Dec. 7, 1926. 1,610,127

C. E. GODLEY

FOCUSING LAMP

Filed Dec. 28, 1925 2 Sheets-Sheet 1

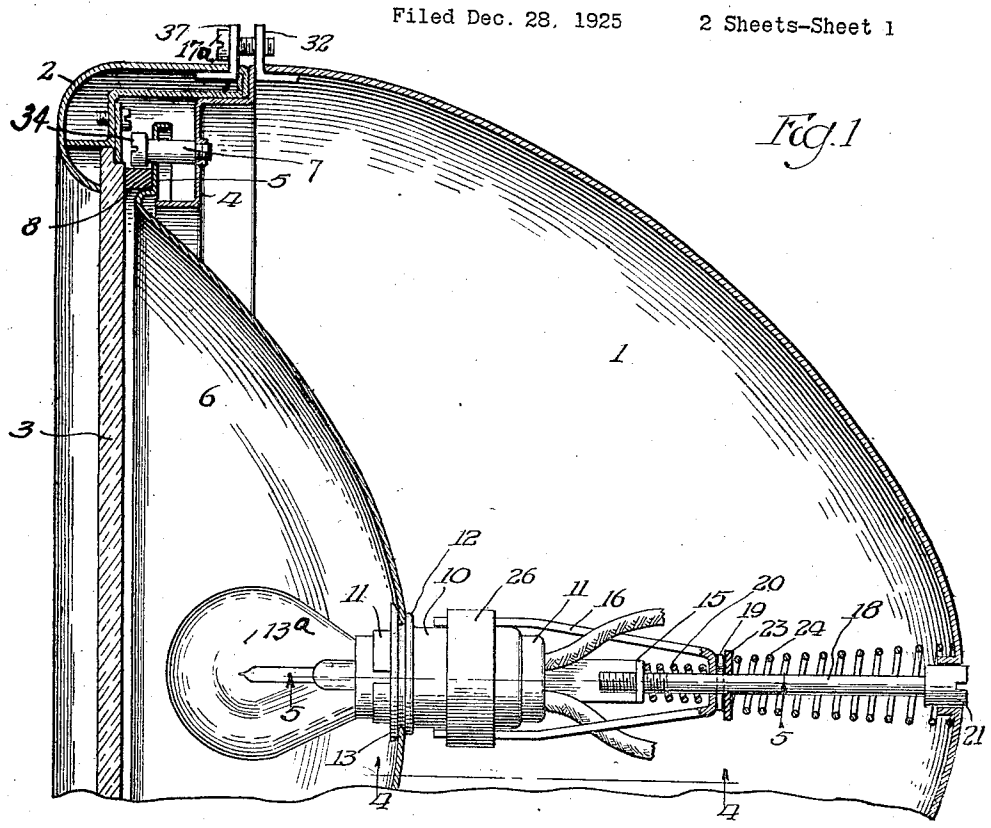


Fig. 1

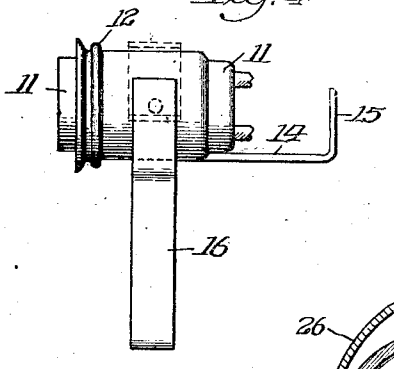


Fig. 2

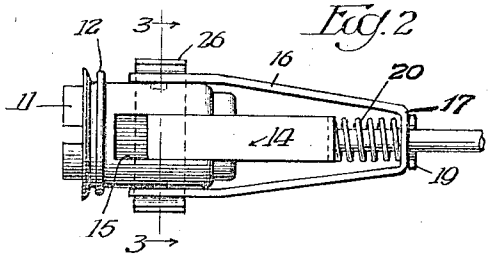
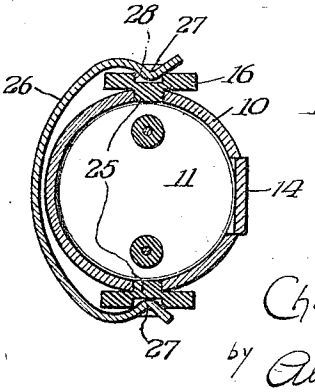


