Nov. 12, 1963 E. E. HARRIS, JR 3,110,539

BULB HOLDER CARRIED BY PLUG BUTTON

Filed May 23, 1962

Fig. 1.

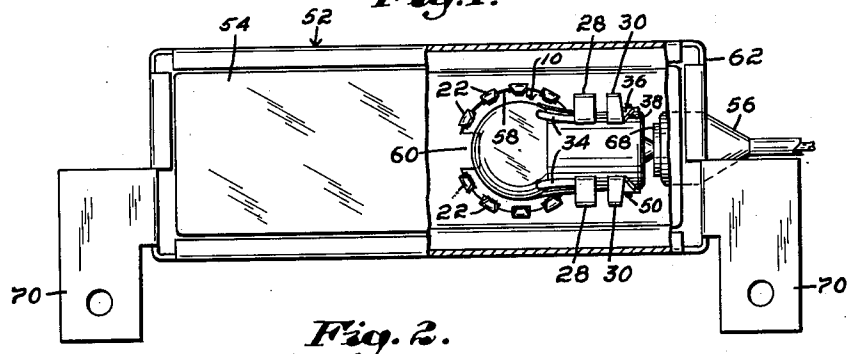


Fig. 2.

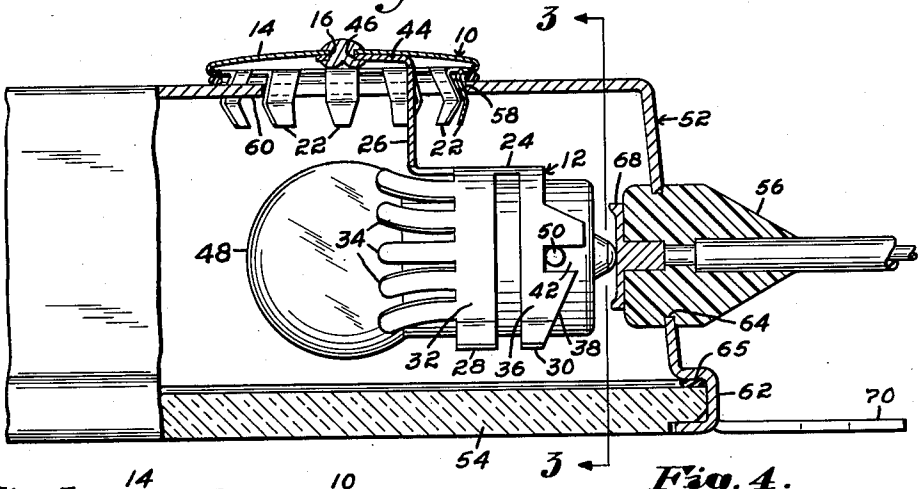


Fig. 3.

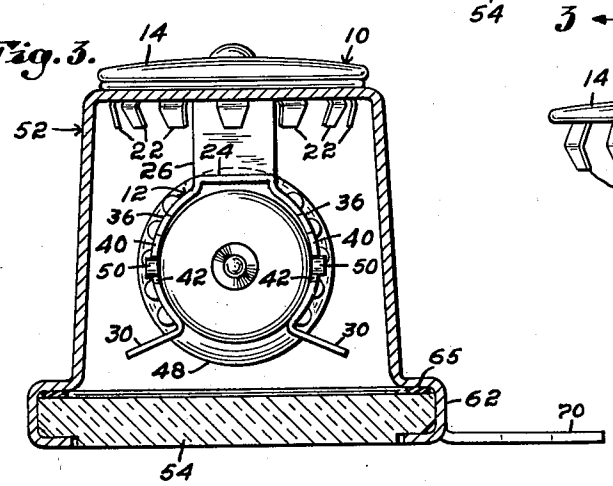
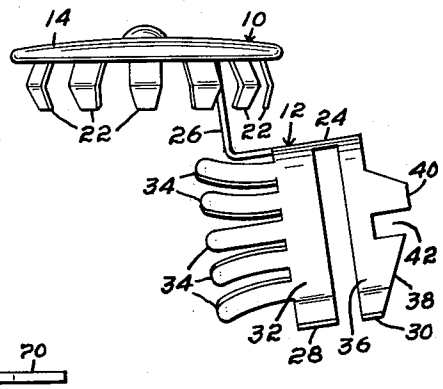


Fig. 4.



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BULB HOLDER CARRIED BY PLUG BUTTON

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The present invention relates to lamp holders and more specifically to the combination of a closure member and a lamp holder.

