July 15, 1930. F. C. HERSEE ET AL 1,770,667

LAMP SOCKET AND TERMINAL THEREFOR

Filed June 15, 1927

Fig. 1.

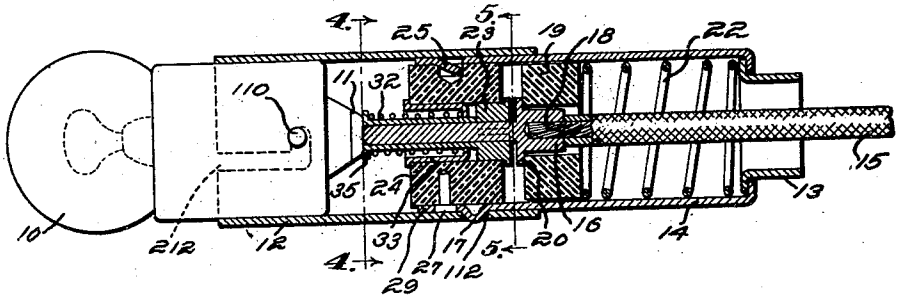


Fig. 2.

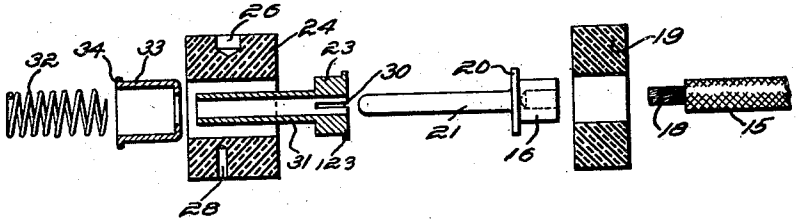


Fig. 3.

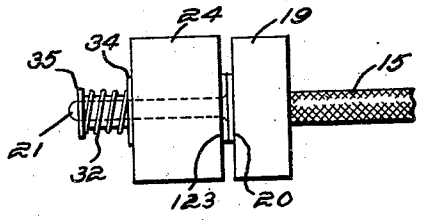


Fig. 4.

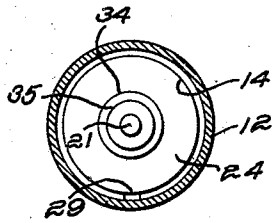
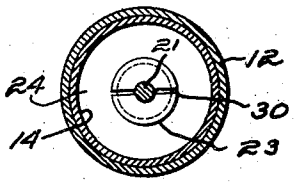


Fig. 5.



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UNITED STATES PATENT OFFICE

FREDERICK C. HERSEE, OF WATERTOWN, AND NATHANIEL T. WILEY, OF SOMERVILLE, MASSACHUSETTS, ASSIGNORS, BY DIRECT AND MESNE ASSIGNMENTS, TO F. C. HERSEE COMPANY, OF WATERTOWN, MASSACHUSETTS, A CORPORATION OF MASSACHUSETTS

LAMP SOCKET AND TERMINAL THEREFOR

Application filed June 15, 1927. Serial No. 199,018.

This invention relates to electric lamp sockets and terminals therefor, and aims to provide improved means for maintaining uninterrupted circuit connection between a lamp bulb or the like and a source of electrical energy. The invention is more particularly, but not exclusively, designed for use in respect to head lights and tail lights of automobiles, wherein automatically adjustable contact terminals are employed to establish circuit connection with the lamps.

The invention will best be understood from a description of one selected embodiment thereof illustrated in the accompanying drawings, and wherein

Fig. 1 is a vertical longitudinal section showing the invention operatively assembled in association with a lamp bulb and a terminal support;

Fig. 2 is a similar sectional view of the interior parts conveniently grouped in the normal order of their arrangement for assembly;

Fig. 3 is a side view of the double contact terminal with cable attached; and

Figs. 4 and 5, cross sectional views of the invention on the lines 4—4 and 5—5, respectively, of Fig. 1, looking in the directions severally indicated by the arrows.

