Feb. 8, 1938. J. W. HOBBS 2,107,570

AUTOMATIC SWITCH LAMP SOCKET

Filed Dec. 2, 1935

Fig. 1.

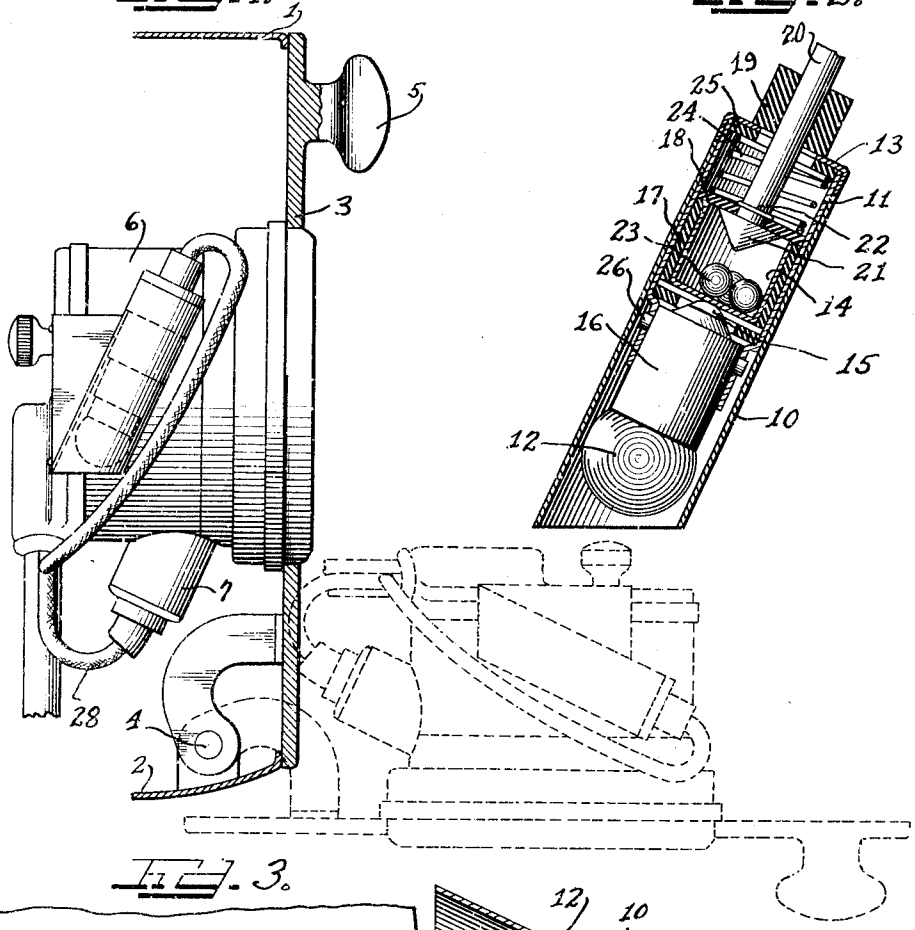


Fig. 2.

Fig. 3.

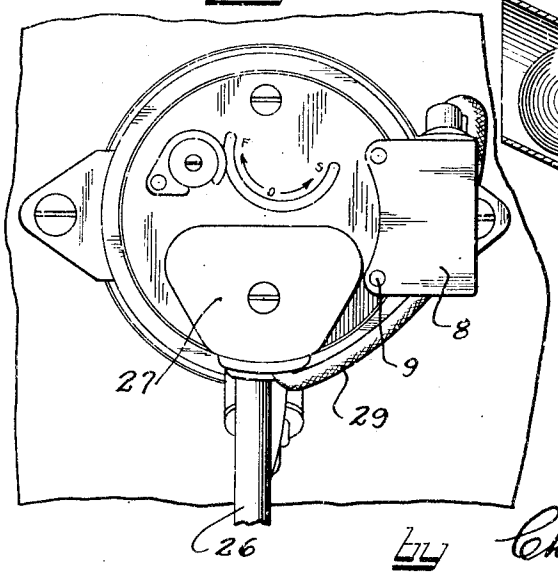
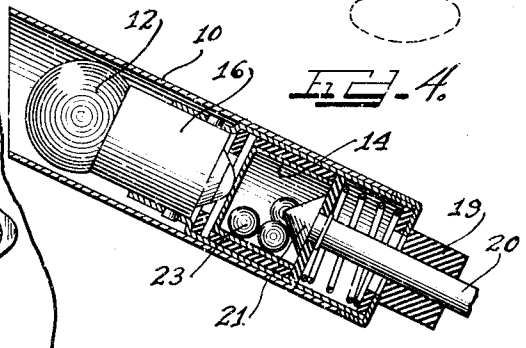


Fig. 4.



