

United States Patent

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[72] Inventors **Harold L. Hough;**
Charles W. Foss, both of Beverly, Mass.
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 [73] Assignee **Sylvania Electric Products Inc.**

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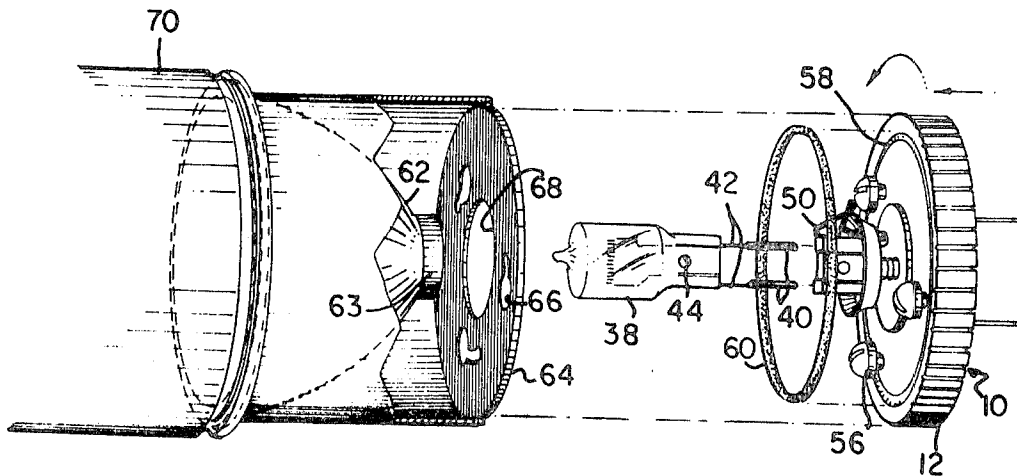
[54] **AUTOMOTIVE DRIVING LIGHT**
 1 Claim, 3 Drawing Figs.

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 [51] Int. Cl..... F21v 7/00
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Primary Examiner—Samuel S. Matthews
Assistant Examiner—Richard M. Sheer
Attorneys—Norman J. O'Malley and Laurence Burns

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ABSTRACT: A removable weatherproof socket cover for an automotive lighting fixture is herein described. The removable cover supports a harness that optically aligns a baseless lamp that is retained therein. The harness is such that it regulates the lamp axially and symmetrically in relation to a reflector. In combination with spaced-apart locking studs and gasket, the socket cover can be attached to the fixture body and retained in a weatherproof sealed position.



