of reference indicate like parts, and:

Fig. 1 is a side elevation of the improved circuit controlling device.

Fig. 2 is a view similar to Fig. 1 but taken at right angles thereto.

Fig. 3 is a vertical section taken diametrically through a certain capsule and circuit closure used herein, the view being substantially at right angles to the axis of Fig. 1.

Fig. 4 is a sectional view on the line 4—4 of Fig. 3.

Fig. 5 is a sectional view on the line 5—5 of Fig. 3.

Fig. 6 is an enlarged section on the line 6—6 of Fig. 3.

Fig. 7 is an enlarged section on the line 7—7 of Fig. 3.

The main feature of this invention comprises a body 10 in the form of a capsule having an upper chamber 11 and a lower chamber 12, which are separated by a flexible diaphragm 13. Depending from the center of the lower chamber 12 is a nipple 14 wherein is screwed the upper end of a valve casing 15. This valve casing 15 has an axial passage 16 extending therethrough and provided with a reduced portion 17 at its upper end and a second reduced portion 18 at its lower end. The reduction at 17 provides for a seat whereon a ball valve 19 may seat at a certain stage in the operation of the device. The reduction 18 provides for a seat on which engages the lower end of a spring 20 on the upper end of which is held the ball valve 19. Extending down from the upper end of the valve casing is a bleeder passage 21, the lower end of which communicates with the passage 16 below the ball valve. This passage 21 is controlled by a needle valve 22, which may be regulated at will. The lower end of the casing 15 is provided with a threaded connection 23, whereby a tube leading from the intake manifold of the automobile may be connected thereto. A spring 24 seats at its upper end on the center of the diaphragm and its lower end on top of the valve casing 15 so that this spring urges the flexible diaphragm to bow upwardly.

The capsule has an opening 25 in its top and extending upwardly through that opening is a bar 26 having a foot 27 resting on the diaphragm. The upper end of the bar 26 is bent to extend laterally and form a fork as at 28. Secured to the top of the capsule by bolts 29 is the foot

30 of a bracket member 31 having a lateral extension 32 parallel and above the extension 38. At 33 is a switch body of any suitable insulating material. This body has a neck 34 which extends downwardly through a suitable opening in the bracket top 32 and is threaded for the reception of nuts 35 forming means for securely mounting the switch body. The neck 34 and the lower part of the body 33 have a passage 36 therethrough wherein is slidably mounted a plunger 37 provided at its lower end with a spool-shaped extension 38 engaging in the fork 28. Leading downwardly from the top of the body to the opening or passage 36 is a conoidal cavity 39 and at opposite points of this cavity are mounted brackets 40 provided with binding screws 41 and with spaced extensions 42. The plunger 37 has an upward extension 43 provided on its top with a contact head 44. Screw holes 45 are provided in the bracket 31 to enable the device to be attached to any desired part of the automobile.

In the operation it may be assumed that the engine is running and the valve casing 15 is connected to the intake manifold of the automobile engine. Under these conditions the ball valve will be drawn down from its seat and a partial vacuum will be established in the chamber 12. Now under these conditions it may be considered that the diaphragm 13 is horizontal. Also at this time the head 44 effects contact between the members 42, so that if a circuit, having an open gap, has the ends at the opening secured by the binding posts 41, such a circuit will be closed. If the ignition switch be now open, the engine will stop running. Immediately the ball valve will rise and close the main opening at the top of the valve casing, which communicates with the chamber 12. The spring 24 will now act to bow the diaphragm upwardly but resistance to this upward bowing will still be maintained by such a partial vacuum as may exist in the chamber 12. However, fluid under normal pressure will leak upwardly trough the bleeder 21 until normal atmospheric pressure exists on both faces of the diaphragm. Thus the spring would effect raising of the bar 26 and consequent raising of the head 44 out of engagement with the members 42 and the circuit under control will be broken. Obviously, adjustment of the needle valve will entirely control the time interval required to bring both faces of the diaphragm under normal atmospheric pressure. Moreover, if it be desired to maintain the lights in illuminated condition, it is merely necessary to close the needle valve 22 and thereby the partial vacuum required to close the circuit will be maintained and illumination of the lights will continue. Thus, if it is desired to change a tire or to maintain the light globe, provision is made therefor. Obviously the needle valve would be readjusted to its normal position as soon as one ceased to require constant illumination of the lights.

What is claimed is:

In a circuit control for automobiles a disc-like capsule consisting of a pair of frusto-conical members having their major ends confronting each other and provided with peripheral flanges, a flexible diaphragm extending across said capsule and having its peripheral edges gripped between said flanges to provide upper and lower chambers in the capsule, said members having flat and parallel minor ends, wherein are provided centrally alined openings, a tubular member extending downwardly from the opening in the lower end of the capsule and being internally threaded, a valve casing having its upper ends screwed into said tubular member, a coiled compression spring interposed between said diaphragm and said valve casing, said valve casing having a vertically arranged passage therethrough provided at its upper end with a valve seat opening toward said capsule, said valve casing having a threaded connection for a suction pipe at its lower end below said chamber, a ball valve in the upper end of said chamber, a coiled compression spring interposed between the suction pipe connecting opening and said ball valve, a bracket supported on the upper face of said capsule and having a portion extending over the center of the capsule, a normally closed circuit closure carried by the last mentioned portion of the bracket and including a plunger, extending downwardly from the circuit closure, a co-acting plunger mounted on said diaphragm

and extending upwardly for engagement with said plunger, said first plunger including a spindle shaped lower end and the second plunger including a forked end fitting on the spindle-shaped end of the first plunger.

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