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AUTOMATIC SWITCH LAMP SOCKET

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1 Claim. (Cl. 240—2)

The present invention relates to automatic switch lamp sockets and more particularly to a lamp socket construction wherein the hot side of an electric circuit is always "on" and wherein gravity responsive means are employed to make or break electrical circuit to the lamp.

The present invention is readily adaptable for use with certain structures, such for example, in compartment doors and the like, to automatically close the lamp circuit when a door is opened and to open the lamp circuit when the door is closed. The construction is such that there are no wiping or spring friction parts to become broken or damaged by extensive use.

An object of the present invention is to provide a simple, highly efficient, inexpensive rolling contact switch mechanism for an electric lamp socket adapted for its intermittent closing and opening of the lamp circuit.

Another object of the present invention is to provide a tiltable lamp socket with self-contained make and break means.

A further object of the present invention is to provide a tiltable lamp socket with self-contained rolling ball means for the purpose of making or breaking the electric circuit to a lamp, in accordance with the tilt of the socket.

A still further object of the present invention is to provide an electric lamp and socket for application to the door of a cowl pocket or storage compartment of an automotive vehicle, in which socket are provided means responsive to gravity for closing an electric circuit to the lamp when the door is opened, and automatically breaking the lamp circuit when the door is closed.

The above, further and other objects of the present invention will be apparent from the following description and accompanying drawing.

The accompanying drawing illustrates an embodiment of the present invention, and the views thereof are as follows:

Figure 1 is an elevational view of a clock applied to the door of a cowl pocket or compartment of an automotive vehicle, showing the door and a portion of the compartment in section, and with a lamp constructed in accordance with the principles of the present invention secured to the clock. In the position of the lamp illustrated in this figure the circuit to the lamp is open. The dotted lines of this figure show the position of the parts when the door is opened to allow access to the compartment, and showing the lamp in position to direct its rays to the interior of the compartment.

Figure 2 is an axial sectional view through the illustrated form of lamp and socket, and showing the relationship of parts when the lamp socket has been tilted to inoperative or "off" position.

Figure 3 is a rear elevational view of the clock and lamp of Figure 1, and showing one manner of supplying electrical current to the attached lamp.

Figure 4 is a view similar to Figure 2, with the lamp socket tilted to "on" position and showing the relationship of the parts when the circuit of the lamp is closed by the gravitationally responsive means of the present invention.

The drawing will now be explained:

Referring to Figure 1, a fragmental portion of a storage compartment is indicated by top 1 and bottom 2 with a door 3 pivotally hinged at 4 by means of suitable hinges. A knob 5 is attached to the door for convenience in manipulating it.

Mounted in the door 3 is a clock 6, illuminated by an electric lamp supported in a lamp socket 7. Inasmuch as the details of construction of the clock form no part of the present invention, it will not be described in detail.

A plate 8 is secured to the rear face of the clock, by means of rivets or bolts 9 and supports a casing 10 adapted to receive a lamp socket 11 and an electric lamp 12. The end of the casing adjacent the lamp is open so that the rays from the lamp may be directed towards the interior of the compartment when the door is opened.

The end of the casing remote from its open end is inturned forming an apertured wall 13.

The lamp socket 11 is frictionally retained within the casing 10 and includes a cup-like shell 14 which is slidable in the socket.

The cup-like shell 14 is disposed so that its end wall is engaged by the contact portion 15 of an inserted lamp 16. Between the sides of the shell 14 and the socket 11 is a shell 17 of insulating material. The open end of the shell 14 is closed by a disc 18 of insulation. Attached to the end wall 13 of the shell 10 is a block 19 of insulation apertured to receive a live or hot conductor 20. The conductor 20 has a conical head 21 against the disc 18 and lying within the shell 14. The disc 18 is maintained against the head of the conductor by means of a locking ring 22, or some other equivalent means.

