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INCANDESCENT LAMP

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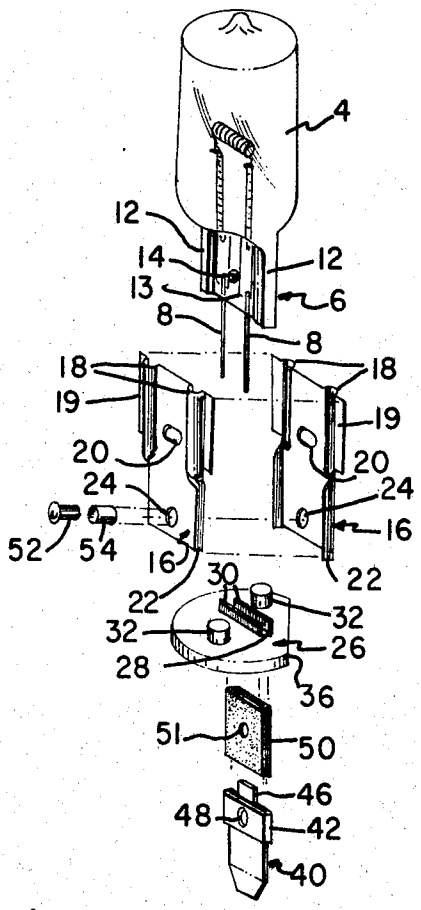

FIG. 1

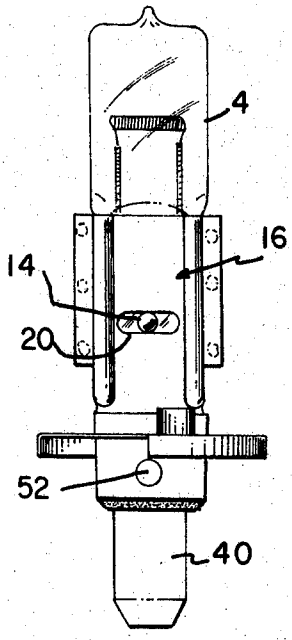

FIG. 2

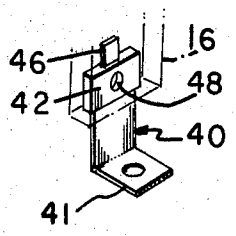

FIG. 3

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INCANDESCENT LAMP

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ABSTRACT OF THE DISCLOSURE

An automotive head lamp comprising, a single ended quartz halogen lamp with a base of mating seal covers adapted to fit over the press-seal portion of the lamp and also to form a housing for an insulated electrical spade. The spade and seal covers are firmly locked together by an insulated rivet.

Tungsten-halogen lamps have been previously used in the automotive fields as accessory lamps, but recently new applications have been adopted. One recent use of the tungsten-halogen lamp is in automotive headlight assemblies. Due to this new application, increasing demands have been put on the lamp manufacturer to develop lamps and fixtures for racing vehicles. Some of the requirements demanded fixtures with a multitude of design factors, such as, the use of sealed reflectors with various combinations of lenses. Also the lamp had to have a single-ended mechanical base with a pre-focus adaptability and provided with a single electrical spade contact. These design variations produced an interchangeable lamp with the desired light output and controlled light patterns necessary for night racing.

Although adequate light patterns were achieved with these designs, featuring the tungsten-halogen lamp, the high temperature generated by the lamp produced other problems. Two major problems encountered due to this excessive heat in the base area of the lamp are: insulation "break-down" and separation of the electrical spade contact from the side covers. Under the condition of competitive night racing, where continuous illumination is required, these problems become of prime importance.

In the basing of a lamp with the above-mentioned specifications, certain assembly steps must be performed. A lamp of this type is provided with a press-seal with an I-shaped cross section at one end where the filament lead-in wires are directed out beyond the seal. To provide a mechanical base for the lamp, a pair of metal seal cover plates are utilized to cover the press-seal area. The seal covers extend below the seal and provide a housing for an insulated spade contact and also to support an alignment disc for insuring coil alignment in each fixture.

