Dec. 18, 1934. H. A. DOUGLAS 1,985,024

ELECTRIC LAMP

Filed Oct. 23, 1929 2 Sheets-Sheet 1

Fig. 1.

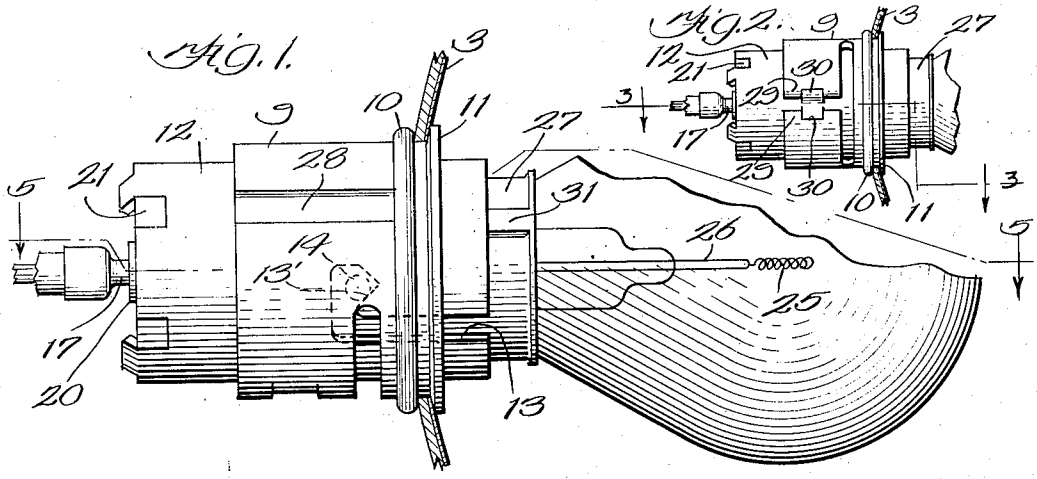


Fig. 2.

Fig. 3.

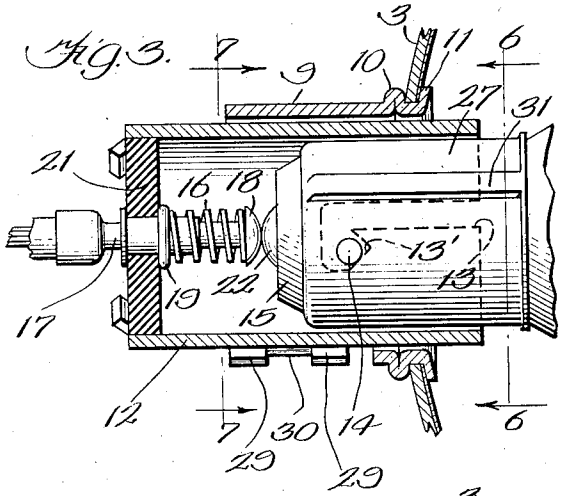


Fig. 4.

