June 15, 1943. L. A. POPE 2,321,851

LAMP SOCKET FOR FLUORESCENT LAMPS

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Fig.1.

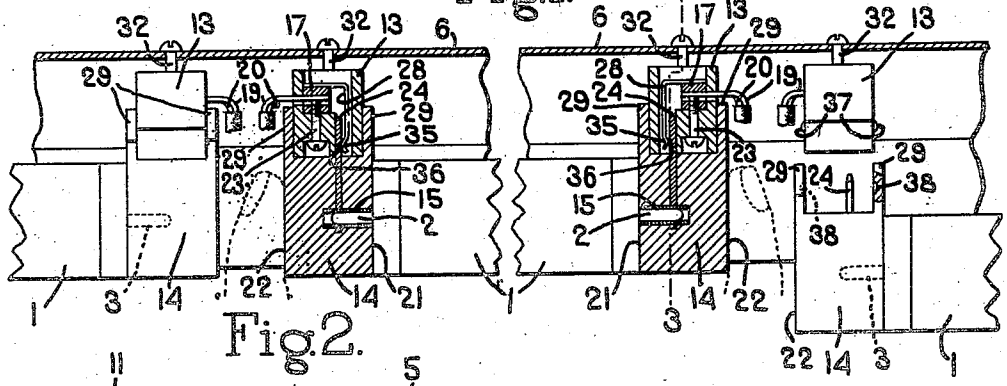


Fig.2.

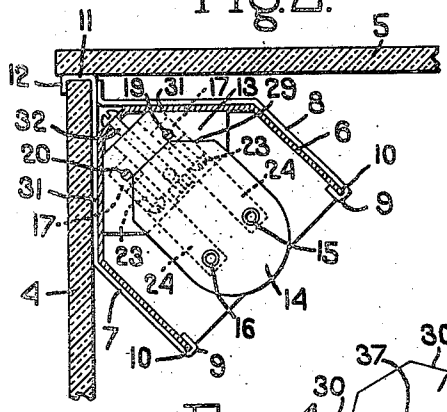


Fig.3.

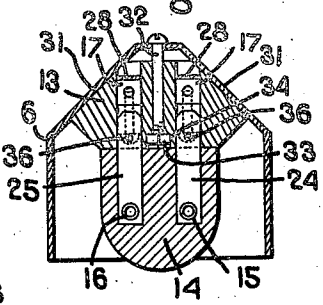


Fig.4.

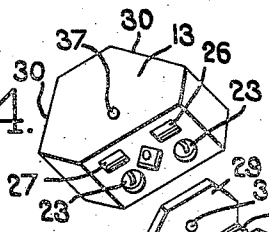


Fig.5.

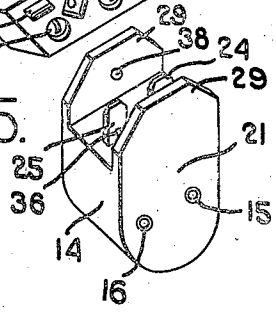


Fig.6.

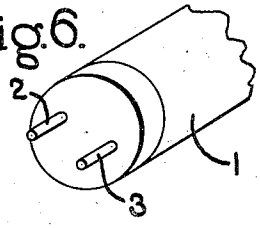
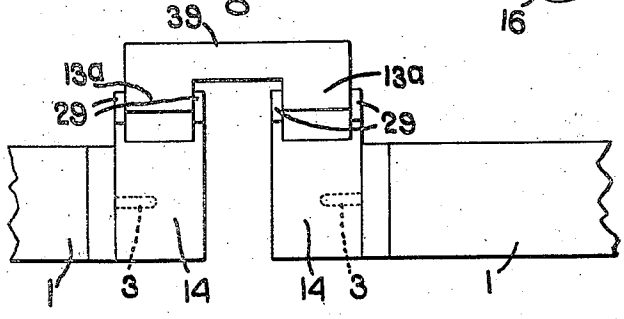


Fig.7.



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Fig.8.

