Aug. 5, 1952 H. H. CLAYTON 2,606,227

DUST-SEALED PANEL-MOUNTED SOCKET ASSEMBLY

Filed June 28, 1950

Fig. 1

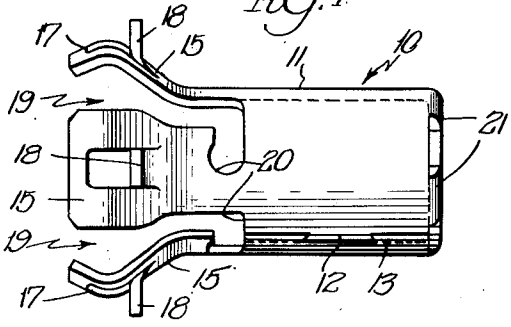


Fig. 2

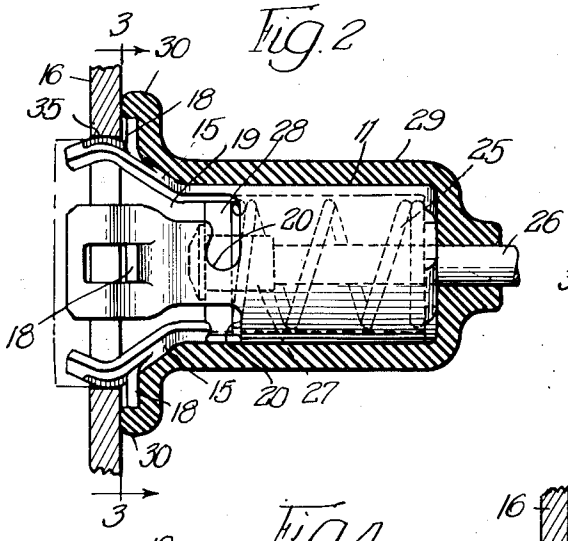


Fig. 3

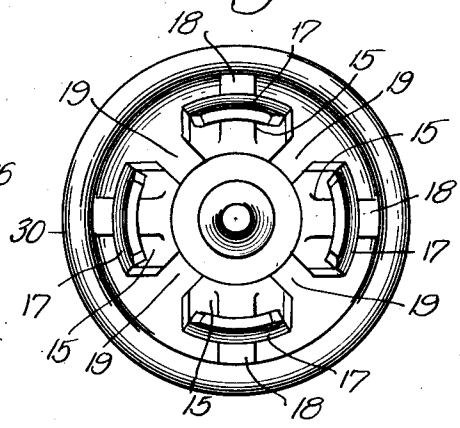


Fig. 4

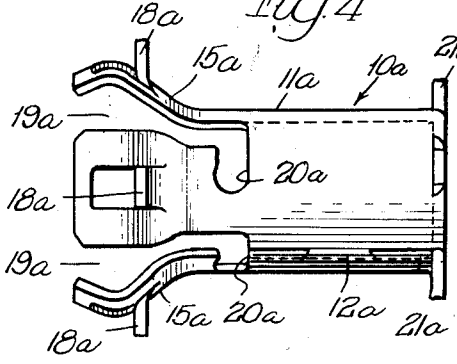
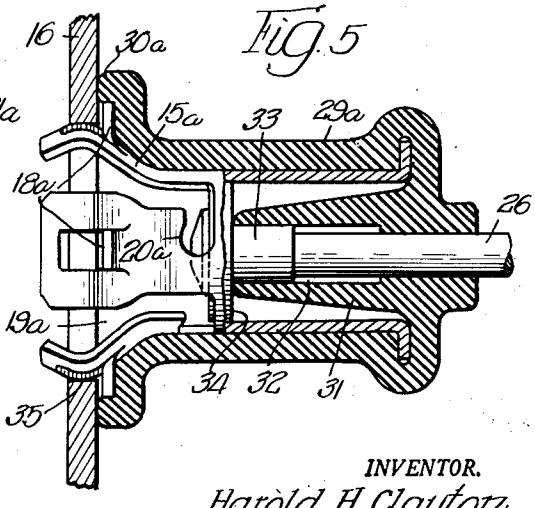


Fig. 5



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DUST-SEALED PANEL-MOUNTED SOCKET ASSEMBLY

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1 Claim. (Cl. 173—339)

1

My present invention is concerned with a new and improved socket assembly for mounting electrical leads to a mounting panel or the like.

More particularly my invention is directed to a new, improved, and simplified socket assembly of the type adapted to support a small incandescent light bulb or the like, such as an automobile dashboard or tail light; the socket being removably connected to a mounting panel member by a resilient snap-in means.

