United States Patent

[11] 3,609,641

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[54] FLEXIBLE BULB SUPPORT MEANS

3 Claims, 5 Drawing Figs.

[52] **U.S. Cl.** **339/93**
[51] **Int. Cl.** **H01r 33/12**
[50] **Field of Search** 339/69–73, 75, 93

[56] **References Cited**

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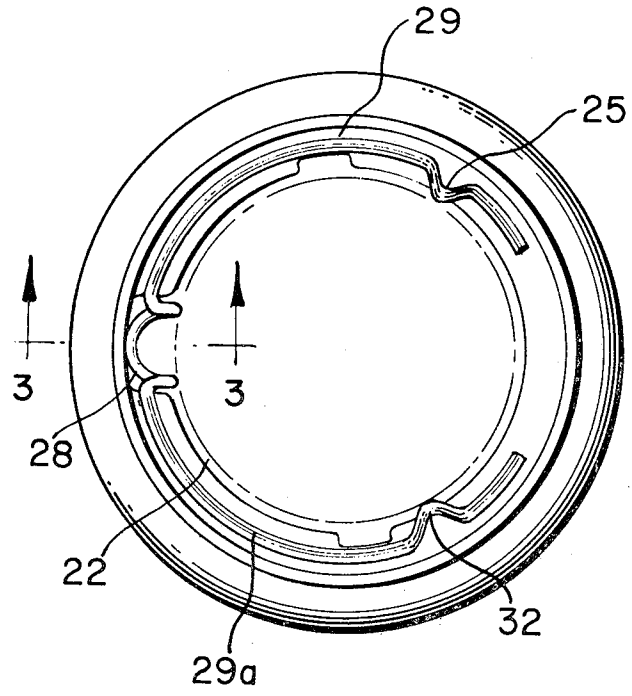
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ABSTRACT: This a bulb-support means which has a flexible element protruding into the cavity for engagement with a bulb to hold the bulb against excessive movement when it is subjected to shock or vibration. One type of support means uses a flexible metal spring member and another type uses an element formed of rubber or elastomer.