Fig. 3



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Filed Dec. 28, 1925 2 Sheets-Sheet 2

Fig. 5

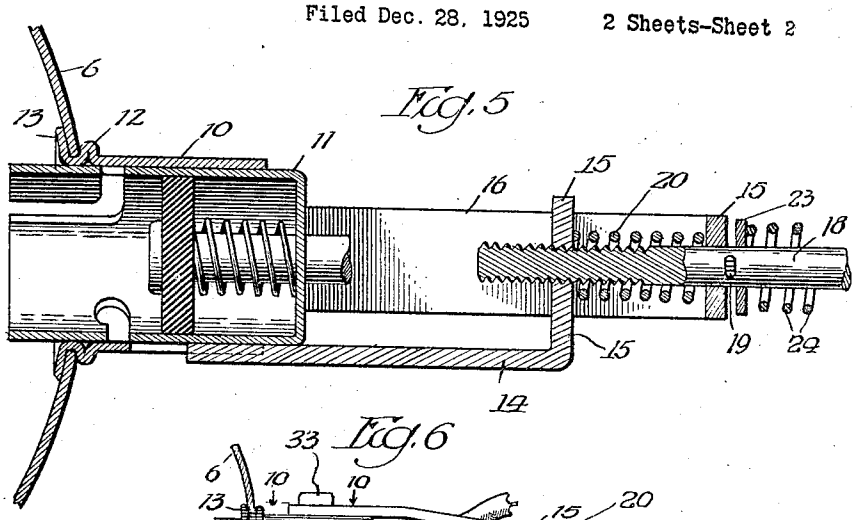


Fig. 6

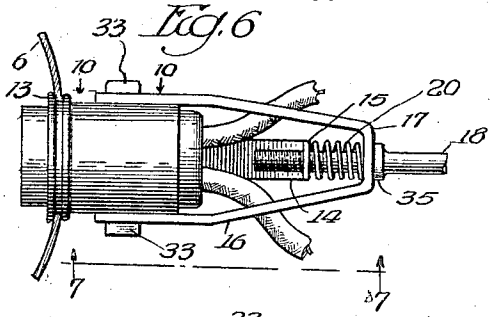


Fig. 7

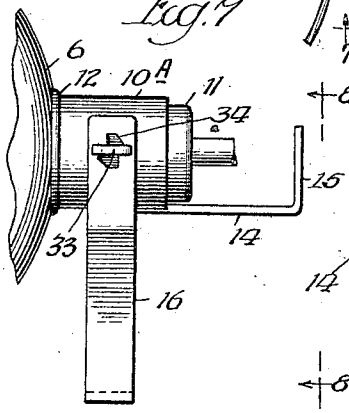


Fig. 8

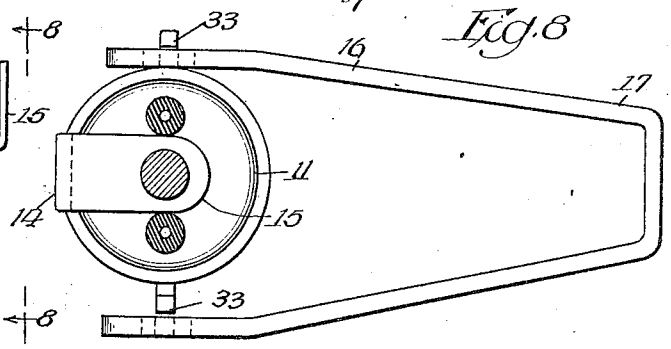


Fig. 9

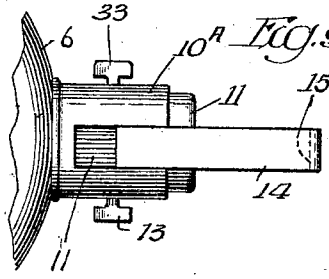


Fig. 10

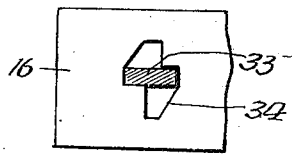
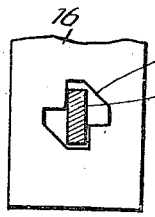


Fig. 11



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Patented Dec. 7, 1926. 1,610,127

UNITED STATES PATENT OFFICE.

CHARLES E. GODLEY, OF DETROIT, MICHIGAN, ASSIGNOR, BY MESNE ASSIGNMENTS, TO C. M. HALL LAMP COMPANY, A CORPORATION OF MICHIGAN.

