March 9, 1937. F. C. DE REAMER 2,073,512

SOCKET

Filed Sept. 10, 1935

Fig. 1.

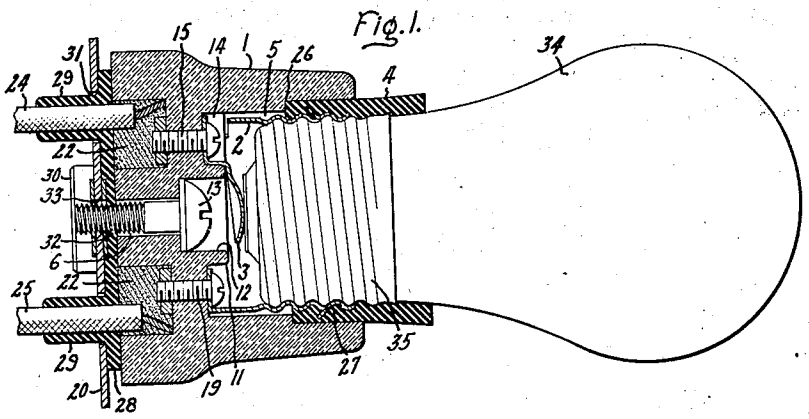


Fig. 2.

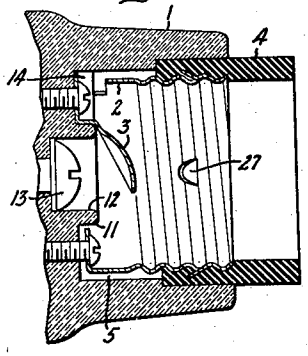


Fig. 3.

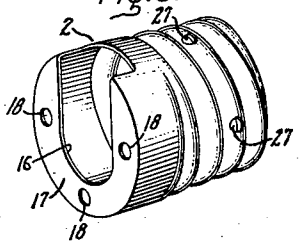


Fig. 5.

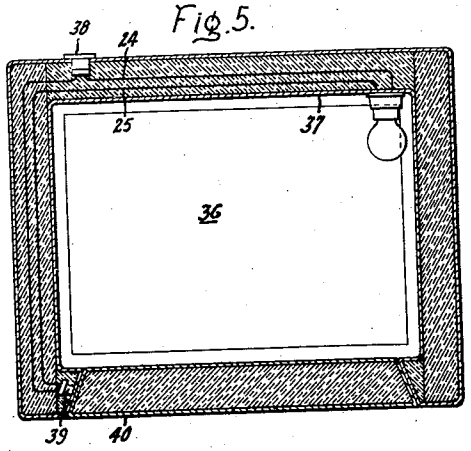
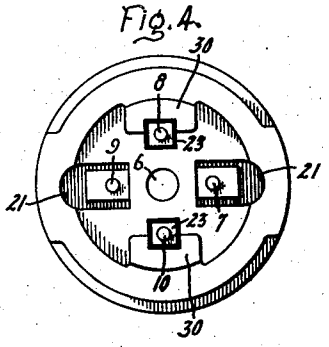


Fig. 4.



Inventor:
Frank C. DeReamer,
by Harry E. Dunham
His Attorney.

Patented Mar. 9, 1937

2,073,512

UNITED STATES PATENT OFFICE

2,073,512

SOCKET

Frank C. De Reamer, Bridgeport, Conn., assignor to General Electric Company, a corporation of New York

Application September 10, 1935, Serial No. 39,933

2 Claims. (Cl. 173—358)

My invention relates to electric sockets and socket mountings in general, and more particularly to those of the so-called moisture proof type.

An object of my invention is to provide a socket having improved means for preventing moisture or other fluids from reaching the contacts of the socket after a lamp has been inserted therein.

A further object of my invention is to provide an improved means for preventing moisture or other fluids from passing into the wall at the point where the socket is mounted.

My invention will be more fully set forth in the following description, reference being had to the accompanying drawing, and the features of novelty which characterize my invention will be pointed out with particularity in the claims annexed to and forming a part of this specification.

