Dec. 2, 1941. T. V. HEUSCHKEL 2,264,441

AUTOMOBILE BACKING LIGHT

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Fig. 1.

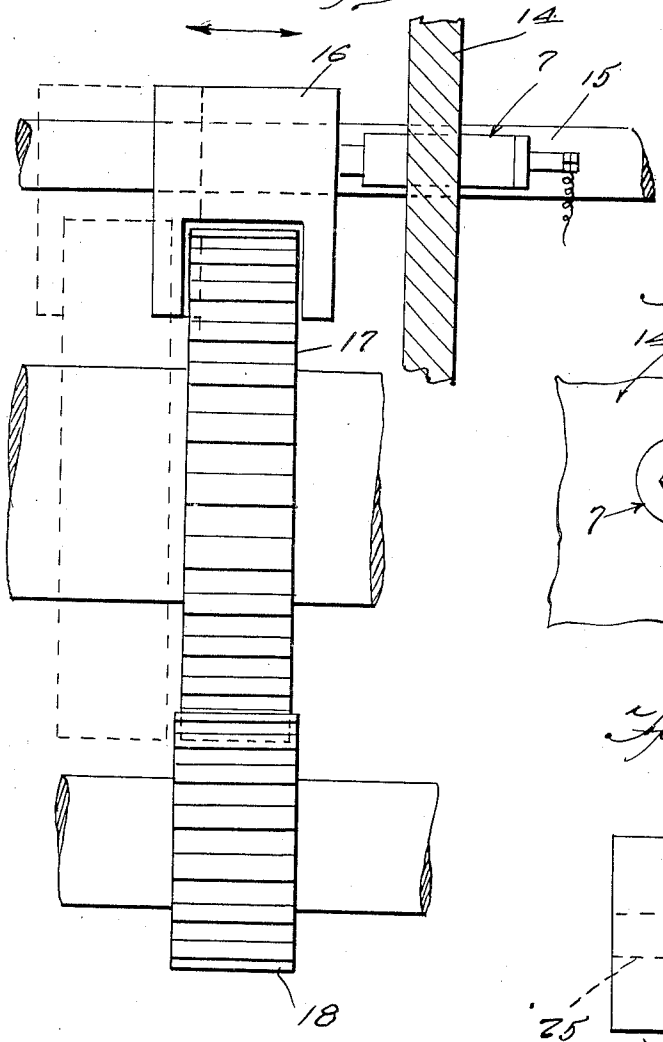


Fig. 3.

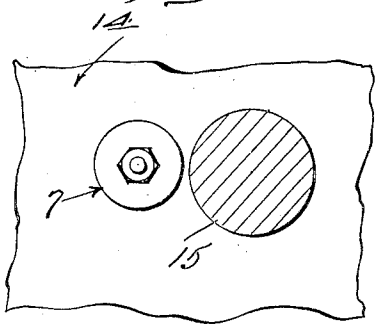
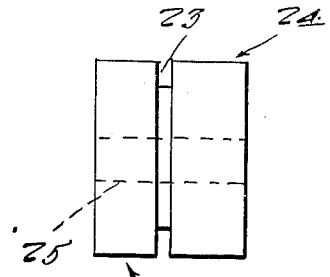
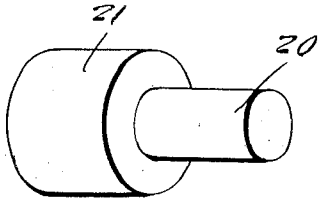


Fig. 5.



INSULATION

Fig. 4.



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Fig. 6.