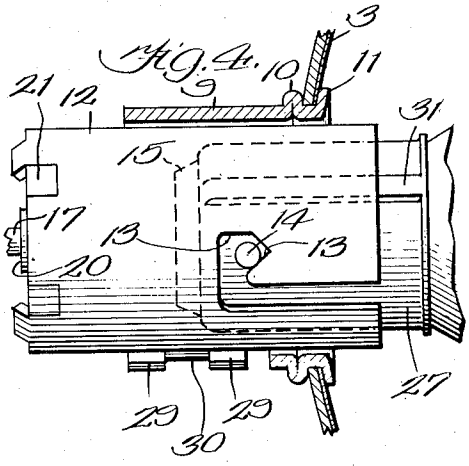
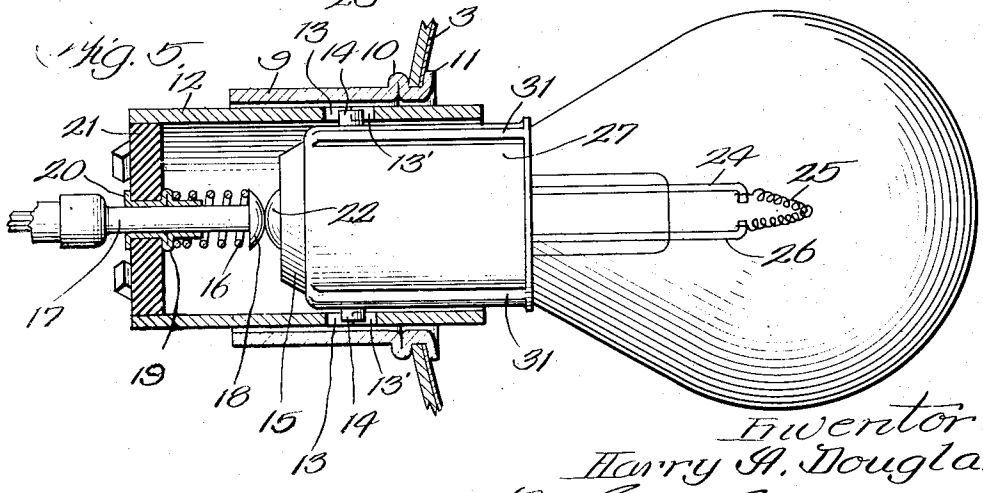


Fig. 5.



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Fig. 6.

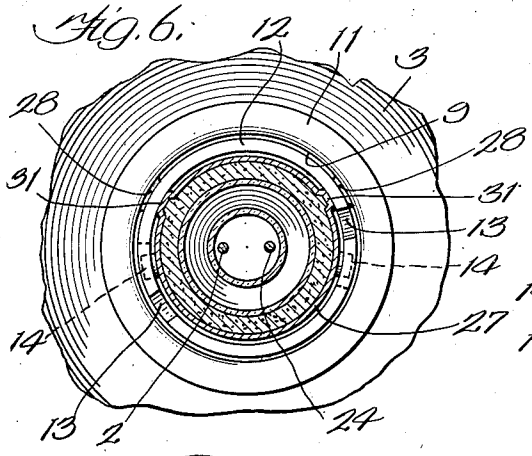


Fig. 7.

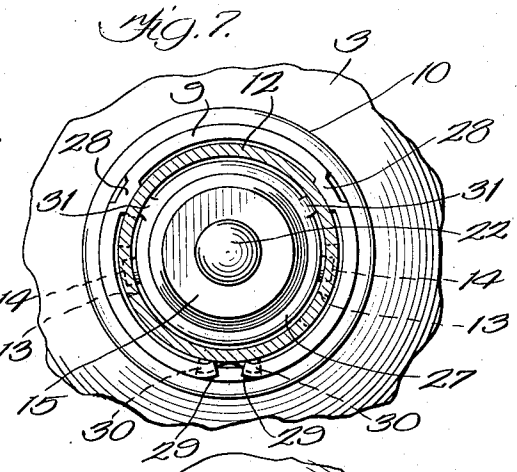
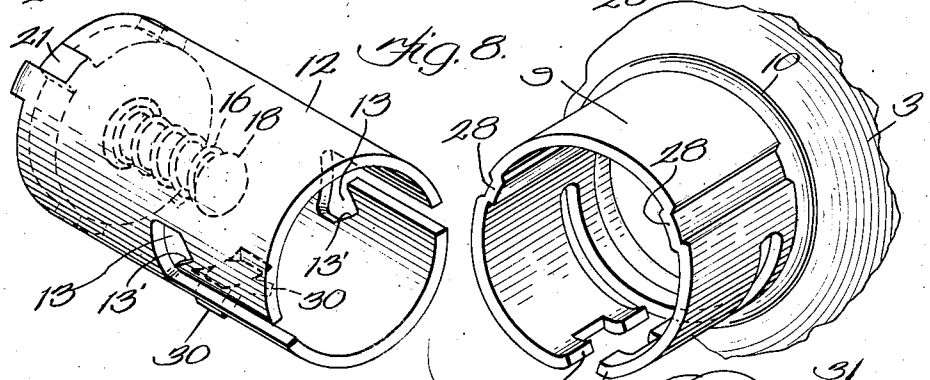
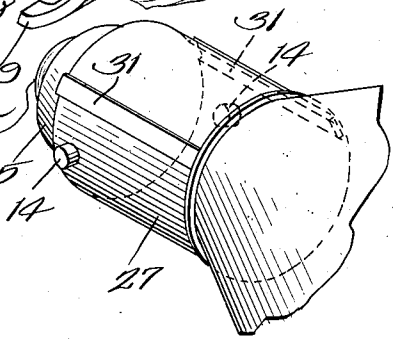