In the mounting of automobile tail lights, head lights, dash lights, or the like, it is often desirable to have the supporting electrical connection sockets for such lights removable from the mounting panel so that the light bulb more conveniently may be removed for replacement by simultaneously removing the supporting socket and the light bulb. Additionally, it is desirable to have a substantially dust free connection between the socket and mounting panel, and between the socket and the incoming electrical supply conductor; especially so is this true with tail or head light mountings inasmuch as road dirt and dust is very detrimental to the light reflectors which serve as the mounting panels in such an installation of my socket assembly. The light bulb, of course, should be readily removable from the socket to facilitate quick replacement.

To this end I have invented a new and improved light socket assembly wherein the bulb is adapted to be quickly installed in the socket by bayonet slot means and a surrounding cap of rubber or like pliant material covers the socket in a manner suitable so that in its assembly with the mounting panel, light reflector or the like, there are substantially dust free joints between the panel and socket and between the socket and incoming electrical supply conductor.

One of the outstanding objects of my invention is to set forth a simple and economical socket assembly for small light bulbs or the like that is substantially dust proof.

A further object of my invention is to disclose a new and improved socket assembly for mounting small incandescent light bulbs or the like which is adapted conveniently to be mounted to a supporting panel or the like by a plurality of resilient snap-in members.

Still another object of my invention is to provide a snap-in type of socket assembly whereby a light bulb that it supports may be quickly inserted in and removed from the socket with a simple twisting action.

A still further object of my invention is to provide a socket assembly having a surrounding rubber or like material sealing cap or mantle whereby a dust tight junction with an incoming electrical supply lead and another dust tight junction with a mounting panel is provided.

2

These and further objects and features of my invention will become apparent from the following descriptive material. Now, in order to acquaint those familiar with this art, as to the mode of constructing and utilizing my invention I shall set forth a preferred embodiment thereof which will be readily understandable with reference to the following specifications and accompanying drawings.

In the drawings:

Figure 1 is a side elevational view of one type of socket member of my assembly divorced from its mounting panel, surrounding dust cap and incoming electrical connections;

Figure 2 is a side elevational, cross-sectional view of my socket assembly with parts therein shown in full elevation as it normally appears in a mounted position on a mounting panel or the like and showing the electrical supply leads mounted therein;

Figure 3 is a left hand end view of the assembly shown in Figure 2 divorced from the mounting panel.

Looking at Figures 1, 2, and 3 of the drawings, it will be seen that a socket 10 therein illustrated comprises a metal barrel portion 11 rolled from a sheet of suitable resilient steel or the like. A dove-tail male projection 12 is formed along one longitudinal edge of the barrel portion 11 and is adapted to be received in a suitable female opening 13 therefor formed along the opposite longitudinal edge of the barrel portion 11 whereby locking means is provided for locking the longitudinal edges of the barrel together to form a suitable cylindrical shape. After forming the barrel portion 11 and locking the mating edges thereof together, the left hand end thereof is split backwardly at several places along the length of the barrel a suitable distance to form a corresponding plurality of resilient snap-in fingers 15 for mounting the socket assembly to a panel 16 as illustrated in Figure 2. As herein illustrated, four such fingers 15 are provided; two or more of such fingers being preferred to insure positive mounting of my socket to the mounting panel. The fingers are bent outwardly from the barrel portion 11 at a suitable angle therewith and each finger is turned downwardly at its outer end toward the central longitudinal axis of the barrel to form a curved reentrant guiding lip 17 therein to act as a guide means in inserting

the socket into mounting panel 16. If desired, the leading edges of lips 17 may be chamfered or rounded off to eliminate sharp corners thereon for facilitating the insertion of the fingers in mounting panel 16. Additionally, each finger is concaved inwardly for strengthening purposes; the latter operation being accomplished during the formation of the cylindrical barrel portion 11 so that each finger is imbued with a segmental cylindrical curve shape. Lugs 18 are stamped from each finger 15 and bent at right angular relation to the longitudinal axis of barrel 11 to form stops whereby the insertion of the fingers through the mounting panel is suitably limited.

Cooperating pairs of L-shaped bayonet slots 19 are suitably formed on opposite sides of the barrel portion 11 intermediate adjacent fingers 15 to provide locking means for securely mounting a light bulb or the like, not shown, in the socket. In relation to this latter feature, it should be noted that locking openings 20 at the inner ends of the bayonet slots 19 are disposed in diametrically opposite directions on opposite sides of barrel 11 whereby a light bulb may be locked in place by inserting conventional trunnions or locking keys thereof into opposed bayonet slots and mating the bulb locking keys in the locking openings 20 with a twisting rotational action.