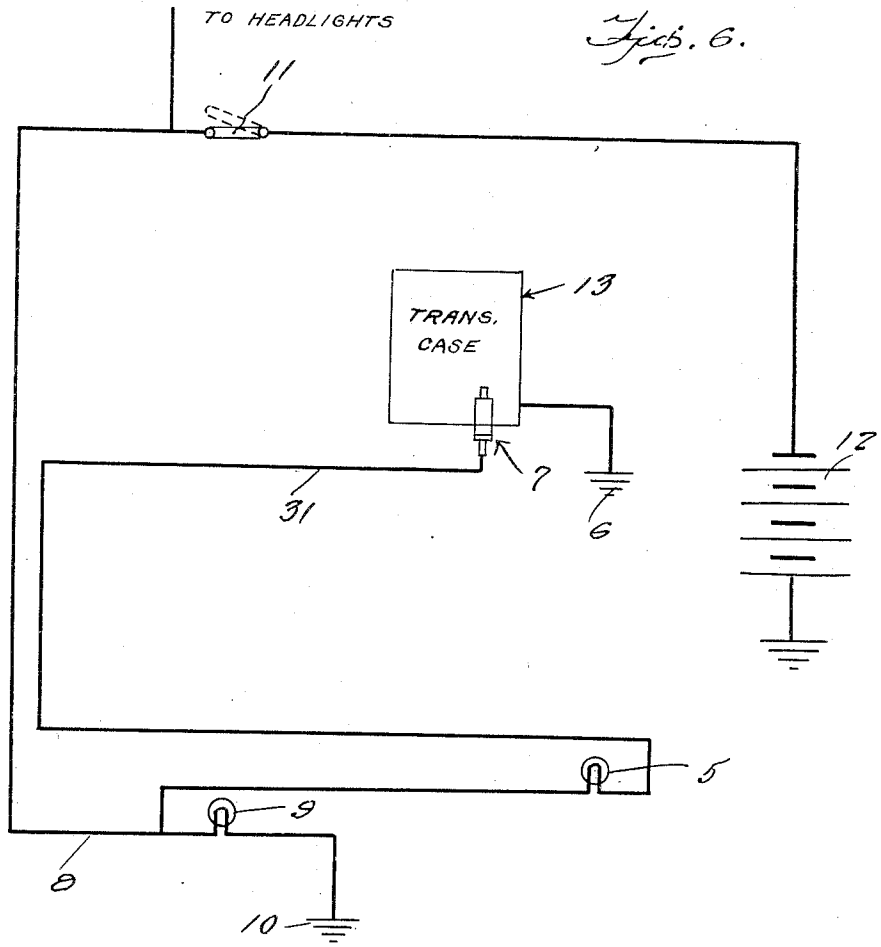
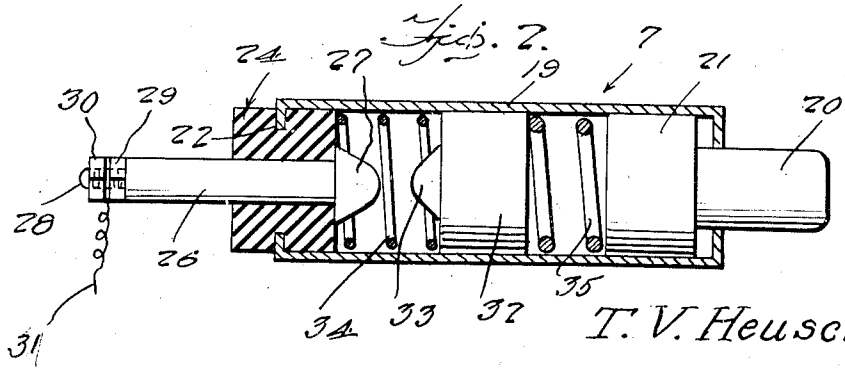


Fig. 2.



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UNITED STATES PATENT OFFICE

2,264,441

AUTOMOBILE BACKING LIGHT

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Application August 8, 1939, Serial No. 289,032

2 Claims. (Cl. 200—59)

My invention relates to a backing light for an automobile which is automatically operated upon shifting the transmission into reverse gear preparatory to driving the automobile in reverse, and an important object of my invention is to provide a simple, efficient, and inexpensive arrangement of this character which is practical and easily installed.

Other important objects and advantages of my invention will be apparent from a reading of the following description in connection with the drawings wherein for purposes of illustration I have shown a preferred embodiment of my invention.

In the drawings:

Figure 1 is a general longitudinal vertical fragmentary sectional view showing a portion of an automobile transmission in effective relation to the switch of the present invention.

Figure 2 is an enlarged longitudinal vertical sectional view taken through the switch.

Figure 3 is a fragmentary enlarged transverse vertical sectional view taken through the right hand upper part of Figure 1 and looking toward the left.

Figure 4 is a perspective view of the switch operating plunger.

Figure 5 is a side elevational view of the dielectric bushing.

Figure 6 is a schematic wiring diagram showing suitable electrical connections for efficient operation of the invention.

