Dec. 3, 1940. P. P. HORNI 2,223,991

ELECTRICAL SOCKET AND SUPPORT THEREFOR

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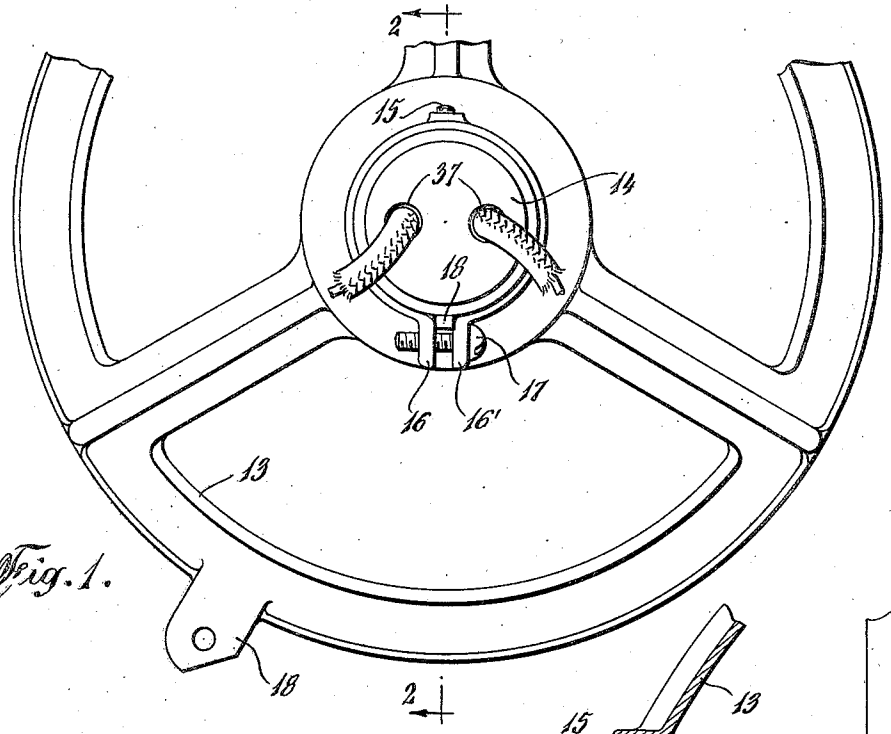


Fig. 1.

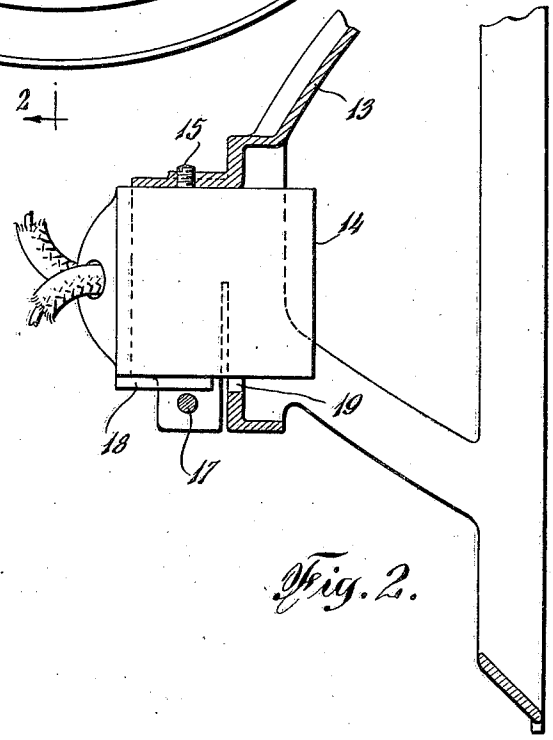
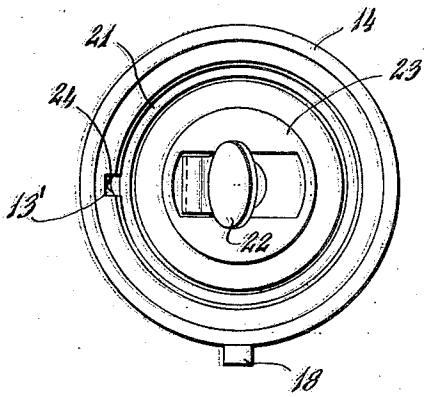


Fig. 2.

