Aug. 9, 1955 W. MacA. BARBOUR 2,715,213

LIGHT SOCKET ASSEMBLY HAVING MEANS TO MOUNT IT IN AN APERTURED PANEL

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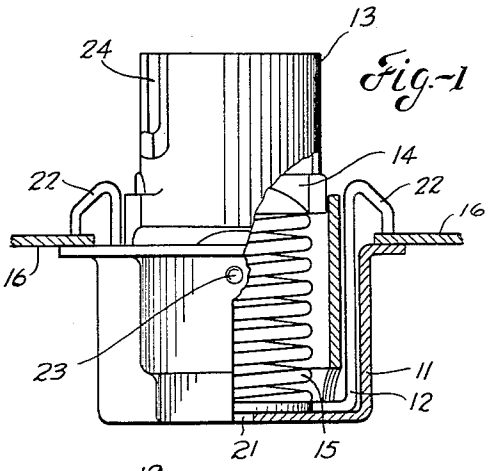


Fig.-1

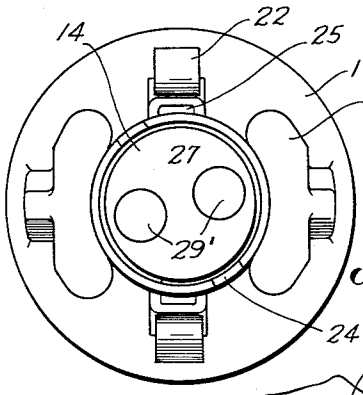


Fig.-2

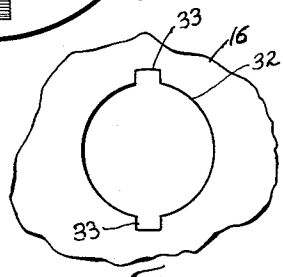


Fig.-13

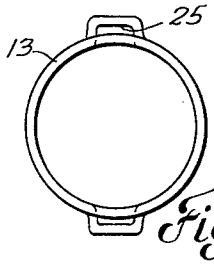


Fig.-8

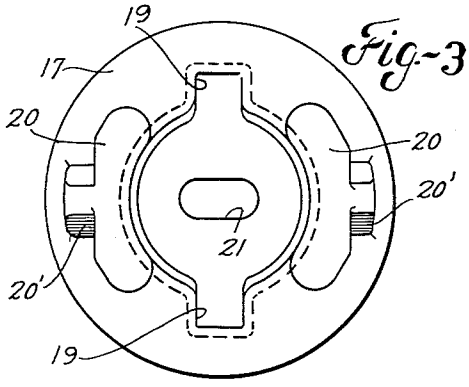


Fig.-3

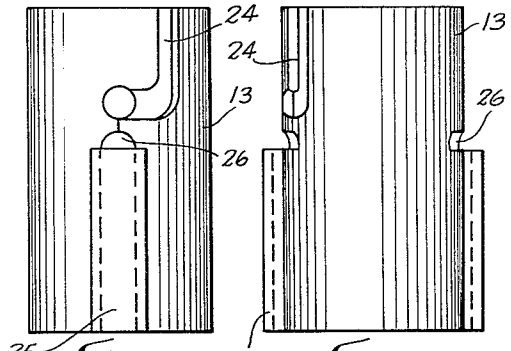


Fig.-9 Fig.-10

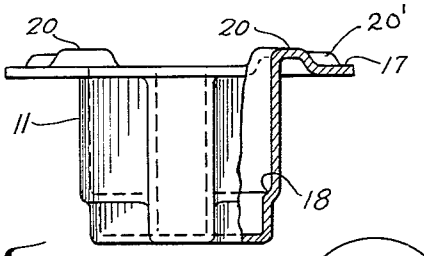


Fig.-4

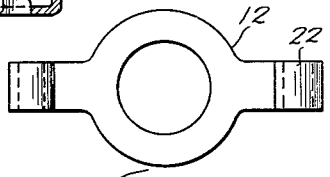


Fig.-5

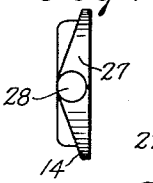


Fig.-11

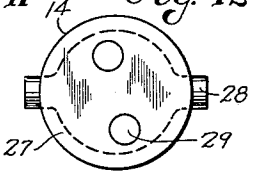


Fig.-12

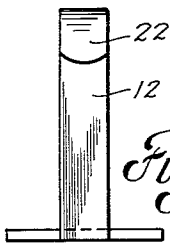


Fig.-6

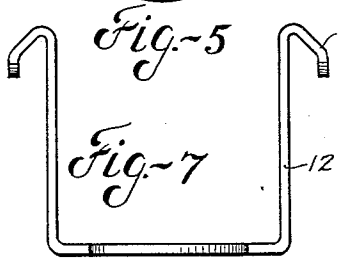


Fig.-7

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LIGHT SOCKET ASSEMBLY HAVING MEANS TO MOUNT IT IN AN APERTURED PANEL

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Application November 4, 1949, Serial No. 125,529

7 Claims. (Cl. 339—126)

This invention relates to electric lamp sockets, and more particularly to panel mounted lamps necessitating rear entry for installation and removal of the socket. The invention is particularly well suited to sockets for bayonet base lamps as are frequently used in body panels of automobiles.