Fig. 8.





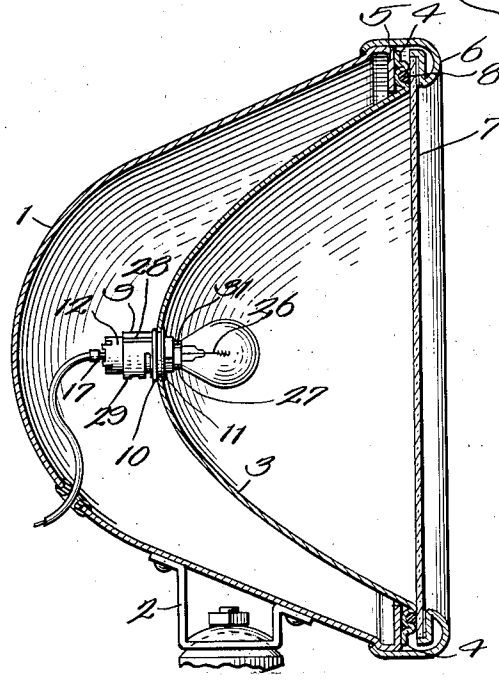


Fig. 9.

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Patented Dec. 18, 1934

1,985,024

UNITED STATES PATENT OFFICE

1,985,024

ELECTRIC LAMP

Harry A. Douglas, Bronson, Mich.

Application October 23, 1929, Serial No. 401,725

2 Claims. (Cl. 176—32)

My invention relates to lamps which employ lamp receiving sockets and has for its object the provision of improved means for assembling incandescent lamps therein and therewith. The invention is of particular importance where it is used in conjunction with a concave reflector having a holder with which the socket is assembled and having means whereby the lamp socket may be fixed with respect to said holder. A reflecting lamp structure thus made will direct light in a fixed path with respect to the axis of the reflector, thereby avoiding difficulty now frequently encountered in the adaptation of reflecting lamps to automotive vehicles, bodily or other adjustment of the lamps having frequently been required when the users happen to find that the light is improperly directed.

In my copending application Serial No. 403,613, filed October 30, 1929, which became Patent 1,853,514, April 12, 1932, I have broadly claimed a lamp receiving socket within a holder and smaller in cross section than the holder, and means pressing the socket laterally against one side of the holder to accurately position the socket within the holder. In my copending application Serial No. 401,720, filed October 23, 1929, which became Patent No. 1,873,312, August 23, 1932, I have disclosed a modification of the structure of the aforesaid application. The structure herein disclosed employs the structure of application Serial No. 401,720, now Patent No. 1,873,312, August 23, 1932, for positioning the socket within the holder, though the invention is not to be thus limited as my present invention relates particularly to the assembly of socket and lamp irrespective of the mounting of the socket.

The device of my present invention is a modification of the structure broadly claimed in my copending application Serial No. 401,722, filed October 23, 1929, now Patent No. 1,876,873, September 13, 1932.