To provide an electrical connection to the lamp, one of the filament lead-in wires is attached to the inside of a seal cover plate while the other lead-in wire is attached to the top edge of the spade contact. After this operation, the side plates are welded together over the press seal. The aligning disc is then slid over the joined side plates and is fastened in place at a point just short of the end of the press seal.

An insulating material, usually of epoxy-resin composition, is then placed in the area around the contact spade, for the purposes of separating and insulating the spade from the side covers. After the epoxy-resin has set-up or hardened, a pinch or staking operation is then performed to the outside of the cover plate extensions at a point adjacent to the new potted spade, this operation pinches the side covers into the insulation.

The above-described fabrication provided based lamps with adequate specifications in the lower wattage range. But due to increased speeds in the racing fields, higher

illumination for deeper track penetration was needed. When lamps of increased wattage were utilized in this field, the heat problems previously mentioned were fostered.

Part of the heat generated by the lamp filament settled in the base area. During continuous normal operation, when the lamp is fixed within a weather-sealed fixture, the heat build-up in the seal area gradually weakened the holding qualities of the epoxy insulator. Thus, because of "'break-down" of the insulator the rough service to which the lamp will be subjected, short circuits sometimes occur between the contact spade and the cover plates. Also, during replacement of the lamp, separation sometimes occurs between the spade and the base. These problems required longer pit-stops for the racing vehicle.

I have overcome these problems by providing a lamp base with positive locking features built around the contact spade. I also provide an insulator for the spade that retains its workable characteristics, even under these high lamp operating temperatures.

Included in the construction are side covers, an alignment disc, insulator material and a spade contact. By redesigning the normally flat contact spade so as to form an enlarged build-up ledge, an enlarged pressure area between the spade and the side covers can be made. A preformed Teflon insulating sleeve is fitted over the spade in place of potting material previously used to entirely isolate the metal contact spade from the side cover. A clearance hole through the ledge and the cover plates is provided for the insertion of an insulated rivet which will positively hold the insulated contact spade to cover plates. Not only does the rivet firmly hold the spade in place, but by virtue of the raised ledge, compression will be greater between the spade and the covers.

Other features, advantages and objects of the invention will be apparent from the following description taken in connection with the accompanying drawing in which:

FIG. 1 is an exploded view of the pertinent components of the invention; FIG. 2 is an elevational view of a completed lamp and base, and FIG. 3 showed another form of the contact portion of the base.

Referring to FIG. 1, a lamp assembly is shown in a pre-assembled orientation. The lamp **4** of vitreous material is provided with a conventional I-shaped press-seal base **6** having a pair of lead-in wires **8** extending beyond the seal. According to the present invention, a locating node **14** has been disposed on each side of the flat surface **13** of the press-seal. The node is centrally located between the raised edges **12**.

To provide a mechanical spade-type base for this particular press-seal, I incorporate a pair of mating cover plates **16**. Each cover plate is pre-stamped to coincide with the shape of one-half of the side of the base **6**. That is, the plates are deformed with a pair of grooves **18** that fit over the raised edges **12** of the press-seal and extend beyond the edges terminating in wing extensions **19**. Centrally located between the grooves **18** on each plate **16** is a horizontally elongated slot **20**. The purpose of the slot is to receive the glass node **14** of the press-seal for locating and holding the lamp in a prescribed coil to base arrangement. The shape of the slot **20** allows only lateral adjustment of the plates **16**. The plates **16** extend below the groove **18** approximately the same distance as the length of groove **18** and are provided with inner directed ears **22**. Located on the lower part of each plate and equidistant the ears **22** is a hole **24**, the purpose of which will be described hereafter. Another component of the base structure is an alignment disc **26** provided with a centrally located slot **28** on its top surface. The slot is formed by displacement of the surface to form a pair of upstanding ears **30** defining two long sides to the slot **28**. At pre-calculated positions on the top of the

disc are two upstanding studs **32** located for maintaining the lamp in an aligned operative position. A portion of the disc **26** is cut away to define a locating edge **36**, to coincide with a conventional socket.