Sockets presently used in such installations have several disadvantages in that they are rather complex and difficult to install, while at the same time a considerable portion thereof are exposed to action of the elements. The present invention contemplates a substantially totally enclosed unit which is not only weatherproof, but relatively simple in construction and easy to install.

Thus, the object of the invention is to simplify the construction as well as the means and mode of assembly and operation of lamp sockets as disclosed herein, whereby such sockets may not only be economically manufactured, but will be more efficient and satisfactory in use, adaptable to a wide variety of panels, having relatively few parts and be unlikely to get out of repair.

A further object of the invention is to provide an improved socket of the kind described composed of a relatively few number of parts and self-contained for installation and removal as a unit.

Another object of the invention is to enable the socket to be readily positioned or indexed upon the panel mount.

A further object of the invention is to provide for spring retention of the socket in mounted position.

Still another object of the invention is to utilize a multi-functional single spring force in the socket, accomplishing thereby a spring mounting of the socket, maintenance of pressure upon the electrical contact, and a yielding resistance to dislocation of the electric lamp.

A further object of the invention is to provide a machine possessing the advantageous structural features, the inherent meritorious characteristics and the mode of operation herein mentioned.

With the above primary and other incidental objects in view as will more fully appear in the specification, the invention intended to be protected by Letters Patent consists of the features of construction, the parts and combinations thereof, and the mode of operation, as hereinafter described or illustrated in the accompanying drawings, or their equivalents.

Referring to the accompanying drawing, wherein is found the preferred but obviously not necessarily the only form of embodiment of the invention,

Fig. 1 is a side view, partly broken away, of an installed socket in accordance with the instant invention;

Fig. 2 is a top plan view of the socket;

Fig. 3 is a top plan detail view of the base member of the socket;

Fig. 4 is a view of the base member in side elevation, partly broken away;

Fig. 5 is a top plan view of the hanger bail member of the socket;

Fig. 6 is a side view of the bail;

Fig. 7 is a front view of the bail;

Fig. 8 is a top view of the barrel member of the socket;

Fig. 9 is a side view of the barrel;

Fig. 10 is a front view of the barrel;

Fig. 11 is a side view of the electrical contact member of the socket;

Fig. 12 is a top view of the contact member; and

Fig. 13 is a plan view showing the mounting hole and indexing position on the panel mount.

Like parts are indicated by similar characters of reference throughout the several views.

Referring to Figs. 1 and 2 of the drawing, the socket assembly includes a cup-shaped base **11** (Figs. 3 and 4), a hanger bail **12** (Figs. 5–7), a barrel **13** (Figs. 8–10), a contact disc **14** (Figs. 11 and 12) and a spring **15**. The socket assembly is installed in a panel member **16** (Fig. 13).

The cup-shaped base **11** presents on its edge an outturned flange **17** and adjacent its bottom has a stepped down formation defining an internal ledge **18**. Further, diametrically opposed vertical channels form key slots **19**. On the upper surface of the flange **17** and spaced 90° from channels **19** are groups of centering and locking cams **20**—**20'**, respectively. A wire passing opening **21** is in the bottom of the base.

The hanger bail **12** is an approximately U-shaped member, the upstanding arms of which are received in the key slot **19**. The rounded, apertured bottom of the bail is seated in the bottom of the base **11**. At the upper ends of its upstanding arms, the hanger bail presents outwardly and downwardly projecting fingers **22**, the rounded ends of which overlie the flange **17**.

One end of the barrel **13** is received in the base **11**, seated upon ledge **18** in vertically spaced relation with the bottom of the hanger bail **12**. A fixed relationship between the base **11** and barrel **13** is achieved by staking the parts together, as at **23**. The barrel projects upwardly or outwardly of the base **11** and at its outer end is formed with a bayonet slot **24** to receive the base of an electric lamp.

Extending from the inner end of the barrel to a point immediately below the slot **24** are diametrically opposed radially projecting channels **25** terminating in an arcuate abutment wall **26**. The channels **25** lie substantially within the key slots **19** of base **11** and provide a slideway for the contact disc **14**.

The disc **14** consists of an insulation block **27** having oppositely disposed radial trunnions **28**, and longitudinally extending relatively offset wire passing openings **29**. The contact disc is inserted in the barrel **13** through the inner end thereof, the trunnions **28** being received in and guided by the channels **25**.