Fig. 3.



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Fig. 4.

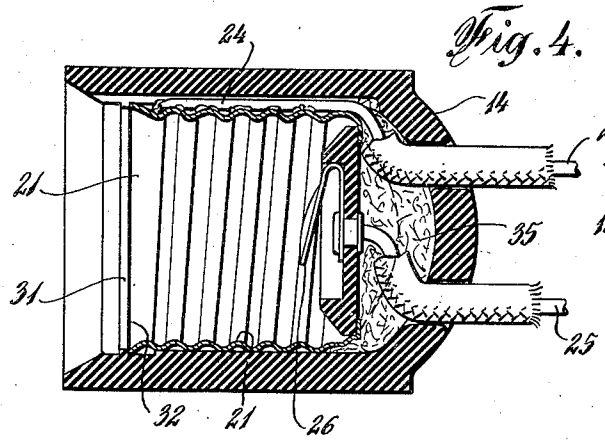
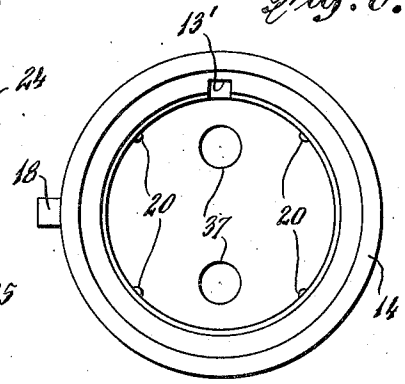


Fig. 8.



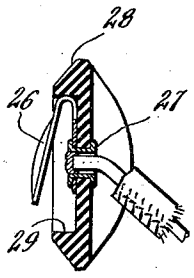


Fig. 7.

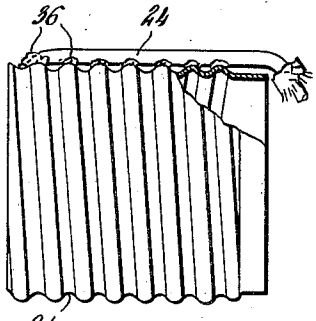


Fig. 6.

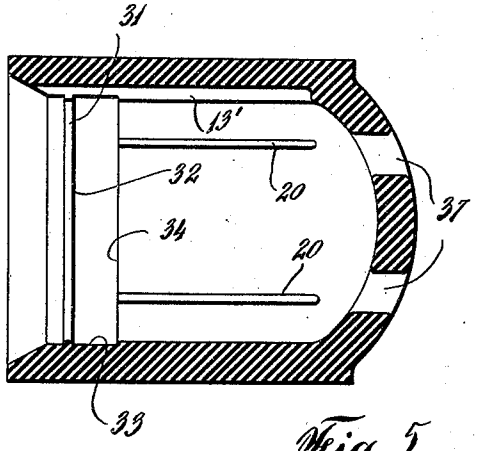


Fig. 5.

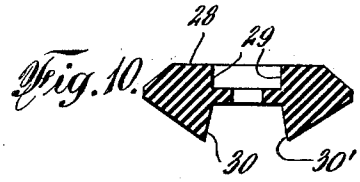


Fig. 10.

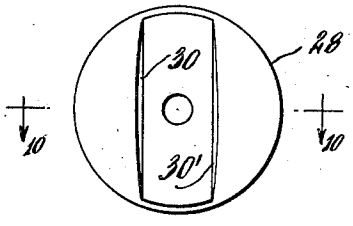


Fig. 9.

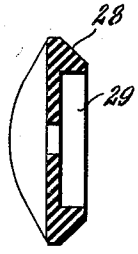


Fig. 12.

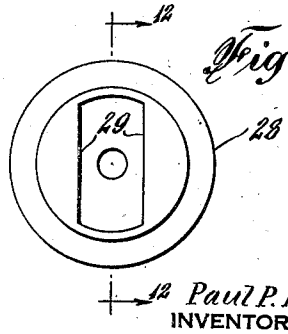


Fig. 11.

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ELECTRICAL SOCKET AND SUPPORT THEREFOR

Paul P. Horni, Newark, N. J.

