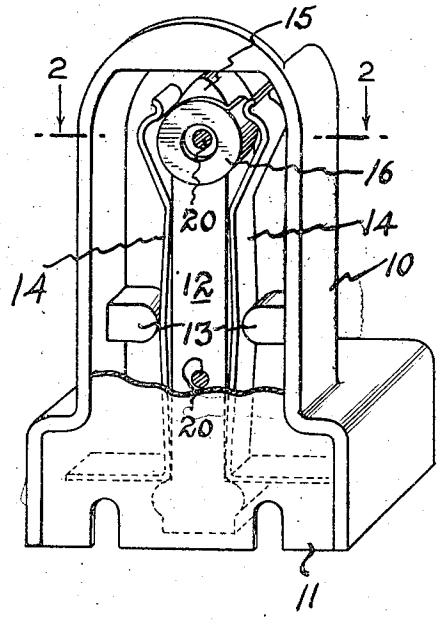
Oct. 29, 1946. H. ROSENTHAL 2,410,364

ELECTRICAL JUMPER FOR SHORT CIRCUITING THE CONTACTS OF A FLUORESCENT LAMP SOCKET

Filed April 19, 1944

Fig. 1.



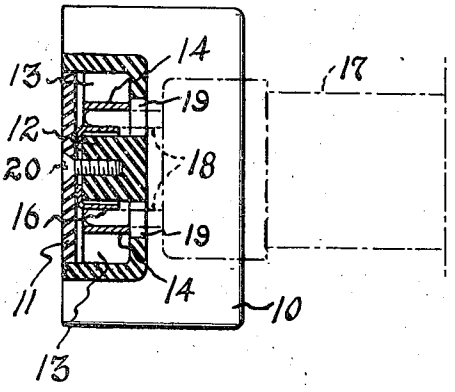


Fig. 2.

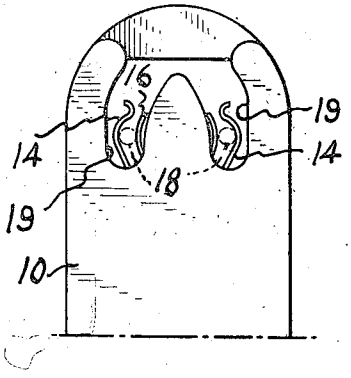


Fig. 3.

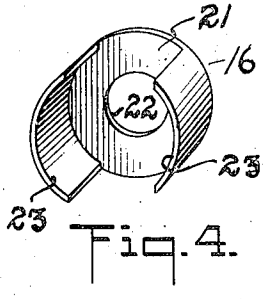


Fig. 4.

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ELECTRICAL JUMPER FOR SHORT-CIRCUITING THE CONTACTS OF FLUORESCENT LAMP SOCKETS

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Application April 19, 1944, Serial No. 531,731

1 Claim. (Cl. 173—328)

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This invention relates to improvements in fluorescent tube sockets particularly as applied to the high voltage operation of such tubes.

The main object of this invention is to provide a novel structural modification of fluorescent tube sockets as now used in low voltage fluorescent tube lighting to adapt them for use in the high voltage operation of such lamps.

It is, of course, within this main object to effect this structural modification in as simple a manner as possible and at low cost.

Other and more detailed objects of this invention will be apparent from the following description of one form thereof as illustrated in the attached drawing.

This invention resides substantially in the combination, construction, arrangement and relative location of parts as will be described in detail below.

In the accompanying drawing,

Figure 1 is a rear perspective view of a fluorescent tube socket embodying the subject matter of this invention showing a portion of the rear cover wall broken away;

Figure 2 is a cross-sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a front elevational view of the upper portion of the socket; and

Figure 4 is a perspective view of the short circuiting contact button of this invention.

As is now known in the art of fluorescent lighting, the practical applications of this form of lighting are rapidly turning to the high voltage operation of such lamps because of the many improvements and advantages which are thus secured but which need not be outlined here. It is sufficient to note that in the high voltage operation of fluorescent lighting and especially during the transient period when it will be desirable to use the same lamps that are used for low voltage operation in the high voltage system, the filamentary discharge electrodes are operated as cold electrodes and are, therefore, short circuited. In the low voltage system these filamentary electrodes are included initially in an energizing circuit so that they are heated to temperatures of electron emission, whereas in the high voltage system these filamentary electrodes are preferably short circuited and the arc directly struck between them under the impact of high voltage energization. Thus in the high voltage operation, it is desirable to provide some simple means which will adapt the tubes now commonly in use for high voltage operation without substantial structural modification of the

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sockets and with as little conscious effort on the part of the user as is feasible.

In accordance with this invention a simple contact is provided for application to the usual fluorescent tube socket which adapts itself for high voltage operation of fluorescent tubes. This contact is in the form of an electrical jumper positioned with respect to the contact fingers of the socket so that the mere act of inserting the lamp in the socket effectively short circuits the filamentary electrodes converting them to single pole electrodes between which the discharge strikes without substantial heating thereof.