As shown in Fig. 12, the openings **29** are located in an angularly offset or askew line relative to the transverse axis of the disc **27** considered in relation to the pivotal axis thereof as defined by the trunnions **28**. Such angular displacement of the openings **29**, and the lamp contacts **29'** (Fig. 2) supported therein tends to resist counter clockwise rotation of a lamp bulb, and consequent looseness of the bulb within the socket.

The spring **15** is a relatively wide and strong compression spring and is seated in the base **11** upon the bottom of the hanger bail **12**. The outer end of the spring bears upon the contact disc **14** and urges it outwardly or upwardly in the channels **25**, the outward limit of motion of the disc being defined by the abutment surface **26** engageable by the trunnions **28**. Spring **15** thereby serves as a resilient support for the lamp bulb engaged within the slots **24** of the barrel or socket **13**.

The panel member **16** presents an opening **32** intersected by diametrically opposed duofunctional key slots **33**. The slots **33** permit passage of the hanger fingers **22** through the opening **32** in the panel and also provide

locating and locking means for the socket assembly. To locate and lock the socket assembly in a mounted position the cams **20'** on the base member **11** engage the slots **33** in the panel member **16**.

In assembling the socket, the hanger bail **12** is dropped into the base **11** with its arms received in slots **19** whereby relative rotation between the parts is prevented. The contact disc **14** is inserted into barrel **13** and followed by the spring **15**, whereupon the assembly comprising barrel **13**, contact disc **14** and spring **15** is placed in the base **11**. The barrel then is staked to the base, the parts occupying substantially the positions shown in Fig. 1 with the barrel seated on ledge **18**, spring **15** seated on hanger bail **12** and contact disc **14** pressed by the spring to its outermost limit of movement against abutments **26**.

Since the contact disc **14** is limited to its outward motion relative to barrel **13** by abutments **26** and the barrel is positively connected to the base **11**, the reactant force of spring **15** is exerted in a direction to provide a yielding resistance to longitudinal separating motion of base flange **17** and hanger bail fingers **22**, and simultaneously therewith possesses the duofunctional characteristic of providing a resilient mounting for the contact disc **14**.

In installing the assembled socket, barrel **13** is projected through the opening **32** in panel member **16** and motion of the socket in this direction continued until the flange **17** on base **11** abuts the panel in surrounding relation to the opening **32**. The socket assembly is brought into coaxial centered relation with the opening **32** by engagement of cam surfaces **20** (on flange **17**) with the peripheral edge of the opening **32**, such position being maintained during rotative movement of the socket relative to the mounting panel.

During such insertion of the socket, the hanger bail fingers **22** are aligned with key slots **33** so that these fingers may pass through the panel mounting **16** and assume positions on the opposite side thereof when flange **17** abuts the panel on the inner side. With the socket so positioned, it is turned a distance of about ninety degrees, moving fingers **22** out of alignment with slots **33**, the fingers coming to rest upon the outer surface of panel **16**. At the same time, and as a part of the same motion, cam surfaces **20'** on flange **17** are brought into cooperative engagement with the slots **33** through which the fingers **22** were previously passed. In reaching such position a slight relative axial motion of the base **11** and bail **12** is involved, such motion being absorbed by the spring **15** which thereafter yieldingly resists rotary motion of the socket out of installed position.

It will be understood that electrical conductors or wires enter the socket through base opening **21** and pass through openings **29** in disc **14** to the contacts **29'** seated upon the outer surface of the disc. When the lamp base is inserted in the outer end of the barrel **13** it will engage contacts **29'** and move the disc **14** slightly inward, lowering the trunnions **28** from their seat on abutment surfaces **26**. The spring **15**, being under compression, maintains contact of the disc **14** with the lamp base and further applies an axial pressure to the lamp base in a manner inhibiting rotary motion thereof out of the horizontal portions of the bayonet slot. Such action is further assisted by the angularly displaced relation of the contacts **29'** relative to the contacts on the base of the bulb.

At the same time, of course, the spring is performing the further functions of applying a clamping pressure as between the flange **17** and fingers **22** upon the interposed panel member **16**, while permitting the contact disc **14** to have freedom for tilting as well as axial movement if this is necessary to proper contact with the lamp base.

From the above description it will be apparent that there is thus provided a device of the character described possessing the particular features of advantage before enumerated as desirable, but which obviously is susceptible of modification in its form, proportions, detail construction and arrangement of parts without departing

from the principle involved or sacrificing any of its advantages.

While in order to comply with the statute the invention has been described in language more or less specific as to structural features, it is to be understood that the invention is not limited to the specific features shown, but that the means and construction herein disclosed comprise but one of several modes of putting the invention into effect.

