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ILLUMINATING MEANS FOR CAR DOOR LOCKS

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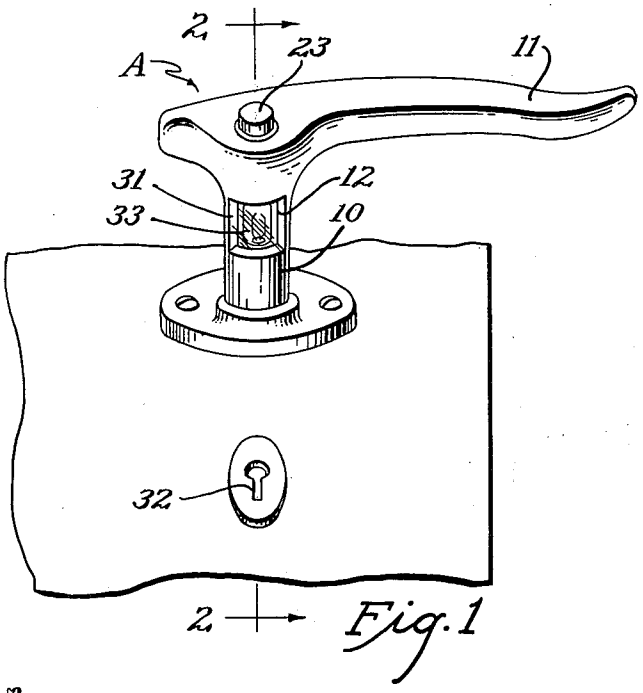


Fig. 1

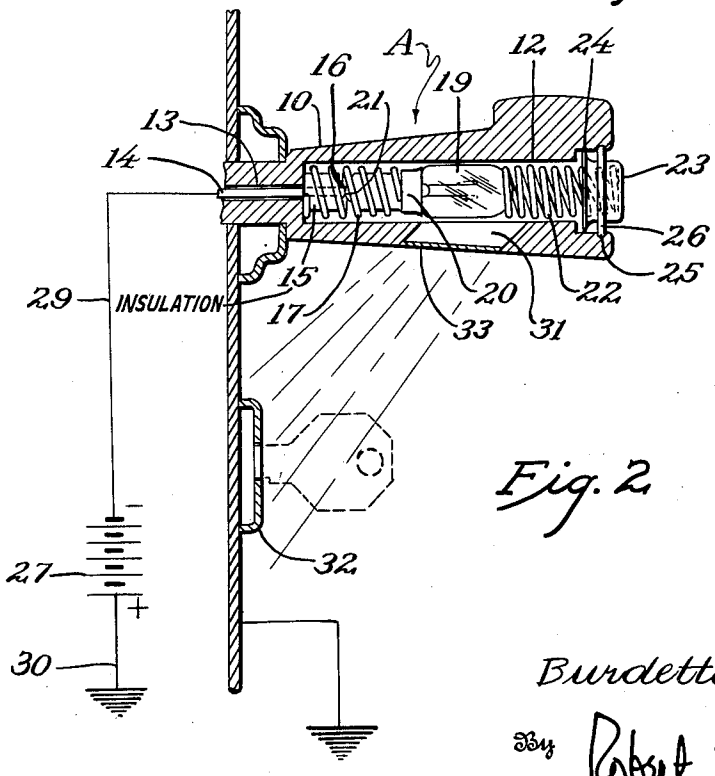


Fig. 2

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ILLUMINATING MEANS FOR CAR DOOR LOCKS

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3 Claims. (Cl. 240—2.13)

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My invention relates to an improvement in illuminating means for car door locks wherein it is desired to provide a means of illuminating the key hole of a car door.

Considerable difficulty is experienced in unlocking a car door due to the fact that the key hole is difficult to locate at night. Oftentimes the general location of the key hole may be seen, but it is difficult to properly insert the key in the lock without illumination. The present device is designed to illuminate the lock during the unlocking or locking process.