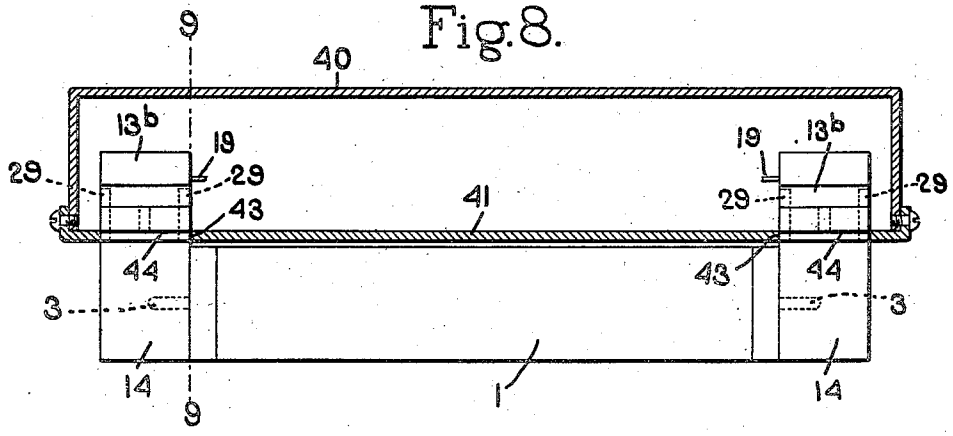


Fig.9.

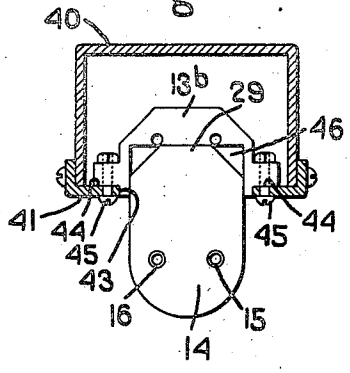


Fig.10.

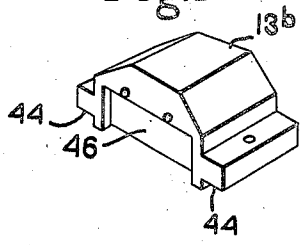
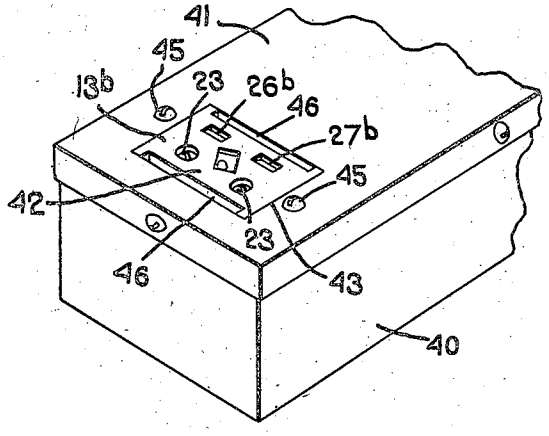


Fig.11.



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LAMP SOCKET FOR FLUORESCENT LAMPS

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Application March 5, 1940, Serial No. 322,285

1 Claim. (Cl. 173—328)

This invention relates to lamp sockets for fluorescent lamps and especially for that type of fluorescent lamp which is equipped with two lamp terminals extending from each end of the lamp in a direction parallel to the length thereof.

One object of the invention is to provide a lamp socket for a lamp of this type which is constructed to facilitate the removal of the lamp from any position in which it may be used, and the replacement of the lamp back into position.

Lamps of this type are used for a variety of purposes, and in order to illustrate the invention, I have chosen to show it as it might be embodied in a lamp arranged for lighting a showcase, although my improved lamp socket is equally applicable in connection with fluorescent lamps used for other lighting purposes.

When used for lighting showcases, it is customary to mount the fluorescent lamp in a hood or reflector which serves the double purpose of reflecting the light onto the contents of the showcase and shielding the eyes of the customer from the glare of the light. My improved lamp socket, it being understood that there is one lamp socket at each end of the fluorescent lamp, is made in two parts or sections, one of which is permanently secured to the reflector hood and carries the wiring terminals (it being hereinafter referred to as the "wiring terminal section"), and the other of which carries lamp terminals (and will be hereinafter referred to as the "lamp terminal section") and is detachably secured to the wiring terminal section. The detachable connection between the two sections is of such a nature that they may be separated or connected together by a relative movement in a direction at right angles to the length of the lamp. With this construction, a person can easily remove any lamp from its operative position by placing the fingers of his two hands against the outer faces of the lamp terminal sections for any lamp and then moving the lamp in a direction at right angles to its length, thereby to separate the two sections of the two lamp sockets.

In order to give an understanding of the invention, I have illustrated in the drawings some selected embodiments thereof which will now be described after which the novel features will be pointed out in the appended claim.

In the drawings:

Fig. 1 is a view partly in section showing a reflector element with a plurality of lamp sockets embodying my invention mounted therein and a plurality of lamps carried by the lamp sockets.

Fig. 2 is a sectional view showing my improved lamp sockets as they might be mounted for lighting a showcase.

Fig. 3 is a section on the line 3—3, Fig. 1.

Fig. 4 is a perspective view of the wiring terminal section of the lamp socket.

Fig. 5 is a perspective view of the lamp terminal section.