In carrying out the invention in the form shown, the lamp bulb 10, herein selected for purposes of illustration, is of the type having a single contact base 11 and is detachably mounted in any approved manner in a tubular metal holder 12, which is supported at its rear end on a rigid support 13, such as the lamp bracket or frame. While the lamp bulb here shown is of the single contact type and the present embodiment of our invention is accordingly adapted thereto, it will be understood that the invention is equally applicable to lamp bulbs having a double contact base or which are otherwise constructed and mounted. The holder 12 is preferably made up of separable interfitting sections disposed end to end and provided with suitable locking means, the inner or rear section 14 of the holder being used to receive the feed cable 15, which supplies current from a battery (not shown) or other source of electrical energy, and terminates in a metal terminal 16 extending through and beyond the outer end of said section 14 and into contact with the base 11 of the bulb. Said locking means by which the holder sections 12, 14 are separably secured together is herein shown as a boss 17 exteriorly formed on the section 14 and registering with an L-shaped marginal recess 112 provided in the holder section 12, said recess being preferably similar to the recess 212 provided at the opposite end of this holder section for receiving the pin 110 formed on the wall of the lamp base.

The terminal 16 is recessed in one end to receive the wires 18 of the cable 15 and is soldered or otherwise preferably permanently secured thereto. Said terminal is adapted to fit freely into an annular insulation block 19 which is slidably mounted in the holder section 14, and has a bearing shoulder 20 normally engaging the front face of the block. The terminal 16 terminates in a reduced extension portion 21 which is held normally in engagement with the lamp base 11 by means of an expansion spring 22 arranged within section 14 of the holder 12 and adapted to exert pressure in a forward direction upon the block 19.

To insure against momentary interruptions in the circuit due to occasional retractive movements of the cable 15, we provide an auxiliary terminal extension portion which is in effect a second or supplementary terminal affording a shunt path for the current and making permanent connection between the main terminal and the base 11. In the present embodiment this supplementary terminal comprises a sleeve member 23 movably seated in a separate annular insulation block 24 carried in the forward end of

the rear holder portion 14 and preferably permanently secured thereto in any convenient manner, as, for example, by the detent member 25 formed out of the wall of the holder and depressed into a suitable registering recess 26 in the side of the block 24. A stop pin 27, fitted into a separate recess 28 in the side of the block 24 and registering with a slot 29 in the outer rim of the holder portion 14, operates to accurately fix the limit of inward movement of the block 24.

The sleeve member 23 is adapted to receive for sliding engagement the terminal extension 21 of the main terminal, the inner end of the sleeve having a shoulder 123 for normally engaging the rear face of the block 24 and adapted to limit the forward movements of the sleeve member. Said sleeve member 23 is preferably bifurcated at its rear or enlarged end by the provision of an axial slot 30 whereby the opposing sides of the sleeve may be sprung slightly toward each other for gripping the terminal extension 21 to insure proper electrical contact. Said sleeve has a reduced front extension portion 31 on which is mounted an expansion spiral spring 32 tending to move the sleeve forward to its limit of movement and to maintain engagement between the sleeve and the lamp base at all times irrespective of the retractive movements of the main terminal, thereby serving the dual function of maintaining a path for the electric current to the lamp, and also of preventing the lamp from working out of position when relieved of the pressure usually exerted by the main terminal. The reduced portion 31 of the sleeve is normally extended at its front end beyond the insulation block 24 a greater distance than intervenes between the lamp bulb base and said block when the bulb is operatively mounted in the holder, so that when the bulb is inserted in the holder the sleeve is forced back somewhat against the force of the spring 32 and into the position shown in Fig. 1. This insures a yielding pressure contact at all times between the lamp base and the sleeve. The spring 32 is seated at its rear end in a metal socket 33 fitted centrally into the front end of the block 24 and provided at its outer end with a lip 34 for engaging the face of the block, while the front end of the spring bears against a flange 35 exteriorly formed on the exposed end of the sleeve 31 after the latter has been inserted through the socket 33.