An object of the present invention lies in the provision of an illuminating means which is located in the handle of the car door. In the past other attempts have been made to incorporate a light in a car door handle capable of illuminating the key hole which is usually located directly beneath the door handle. Certain of these devices have been operated by a push button in the door hande when illumination is desired. Most such devices have been rather complicated in nature and difficulty has been experienced in keeping the lights from being broken during the operation of the door. It is an object of the present invention to provide a means of supporting the light so that it will not be broken by shock during the closing of the door.

A feature of the present invention lies in the provision of an axial recess in a door handle and in providing an electrical contact extending to the base of this recess. A light bulb is slidably supported in the recess and movable into engagement with said electrical contact. By this means a circuit is closed to the light bulb illuminating the portion of the surface of the vehicle immediately below the door handle.

A feature of the present invention lies in the provision of a spring which acts to support the socket of the light bulb and into which the threaded end of the light bulb may engage. The terminal at the extremity of the light bulb is normally held in spaced relation to the electrical contact of the handle recess by this spring. The spring acts to ground the threaded portion of the light socket and when the spring is compressed the terminal at the end of the bulb engages the corresponding terminal of the handle recess to close a circuit to illuminate the light bulb.

A feature of the present invention resides in the provision of a second spring interposed between the end of the bulb and the operating button or plunger. As a result the light bulb is supported between two helical springs which act to cushion the shock and to hold the light bulb in spaced relation to the walls of the recess so that the light bulb will not be broken when the door is closed.

A feature of the present invention lies in the supporting of a light bulb between two springs,

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both of which may be compressed to some extent by the depression of the operating button. As the operating button on the door handle is pressed inwardly the light is moved toward a fixed electrical terminal sufficiently to contact the same to thereby close a circuit to the bulb.

These and other objects and novel features of my invention will be more clearly and fully set forth in the following specification and claims.

In the drawings forming a part of my specification:

Figure 1 is a bottom perspective view of a car door handle showing the illuminating means incorporated therein.

Figure 2 is a cross sectional view through the door handle showing the construction thereof.

The door handle A illustrated in the drawings may be of any suitable shape or size. In the particular form of construction illustrated the handle A includes a rotatable shank 10 provided with a radially extending handle 11 at its outer extremity. The handle 11 may be gripped by the hand to provide the necessary leverage for rotating the shank 10. The rotation of the shank 10 acts to operate the door latch in a manner well known in the art and not shown in detail in the accompanying drawings.

The shank 10 is provided with an axial recess 12 extending longitudinally thereof. The recess 12 communicates with an axial passage 13 extending the remainder of the distance through the handle shank. An insulated electrical conductor 14 extends through the aperture 13 and through an insulating block 15 within the recess 12. The conductor 14 is electrically connected to a terminal 16 on the insulation plug 15 and located centrally of the recess 12.

A helical spring 17 is mounted in the recess 12 to extend to the base of this recess. The spring 17 in the form of construction illustrated is shown as encircling the insulation plug 15 and contacting the base of the aperture 12. This specific form of arrangement is not essential to the invention, but it permits a longer length of spring to be used and insures the engagement of the spring 17 with the metallic handle 11. It is necessary that the spring 17 be grounded to the metallic portion of the vehicle so as to complete the circuit to the light bulb.

The light bulb 19 is of a conventional type provided with an externally threaded socket 20. This socket 20 is screwed into the spring 17 so that the convolutions of the spring encircle the threaded socket. The spring 17 is of proper length to normally space the electrical terminal or contact 21 at the base of the bulb from the terminal 16 connected to the conductor 14. Thus as a result the circuit is broken under normal conditions between the terminals 16 and 21. However, the usually grounded side of the cir-

cuit is complete to the metallic threaded socket 20 of the bulb 19.

A second spring 22 is provided in the aperture 12 which is engaged against the rounded end of the bulb 19. The spring 22 is of proper diameter to fit readily within the aperture or recess 12 and to accommodate a portion of the bulb so as to hold the bulb aligned within the recess. The spring 22 is held in place by means of a cup-shaped element 23 into which the outer end of the spring 22 extends. The cup shaped element 23 is provided with a peripheral flange 24 which is slidable within the enlarged diameter end 25 of the recess 12.