Application June 18, 1938, Serial No. 214,458

1 Claim. (Cl. 173—358)

This invention pertains to electrical fixtures and more particularly to sockets and socket mountings used in conjunction with electric bulbs.

It is well known that electric bulbs which are used for the purpose of lighting generally, frequently burn out and require replacing. Where the electric light is in use almost continuously throughout the day and night, it naturally follows that replacements would be more prevalent than with the bulbs that are used only occasionally for illumination. In the case where there is almost continuous service on the bulb, the replacement of these bulbs is so frequent that the sockets and socket mountings which respectively directly and indirectly hold the bulbs become loose, mutilated, inefficient, and generally defective. In an effort to overcome these undesirable qualities, a socket and socket mounting has been invented which eliminates substantially all of the undesirable features mentioned hereinbefore.

The base of the electric bulb screws into a metallic shell, which shell is fastened into a supporting socket. The supporting socket is thereafter mounted in a suitable housing, carrying means, or spider, the latter expression being generally used in reference to the carrying means for the socket in conjunction with apparatus for traffic signalling equipment. Furthermore, difficulty is not only experienced by the metallic shell twisting and rotating within its supporting housing, which twisting loosens and breaks off the electrical conductors which supply energy to the electric bulbs, but there is also a longitudinal movement of the shell in its immediate housing, which longitudinal movement so weakens the anchoring means of the shell within the housing that this action causes the electrical conductors to be broken. This longitudinal movement frequently weakens the anchoring means to such an extent that the metallic shell will free itself entirely from the electrical conductors and the housing and permit the electric bulb to be removed from the socket with the metallic shell intact with the base of the bulb.

The longitudinal movement of the housing in relation to the spider is also undesirable. The reason for the longitudinal movement being undesirable is primarily due to the fact that any longitudinal movement of the housing in relation to the spider would cause the bulb to be moved out of focus with its corresponding light reflector. It is pointed out that in this particular arrangement, a light reflector is used in conjunction with the bulb to properly reflect the light for traffic signalling purposes. While the light reflector, lens, and other incidental parts are not shown, it is pointed out that the use of these parts per se, is old in the art and it is not believed necessary to include them herein. However, it is to be understood that the description and operation of this invention embraces the general parts set forth hereinbefore.

It is an object of this invention to provide a socket for an electric bulb having an improved holding or locking means against longitudinal and rotational movement. A further object is to provide a socket for an electric bulb having a key-like member formed from a part of the electrical conductor. A further object is to provide a housing for the metallic shell member, which housing has special locking means molded therein. A still further object is to provide a temporary locking means between the housing and the spider for the purpose of temporarily focusing the electric bulb in relation to its reflector, and a permanent locking means on the spider to more firmly grip the socket housing.

Other and further objects may be and may become apparent to those skilled in the art from a perusal of this invention without departing from the spirit of the subjoined claim.

For a better understanding of the invention reference may be had to the accompanying drawings, in which:

Fig. 1 is a fragmentary rear view of the socket housing and the spider showing the housing gripping means.

Fig. 2 is a fragmentary side view partly shown in section taken on lines 2—2 of Fig. 1 showing the socket housing in relation to the gripping means of the spider.

Fig. 3 is a front view of the complete socket housing and shell.

Fig. 4 is a cross-section of the socket having lead-in conductors.

Fig. 5 is a cross-sectional view of the socket housing per se.

Fig. 6 is a view of the metallic shell, partly in section in relation to the electrical conductor which acts as a locking key.

Fig. 7 is a sectional view of a spacing insulator for one of the socket contacts.

Fig. 8 is a front view of the socket housing with the internal removable parts omitted.

Fig. 9 is a front view of the spacing insulator.

Fig. 10 is a cross-section of the front view taken on lines 10—10 of Fig. 9.

Fig. 11 is a rear view of the spacing insulator.

Fig. 12 is a sectional view of the spacing insulator taken on lines 12—12 of Fig. 11.

Referring particularly to Fig. 1, there is a spider 13, which supports a socket housing 14, which housing has an adjusting screw 15, which provides a temporary locking means when the electric bulb is being focused in relation to its reflector. 16—16' are opposing sides of a gripping means which are clamped together by a screw 17, which screw is threaded into the part 16 to firmly grip the socket housing. 18 is a flange which engages part of the main casing for supporting the entire structure presented in this invention.

