

June 30, 1970

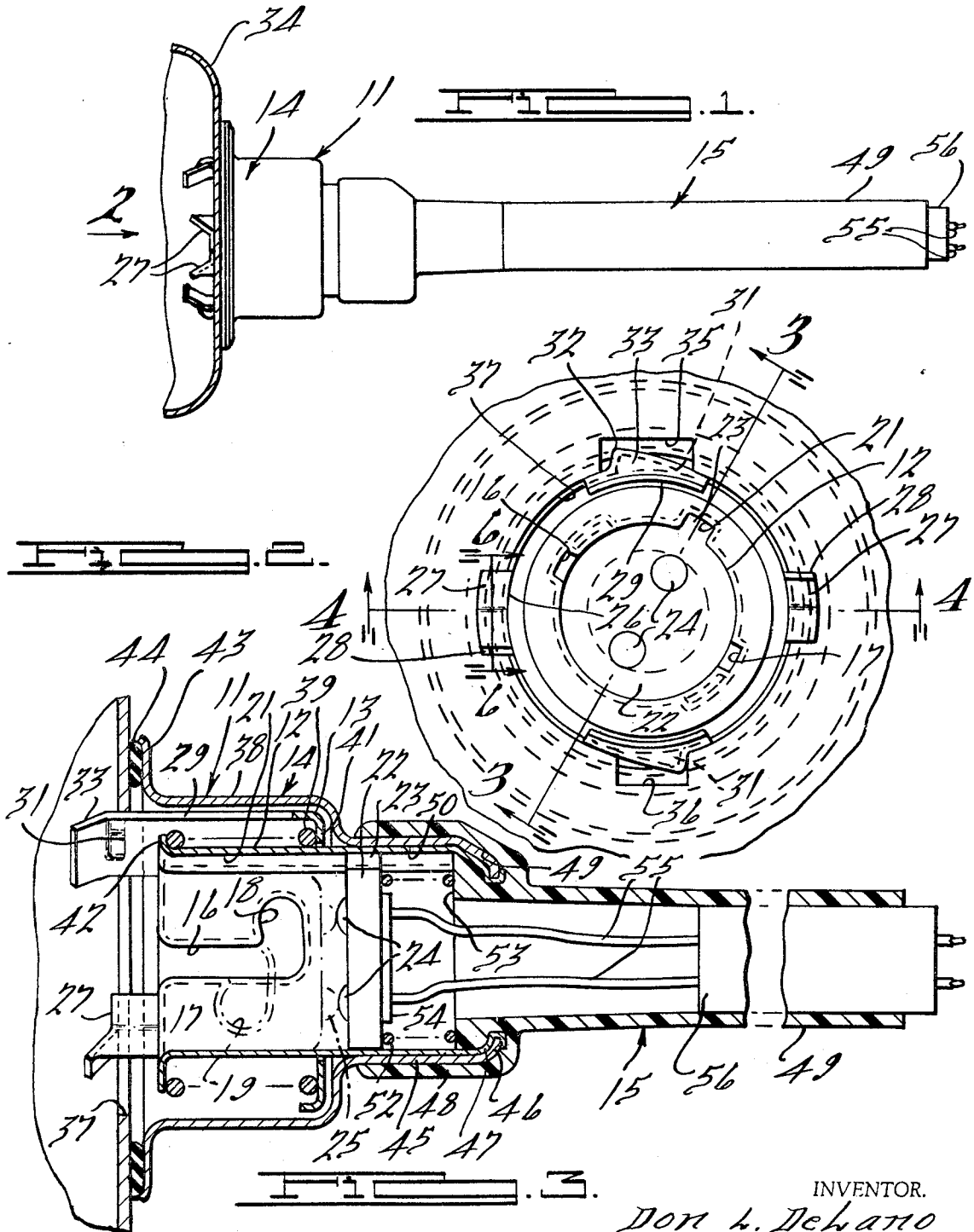
D. L. DE LANO

3,518,619

LAMP SOCKET

Filed Aug. 19, 1968

2 Sheets-Sheet 1



INVENTOR.