The invention will be more fully explained in connection with the accompanying drawings, showing the preferred embodiment thereof, and in which Fig. 1 is a plan view with a portion of the reflector shown in section; Fig. 2 is a view from beneath, on a smaller scale; Fig. 3 is a sectional view on line 3—3 of Fig. 2, on a larger scale; Fig. 4 is a view similar to Fig. 3, with the socket in full; Fig. 5 is a sectional view on line 5—5 of Fig. 1; Fig. 6 is a sectional view on line 6—6 of Fig. 3; Fig. 7 is a sectional view on line 7—7 of Fig. 3; Fig. 8 is a perspective view showing parts in separated relation; and Fig. 9 is a sectional elevation taken through the axis of the parabolic reflector.

The lamp illustrated includes a housing or back element 1 having a bracket 2 on its bottom side by which it may be assembled with the automotive vehicle or other support, as indicated. The housing or back 1 encloses a parabolic reflector 3 which is formed with a grooved flange 4 at its forward end. This flange is pressed against a rim 5, provided upon the housing, by an assembling ring 6. This assembling ring also presses the light transmitting closure 7, usually of glass, against a gasket 8 which is seated in the flange 4.

The generally cylindrical socket holder 9 has its forward end passed through a circular opening formed through the crown of the reflector, in the embodiment of the invention shown. The forward end of the holder 9 is formed with flanges 10 and 11 between which the surrounding edge portion of the reflector is clamped, whereby the holder and reflector are maintained coaxial, in the structure illustrated.

The generally cylindrical lamp socket 12 is held in assembly with an within the holder 9 by the means hereinafter set forth. This socket is preferably formed with two bayonet slots or channels 13 for receiving bayonet projections 14 upon the base 15 of an incandescent lamp. These bayonet projections are maintained in V-shaped retaining seats 13′ of the bayonet slot by any suitable means. The means illustrated is inclusive of a coiled spring 16 which surrounds a plunger 17 constituting a circuit terminal and presses forwardly upon the plunger head 18 and rearwardly upon the flange 19 of a metallic guiding sleeve 20. This guiding sleeve is mounted upon an insulating disc 21 which is fixedly assembled with and within the rear end of the socket 12. The plunger head 18 presses against a contact 22 which is carried by the generally cylindrical lamp base 15 which is made of insulating material. The lamp structure illustrated is a so-called single pole structure, though the invention is not to be thus limited. Where a single pole structure is employed, the contact 22 is upon the axis of the lamp base. A stiff leading in wire 24 establishes connection between the contact 22 and one terminal of the filament 25. Another stiff leading in wire 26 establishes a connection between the other terminal of the filament and the metallic sheath 27 which surrounds the insulating portion of the lamp base and, from the point of view of my invention, also constitutes a part or enlargement

of the lamp base. The body of the reflector, the holder 9, and the socket 12 are grounded and when the lamp is in place the sheath 27 is also grounded as it has connection with the holder, as will more fully appear.

The cross section of the socket 12 is smaller than the bore of the holder 9 and the base of the lamp, inclusive of its sheath 27, is smaller, in cross section, than the bore of the socket.

Spaced apart spacing means intervene between the holder 9 and the socket 12. These spacing means are preferably in the form of ribs 28 which extend along the holder and socket. Each rib is desirably integrally formed with one of the elements 9 or 12, both ribs being shown as being integrally formed with the holder. The ribs are spaced less than 180 degrees apart, preferably 120 degrees apart. The means for pressing the socket 12 against the holder 9 is desirably inclusive of two spring tongues 29 which are integrally formed with the holder 9. These springs are arranged in spaced apart pairs, the springs of each pair being also spaced apart. The socket 12 is formed with lugs 30 pressed outwardly therefrom. Each lug is snugly received between two corresponding springs of a pair, whereby the socket is prevented from having longitudinal movement. By this preferred construction, it is unnecessary to specially design the reflector as would be desirable if the lamp socket were movable along the lamp axis. The springs 29 engage the adjacent side of the socket and press the opposite side of the socket evenly against the ribs 28, the line of pressure being between these ribs. In this way, the axis of the socket is fixed with respect to the reflector.