Fig. 1 is an elevation in section of a socket assembly embodying my invention.

Fig. 2 is an elevation partly in section of a portion of my electric socket, the lamp having been removed.

Fig. 3 is a perspective view of the screw shell contact of my electric socket.

Fig. 4 is an end view of the socket illustrated by Fig. 1.

Fig. 5 illustrates an application of my invention as applied to a socket mounting on the interior wall of a refrigerator.

Referring to the drawing, and in particular to Figs. 1 and 2, it will be seen that the socket comprises essentially a base 1, a screw shell contact 2, and a center contact 3.

The base 1 is formed of some suitable insulating material such as porcelain and is of the usual type having a well 5, a center aperture 6, and a plurality of smaller apertures 7, 8, 9 and 10 located circumferentially about aperture 6.

On the bottom of the well 5 is located an annular raised portion 11 surrounding the center aperture 6. A counter sink 12 is provided for aperture 6 to permit the head of a bolt 13 to be assembled below the plane of the upper surface of the annular portion. This allows the head of bolt 13 to be spaced from the center contact 3 thus preventing electrical contact between the two. As a consequence thereof it is unnecessary to insulate bolt 13 although it is apparent that this may be done without departing from the spirit of my invention.

Extending radially from the raised portion 11 are two raised rib portions 14 of substantially the same height. These two ribs include therebetween one of the circumferentially located smaller apertures 9. One end of the resilient center contact 3 is secured to the base between ribs 14 by a bolt 15. The other end of this contact is located centrally of the well 5, extending over the edge of, and being supported by the raised annular portion 11.

Screw shell contact 2 has a cut away portion 16 in the bottom 17 which permits its insertion over the annular portion 11 and the ribs 14 of the porcelain base 1. The raised portions 11 and 14 projecting through the bottom 17 separate the center contact 3 from the screw shell contact 2. A plurality of holes 18 are also provided in the bottom 17 to cooperate with apertures 7, 8 and 10. Shell 2 is securely mounted in the socket by means of bolts extending through apertures 7, 8 and 10. Bolts 15 and 19 which occupy apertures 9 and 7 act as current carrying elements connecting the conductors 24 and 25, the center contact 5 and the shell 2 respectively.

Referring to Figs. 1 and 4 it will be seen that detents 21 are provided on the under side of the porcelain base 1 adjacent the wall or supporting member 20 which act both as counter-sinks to accommodate the nuts on bolts 15 and 19 and electrical connections for conductors 24 and 25. These detents are preferably filled with a suitable insulating compound 22 after assembly. Bolts (not shown) occupying apertures 8 and 10 are merely structural securing elements. Counter-sinks 23 of square cross section are provided for apertures 8 and 10 to accommodate the nuts on these bolts.

Two projections 30 on the base 1, adjacent counter-sinks 23, having a channel cross section, are provided to permit a more rugged and secure mounting. These projections 30 pass through corresponding openings (not shown) in the wall 20.

In order to prevent moisture or any other fluid from gaining access to the interior of the socket from whence it might pass through center aperture to the opposite side of the wall 20, a resilient cylindrical sleeve 4, composed of some material such as rubber, which is slipped over the open end of the screw shell contact 2, is provided. A plurality of stakings 27 are punched out of the shell so as to engage the resilient material to hold it from slipping up on the shell. I provide the well 5 with a shoulder 26 on the inner periphery thereof. In the particular embodiment illustrated the shoulder 26 is formed by enlarging a portion of well 5 near its open end. In assembling the socket the shell is placed in the well 5 together with the resilient sleeve 4, and secured in place by the bolts 19. As the shell is pulled down to the bottom of the well the re-

silient sleeve 4 is forced against the shoulder 26 to effect a moisture proof seal.

Resilient sleeve 4 is of such a length that when lamp 34 is screwed into the socket the sleeve extends beyond the metallic base portion 35 and firmly grips the glass itself to form a moisture proof seal at this point. The interior of the socket is thus effectively sealed from moisture entering the socket at the end in which the lamp is inserted. As a consequence thereof no moisture will pass through any of the apertures in the base 1 to the opposite side of the wall 20.