The invention comprises connection of one side of the bulb of a lamp 5 suitably mounted on the rear of the automobile with ground as indicated by the numeral 6, a transmission operated switch 7 being interposed, and the remaining side of the bulb 5 being connected to the regular tail-light wire 8 which is connected to one side of the tail light 9 whose remaining side is grounded as indicated by the numeral 10, the wire 8 leading to the ordinary light switch 11 which has its remaining side connected to the ungrounded side of the automobile battery 12. The transmission which is generally designated 13 is of a conventional type and involves the transmission case which includes a support 14 through which works the low and reverse shifter yoke guide bar 15 which carries the low and reverse shifter yoke 16 in operative relation to the low and reverse gear 17 which is in mesh with the reverse counter gear 18. As indicated by the arrow in Figure 1 of the drawings, the yoke 16 is adapted to be shifted forwardly and rearwardly and in being shifted to engage the counter-gear 18, approaches the support member 14. On this member 14 is fixedly mounted the switch 7 which comprises suitably a cylindrical metallic casing 19 through one end of which slidably projects the reduced portion 20 on the plunger 21 which works in the right hand end of the casing 19. The opposite end of the casing 19 is provided with a radial flange 22 which is arranged to engage in a circumferential groove 23 in a cylindrical dielectric bushing 24 whereby the bushing is held assembled in proper relation to the cylinder 19. Through the central bore 25 in the bushing 24 is fixed a contact rod 26 which has on its axially inward end a rounded and tapered contact head 27 and at its opposite end a reduced threaded portion 28 on which are turned respective nuts 29 and 30 adapted to compress and secure between them the wire 31 which leads to one side of the light bulb as indicated in Figure 6. Movably mounted between the contact head 27 and the plunger 21 is a floating plunger 32 of metal which has in opposition to the contact head 27 a generally similarly formed contact 33, the opposite end of the plunger 32 being substantially flat. A helical spring 34 is interposed between the inner end of the bushing 24 and the adjacent end of the plunger 32 to normally urge the contact 33 out of engagement with the contact 27. Between the plunger 21 and the plunger 32 is a helical spring 35 which is stiffer and stronger than the spring 34, the relative arrangement of the springs producing the desired dashpot action in the opening and closing operations of the switch. The casing 19 being grounded to the chassis of the automobile through contact with the transmission case, the circuit between ground and one side of the lamp 5 is completed when the contact 33 is moved to engage the contact 27 by the movement of the low and reverse shifter yoke 16 toward the support 14 and into operative engagement with the reduced portion 20 of the plunger 21.

Due to the fact that the backing light circuit is inoperative except when the light switch 11 is in the "on" position, there is no chance of the operator of the automobile to forget to place the device in operative condition for backing up at night or forgetting to turn off the device when not needed in daylight. It will be noticed that the bulb 5 is automatically energized whenever the transmission is shifted into the reverse position so that the light goes on even before the actual backing up of the automobile takes place, for illuminating the road to the rear of the automobile.

Although I have shown and described herein a preferred embodiment of my invention, it is to be definitely understood that I do not desire to limit the application of my invention thereto except as may be required by the scope of the subjoined claims.

Having described the invention, what is claimed as new is:

1. A switch comprising a cylinder, an insulated stationary contact exposed within one end of said cylinder, a floating contact comprising a cylindrical body slidable in said cylinder toward and away from said stationary contact, a first expanding spring operatively interposed between said stationary contact and said cylindrical body, a plunger extending through the opposite end of said cylinder, said plunger comprising a cylindrical head slidable in said cylinder, and a second expanding spring operatively interposed between said floating contact and said head of the plunger, said second spring being heavier than said first spring.

2. A switch comprising a metal cylinder, a dielectric bushing mounted in one end of said metal cylinder, a stationary contact on said bushing exposed within said one end of the cylinder, a floating contact comprising a cylindrical metal body slidable in said cylinder toward and away from said stationary contact, said metal body being in electrical engagement with said cylinder, a first expanding spring operatively interposed between said bushing and said floating contact, a plunger working through the opposite end of said cylinder, said plunger comprising a cylindrical head slidable in said cylinder, and a second expanding spring operatively interposed between said head and said floating contact, said second spring being substantially stiffer than said first spring.

THOMAS VERN HEUSCHKEL.