DON L. DELANO

BY

Harness, Dickey & Paine
ATTORNEYS.

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D. L. DE LANO

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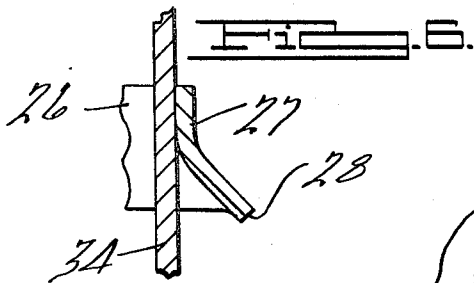
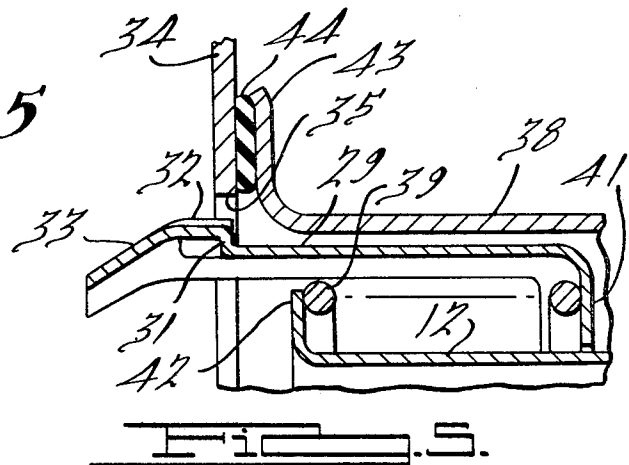
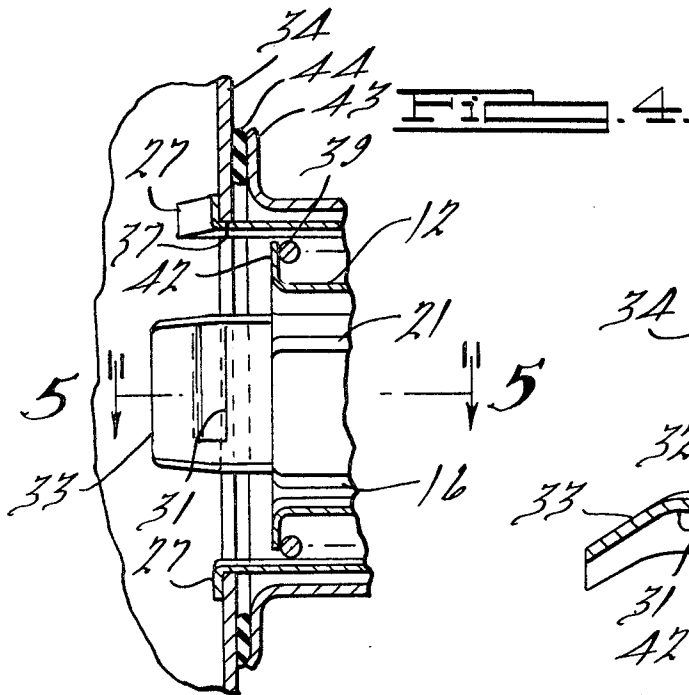
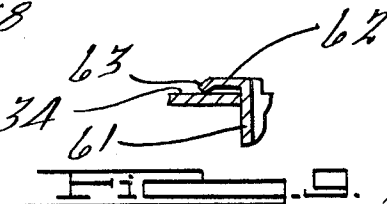
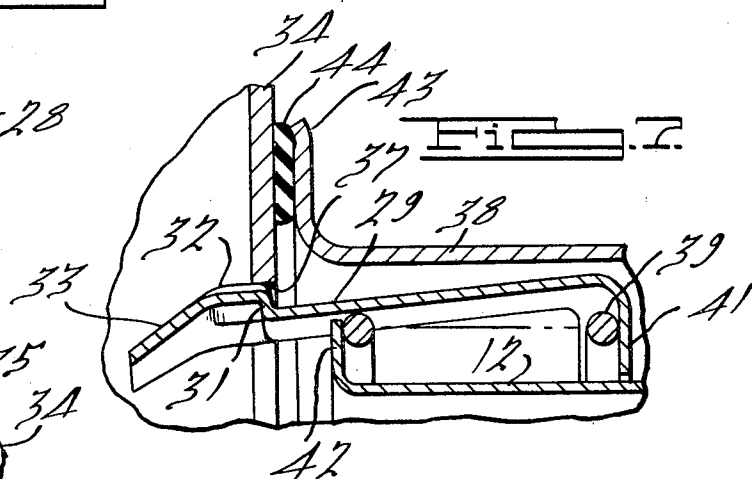
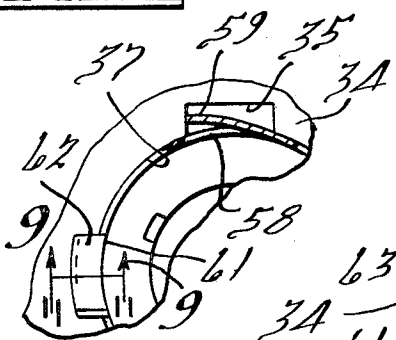