In addition, in the high voltage operation of fluorescent lamps which is accomplished by the use of high voltage transformers, it is desirable whenever a lamp is removed from its circuits that the connected secondary to the transformer be open circuit. This function is also accomplished by means of the simple electrical jumper or contact applied to such sockets in accordance with this invention.

By way of example, the subject matter of this invention has been shown applied to a standard commercial fluorescent tube socket which is disclosed in full detail in Figures 3 to 9, inclusive, of my United States Patent No. 2,338,970, granted January 11, 1944, for "Fluorescent tube socket."

This socket is disclosed in the attached drawing and will be described only to the extent necessary in understanding the structural modification of this invention. As illustrated in the drawing, the socket includes an insulating housing 10 of any suitable material shaped so as to have an open back and bottom, which back is closed by means of a removable insulating wall 11 which is attached to the housing by means of a pair of screws 20. Within the housing is an integral centrally extending rib 12 into which the screws 20 are attached, which rib terminates in a head 15 having curved sides, as shown, and forming one side of each of the curved arcuate slots 19 in the front wall of the housing. Secured within the housing and lying along the sides of the rib 12 are a pair of spring contact fingers 14 which are longitudinally convex in shape, as clearly shown in Figure 1. The housing is provided with a pair of integral stops or abutments 13 positioned to engage the convex sides of the spring fingers 14 to thus contribute to the longitudinal rigidity of the flexible fingers.

A portion of one end of a fluorescent tube of standard design is shown at 17 having the projecting contact prongs 18 which, as clearly shown

in Figure 3, are gripped between the shaped ends of the spring fingers 14 and the head 15 of the rib 12 when the lamp is in place so that the prongs 18 project through the openings 19. In accordance with the disclosure in the above mentioned patent, this construction facilitates the application of the lamp to the socket and insures against its accidental removal. One prong 18 is pressed down into its seat between the spring finger 14 and the head 15 and then the lamp is rotated about that seated prong to swing the other prong in the arcuate slot 19 into its seat between the other spring finger 14 and the head 15.

As described thus far, this socket is designed and adapted for low voltage operation of fluorescent tubes in which case, as well known, a thermostatic glow discharge relay is provided for the automatic starting of the lamp by the flow of current through the filamentary electrodes of the lamp connected respectively at their ends to the associated contact prongs 18.

On the other hand as stated, in the high voltage operation of such lamps it is desirable to short circuit these filamentary electrodes and in accordance with this invention this is accomplished by the contact or electrical jumper 16 which is constructed so that it may be slipped on the head 15. This jumper comprises a disc portion 21 having a central aperture 22 through which the adjacent screw 20 may pass in attaching the rear wall 11 in place. A pair of arcuate axially extending wings 23 are formed integral with the disc 21 and overlie the curved side faces of the head 15, as is clear from the various views. Thus to adapt the low voltage socket for high voltage operation one need only remove the cover plate 11 and slip a contact 16 over the head 15. As is clear from Figure 3, when a lamp is mounted in the socket, the contact 16 short circuits the prongs 18 and thus the filamentary electrode connected thereto by the simple act of mounting the lamp in the socket. It is equally clear that when the lamp is removed from the socket the energizing circuit for the lamp including the high voltage secondary of the energizing transformer is opened meeting one of the standardized requirements for high voltage fluorescent tube operation.

It will be seen that the structural modification involved which adapts the low voltage socket to high voltage operation is simple but highly effective. It may be distinguished from other competitive sockets which have been developed for similar functions in this very simplicity.

Other sockets of this type have been completely reconstructed in order to provide a high voltage socket which is also capable of low voltage use. The emphasis on the fact that these sockets should be capable of either high voltage or low voltage operation stems from the fact that while it is expected that ultimately high voltage operation will completely displace low voltage operation for lamps of this type, there will be a relatively long period of time represented by the change over period when it will be desirable, from the economic viewpoint, to use fluorescent lamps, as they are now manufactured and of which there are millions in use, for both systems. This can be done by short circuiting the electrodes of the lamps as they are now made. When the low voltage system is completely displaced, it will be possible to provide lamps with electrodes adapted only for high voltage operation. Fortunately, these low voltage lamps are operationally suitable for high voltage energization except for the desirability of short circuiting the filamentary electrodes.

It will be apparent to those skilled in the art that the structure of this invention is not limited in its adaptation to the particular socket herein disclosed although that socket provides an excellent example of the effectiveness of the subject matter of this invention in converting at least one commercial form of socket for high voltage operation. However, by suitable structural modification as required by other commercial sockets the subject matter of the invention may be applied to them much more simply than has the same result been secured by other known structures. I do not, therefore, desire to be strictly limited to the exact physical form of the invention as herein disclosed but rather as required only by the claim.

What is claimed is:

A fluorescent lamp socket comprising an insulating housing having lamp prong openings in the front wall thereof, an integral rib within said housing having an enlarged end extending between said openings, a pair of spring contact fingers lying along the sides of said rib and shaped to receive lamp contact pins between them and said enlarged end, and a cup shaped contact mounted on said enlarged end and having notches in which said rib lies, said contact serving to short circuit the lamp prongs when engaged by said spring contact fingers.

HARRY ROSENTHAL.