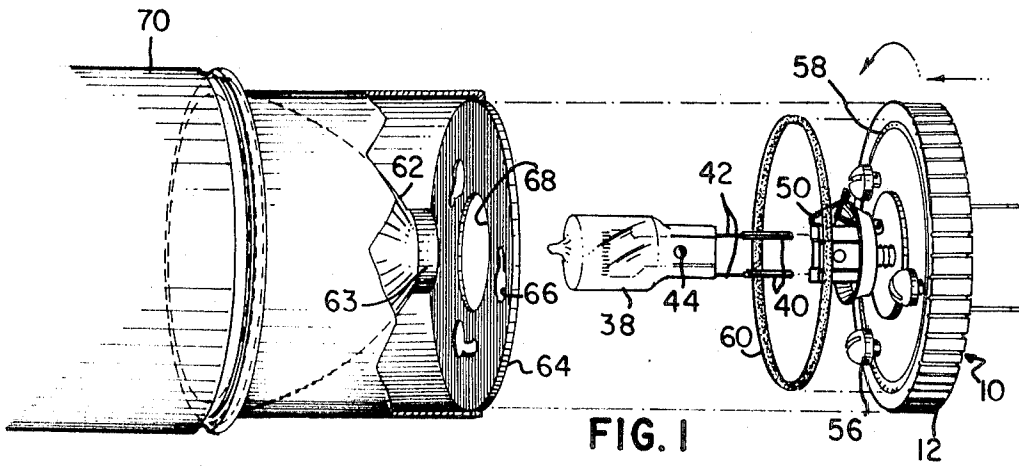


FIG. 1

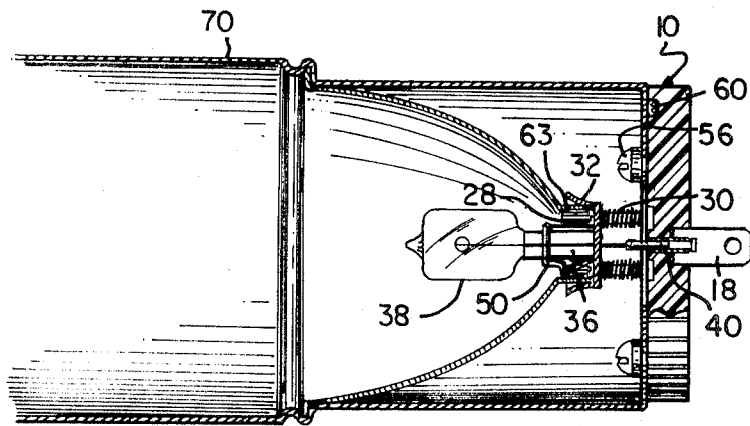


FIG. 2

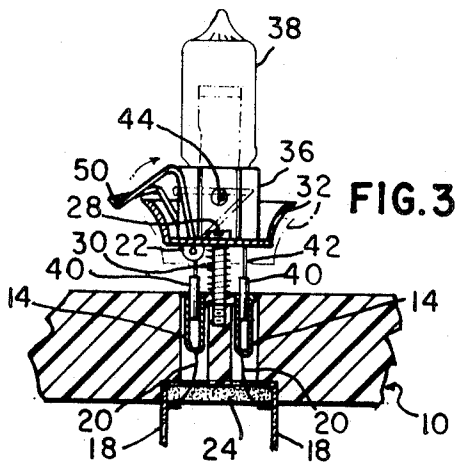


FIG. 3

HAROLD L. HOUGH
CHARLES W. FOSS
INVENTORS

BY *Lawrence Butler*
ATTORNEY

AUTOMOTIVE DRIVING LIGHT

FIELD OF THE INVENTION

This invention relates generally to lighting fixtures but more particularly to automotive fixtures that are exposed to the rigors of extreme weather and to road conditions.

Sealed-beam head lamps used by the automotive field have recently been supplemented with high-intensity lighting fixtures that have controlled lighting beam spreads. These fixtures have been used successfully in conjunction with the low beams of a standard automotive lamp, to provide additional controlled light spread and deeper penetration of the road.

In recent years, highway improvements implemented faster rate of travel of the automobile. With increased speeds, especially during the evening hours, it has become necessary to use the high beams of the vehicle more frequently than necessary which in turn increases the safety hazard to the oncoming drivers. With the use of the added supplemental lighting device such as described above, a more controlled and more penetrating beam is attained without sacrificing safety.

PRIOR ART

Normally, supplemental lighting fixtures were made in the form of a single housing the front end being provided with a lens and the rear lamp-receiving end having a removable cover. The cover was usually made from material similar to the housing that is, in the form of a cast or spun metal that was attached to the housing by suitable fastening means. Another type of cover used with this type of fixture is a rubber boot that can be snap fitted over the lamp end of the fixture.

These above-mentioned cover arrangements required the lamp and socket to be attached to the main body before the cover could be attached. This meant that all of the required precise lamp alignments and adjustments had to be made prior to sealing of the fixture by the cover.

SUMMARY OF THE INVENTION

In our invention, we have designed a supplemental automobile-lighting fixture that utilizes a baseless lamp attached to a removable base cover that will axially as well as symmetrically align the lamp upon insertion into the fixture.

The insulated socket cover is designed to provide a floating harness and horn-seating arrangement between the lamp and reflector. This arrangement aligns the baseless lamp in the light center of a reflector and provides a spring-biasing force that locks the socket cover in a weathertight condition.

External electrical spades are attached to internal electrical conducting sleeves by flexible wires. The sleeves receive the lead wire of the lamp, thus providing an electrical path from the external spades to the lamp positioned within the housing.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded perspective of the rear portion of the lighting fixture showing in particular the relative parts and their assembly procedure.

FIG. 2 is an elevational cross-sectional view of the rear portion of the fixture showing the lamp and socket cover in the assembled position.

FIG. 3 is an enlarged detail view of the lamp and its relationship to the electrical spades.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 1, an exploded view of the socket cover is viewed. The basic socket body 10 is of circular configuration and is made from high-temperature material such as phenolic which also acts as an insulator. The socket body 10 has a knurled outer circumferential edge of 12 for easy gripping.

As viewed in FIG. 3, the central area of the socket body is provided with embedded electrical lamp receivers 14, the open ends of which are located on the lamp-positioning end of the socket body 10. A pair of contact spades 18 are partially imbedded and extend rearwardly from the back surface of the

socket body. The embedded portions of the spades are bent at right angles and are connected to the ends of the lamp receiver 14 by flexible wires 20. In assembly of the socket, the bent portions of the spades are recessed below the surface of the back edge of the cover 10, this evacuation space is filled with an insulator material closely compatible with the phenolic cover, such as a silastic rubber compound 24. This compound provides a water tight seal for the spades. Located 90° from the alignment of the lamp receivers 14 and approximately the same distance from the center of the cover, a pair of standoff studs 28 having enlarged heads extend from the socket cover 10 and terminate within a flared horn 32. A pair of springs 30 are positioned over the studs and serve to spring-bias the flared horn 32 away from the cover 10. With this arrangement, the horn 32 can be moved against the action of the springs 30 to provide an adjustable element to the horn.