Fig. 8.



INVENTOR.

DOR L. DeLano

BY

Horness, Picky & Perie
ATTORNEYS.

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3,518,619

LAMP SOCKET

Don L. De Lano, Mount Clemens, Mich., assignor to
Vare Corporation, New York, N.Y., a corporation of
Delaware

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Int. Cl. H02b 1/02

U.S. Cl. 339—127

8 Claims

ABSTRACT OF THE DISCLOSURE

The socket is so constructed as to be applied to a lamp housing through the insertion of legs on the former through locating notches on the latter which when the socket is rotated, applies a clamping tension to a seal ring on a flange of the socket housing. The rotation is stopped by vertical tabs which drops into the notches when the filament is properly oriented and so constructed as to accommodate a wide range of lamp panel thicknesses.

CROSS REFERENCE TO A RELATED APPLICATION

A somewhat similar type of socket which seals to a lamp housing is illustrated, described and claimed in applicant's copending application, Ser. No. 748,858, filed July 30, 1968, for "Lamp Socket" which was assigned to the assignee of the present invention.

SUMMARY OF THE INVENTION

The present invention is directed to lamp sockets for automobiles, particularly a lamp socket which may be removed from the rear of the lamp housing and so sealed thereto that it can be located in the wheel wash area. This permits the bulbs to be serviced from the rear to eliminate the need for removing a lens, gaskets, exposed screws and the like, from the front of the lamp housing.

The lamp socket has a sleeve containing bayonette recesses for the reception of a lamp with the offset portions of the recesses unaligned so that the lamp will be oriented when placed within the socket. An axial recess is provided in the wall of the sleeve for orienting a disc containing contacts which mate with the contacts of a lamp. A spring urges the disc toward the lamp to provide positive engagement between the contacts of the disc and lamp when the lamp is seated in the bayonette recesses. A washer is located outwardly of the sleeve engaged by one end of a spring, the other end of which abuts an outwardly extending flange at the top of the sleeve. The washer has a plurality of legs extending upwardly therefrom, two or more of which have outwardly extending flanges which have one end bent upwardly to function as a ramp when the socket is turned to draw the washer upwardly and apply a spring pressure to a housing. The housing has an outwardly directed flange containing an elastomeric ring which seals against the rear face of the lamp housing. The rear wall of the lamp housing has a pair or more of notches extending outwardly of a central receiving aperture. One of the notches is shorter in length than the other to conform to the difference in length of the flanges to thereby orient the socket relative to the lamp housing. Two additional legs extend upwardly from the washer housing locking projections which enter the notches and limit the rotational movements of the socket within the housing. This accurately orients a filament within the lamp housing since the lamp was properly oriented within the socket. The socket is secured in fixed position at the rear of the lamp housing and may be removed therefrom through the counterclockwise rotation of the socket so that the lamp can be changed and the