The bayonet channels are spaced less than 180 degrees apart and the bayonet projections are correspondingly spaced. The bayonet channels are similarly, instead of symmetrically related. At least one side of each bayonet seat extends along, as distinguished from crosswise, of the socket axis and is oblique to such axis. As here shown, each bayonet seat has a similar surface 13′ which surfaces 13′ are of the same length and are inclined upwardly and forwardly at the same angle. These sloping seat sides are pressed upon by the bayonet projections laterally of the socket to press the lamp base laterally of the socket away from these sloping seat sides and against the socket. The spaced apart spacing ribs 31, which extend along the socket and lamp base are located at the side of the socket toward which the lamp base is pressed. Both sloping surfaces 13′ are of sufficient length, so that the ribs 31 engage the side of the socket before the bayonet pins reach the upper ends of the slopes 13′. Thus the slopes 13′ and ribs 31 cooperate importantly to accomplish the wedging action desired to secure a tight assembly of the lamp and socket and to cause the axis of the lamp to be coincident or parallel to the axis of the socket.

It will be seen that the socket and lamp are, by means of the device of my invention, in fixed relation with each other and with the socket holder and the reflector which carries the socket holder and, through the intermediation of these elements, with the filament 25 so that this filament is maintained in a predetermined definite relation to the reflector. In the embodiment of the invention illustrated, the filament is upon the axis of the reflector, which is preferably parabolic. The lamps which are designed for use in this structure are manufactured with all filaments in the same relative positions to the lamp bases and as the lamps are in this respect similar and in other respects also, they may be readily replaced with the assurance that the filament will come exactly into the right position with respect to the reflector when any lamp is inserted within its socket.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. In an electric lamp, the combination of an incandescent lamp bulb having a generally cylindrical base; spacing ribs spaced apart less than 180 degrees projecting radially from the base and extending longitudinally thereof in parallel relationship; two bayonet pins spaced apart less than 180 degrees on the base, the spacing ribs being located at one side of the base between both bayonet pins with each rib at an equal distance from the adjacent pin; a cylindrical lamp socket receiving said base; bayonet slots in the socket receiving the bayonet pins; bayonet seats in said bayonet slots, said seats having similar parallel sloping sides oblique to the axis of the socket and directed forwardly of the socket and toward the side of the socket receiving said spacing ribs, said bayonet pins and sloping sides being less than one hundred eighty degrees apart and upon the opposite side of the axis of said lamp base from said ribs and a spring carried at the rear of the socket and pressing the lamp base forwardly of the socket and the bayonet pins along said sloping sides to press the spacing ribs laterally against the wall of the socket before the bayonet pins reach the ends of the sloping bayonet seat sides.

2. In an electric lamp, the combination with an incandescent lamp bulb having a generally cylindrical base and two bayonet projections spaced apart less than 180 degrees on the base; of a cylindrical socket receiving said base; two bayonet slots in the socket receiving the bayonet projections therethrough; bayonet seats at the inner end of the slots receiving the bayonet projections upon a turning movement of the lamp base in the socket, a similar gradually sloping side in each bayonet seat contacting each bayonet projection and directed forwardly of the socket and toward a side thereof at substantially the same angle; and a spring carried at the rear of the socket and pressing the lamp base forwardly to cam the bayonet projections in the same direction toward one side of the socket whereby the lamp base is wedged against said side of the socket, said similar sloping sides of the bayonet seats being of sufficient length so that the lamp base contacts the side of the socket before the bayonet projections reach the forward ends of the said sloping sides.

HARRY A. DOUGLAS.