FOCUSING LAMP.

Application filed December 28, 1925. Serial No. 77,923.

My invention relates to the general type of headlights in which a lamp socket is mounted so as to be slidable longitudinally of the reflector, and in which the reflector is movable with respect to the lamp casing. Generally speaking, my invention aims to provide simple, easily assembled and inexpensive focusing means for moving the socket longitudinally, and also provides spring means operating through a part of the focusing means for pressing the reflector against the door of the lamp.

For a part of these purposes, my invention provides a lamp construction in which the focusing adjustment is made by a member threadedly connected to the socket and extending slidably through the back of the casing in axial alinement with the socket, and in which a thrust member operatively secured to the reflector prevents a longitudinal movement of the threaded member in one direction, while a spring operatively interposed between the socket and the thrust member holds the latter in engagement with a portion of the threaded member. It also provides a spring interposed between the thrust member and the casing for holding the reflector in tight sealing relation to the lamp door.

More particularly, my invention provides means for adjusting a lamp socket with respect to a sleeve in which the socket is slidably disposed, and for this purpose includes a thrust-receiving yoke attached to the sleeve and cooperating with the lamp casing in guiding the focus-adjusting member. It also provides a construction for this purpose in which the yoke can readily be attached to the sleeve while the yoke is in an inoperative position, and in which the yoke is held pivotally interlocked with the sleeve when in its operative position so as to permit the focus-adjusting member to aline with the socket without cramping the socket in the sleeve.

In its immediate commercial applications, my invention is particularly adapted for use in automobile headlights of the general type in which the reflector is "floatingly" supported with respect to the lamp casing and in which the lamp socket is carried by the reflector. Hence I am illustrating and describing my invention in such an embodiment in the following specification and the accompanying drawings from both of which further and more detailed objects will appear. In the drawings,

Fig. 1 is a fragmentary central, vertical and longitudinal section through an automobile headlight embodying the several features of my invention.

Fig. 2 is an elevation of the socket-carrying sleeve and adjacent parts, looking in the opposite direction from Fig 1.

Fig. 3 is an enlarged and fragmentary section, taken along the line 3—3 of Fig. 2.

Fig. 4 is a view of the socket-carrying sleeve and adjacent parts, looking upward from the line 4—4 of Fig. 1, but with the yoke swung to the inoperative position in which it permits a ready insertion of the socket in the sleeve.

Fig. 5 is an enlarged section, taken along the line 5—5 of Fig. 1.

Fig. 6 is a view similar to Fig. 2, but showing another embodiment of my invention, namely one in which the sleeve has projecting ears interlocking with the arms of the yoke.

Fig. 7 is a bottom plan view of the same embodiment, taken from the line 7—7 of Fig. 6, with the yoke swung to the inoperative position in which it is detachable from the sleeve.

Figure 8 is an enlarged end view of the same embodiment, taken from the right-hand end of Fig. 7.

Fig. 9 is a view similar to Fig. 6, but looking in the opposite direction and with the yoke omitted, showing the ears on the sleeve.

Fig. 10 is an enlarged section taken along the line 10—10 of Fig. 6.

Figure 11 is a section similar to Fig. 10, but showing the yoke in its attaching position.

Referring first to Fig. 1, this shows an automobile headlight in which the body 1 of the casing is contracted at its forward end to fit the lens ring 2 of a door which includes the usual lens 3. The door is rigidly secured to the body 1 by any suitable means, as for example by screws connecting ears welded respectively to the door and the body, such as the screw 17ª connecting the ears 37 and 32 of Fig. 1. The body 1 also has an inwardly directed radial flange 4 disposed at some distance behind the radial rim flange 5 of the reflector 6, and the body flange 4 carries guide screws 7 which extend through

corresponding perforations in the reflector flange 5 to guide the reflector, each screw having its head 34 normally spaced forwardly from the reflector to act as a stop for retaining the reflector in the lamp body when the door is detached. A packing ring 8 is disposed between this reflector flange 5 and the lens, the reflector being continuously pressed toward the lens by means hereafter described.

Secured to the central portion of the reflector 6 and desirably coaxial with the reflector is a sleeve 10 which serves as a support and guide for the lamp socket shell 11. For this purpose, the generally cylindrical tubular sleeve 10 may have a peripheral bead 12 formed near its forward end for engaging the rear of the reflector, as shown in Fig. 5, and the forward end of the sleeve may then be spun outward to provide a flange 13 clamping the reflector against the bead 12.