Fig. 6 is a perspective view of one end of the fluorescent lamp showing the lamp terminals.

Figs. 7 and 8 are views illustrating modifications of the invention.

Fig. 9 is a section on line 9—9, Fig. 8.

Fig. 10 is a perspective view of the wiring terminal section shown in Fig. 8.

Fig. 11 is a fragmentary view of the underside of the housing shown in Fig. 8.

In the drawings, 1 indicates fluorescent lamps of the known type which are provided at each end with a pair of lamp terminals 2, 3, extending in the direction of the length of the lamp.

While fluorescent lamps of this type are used for a variety of purposes, I have, for illustrative purposes, chosen to show the lamp as it might be used in lighting a showcase, of which 4 indicates the side wall and 5 the top, said side wall and top being made of glass. For the purpose of illuminating a showcase, the lamps 1 are mounted in a reflector member 6 which is mounted in the showcase in the corner between the side wall 4 and top 5. This reflector is in the form of a hood which may be of any desired length and is constructed so that the inside face thereof has light reflecting properties. The reflector may be supported in any suitable way and, as shown in Fig. 2, it is carried by a supporting bracket comprising two arms 7 and 8 which embrace opposite sides of the reflector and the ends 9 of which are bent around the edges 10 of the reflector. This supporting bracket is shown as having an arm 11 which extends between the wall 4 and the top 5 of the showcase and the end of which is bent to provide the lip 12 which embraces the upper edge of the wall 4.

Any other manner of supporting the reflector hood may be employed, however, without departing from the invention.

My improved lamp socket, of which there is one for each end of each lamp 1, comprises the two sections 13 and 14 which are detachably secured together. The section 13 carries the wiring terminals and hence is referred to as the wiring terminal section, while the section 14 carries the lamp terminals or contacts and is referred to as the lamp terminal section. The

lamp terminal section 14 has two parallel flat side faces 21, 22 and is provided in one of said faces with two lamp terminal sockets 15 and 16, adapted to receive the lamp terminals 2, 3. The wiring terminal section 13 is provided with two wiring terminals 17 to which the circuit wires 19 and 20 are secured, each wiring terminal being in the form of a block having an aperture to receive the bare end of the wire which is clamped in the terminal by a clamping screw 23 that is inserted into the wiring terminal section 13 through the lower end thereof. The lamp terminal section 14 is also provided with two contact fingers 24, 25 which extend from the flat upper face thereof and are electrically connected with the socket terminals 15, 16. The wiring terminal section 13 is provided with two flat side faces and a flat bottom face, and the bottom face has two apertures 26, 27 adapted to receive the contact fingers 24, 25. Each wiring terminal 17 has a resilient contact finger 28 connected thereto and situated to be engaged by one of the contact fingers 24 or 25 when the two sections of the socket are connected together with the contact fingers 24, 25 entered into the sockets 26, 27.

The transverse dimension between the flat parallel faces 21, 22 of the lamp terminal section 14 is greater than that between the flat side faces of the wiring terminal section, and said side faces 21, 22 of the lamp terminal section are extended to form two wings or cheek pieces 29, between which the contact fingers 24, 25 are situated. The inside faces of the wings 29 are spaced apart the same distance as the transverse dimension between the parallel side faces of the wiring terminal section and when said wiring terminal section 13 is coupled to the lamp terminal section 14 as shown in Fig. 1, the cheek pieces 29 fit snugly against the flat parallel faces of the wiring terminal section 13. Said cheek pieces are of sufficient extent and have a sufficient engagement wth the flat side walls of the wiring terminal section 13 to hold the lamp terminal section 14 accurately in its proper aligned position with the wiring terminal section.

The wiring terminal section 13 of each socket is permanently mounted in the reflector 6, and as shown, the section 13 is formed with two inclined faces 30 which engage the converging walls 31 of the reflector hood 6. Each socket section 13 is secured to the hood by means of a clamping screw 32 which is shown as extending through the hood and the socket section 13 and as having a nut 33 screw-threaded to the lower end thereof, said nut being received in a recess 34 with which the socket section 13 is provided.

A pair of socket sections 13 will be secured to the reflector hood 6 for each lamp 1, and in installing a lamp in the hood, the two lamp terminal sections 14 will be assembled with the lamp terminals 2 and 3 of the lamp, one lamp terminal socket section at each end of the lamp, and then the operator may hold the assembled lamp and lamp terminal sections between the fingers of his two hands and place the lamp within the hood with the contact fingers 24, 25 entering the sockets 26, 27 of the wiring terminal sections. As these contact fingers 24, 25 are thus entered into the sockets 26, 27, they engage the resilient contact fingers 28 connected to the wiring terminals and thus complete the circuit through the lamp. It will be understood that there is sufficient frictional engagement between the contact fingers 24, 25 and the contact fingers 28 to retain the two sections of each socket in their assembled relation, but if desired, each resilient contact finger 28 may be provided with a protuberance 35 adapted to snap into a recess 36 in the contact fingers 24, 25 when the two sections of any lamp socket are correctly assembled.