Within the cup-like shell 14 are gravitationally responsive conductor members, such as balls 23, of such number and size as to electrically connect the shell 14 with the hot contact member

20 when the shell is tilted to suitable position such as the position illustrated in Figure 4. Three of such balls are shown, although it is to be understood that more or fewer might be used with the understanding that in such event the sizes of the balls would be ample to afford electrical connection as described.

In order to maintain the contact 15 of the lamp against the end of the cup-like shell 14, the shell is urged against the lamp by means of a spring 24 interposed between the disc 18 and an insulating disc 25 against the inner surface of the end wall 13 of the casing 10. The spring 24 is of sufficiently large diameter as to be out of electrical contact with the hot member 20.

The lamp 16 is secured in the lamp socket by means of pins 26 on the lamp engaging the usual bayonet slots (not shown) in accordance with common practice.

In order to supply electrical current to the clock lamp within the socket 7 and the lamp 12 within the socket 11, a cable 26 leads from the battery to a connection box 27, suitably supported on the rear face of the clock. A conductor 28 leads to the lamp socket 7 and another conductor 29 leads to the socket 11, that is to the hot conductor 20 of the lamp socket of the present invention. The conductor 29 is suitably connected within the box 27 so that the hot side of the circuit is always "on", thereby eliminating the need for any switch in the hot side of the circuit.

The lamp socket of the present invention is so mounted, with respect to the door 3, that when the door is closed, the gravitationally responsive conductor elements 23 are out of circuit closing relationship with respect to the head 21 of the hot conductor 20, such for example, as illustrated in Figure 2. When the door is opened, that is moves from the full line to the dotted line position of Figure 1, the conductor balls 23 will roll against the head 21 of the hot conductor 20 and lie in contact with the cup-like shell 14, thereby completing the electrical circuit from the hot side or conductor 20 to the shell 14, contact 15 of the lamp, and through the ground back to the battery. The circuit to the lamp 12 will remain closed as long as the lamp socket is tilted to substantially the position illustrated in dotted lines in Figure 1, and in full lines in Figure 4. When the door is moved to closed position, as shown in full lines in Figure 1, the conductor balls 23 will roll away from the head 21 of the hot conductor 20, thus breaking the electrical circuit to the lamp 12.

It is to be understood that the lamp socket 11 might be mounted directly on the door 3 in which event it would function as described in accordance with the positions of the door. The lamp is shown as attached to the clock for convenience, as oftentimes clocks are mounted in the doors of dashboard or like compartments of automotive vehicles.

In the event the lamp socket 11 were supported directly by the door 3, then the conductor 29 would be directly connected to the battery of the vehicle without the intervention of the connection box 27.

The form of gravitationally responsive make and break arrangement for the lamp socket is preferable to wiping or spring friction contact means as such means oftentimes break or become damaged by extensive use, thus requiring replacement.

The invention has been described herein more or less precisely as to details, yet it is to be understood that the invention is not to be limited thereby, as changes may be made in the arrangement and proportion of parts, and equivalents may be substituted, without departing from the spirit and scope of the invention.

The invention is claimed as follows:

In an automatic gravity operated electric lamp switch construction including a tubular casing open at its front end for the projection of light rays outwardly through said open end, a lamp socket sleeve frictionally fitted within said casing and having an end adapted to receive a lamp within said casing and adjacent its open end, a cup shaped cylindrical shell slidably mounted within said socket and having its closed end adjacent the lamp receiving end of said socket, an insulating sleeve between said socket and cup shaped shell, an insulating disc closing the other end of said cup shaped shell, a hot conductor connected to said disc and movable with said shell and having a head within said cup, spring means between said cupped shell and the rear end of said casing to urge said cupped shell towards the front end of the casing, a lamp within the lamp receiving end of said socket having a contact to bear against the closed end of said cupped shell and move the same inwardly when the lamp is inserted in said socket, and freely movable gravity responsive conductor means within said cupped shell to adapt it to electrically connect said shell and the hot conductor when the casing is inclined in one direction and to electrically disconnect said shell and hot conductor when said casing is inclined in a different direction.

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