The socket shell 11, which normally supports the usual lamp bulb 13^a, extends slidably through the said guide sleeve 10. A bracket stem 14 is soldered to one side of the socket shell and is slidably guided by the longitudinal edges of a slot 15 formed in the guide sleeve, so as to prevent the lamp socket from rotating in the sleeve. The bracket stem 14 has its rear portion bent at right angles and extending across the axis of the socket as shown in Figs. 4 and 5, so as to present a thrust portion 15 which is effectively a rigid part of the lamp socket.

Secured to the guide sleeve 10 is a thrust-receiving member which desirably is in the form of a yoke having its two arms secured to the sleeve and having its bight 17 disposed at some distance behind the thrust portion 15 of the lamp socket. Extending through these parts 15 and 17 is a focus-adjusting member 18, which desirably is threaded through the bracket portion 15 of the socket while effectively swiveled upon the bight 17 of the yoke. To afford this swiveling connection, I may employ a spring cotter 19 extending transversely through the adjusting member 18 and bearing against the rear face of the bight 17, and interpose a compression spring 20 between the bracket (or thrust portion) 15 of the socket and the bight. Thus arranged, the spring 20 not only holds the spring cotter 19 against the bight to provide the desired swiveling connection, but also takes up any backlash in the threaded connection of the adjusting member 18 to the bight 17.

The same spring cotter 19 (which serves the purpose of a lateral projection on the adjusting member 18) also receives the thrust of a compression spring 24, which spring is interposed between a washer 23 behind this cotter and the rear end of the body 1. This latter spring operates through the yoke 16 and the guide sleeve 10 for urging the reflector forwardly against the packing ring 8, thereby insuring a tight sealing of the mouth of the reflector by the door.

To connect the yoke 16 operatively with the guide sleeve 10 while permitting a ready inserting of the socket in the sleeve, I preferably pivot the arms of the yoke to the sleeve. For this purpose, Fig. 3 shows each arm 16 of the yoke as having a circular portion 25 offset toward the other arm by a partial punching operation, and shows the sleeve 10 as provided with opposite perforations fitting these circular nubs 25. It also shows a spring clip 26 having opposed nubs 27 respectively entering the recesses 28 produced in the yoke arms 16 by the said punching operations, this clip having a contracting tendency so as to hold the nubs 25 socketed in the perforations of the sleeve. When the spring clip is detached, the arms of the yoke can readily be sprung apart so as to release the nubs 25 from the sleeve, and the yoke can initially be attached to the sleeve in the position shown in Fig. 4, so as not to interfere with the inserting of the socket 11 into the sleeve. When attached, the yoke is pivoted to the sleeve, thus permitting relative movement of the sleeve and the adjusting member to compensate for any lack of exactness in alining these, thereby preventing the socket from cramping in the sleeve.

With the parts thus arranged, rotation of the adjusting member in either direction will move the socket either forward or rearward, the head 21 of this member being easily accessible for this purpose by extending through (or at least into) a suitable perforation in the rear end of the lamp body, and my focusing device can easily be adapted to lamp bodies of varying lengths by merely varying the length of the adjusting member 18.

However, I do not wish to be limited to the details of the construction and arrangement heretofore described, since many changes might obviously be made without departing either from the spirit of my invention or from the appended claims.

For example, Figs. 6 to 11 show an embodiment in which a pair of opposite projecting and substantially T-shaped ears 33 are formed from the guide sleeve 10^A, and in which each arm 16 of the yoke has a perforation 34. Each of these perforations is formed so that the head of one ear 33 can readily be slipped through it when the yoke is in the position of Fig. 7, and so that a part of the yoke will be interposed between the sleeve 10^A and the head of each ear when the yoke is in its normal position of Fig. 6.

So also, I do not wish to be limited to the use of my focusing device in connection with a spring operating through it for urging the

reflector forwardly. For example, Fig. 6 shows the operating member 18 as having an integral collar 35 engaging the bight 17 of the yoke and held against this bight by the spring 20. In either case, the spring 20 can be quite light, but a heavier spring is desirable for the spring 24 when this is used, as the latter operates through the yoke and sleeve for pressing the reflector and the packing ring 8 against the lens. Since the entire focusing arrangement is operatively carried by the reflector, the latter is free to be moved by the spring 24 without altering the focusing adjustment.