A retaining ring 26 is provided in the enlarged diameter recess end 25 to limit the outward slidable movement of the cup-shaped element 23. The retaining ring preferably fits in a groove in the recess end 25 and is of the external expansion type so as to snugly fit in place and to limit the slidable movement of the cup shaped element 23. The inward movement of this element is limited by the shoulder between the large diameter end 25 of the recess 12 and the remainder of this recess.

The cup shaped element 23 forms a projecting button by means of which the bulb 19 may be moved. When the element 23 is in its outer extreme position with the flange 24 against the retaining ring 26, the terminal 21 at the socket end of the bulb 19 is spaced from the fixed contact or terminal 16 so that the circuit to the light bulb is broken at this point. By pressing inwardly on the element 23 the spring 22 is compressed to some extent and exerts a pressure against the glass end of the bulb 19. This action tends to compress the spring 17 until the terminals 21 and 16 contact one another. This closes a circuit through the car battery 27 through a suitable conductor 29. The other end of the battery 27 is grounded at 30 as is also the metallic handle 10.

As indicated in the drawings an aperture 31 is provided through the lower portion of the handle shank 10 communicating with the recess 12 at a point below the light bulb 19. Thus when the circuit is closed at this bulb, rays of light shine through this aperture 31 and open the key hole 32 which is positioned beneath the handle. In preferred form a curved shield 33 of transparent plastic or other suitable material is pressed into the aperture 31 so as to enclose the light bulb 19. This transparent shield 33 prevents moisture and dirt from entering the interior of the door handle.

The operation of the light has been described and should be clearly understood from the foregoing description. When it is desired to illuminate the key hole 32 the handle 11 is grasped and the element 23 is pressed inwardly until the circuit is closed and the bulb is illuminated. The light may be turned off at any time by merely releasing inward pressure upon the element 23.

In the event the bulb 19 shall become burned out it is only necessary to remove the retaining ring 26. The cup shaped element 23 will then be urged outwardly by the spring 22 and the spring may be grasped and removed. The light bulb 19 and its supporting spring 17 are then freely slidable in the recess and may be removed with little difficulty. The spring 17 has a tendency to urge the light bulb outwardly and if the light bulb is pressed inwardly and the inward pressure suddenly released the spring and bulb usually slide outwardly to such an extent that it is possible to grasp the bulb and remove the same. The burned out bulb is unscrewed from the end of the spring 17 and a new one put in its place. The assembled spring and bulb are then urged into the recess 12, the spring 22 is reinserted, the element 23 inserted and the spring slightly compressed and the retaining ring 26 is then inserted in place.

In accordance with the patent statutes, I have described the principles of construction and operation of my illuminating means for car doors, and while I have endeavored to set forth the best embodiment thereof, I desire to have it understood that obvious changes may be made within the scope of the following claims without departing from the spirit of my invention.

I claim:

1. A door lock illuminating means for a door handle having an elongated recess therein and having an aperture through the handle communicating with said recess, an electrical contact at the base of said recess and substantially axially thereof, a helical spring engaging the base of the recess and encircling the contact and electrically spaced therefrom, a light bulb having a rounded transparent end and a metal screw threaded portion at its opposite end, a center contact at said opposite end of the bulb and electrically spaced from said metal screw threaded portion, said spring encircling the metal screw threaded portion and engaged in the screw threads thereof, said spring normally holding the center contact of the bulb in spaced relation to the electrical contact at the base of said recess, a second helical spring engaging the rounded transparent end of the bulb and holding the bulb axially centered relative to the second spring, and means in the outer end of the recess engageable with said second spring to compress the second spring against the transparent bulb end and compressing the first spring while said springs hold the light bulb axially thereof, compression of the first spring moving the center contact of the light bulb against said electrical contact at the base of the recess and moving the light bulb into position to direct light rays through said aperture.

2. The construction described in claim 1 and including means for retaining said spring compressing means in said recess.

3. The structure defined in claim 1 and including a larger diameter portion of said recess at the outer extremity thereof forming an annular shoulder within said recess, a flange on said spring compressing means slidable in said enlarged diameter recess, and means for retaining said flange in the enlarged portion of said recess.

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