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socket replaced without the necessity of removing the lens and other parts from the front of the housing which may be constructed as a unit.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a broken view in elevation of a socket attached to the rear of a lamp housing;

FIG. 2 is an enlarged end view of the structure illustrated in FIG. 1, as viewed from point 2 thereof;

FIG. 3 is a broken sectional view of the structure illustrated in FIG. 2, taken on the line 3—3 thereof;

FIG. 4 is a sectional view of the structure illustrated in FIG. 2, taken on the line 4—4 thereof;

FIG. 5 is a sectional view of the structure illustrated in FIG. 4, taken on the line 5—5 thereof;

FIG. 6 is a sectional view of the structure illustrated in FIG. 2, taken on the line 6—6 thereof;

FIG. 7 is a view of the structure illustrated in FIG. 5, showing the socket during the rotation thereof;

FIG. 8 is a reduced view of structure, similar to that illustrated in FIG. 2, showing a different form of the invention; and

FIG. 9 is a sectional view of structure illustrated in FIG. 8, taken on the line 9—9 thereof.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referred to FIGS. 1 to 7, a socket 11 embodies a central lamp supporting sleeve 12, a flanged washer 13, an outer housing 14 and an elastomeric sealing sleeve 15. The supporting sleeve 12 has inwardly presenting bayonette recesses 16 and 17, the laterally extending ends 18 and 19 of which are offset in depth relative to each other to have the offset pins of the lamp orient the filament thereof relative to the sleeve. A third axially disposed recess 21 orients an insulating disc 22 having an extending projection 23 which rides in the recess 21 and positions a pair of contacts 24 in alignment with contacts 25 of the lamp.

The flanged washer 13 has a plurality of legs 26 extending outwardly of the flange, herein illustrated two in number, but it is understood that three or more such legs could be employed when a greater holding force is desired. The two legs 26 are flanged outwardly at the top to provide a flange 27 which slopes upwardly at 28 on the leading side to form a ramp. The flange of the washer 13 also has a pair of extending legs 29 which are flanged outwardly at 31 and formed to have a stop lip 32 and a sloping cam extension 33. It will be noted in FIG. 2 that the stop lips 32 are diametrically disposed the same as the flanges 27 with the legs 26 located substantially 90° from the legs 29.

A lamp housing 34 has notches 35 and 36 extending outwardly from a socket receiving aperture 37. The notch 35 is of greater length than the notch 36 and the left-hand flange 27, as viewed in the figure, is of greater length than the right-hand flange 27. Two flanges are positioned to extend through the slots 35 and 36, the smaller right-hand flange extending in the shorter slot 36 and the left-hand flange extending through the longer slot 35. This orients the socket relative to the housing 34 and assures the proper positioning of the filament when the socket is in installed position.

The outer housing 14 has a cylindrical portion 38 in which the flanged washer 13 is free to move outwardly and inwardly. A spring 39 engages an inwardly extending portion 41 of the flange washer 13 and an extending flange 42 at the top of the lamp supporting sleeve 12. The spring urges the flange ring 13 toward the bottom of the cylindrical portion 38 of the outer housing 14. The top of the outer housing has an outwardly extending

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flange 43 to which an elastomeric sealing ring 44 is bonded to be located in a position to engage the rear face of the lamp housing 34. The housing 14 is necked inwardly below the cylindrical portion 38 to form a cylindrical portion 45 having a recess 50 for receiving the outer portion of the recess 21 of the supporting sleeve 12 which is encompassed thereby. The lower end of the cylindrical portion 45 is flanged inwardly at the bottom at 46 to mate with the inwardly flanged portion 47 at the bottom of the supporting sleeve 12 with its end spun over the flange 46 to secure all of the parts of the socket in unit relation.

The sealing sleeve 15 is made of elastomeric material having an enlarged cylindrical tubular portion 48 and a tapered tubular portion 49 which receives the recess 50 when bonded to the cylindrical portion 45 of the outer housing 14.