From the foregoing description it will be apparent that the present invention provides a system of plural automatically adjustable contact terminals, at least one of which provides a permanent path for the current to the lamp bulb and the like at all times when service is required of it, including those brief intervals of interruption common to experience with other or like devices when sudden jars of the automobile may subject the cable leading to the lamps to adnormal strains and tensions usually resulting in excessive retraction of the main lamp terminals and causing momentary disruption of the circuit. In the present device an auxiliary contact is made structurally separate from and supported independently of, the main terminal and the conductor secured thereto and is thereby adapted to maintain the circuit and overcome the objections above pointed out.

It will be understood that our invention is susceptible of various modifications in embodiment and application without departing from the generic purposes and objects thereof illustrated in the foregoing specification, and all coming within the scope of the appended claims.

We claim as our invention:

1. In a device of the class described, in combination with a lamp bulb having a contact element thereon and a movably supported current-supply conductor, a pair of relatively movable contact members carried by said conductor one within the other, one of the contact members being retractible by and with the conductor and means for normally actuating both of said contact members into engagement with the contact element on the lamp bulb, said means being adapted to maintain said engagement between one of said contact members and the contact element on the lamp bulb and to prevent interruption of the circuit when the other of said contact members is retracted by the conductor out of said engagement.

2. In a device of the class described, in combination with a lamp bulb having a contact element thereon and a movably supported current-supply lead, a terminal on the lead having a plurality of relatively movable contact portions, including a sleeve and a retractible plunger within the sleeve, means for actuating the terminal including the plunger and the sleeve into contact with the contact element on the lamp bulb and separate means for actuating the sleeve independently of the plunger, said sleeve actuating means being adapted to maintain uninterrupted electrical connection between the lead and the contact element on the lamp bulb when the plunger portion of the terminal is moved by and with the lead out of contact with the contact element on the lamp bulb during circuit operation.

3. In a device of the class described, in combination with a lamp bulb having a contact element thereon and a movable conductor in circuit with a source of electrical energy, a terminal on the conductor normally in engagement with said contact element, said terminal being movable by and with the conductor toward and away from the lamp bulb, and separate contact element engaging means on said terminal for maintaining the lamp bulb

in the electric circuit when said terminal is out of engagement with said contact element, said terminal being movable independently of said separate contact element engaging means.

4. In a device of the class described, in combination, a holder, a lamp bulb mounted in one end of the holder and having a base and a contact element on the base, a conductor extending into the opposite end of the holder, a terminal on the conductor adapted normally for engagement with the contact element on the lamp base and susceptible of being retracted out of contact therewith, a terminal supporting member movably mounted within the holder, spring means tending to actuate the terminal and said terminal supporting member toward the lamp bulb, said terminal having terminal support engaging means for permitting said support to actuate the terminal in one direction only, and supplementary terminal means for preventing an interruption of the circuit when the terminal is in a retracted position.

5. In a device of the class described, in combination, a tubular housing, a lamp bulb mounted in one end of the housing and having a base and a contact element on the base, a conductor extending into the opposite end of the housing, a main terminal on the conductor adapted normally for engagement with the contact element on the lamp base and susceptible of being retracted out of contact therewith, a movable terminal supporting member within the housing, spring means for actuating the terminal and said terminal supporting member toward the lamp bulb, and a supplementary terminal within the housing for maintaining electrical connection between the main terminal and said contact element when the main terminal is in retracted position.

6. In a device of the class described, in combination with a lamp bulb or other like device having a contact element thereon and a movable current-supply conductor, a telescopic terminal providing a plurality of relatively movable co-operatively associated contacts for establishing electrical connection between the contact element on the lamp bulb and said conductor, each of said contacts being normally in engagement with the contact element on the lamp bulb during circuit operation and one of such contacts being retractible out of said engagement by and with said conductor without causing an interruption of the circuit.

7. In a device of the class described, in combination with a lamp bulb or other like device having a contact element thereon and a movably supported current supply conductor, a terminal on the conductor having a plurality of relatively movable contact portions grouped one within the other and forming a unitary telescopic structure, and actuating means in association with the terminal for separately urging each of said contact portions toward the lamp bulb, one of said contact portions being retractible by and with the conductor out of engagement with the contact element on the lamp bulb without interrupting circuit operation through the remaining contact portion.

In testimony whereof, we have signed our names to this specification.

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