An object of the present invention is to provide a combination closure member and lamp holder attached together by a resilient spring finger.

A further object of the invention is to provide a combination quick attachable engaging member and lamp holder for easy engagement with and disengagement from an apertured housing.

A still further object of the present invention is to provide a U-shaped lamp holder having expansible spring means for engaging the spherical glass surface of a bulb and having notched means for securing the bayonet pin means of the bulb.

A still further object of the present invention is to provide a flexible bulb holder for resiliently holding a bulb in engagement with a fixed base contact.

Other objects of the invention will, in part, be obvious, and will, in part, appear hereinafter.

In the drawings

FIG. 1 is a top plan view of the housing partially broken away showing the specific combination attaching member and bulb holder with a bulb engaged therein;

FIG. 2 is an enlarged side elevation partly in section of the device shown in FIG. 1;

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

FIG. 4 is a side elevation of a closure button and bulb holder.

In the constructions utilized prior to the device disclosed in the instant application, the socket was engaged in a pronged ring which, in turn, snapped into an axial aperture formed in the housing. In the instant case, through the use of the disclosed construction, the housing may be completely enclosed and the lens can be permanently installed in the housing proper. Some old constructions required that the lens be bolted or screwed to the housing, and the same bolts were utilized to hold two sections of the housing together.

Referring to the drawings, and more specifically to FIGS. 2 and 4, there is shown a combination attaching member and bulb holder unit comprising a closure button **10** and a bulb holder **12**. The attaching member selected for illustration of the invention is closure button **10** comprising a cap portion **14** having an aperture **16** formed therethrough at approximately the midpoint of the said cap portion **14** having a series of legs **22** formed at its periphery and extending therefrom. The legs **22** have diverging and converging portions forming a knuckle.

The novel bulb holder **12** is generally U-shaped in construction and comprises a base portion **24**, a resilient arm **26** extending from said base portion **24** in integral relationship therewith, and two pairs of spring jaws extending from said base portion **24** as shown in FIGS. 1 and 3. Each pair of spring jaws comprises a forward engagement jaw **28** and a rear stud engagement jaw **30**. The rear stud engagement jaw **30** extends from a support portion **36** in spaced parallel relationship to the base element **32** of the forward engagement jaw **28** as shown in FIGS. 2 and 4. The forward engagement jaw **28** extends from the base element **32** and has a series of expansible spring fingers **34** in integral relationship with the base element **32** and extends therefrom in spaced

substantially parallel relationship to each other. The free terminal end of each of the spring fingers **34** is bent slightly away from an axis line drawn between the two pairs of spring jaws. The rear stud engagement jaw **30** has a support portion **36**, a ramp portion **38** in integral angular relation with the support portion **36**, and a stud-engaging portion or stop **40** integral with said support portion **36** and spaced from said ramp portion **38** to form a notch **42**. The resilient arm **26** is formed in angular relationship to the axis of the bulb holder **12** as best shown in FIG. 4, and has a terminal end bent in angular relationship to the remaining portion of the spring arm **26** to form a connecting portion **44**. This connecting portion **44** has an aperture **46** formed therethrough for purposes to be described hereinafter.

The upper surface of the connecting portion **44** is brought into abutting relationship with the lower surface of the cap portion **14** with the axis of the aperture **46** in line with the aperture **16** of the cap **14**. The two elements are then secured together, as shown in FIG. 2, as by a rivet of some type uassed through the two apertures to rivet the connection portion **44** to the cap portion **14**.

A bulb **48** can now be snapped between the jaws of the bulb holder **12**, and in this case, the studs **50** of the bulb **48** are cammed over the ramp portion **38** of the rear stud-engaging jaws **30** and then are snapped into the notch **42** placing a pair of jaws of the bulb holder **12** on each side of the bulb **48** thereby securely holding the bulb **48** in engagement with the bulb holder **12**.

As stated heretofore, the rear stud engagement jaw **30** is spaced from the forward engagement jaw **28** the only connection between the two jaws being the base portion **24**. As the studs **50** of the bulb **48** pass over the ramp portions **38** of the rear stud engagement jaws **30**, the rear stud engagement jaws **30** are flexed toward the forward engagement jaws **28** and this flexure continues until the studs **50** snap into the notches **42**. If desired, the flexure of the rear stud engagement jaw **30** may be sustained after engagement to some degree.