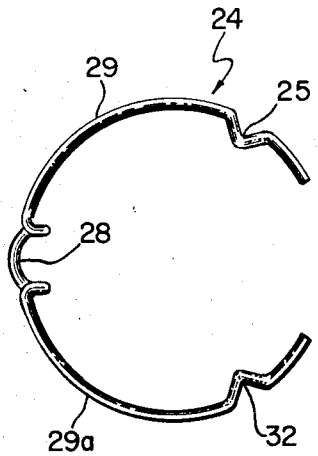


FIG. 1

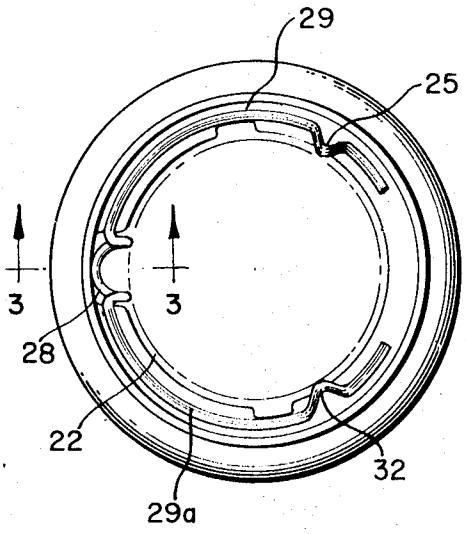


FIG. 2

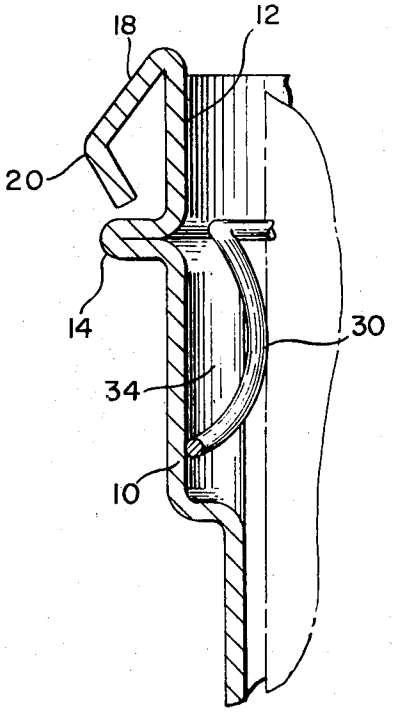


FIG. 3

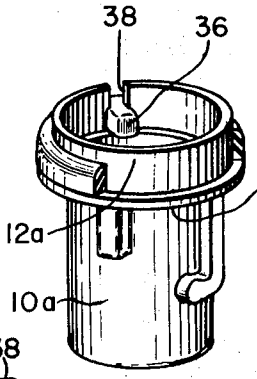


FIG. 4

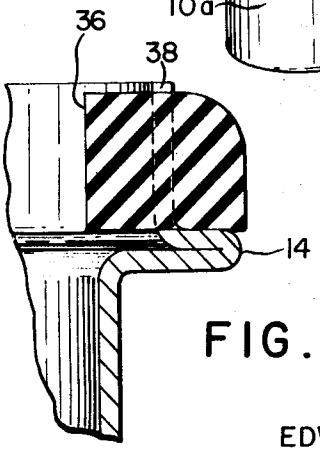


FIG. 5

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FLEXIBLE BULB SUPPORT MEANS

Another example of the separate element approach is found in the Geiger Pat. U.S. Pat. No. 1,967,878 issued on July 24, 1934 disclosing flat, spring fingers associated with a socket shell having a shouldered groove formed on the spring fingers which engage a projection formed in the longitudinal groove in the bulb base.

An earlier example of the separate spring element approach than the Geiger patent is found in the patent to Lieber, U.S. Pat. No. 1,231,760 issued July 3, 1917, which uses a ball bearing entrapped within a slot formed in the socket shell. A portion of the ball bearing protrudes into the socket cavity and movably engages the threads of a bulb base.

Still another example is the Schlicker et al. U.S. Pat. No. 2,071,769 issued Feb. 23, 1937, which has a U-shaped flat spring finger and an opposed straight flexible spring finger both of which are mounted in a socket shell and have projections which extend into the socket cavity and are adapted to snap engage the base of a threaded bulb.

A final example of the separate element approach is disclosed in the patent to Woodward et al. U.S. Pat. No. 3,072,878 issued Jan. 8, 1963 showing U-shaped flat contact member with an angled arm which extends into the socket cavity and provides the flexible interference engagement with the threaded base of a socket.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a flexible bulb support means adapted to hold a bulb against vibrational movement while in an electric socket.

Another object of the present invention is to provide a bulb support means which flexibly engages the bulb at a point above its engagement with the socket.

Still another object of the present invention is to provide a bulb support means which uses a spring wire form including a U-shaped looped portion comprising a pair of arms which are outwardly into the socket cavity when the bulb support means is engaged with the socket.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a top plan view of the flexible supporting member;

FIG. 2 is a top plan view of a socket with the support member engaged therewith;

FIG. 3 is a section taken on line 3—3 of FIG. 2;

FIG. 4 is a perspective of a variation of the socket shown in FIGS. 1 through 3; and knuckle

FIG. 5 is an enlarged section of a portion of the socket shown in FIG. 4.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the drawings, there is shown a conductive socket shell having a tubular barrel portion **10** and a tubular portion **12** integrally joined through a circumferential flange **14**. The shell is open at both ends and has its open end at the barrel portion **10** formed as an aperture defined by a shoulder flange. A series of backacting legs **18** extends from the upper edge of the body portion **12** toward the flange **14**. Each of the legs **18** includes a knuckle **20** and a free terminal end. The body portion **12** has a greater diameter than the barrel portion **10**, thereby providing an internal shoulder **22** on the same plane as the flange **14**.

The assembly includes a flexible spring member **24**, which has two free terminal ends spaced from each other and a first engagement portion extending from the first terminal end and having a first support protuberance **25** formed therein extending inwardly and an arced portion **29** connecting the first support protuberance **25** to a U-shaped looped portion **28** which

extends downwardly and comprises a pair of arms **30** connected by a bight portion. The arms **30** are arced to extend inwardly toward the axis of the spring member **24**. The looped portion **28** is continued into another arced portion **29*a*** which in turn merges into a second support protuberance **32** which merges into the second arced terminal end. The arced portions **29**, **29*a*** lie on the same plane.

The barrel portion **10** has an internal longitudinal channel **34** formed therein extending from the flange **14** downwardly a predetermined distance.

The spring member **24** is engaged with the socket shell by placing the looped portion **28** which is in right angle relationship to the plane of the arced portions **29**, **29*a*** within the longitudinal channel **34** with a portion of the arced arms **30** extending into the cavity of the barrel portion **10**. The arced portions **29**, **29*a*** are in superimposed, abutting relationship to the internal shoulder **22**, as shown in FIG. **2**, and bear against the wall of the body portion **12**. The arced arms **30** of the looped portion **28** as well as the right portion thereof must be free to move up and down within the longitudinal channel **34**.