Since it is obvious that moisture might also seep around the outside of the base 1 and through one of the openings in the wall 20, I provide an additional moisture proofing means in the form of a gasket 28 composed of some suitable resilient material, such as rubber, having two depending bushings 29 formed thereon.

The gasket 28 is also provided with a center opening 32 and two channel shaped openings 90° displaced from the depending bushings 29 to permit the gasket 28 to be slipped over the projections 30 thus making a snug fit with the base 1. The conductors 24 and 25 pass through the bushings 29 which grip the conductor to form a fluid-tight seal therearound.

In assembling and mounting my improved moisture proof socket mounting I proceed as follows:

Center contact 3 is placed between ribs 14 and secured in place by means of bolt 15. At this point in the assembling operation the free end portion of contact 3 has not yet been bent over the annular raised portion 11, since it is apparent that the latter must be left free to insert bolt 13. Resilient sleeve 4 is slipped over the outer end of screw shell contact 2 and a plurality of stakings 27 are punched out of the shell to grip the resilient sleeve in the manner and for the purpose hereinbefore described. The screw shell contact 2 is then placed in the well 5 of base 1, the cut away portion 16 being slipped over the two raised portions 11 and 14. The shell is then secured in place by means of bolts 19. As the bolts are tightened, the resilient sleeve 4 is pulled tight against the shoulder 26 to form a fluid seal.

Conductors 24 and 25 are then passed through the wall 20 and through the bushings 29 of the gasket 28. A suitable electrical connection is then made between the conductors 24 and 25 and the current conducting bolts 15 and 19 respectively. This may be done in any manner well known to those skilled in the art, such as by soldering the conductor to the bolts. An insulating compound 22 is placed in the detents 21 in a manner well known in the art.

The entire unit is then fitted to the wall 20, the depending bushings passing through the openings 31 and the projections 30 passing through corresponding openings (not shown) in the wall 20. A bolt 13 is inserted in center aperture 6, a corresponding opening 32 in the gasket 28 and a corresponding hole 33 in the wall 20 and is secured in place by means of a nut (not shown). Center contact 3 now may be bent down over raised portion 11, substantially covering the open end of the counter sink 12. A lamp 34 is screwed into the socket and the mounting is complete.

A mounting of this type has many applications but I find that it is particularly desirable where a lamp is to be mounted on the inner wall 37 of a refrigerator 36 (Fig. 5), where moisture after it passes through the inner wall seriously affects the heat insulating material of the lining. Electrical energy is supplied to the lamp through plug 38. As is common in the art the lamp circuit contains a door switch 39 which closes the lamp circuit when the refrigerator door 40 is opened and opens the circuit when the door is closed.

Modifications of the particular arrangement which I have disclosed embodying my invention will occur to those skilled in the art, so I do not desire my invention to be limited to the particular construction set forth, and I intend, in the appended claims, to cover all modifications which do not depart from the true spirit of my invention.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A socket member comprising a base, a shell contact mounted in said base, a shoulder on the inner wall of said base, a resilient cylindrical sleeve located around said shell contact and held in compression by said contact against said inner shoulder, said sleeve extending beyond the outer end of said shell contact to engage a lamp inserted in said contact, a wall having a plurality of apertures therein, means to secure the socket to said wall, and a gasket located between said socket and said wall and having integral bushing members adapted to surround conductors passing through apertures in said wall and connected to said socket.

2. In a lamp socket comprising a base, a shell contact mounted in said base, a shoulder on the inner wall of said base, a cylindrical resilient sleeve surrounding said contact and extending beyond the open end of said contact, projections from said contact embedded in said sleeve and holding it in compression against said shoulder, a wall, means to secure said base to said wall, and a gasket located between said base and said wall and having integral projections surrounding conductors connected to said socket.

FRANK C. DE REAMER.