Having thus described my invention, I claim:

1. An electric lamp socket, including a cup-shaped base presenting an outwardly flanged edge, a hanger bail received in said base and surrounded thereby and presenting lateral fingers to overlie the flange on said base, a barrel the inner end of which is received in said base in vertically spaced relation to said hanger bail therein, means for fixing said barrel with respect to said base, means to mount an electric lamp in the outer end of said barrel, a contact member slidably mounted in said barrel to be engaged by the lamp base, means formed on the interior of the barrel for limiting outward movement of the contact member relatively to the barrel, and a duofunctional spring interposed between said contact member and said hanger bail, said spring serving the dual purpose of urging said contact member outward to maintain engagement with the lamp base and of resisting relative axial motion between said hanger bail and said base.

2. An electric lamp socket, including a cup-shaped base having an outwardly flanged edge, a hanger bail received in said base and surrounded thereby and having lateral fingers to overlie the flange on said base, said fingers and said flange being arranged to embrace a supporting panel or the like, a barrel the inner end of which is received in said base in spaced relation to said hanger bail therein, means for fixing the barrel relatively to the base, means for mounting an electric lamp in the outer end of said barrel, a contact member slidably mounted in said barrel to be engaged by the electric lamp base, means formed on the interior of the barrel for limiting the outward movement of said contact member in relation to the barrel, and a spring interposed between said contact member and said hanger bail serving the dual function of urging said contact member outward and of exerting an approaching or clamping pressure as between the fingers of said hanger bail and the flange on said base.

3. A socket for bayonet base electric lamps, including a cup-shaped base presenting an outwardly flanged edge, a barrel having its inner end received in said base and its outer end projecting therefrom, means for fixing said barrel with respect to said base, a bayonet slot in the outer end of said barrel to mount the electric lamp, a contact disc supported within said barrel inwardly of said bayonet slot with freedom of tilting and axial movements, means formed on the interior of said barrel for limiting outward axial movement of said disc, a coil spring housed in said base and extending into said barrel to bear on said disc and provide yielding resistance to inward axial and tilting movements thereof, and a part in said base receiving the reactant force of said spring and extending into cooperative relation with the flange on said base to apply with said flange a clamping pressure for installation of the socket in a panel opening or the like.

4. A socket for bayonet base electric lamps according to claim 3, characterized in that said last named means includes a hanger bail received in said base exteriorly of said barrel and interiorly of said base and presenting lateral fingers overlying the flange on said base, said spring being interposed between said disc and said hanger bail.

5. A socket for bayonet base electric lamps and a mount therefor, including a cup-shaped base member, a barrel having one end received in said base and its other

end in projecting relation to the base, means securing said base and barrel against relative longitudinal motion, a bayonet slot in the outer end of said barrel to mount the electric lamp base, a contact member slidably mounted in said barrel, a compression spring houser in said base and urging said contact member outward into pressural engagement with the lamp base, means formed on the interior of said barrel for limiting the outward position of said contact member in said barrel, a panel member defining a mount for the socket, complementary indexing formations on the socket and on the panel member, and means utilizing the reactant force of said spring to inhibit movement of the socket out of indexed position.

6. An electric light socket assembly including a peripherally flanged base member, a light socket supported therein in relatively fixed relation, a resiliently mounted reciprocatory contact member enclosed within said socket, spring biased reciprocatory latch members mounted intermediate the base member and socket for reciprocatory motion relative thereto, a duofunctional spring enclosed within the socket and base member simultaneously urging said contact member toward engagement with a light supported within said socket and the latch members into latching relation with a support within which said socket assembly is mounted, and means formed on the interior of said light socket limiting the outward position of said contact member in said socket.

7. In a socket assembly, a socket, a contact disc engageable with an electric light supported within said socket, a flange carried by said socket and engageable with a supporting panel, a relatively reciprocatory latch member extending in overlying relation with said flange and engageable with a supporting panel on the opposite side thereof from the flange, a duofunctional spring interposed between said contact disc and latch member urging said disc upwardly toward contact with an electric light and the latch member downwardly into clamping engagement with the supporting panel interposed between the latch and flange, means formed on the interior of said socket for limiting the upward movement of said contact disc, and indexing members carried by said flange and supporting panel for cooperative engagement with said panel and latch member respectively.

References Cited in the file of this patent

UNITED STATES PATENTS

997,588	Taylor et al.	July 11, 1911
1,221,255	Welles	Apr. 3, 1917
1,641,159	Foster	Sept. 6, 1927
1,717,566	Jording	June 18, 1929
1,975,820	Wright	Oct. 9, 1934
2,012,979	Von Holtz	Sept. 3, 1935
2,122,848	Stearns	July 5, 1938
2,151,089	Douglas	Mar. 21, 1939
2,297,615	Funk	Sept. 29, 1942
2,360,809	Wood	Oct. 17, 1944
2,595,994	Thomas	May 6, 1952

FOREIGN PATENTS

462,484	Germany	Apr. 14, 1926