The removal of any lamp from the hood may also be accomplished by simply placing the fingers of one's hands against the outer faces 22 of the socket sections 14 for any lamp, as shown in dotted lines, Fig. 1, and then withdrawing the assembled lamp and the socket sections 14 as a unit from the hood, the detachable connection between the two sections of each lamp socket providing for this.

The engagement of the cheek pieces 29 with the side faces of the socket section 13 ensures that the socket section 14 will be maintained in its proper position and prevents said socket section 14 from being displaced angularly.

If desired, each socket section 13 may have protuberances 37 on its opposite faces adapted to snap into recesses 38 formed on the inner face of the cheek pieces 29 when the two socket sections are properly assembled. This provides an additional means for yieldingly holding the two socket sections in their assembled relation.

Where a plurality or series of lamps 1 are used for lighting a long showcase, the various lamps will be placed in the reflector hood 6 with the adjacent sockets spaced sufficiently from each other to permit a person to insert his fingers between such adjacent sockets, as seen in Fig. 1. With this arrangement, any individual lamp can be readily removed from the reflector hood or replaced therein in the manner above described.

A modified form of the invention is shown in Fig. 7 wherein the two socket sections 13*a* of two adjacent lamp sockets are formed as integral parts of a unit 39 which may be attached to the hood 6 in any appropriate way. Each socket section 13*a* forming part of the unit 39 may have the same construction as shown in the socket section 13, each being adapted to be detachably secured to a lamp terminal section 14.

For the proper operation of fluorescent lamps, the circuit for each lamp is commonly provided with a suitable choke coil, resistance or other controlling device, and in Figs. 8 to 11, I have shown an embodiment of the invention wherein the wiring terminal sections for each lamp socket are carried by a suitable housing in which the choke coil, resistance or other regulating device is located. In said figures, 40 indicates a housing to contain such regulating devices, (not shown), said housing being provided with a removable plate or cover 41. The wiring terminal sections of the sockets are indicated at 13*b*, and these are secured to the cover plate 41 on the inside thereof, the face 42 of said wiring terminal sections which have the sockets 26*b*, 27*b* therein for the reception of the contact fingers 24, 25 of the lamp terminal section being exposed on the outer face of the cover plate 41. This cover plate is provided with openings 43 through which the faces 42 of the two wiring terminal sections 13*b* are exposed and said wiring terminal sections are cut away at 44 to provide shoulders that rest against the inner face of the cover plate 41. The wiring terminal sections 13*b* are secured to the cover plate 41 by suitable screws 45. Each wiring terminal section 13*b* is provided in each side face with a recess 46 adapted to receive the wings 29 of the lamp terminal section 14.

In this embodiment of the invention, the lamp

1 with the two lamp terminal sections 14 can be removed from the wiring terminal sections 13b in the same manner as in the construction shown in Figs. 1, 2 and 3.

In all the embodiments of the invention, the wiring terminal section of the lamp socket is permanently and rigidly secured to a supporting member which may be the hood in Fig. 1 or the cover plate 41 of the housing 40 in Fig. 8.

The socket section which is thus permanently secured to the support is in the nature of a fixed socket section, while the socket section 14 is a removable socket section.

Furthermore, in both embodiments of the invention, the fixed socket section is located within a housing since the reflector hood 6 may be regarded as a housing.

While I have illustrated some selected embodiments of the invention, I do not wish to be limited to the constructional features shown.

I claim:

A lamp socket for a fluorescent lamp having two lamp terminals extending from each end thereof in the direction of its length, said lamp socket comprising two readily separable sections, one of which constitutes a fixed wiring terminal section and has two parallel side faces and a pair of sockets in its bottom face, and the other of which constitutes a removable lamp terminal section and has two flat parallel side faces and a pair of socket terminals in one side face adapted to be connected with or separated from the lamp terminals only by relative movement between the removable lamp terminal section and the lamp in the direction of the length of the latter, said removable lamp terminal section also having a pair of contact fingers insulated from each other and extending from its top face at right angles to the lamp terminals and adapted to be received in the sockets of the fixed wiring terminal section, the parallel side faces of the lamp terminal section extending beyond the top face thereof to form wings which overlie and fit snugly against the flat side faces of the wiring terminal section when the two sections are in operative relation, thereby maintaining such relation and preventing the lamp socket section from being displaced angularly.

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