When a bulb is engaged in the socket, the arms **30** and the first and second support protuberances **25**, **32** will bear against the base of the bulb holding it in a fixed position.

A variation of the invention is shown in FIGS. **4** and **5** of the drawing. This comprises a barrel portion **10*a*** and a body portion **12*a*** joined by a flange **14*a***. The barrel portion **10*a***, body portion **12*a***, and flange **14*a*** are all constructed in a manner similar to that of the barrel portion **10**, body portion **12**, and flange **14**. Flexible, malleable material is formed to abut, in superimposed relationship, the flange **14*a***, and circumscribes a portion of the body portion **12*a*** while a slug **36**, of malleable material such as a vinyl plastisol, is passed through a slot **38** which is formed through the body portion **12*a***. The slug **36** extends into the cavity defined by the body portion **12*a***. The slot **38** extends from the plane of the flange **14** through the height of the body portion **12*a***. If necessary, the slot **38** may only be formed as an aperture in the body portion **12*a***. When a bulb (not shown) is engaged with the socket, the slug **36** will bear against the base of the bulb supporting it in a predetermined position. Two or more slugs may be provided if desired.

I claim:

1. A lamp socket assembly comprising a tubular portion and a tubular body portion integrally joined through a circumferential flange, the body portion having an internal shoulder formed therein and a longitudinal channel extending from the internal shoulder downwardly into the barrel portion and flexible bulb support means comprising a first arced arm and second arced arm connected by a U-shaped arced loop portion, the arced arms lying on the same plane and the loop portion extending at right angles to the plane of the arms, each arm lying in superimposed abutting relation to the internal shoulder and the loop portion extending along the longitudinal channel with the arced portions of the loop portion extending into the cavity formed by the barrel portion and each of the arms having means of engaging a bulb base protruding into the cavity of the lamp socket.

2. A flexible bulb-support means comprising a first arced arm and a second arced arm connected by a flexible portion, the flexible portion adapted to bear against a bulb base, and the first and second arced arms having means of engaging the bulb base and the flexible portion comprising a U-shaped arced loop portion in right angle relation to the plane of the first and second arced arms which lie on the same plane and which are in spaced opposed relation to each other.

3. A flexible-support means as set forth in claim **2** which is formed of a flexible metal wire and which means of engaging the bulb base comprises a V-shaped bend formed therein.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,609,641 Dated September 28, 1971

Inventor(s) Edward J. Luce and Joseph F. Arnao

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Page 1, column 1, to be inserted before first paragraph:

-- BACKGROUND OF THE INVENTION

Historically speaking, there are two broad methods of providing a socket element flexibly engaging the base of a lamp. In the first method, a flexible socket shell may be provided and in the second method a substantially rigid socket housing or body may be provided with separate flexible spring elements.

The patent to Stahl, U. S. 1,451,122, issued on April 10, 1923, is an example of the flexible shell arrangement. In this patent the U-shaped shell comprises a pair of upstanding arms formed of a flexible material which are canted inwardly toward each other. A pair of wings are formed at the end of each of the arms in spaced opposed relationship to each other. The studs of the lamp base are passed down through the open spaces between the wings and are then rotated under the wings to prevent accidential withdrawal. The inward angulation of the arms provides the flexible interference with the bulb base.

Another example of the flexible shell arrangement is found in the patent to Sumner, U. S. 2,192,943 issued March 12, 1940, disclosing a cup-shaped shell member which is longitudinally segmented into a series of fingers having a portion of each finger arced so as to protrude into the cavity and provide means of flexibly engaging an annular rib formed on the base of the bulb.

FORM PO-1050 (10-69)

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U.S. GOVERNMENT PRINTING OFFICE : 1969 O—366-334

UNITED STATES PATENT OFFICE
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It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

An example of the separate spring element type is shown in the patent to Pearson et al, U. S. 1,927,293 issued on September 19, 1933 disclosing a socket shell having a flexible, flat conductor strip or finger which protrudes into the socket cavity and has a concavo-convex protruberance. The convex surface of the protuberance extends into the socket cavity and is adapted to engage an annular groove formed in the bulb base.--

Column 1, line 47, cancel the word "knuckle".

Signed and sealed this 28th day of March 1972.

(SEAL)
Attest:

EDWARD M.FLETCHER,JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents

FORM PO-1050 (10-69)

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