The housing comprises an envelope **52** formed of a conductive material, a lens element **54**, and a conductor holder **56**. The wall of an opening **58** formed in the envelope **52** is engaged by the legs **22** of the closure button **10**. An indexing extension **60** is formed from the wall of the opening **58** extending within the area encompassed by the opening **58** for a purpose to be described hereinafter. The envelope **52** is substantially in the form of an opened box having an envelope base portion **62** formed in angular relationship with the side of the envelope **52** through which the opening **58** is formed. The envelope base portion **62** has an engagement aperture **64** formed therethrough to the wall of which the conductor holder **56** is engaged.

The conductor holder **56** comprises a compressible body element having an aperture formed therethrough and a contact element **68**, closing one end of the aperture formed through the body element as shown in FIG. 2. A groove or channel is formed in circumscribing relation to a portion of the conductor holder **56** and the walls of the channel are engaged to the wall of the aperture **64** formed in the base portion **62** as shown in FIG. 2. The lens element **54** can then be laid into the open area formed by the envelope **52** on a shoulder **65** formed thereon and then the base portion **62** and two of the walls of the envelope **52** can be bent over and around the lens element **54** holding it securely in place. A pair of metal tabs **70** are formed on opposite sides of the envelope **52**, one being formed in integral relationship with a portion of the base portion **62**. These tabs **70** are formed of a conductive material and carry the current to complete the circuit of the assembly. The configuration of the tabs in

this case is substantially rectangular, although numerous other geometric configurations would also serve in a satisfactory manner.

At this point, it is important to note, as disclosed in FIG. 4, that the resilient arm **26** is formed in angular relationship with the base portion **24** of the bulb holder **12**. In the form disclosed, the angle between the base portion **24** and the resilient arm **26** is obtuse as shown on FIG. 4. The resilient arm **26** may be formed at a different angle from the right angle which it ultimately assumes, the important point being that the arm flexes in relation to the bulb holder.

The engagement of the combination closure button and bulb holder with the envelope and the conductor holder assembly is accomplished in the following manner. The full assembly including the bulb holder **12** and the closure button **10** is most easily engaged to the envelope **52** by passing the bulb holder, its attached bulb and the major portion of the resilient arm **26** between the walls of the aperture or opening **58** formed in the envelope **52**. The legs **22** of the closure button **10** are engaged with the wall of the aperture **58** so that the resilient arm **26** is placed into an integral right angle relationship with the base portion **24** thereby tensioning the terminal end of the bulb **48** into electrical contact with the contact element **68**.

One of the legs **22** of the engagement ring **18** is removed to form a "slot" for engagement with the indexing extension **60**. In the device shown in FIG. 1, the opening is left at a point approximately on the mid line formed by the axis of the bulb holder **12**. Thus the bulb is placed within a complete enclosure which is substantially dust-proof and may be, if required, made water-proof by the addition of a sealing material about the legs **22**. In order to change the bulb it is only necessary to snap out the closure button and pull the whole assembly out of the envelope **52**, change the bulb, snap the bulb into engagement with the bulb holder, and return the elements to the position in the assembly. The grounding of this particular electrical assembly can be performed through the conductive material of which the envelope **52** is formed and thence through the tab **70**.

Since certain other obvious modifications may be made in this device without departing from the scope of the invention, it is intended that all matter contained herein be interpreted in an illustrative and not in a limited sense.

I claim:

1. A bulb holder generally U-shaped in cross section having a base portion and two pairs of spring jaws, one pair of said spring jaws extending from one side of said base portion and the other pair of spring jaws extending from the opposite side of said base portion in spaced relation to each other and each pair of said spring jaws having a rear stud engaging jaw and a forward engaging jaw, said rear stud engaging jaw having a notch means for engaging a stud on a bulb and said forward engaging jaw having a a base element and a series of spring fingers integral with and extending from said base element in a direction away from said rear engaging jaw.

2. The combination of a closure button, a resilient arm, and a bulb holder, said closure button comprising a cap portion and a series of legs spaced from each other and integral with the periphery of said cap portion, said resilient arm connecting said closure button to said bulb holder and spacing said bulb holder from said closure button and said bulb holder comprising a base portion and two pairs of spring jaws, each of said pair of spring jaws extending from a side of said base portion and being spaced from each other, and each of said spring jaws having a rear stud engaging jaw with means for engaging a stud of a bulb or the like and a forward engaging jaw spaced from said rear engaging jaw and having a series of spring fingers integral therewith and extending therefrom.

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