An electrical flat spade **40** having a raised ledge **42**, heavier than the basic tong portion of the spade, the top part of the ledge is reduced down to define a small upstanding tab **46**. An orifice or clearance hole **48**, similar in size to the holes **24** in the side covers, is located through the ledge portion.

The above-mentioned components are the major structural parts of the base with the exception of a Teflon flat insulator sleeve **50**, a rivet **52** and a circular Teflon insulating sleeve **54**. The flat sleeve **50** is utilized to isolate the spade **40** from the side cover **16** and the circular sleeve **54**. It insulates the rivet **52** from contact with the ledge portion of the spade.

The assembly steps taken in this new improved lamp base are similar to that previously mentioned. The upstanding ear **46** of spade **40** is connected to one of the lead-in wires **8** by a solder or weld operation while the other lead-in wire is bent to a position where it contacts a side cover **16** and is also welded in place. The side covers **16** are then fixed over the press-seal portion of the lamp and secured in place by a weld applied to the wing extensions **19**. In this fixed position the side covers completely encompass the press-seal with the exception of the node **14** of the press-seal which is located within the elongated slot **20**. The node and slot arrangement maintains a coil-to-base relationship of the lamp and also locks the covers **16** to the press-seal. With the covers **16** in place, the flat Teflon sleeve **50** is then slid over the raised ledge **42** of the spade **40** to completely isolate the side covers **16** from the spade.

Only two minor operations remain to complete the lamp assembly, one is the attachment of the locating disc **26** over the side covers. This is accomplished by sliding the disc **26** over the cover extensions to a point short of the end of the grooves **18**, where the disc is firmly secured by a weld or other similar fastening means. To finish this assembly, the Teflon circular sleeve **54** is inserted through the orifices **24** in the covers **16**, through a mating hole **51** in the Teflon sleeve and hole **48** of the ledge **42**. The rivet **52** is then passed through sleeve **54** and crimped to firmly secure the spade **40** to the side covers **16**.

In FIG. 2 a completed lamp is shown and the positions of the component parts as described previously. In FIG. 3, a form of spade is shown which might be used where speed in changing the lamp is not as essential as in racing. In this, the spade **40** has the bent portion **41** for providing contact.

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

I claim:

1. An incandescent lamp base comprising: a sealed envelope of vitreous material having a press-seal portion of generally I-shaped transverse section, said press-seal provided with a locating means thereon; a pair of lead-in conductors hermetically sealed through and extending beyond said press-seal; a pair of metal cover plates, each of which coincidental to the other disposed about said press seal and extending beyond the lower end thereof; said cover plates fitting over said locating means; alignment means disposed about said cover plates and attached thereto; a conductive metal spade disposed within the lower portion of said seal plates and attached to one of said lead-in conductors; a raised ledge disposed on said spade and within said cover plates; insulating means disposed about said spade between said cover plates and said spade; locking means positioned through said cover plates and said raised ledge of said spade to firmly hold the spade and cover plates in a fixed position.

2. The lamp according to claim **1** wherein said alignment means is a disc.

3. The lamp according to claim **2** wherein said press-seal portion is of I-shaped transverse section.

4. The lamp according to claim **2** wherein said lamp envelope contains an iodine fill.

References Cited

UNITED STATES PATENTS

2,951,959	9/1960	Fraser et al.	313—318 X
3,262,001	7/1966	Rijckeart	313—318 X
3,274,426	9/1966	Scoledge et al.	313—318
3,315,216	4/1967	Krupp et al.	313—318 X
3,349,277	10/1967	Hoeve	313—318
3,364,378	1/1968	Beesley	313—318 X

FOREIGN PATENTS

963,968	7/1964	Great Britain.
1,377,332	9/1964	France.
1,379,369	10/1964	France.
1,380,283	10/1964	France.

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313—317, 331