In Fig. 2 the screw 15 is more clearly shown in the manner in which it grips the socket housing 14 during the temporary focusing.

In both Figs. 1 and 2 an elongated key or locking member is shown, which member is molded integrally with the socket housing 14. The spider 13 provides an opening for the housing 14, but a slot or key-way 19 is provided therein for the purpose of permitting the socket housing 14 to be moved along a longitudinal axis of the spider. It will be noted that the key 18 does not engage the screw 17. Thus it will be clear that there will be ample freedom of movement for the socket housing in relation to the spider.

A more comprehensive showing of the socket housing is presented in Fig. 8. This view shows the socket housing 14, having its key-way 13' and its external key 18. The ribs 20, on the inside of the socket housing, are utilized for the purpose of holding the metallic shell centrally spaced from the housing. The ribs 20, are more clearly shown in Fig. 5. The shell 21, is shown in Fig. 3 in relation to the housing 14, metallic conductor 22, which engages the bottom of the electric bulb, the insulating spacing member 23, the key 18, the key-way 13', and its corresponding locking conductor 24.

The sectional view in Fig. 4 shows the housing 14, with electrical conductors 24 and 25, inserted through openings in said housing, and engaging the shell 21 and the opposing electrical contactor 26.

In Fig. 7 the conductor 25, is shown engaging an eyelet 27, which is soldered to the contactor 26 to insure a good electrical contact. The eyelet 27, holds the contactor 26 securely against the insulator spacing member 28, which electrical contactor is substantially held from lateral movement on the side walls 29, which provide a seating means for the contactor.

Figs. 9, 10, and 12 show the general structure of the insulator spacing member having spaced parts 30 and 30' which are used as locking means to hold the insulating spacing member in substantially fixed relation to the base of the socket housing and the shell.

It will be noticed that a bead or ridge 31, goes substantially around the inside of the socket housing and is abutted by one edge 32, of the shell 21. The space 33 provides a working distance for the edge 32 of the shell 21, which edge 32 may move between the bead 31 and the rim 34 before the shell is securely cemented into position shown in Fig. 4.

In actual construction the insulating spacing member 28 is placed within the shell and engages the lower rim thereof, the parts 30—30' of said insulating spacing member protruding from the shell to be immersed in a binder 35, which securely holds the spacing insulating member in fixed relation to the shell and the housing. The binder 35 utilized may be any suitable cementitious, ceramic, ceraceous, or plastic insulating material. The method of applying the binder is immaterial, however, it is set forth that the binder is usually placed in the socket before the parts are assembled.

In Fig. 6 a more comprehensive showing of the shell is presented in relation to the conductor 24. Spots of solder 36 are shown in this view to indicate that the conductor is mechanically secured to the shell, which solder also provides a plurality of positive electrical connections.

From the foregoing, it is pointed out that the conductor 24 acts as a key in the key-way 13'. In Fig. 3 it will be noted that the key-way 13' is substantially filled by the conductor 24, which prevents any great amount of lateral movement of the shell within the housing. The binder which holds the insulator spacing member in fixed relation to the housing also urges the edge 32 and shell 21 against the bead 31. This arrangement prevents any great amount of longitudinal movement of the shell within the socket housing. The openings 37, as shown in Fig. 8, more clearly depict the space provided for the conductors 24 and 25.

From the foregoing, it is pointed out that the arrangement of parts and the construction of this invention clearly indicate that there is substantially no lateral nor longitudinal movement between the shell and the socket housing which is also true of the relation between the socket housing and the spider.

While specific details of the system have been herein shown and described, the invention is not confined thereto as changes and alterations may be and may become apparent to those skilled in the art without departing from the spirit thereof as defined by the appended claim.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent of the United States, is:

A housing for a socket of the class described having a central aperture therein to receive a metallic shell, a metallic shell loosely inserted within said housing having a bare metallic locking conductor secured longitudinally along substantially the length of the shell, and said housing having a longitudinal groove therein longer than the length of the metallic conductor secured to the shell said conductor substantially fitting into said groove.

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