The opposite end of the socket barrel 11 from that which is distinguished by the snap-in fingers 15, is characterized by a plurality of lugs 21 turned inwardly toward the longitudinal axis of the barrel portion 11 and at right angles to the latter. The lugs are provided for mounting and keeping one end of a socket coil spring 25, as shown in Figure 2, whereby that spring may be compressed slightly and maintained within the barrel portion 11 upon the insection of a light bulb in the socket. An incoming electrical supply conductor 26 is adapted to be inserted centrally between the lugs 21 to lie along the longitudinal axis of the socket 10 within the core of spring 25, as shown in Figure 2. The outer or left hand end of conductor 26 is suitably swaged or soldered to a brass rivet 27 or the like, which serves as a contact member for the light bulb, not shown. An insulating washer 28 surrounds rivet 27 and is adapted to register approximately with the internal cross sectional area of the barrel 11 so as to act as a keeper for the left hand end of coil spring 25. Compressive loading of spring 25 serves to keep contact rivet 27 securely against the butt end of the light bulb or the like to insure good electrical contact therewith.

A dust tight seal at the point of junction of the incoming conductor 26 with my socket assembly 10, is provided by means of a neoprene or rubber like outer sealing cap 29 which receives the conductor 26 through a suitable opening therefor in its right hand end, as seen in Figure 2. Sealing cap 29 also surrounds and encloses barrel portion 11 and part of the finger members 15; a forward sealing lip 30 thereof formed as an outwardly flared flange serving to cover over the back side and upper edges of the stop lugs 18. Sealing lip 30 is further adapted to fit snugly against the mounting panel 16 to form a dust tight seal between my socket assembly 10 and the panel 16 in assembly therewith, as seen in Figure 2.

Mounting of my above described socket assembly to panel 16 is conveniently accomplished by providing that panel with a circular opening 35 of a diameter slightly less than that assumed by the outwardly bent snap-in fingers 15, in their extended position. Upon insertion of fingers 15 in opening 35 of the panel, resilient compression of the fingers inwardly toward the longitudinal axis of my socket takes place. This latter feature allows the socket to be resiliently snapped into mounted position on panel 16, but at the same time the gripping force between fingers 15 and the periphery of opening 35 is not of a magnitude to prevent easy extraction of my socket when it is desired to remove the same. Insertion of fingers 15 in panel 16 until stops 18 are in abutting engagement with the latter member, serves to compress lip 30 sufficiently to form the dust tight seal called for above.

Thus it may be seen that I have provided and set forth a new and useful socket assembly adapted to be utilized with small incandescent light bulbs, or the like, having the desirable feature of a snap-in mounting means with a mounting panel or the like and distinguished by an outer dust tight sealing member which provides substantially dust free sealing between an incoming electrical conductor and between the socket and the mounting panel. Further the utilization of bayonet slot mounting means allows the insertion and removal of the incandescent light bulb in a quick and ready manner by a simple twisting action.

While I have herein shown and described one form and embodiment in which the features of my invention may appear, it readily may be seen that numerous changes, modifications, and substitutions of equivalents may be made without departing from the spirit and scope hereof and, therefore, I do not wish to be limited to the specific embodiment herein illustrated except as may appear in the following appended claim.

I claim:

A socket assembly for mounting an incandescent light bulb or the like to a mounting panel comprising in combination, a metal cylindrical barrel portion adapted axially to receive a socket end of said light bulb and lockingly retain the same therein, a plurality of resilient, separated snap-in fingers formed at one end of said barrel portion, said fingers diverging angularly outward from said barrel's longitudinal axis and each comprising a segmental portion of said barrel's cylindrical length, a downwardly turned curvilinear guide lip formed at the outer end of each of said fingers for guiding such into a mounting opening formed in said panel, a bayonet slot formed intermediate each of said fingers for locking engagement with said socket end of said light bulb, stop lug means formed integrally with each of said fingers and struck transversely outward therefrom so as to lie in normal relation to said barrel's longitudinal axis, said lugs limiting the insertion of said fingers through said panel so said guide lips and stop lugs lie on opposite sides of said panel when said socket is mounted in said opening; additional lug means turned radially inward at the opposite end of said barrel to form a partial end closure therefor, a contact rivet mounted within said barrel, coaxially therewith and rigidly secured at one end to an electrical supply conductor inserted into said barrel's other end intermediate opposed ends of said additional lugs, an insulating washer surrounding a shank portion of said rivet, communicating with the internal walls of said barrel and covering over the transverse area thereof, said rivet, conductor and washer being slidingly movable along said barrel's length; a pliant rubber dust cap covering the external surface of said

barrel, encasing the outer ends of each of said stop lugs at one end of said barrel and protruding therebeyond to contact one face of said panel to form a dust tight seal therewith, when said socket is mounted in said opening, and additionally embracing said conductor at the opposite end of said barrel to form a second dust tight seal with the latter, and compressive spring means mounted within said barrel, coaxially with said rivet and conductor, and lying between said washer and said additional lugs whereby such resiliently resists the insertion of said socket end of a light bulb into said barrel and provides resilient means for holding said light bulb socket end in engagement with said bayonet slots.

HAROLD H. CLAYTON.

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