Located within the central portion of the horn 32 and fixed to the horn is a rectangular clamshell-type harness 36. The harness is formed in a two piece overlapping configuration and the horizontal cross section of the shell is identical to the cross section of a standard press seal lamp. The overlapping of the pieces form an expandable clamshell arrangement for the lamp base.

A single-ended baseless lamp 38 provided with enlarged pins 40 affixed to a pair of lead-in wires 42 which can be fitted into the mating clamshell-type harness 36. A locating and aligning node 44 is provided on the press seal portion of the lamp and mates with an identical hole on the harness 36 thereby locking the lamp to the harness.

With the lamp 38 positioned within the harness 36, the lead-in wires 42 extend through appropriate holes in the horn 32, bringing the enlarged pins 40 attached to the lead-in wires in electrical contact with the receivers 14. As noted in FIG. 3, the enlarged pins 40 do not penetrate the entire length of the receivers 14. With this arrangement when the horn 32 is moved against the springs 30, the enlarged pins 40 travel deeper within the receivers 14. This allows for adjustment of the horn and lamp which will be described hereinafter. It can be mentioned at this time that the lamp must be locked into the harness to prevent disengagement during normal operational vibration. A curved wire 50 is utilized as a locking member and the upper end is formed, so that it can close over the node 44. As viewed in FIG. 3, the wire is pivotally connected to ears formed on the bottom of the horn. The wire lock is shown in open position in full lines and in a locked position as noted in phantom lines in FIG. 3.

On the lamp-receiving end of the socket body, there are three equally spaced locking screws 56 spaced from the surface of the socket body a distance equal to the thickness of a rear closure plate 64.

As viewed in FIG. 1, the rear end of the lighting fixture is shown partly broken away to show a reflector 62 bearing an apex ring 63 and the rear closure plate 64. The plate 64 is provided with three equally spaced enlarged holes which are arcuate slots 66 and centrally located aperture 68.

It can be seen that in comparing FIGS. 1 and 2, the components such as the lamp gasket of FIG. 1 are fitted together and will be arranged, as viewed in the cross-sectional view of FIG. 2.

The lamp 38 is first fitted into the clamshell harness 36, the node locking into its mating hole in the harness, thereafter the locking wire 50 is moved over the node to finally lock the lamp into the harness. This places the enlarged pins 40 of the lamp in electrical relationship with the receivers 14.

With the "O" ring gasket in place in groove 58, the lamp assembly can be applied to the rear of the lighting fixture canister 70. The lamp 38 passes through the aperture 68 until the apex ring 63 of the reflector seats against the base of the horn 32. At this time, the heads of screws 56 are aligned with the holes 66 but do not penetrate through the holes. With added pressure to the rear of the socket body and due to the engagement of the reflector ring 63 with the horn 32, the horn will be forced rearwardly against the action of springs 30. This

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applies spring tension to the socket body 10 and when this finally is overcome, the heads of screws 56 will fully enter the holes 66. As mentioned above, the screws 56 are spaced from the surface of socket a distance equal to that of the closure plate 64; therefore, when the socket body is turned clockwise as viewed in FIG. 1, the heads of the screws will become captive in the accurate slots of holes 66. With this arrangement, the complete socket body 10 having its gasket "O" ring compressed to the back surface of the closure plate 64 provides a seal and a frictional force to hold the socket in place during normal operation vibrations.

It is apparent that changes and modifications may be made within the spirit and scope of the instant invention. It is our intent, however, to be limited only to the scope of the appended claims.

We claim:

- 1. An automobile headlight comprising:
 - a housing;
 - a reflector disposed within said housing and having a central aligning apex ring;
 - a removable circular socket body having locking means on the inner surface for securing said socket body to said housing;
 - lamp receivers positioned within said socket body;
 - contact spades electrically connected to said lamp receivers

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and extending from the outer surface of said socket body;

a spring-biased circular aligning horn supported by but spaced from the inner surface of said socket body and provided with a lamp-locking member;

a clamshell-type lamp holder positioned within the confines of said spring-biased horn and provided with a lamp locating means;

a lamp having a press seal end of generally I-shaped transverse section, said press seal having a locating node thereon, said lamp being provided with a pair of lead-in conductors hermetically sealed through and extending beyond said press seal, the end of each lead-in conductor having enlarged contact pins,

said lamp being positioned within said holder with said enlarged contact pins of said lamp engaging said lamp receivers in said socket body, said lamp being retained in said holder by said node engaging said locating means and locked into said holder by said lamp-locking member of said horn, said lamp being axially and symmetrically aligned in said reflector when said apex ring of said reflector engages said horn.

Reconsideration of the above-identified application is respectfully requested in view of the foregoing amendment and the following remarks.