A spring 52 rests upon a shoulder 53 of the sealing sleeve 15, the other end of which engages the disc 22 and is located thereon by a shouldered extension 54. Wires 55 connected to the contacts 24 extend from an insulating body 56 over which the tapered tubular portion 49 of the sealing sleeve 15 is stretched to provide a watertight connection therewith. In this manner the sealing sleeve 15 is in sealing relation with the body of the conductor and with the housing 14 of the socket which is sealed to the outer face of the housing 14 by the elastomeric sealing ring 44.

As pointed out above, the socket is so constructed as to support the lamp in proper orientation therewith. The socket is properly oriented relative to the lamp housing 34 when secured thereto resulting in the orientation of the filament therein. In view of the sealing of the socket with the housing, the lamp may be mounted at any place irrespective of the presence of any water, ice, snow and the like, including the area of wheel wash under the fenders. With such a socket the lamp may be made as a unit with the lens since the latter need not be removed to replace a lamp bulb. When the socket is to be installed within the lamp housing 34 it must be oriented to have the proper flange 27 pass through the notches 35 and 36 after which the turning of the socket clockwise will cause the ramps of flanges to ride up over the edge of the notches and apply tension on the spring 39. This will tightly clamp the sealing ring 44 of the housing 14 against the rear surface of the lamp housing 34. Continuous turning of the lamp socket will advance the stop lips 32 on the legs 29 along the edge of the aperture 37 until they drop into the notches 35 and 36 and engage the edge thereof toward which they are being advanced to stop any further advancement of the socket and thereby accurately locate the socket relative to the housing. In case the lamp becomes defective, it is only necessary to rotate the socket counterclockwise to remove it from the lamp housing 34 so that it can be serviced.

In FIGS. 8 and 9, a further form of the stop lip is illustrated that wherein upstanding fingers 58 have a tongue 59 lanced therefrom and positioned to extend outwardly to ride along the edge of the aperture 37 of the

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lamp housing 34 until they spring into the notches 35 and 36 to stop the further advancement of the socket. As illustrated in FIG. 9, the legs 61 on the washer 13 containing the flanged ramp sections 62 have a reversely bent edge 63 which cuts into the material of the lamp housing 34 to secure the socket against counterclockwise movement until a positive force is applied thereto to remove it from the lamp housing 34.

I claim:

1. In a lamp socket, a socket sleeve for supporting a lamp, a movable flanged ring about the socket sleeve having a plurality of legs extending therefrom, at least two of the legs at opposite sides of the ring having outwardly extending flanges one end of which slopes upwardly to form a ramp, at least two legs therebetween having stop projections thereon provided with extending lips, a lamp housing having a central aperture from which notches extend one of which is shorter in length conforming to the shorter length of one of said flanges, an outer housing encompassing said socket sleeve and flanged ring and provided with an outwardly extending flange, and a spring pressed disc within the socket sleeve having contact means for engaging the contact means of the lamp.

2. In a lamp socket as recited in claim 1, wherein a sealing sleeve is secured to the outer housing in sealed relation thereto.

3. In a socket as recited in claim 1, wherein the lip on said stop projections is lanced therefrom and extended outwardly thereof.

4. In a socket as recited in claim 1, wherein a ring of elastomeric material is secured to said outwardly extending flange.

5. In a socket as recited in claim 4, wherein an outwardly extending flange is provided on said socket sleeve, and a spring between said washer and said last flange for applying tension on the elastomeric ring on said housing.

6. In a socket as recited in claim 2, wherein said sealing sleeve is bonded to the bottom portion of the housing and extends therefrom in sealed relation to a conductor having wire means connected to said contact means.

7. In a socket as recited in claim 6, wherein the disc containing said contact means is oriented within the socket sleeve by a projection thereon extending into an axially disposed recess in said sleeve.

8. In a socket as recited in claim 7, wherein a spring located between said elastomeric sleeve and disc urges the contact means of the disc into engagement with the lamp contact means.

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RICHARD E. MOORE, Primary Examiner