The bracket comprising the parts 14 and 15 is effectively a rigid part of the socket, although here illustrated as separately formed, hence the socket together with this bracket constitute a rigid socket member.

I claim as my invention:

1. In a lamp, a reflector, a sleeve fast upon and extending axially of the reflector, a lamp-bulb socket slidable in the sleeve, a yoke having its arms secured to the sleeve and having its bight disposed behind the socket, a bracket fastened to the socket and having a portion disposed between the socket and the bight of the yoke, an adjusting member extending slidably through the bight of the yoke and threadedly connected to the bracket, the adjusting member having a part engaging the rear face of the bight, and a compression spring operatively interposed between the socket and the forward face of the bight.

2. In a lamp, a reflector, a sleeve extending rearwardly from the reflector, a lamp-bulb socket slidable in the sleeve, a yoke having its arms pivotally connected to the sleeve on an axis transverse of the socket; a lamp body housing the reflector, sleeve and yoke; and threaded means interposed between the socket and the yoke for sliding the socket with respect to the sleeve, the threaded means extending through the bight of the yoke and extending slidable through the body so that the said extension of the threaded means through the body and yoke cooperate with the threaded connection of the threaded means to the socket for preventing movement of the yoke about the said pivoted connection of the yoke to the sleeve.

3. In a lamp, a casing, a reflector supported in the casing for movement forwardly and rearwardly of the casing, a sleeve fast upon and extending rearwardly from the reflector, a lamp-socket extending slidably through the sleeve and including a thrust portion extending across the axis of the socket, the casing having a perforation in its back alined with the axis of the socket, a thrust member connected to the sleeve to prevent forward or rearward movement thereof with respect to the sleeve, the thrust member having a thrust receiving portion extending across the axis of the socket and disposed at some distance behind the said thrust portion of the socket, and an adjusting member extending through and swiveled upon the thrust receiving portion of the thrust member and threaded through the thrust portion of the socket, the adjusting member extending slidably through the said perforation in the back of the casing.

4. In a lamp, a reflector, a tubular guide fast upon the reflector and extending rearwardly from the reflector, a socket member slidably carried by the guide, a casing having a perforation in axial alinement with the socket member, a thrust member so connected to the guide as to prevent movement of the thrust member longitudinally of the socket member; and an adjusting member extending slidably through the perforation in the casing; the adjusting member extending through both the thrust member and a portion of the socket member and being respectively swiveled upon one and threadedly connected to the other thereof.

5. In a lamp, a reflector member including a reflector and a rearwardly extending guide fast on the reflector, a lamp-socket supported by the guide for movement axially of the reflector and having a thrust portion extending across the axis of the reflector, a thrust member pivoted at its forward end to the guide and having a rearward portion extending across the said axis behind the thrust portion of the socket, an adjusting member extending through and swiveled upon the rearward portion of the guide member and threaded through the thrust portion of the socket, and a lamp body housing the reflector and having a rigid portion thereof slidably guiding the adjusting member behind the thrust member.

6. In a lamp, a reflector, a sleeve fast upon the reflector, a lamp-socket slidable in the sleeve, a yoke straddling the rear end of the sleeve and having its arms respectively pivoted to opposite sides of the sleeve, the yoke having its bight disposed behind the socket, yielding means for holding the said arms in pivoted engagement with the sleeve, and threaded means interposed between the socket and the bight of the yoke for sliding the socket with respect to the sleeve.

7. In a lamp, a reflector, a tubular guide extending rearwardly from the reflector, the guide having oppositely disposed lateral perforations, a lamp-socket slidable in the guide, a yoke freely straddling the rear end of the guide and having its arms provided with oppositely directed fingers respectively entering the said perforations, a detachable retaining member engaging the outer faces of the arms to hold the fingers in the perforations, and an adjusting mem-

ber interposed between the socket and the bight of the yoke, the adjusting member being swiveled upon one and threadedly connected to the other of the parts between it is thus interposed.

8. A lamp construction as per claim 7, in which the retaining member has projections directed toward each other, and in which each arm has a portion offset toward the other arm so as to afford one of the said fingers and so as to provide an outwardly open recess entered by one of the projections on the retaining member.

Signed at Detroit, Michigan, December 23rd, 1925.

CHARLES E. GODLEY.