

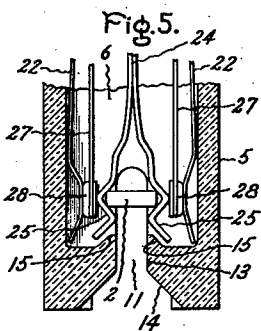
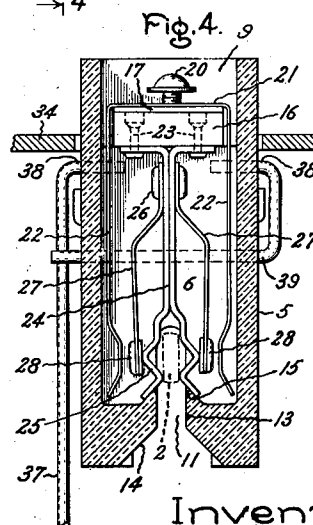
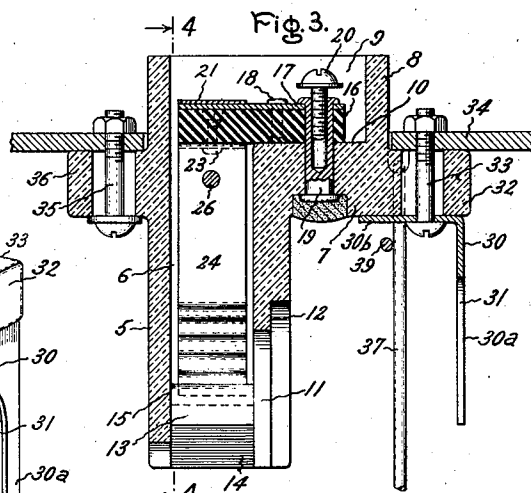
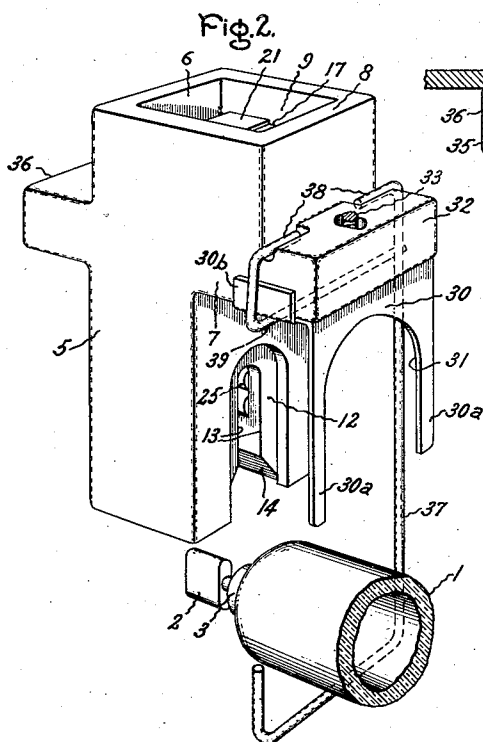
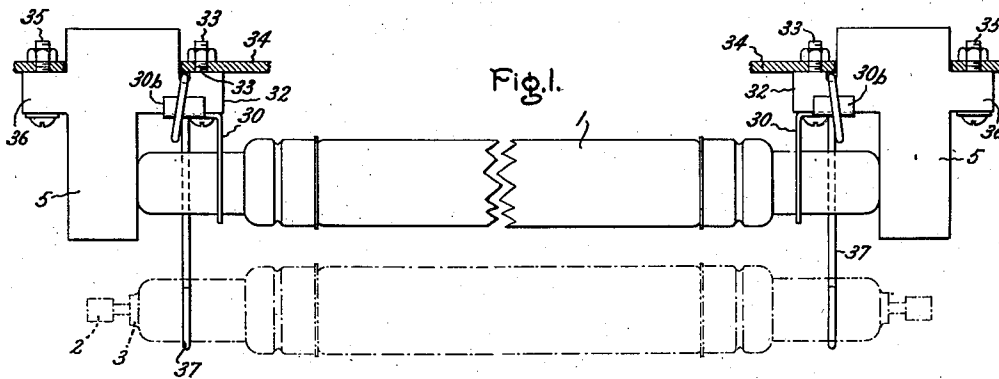
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LAMP HOLDER

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2,374,032

LAMP HOLDER

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2 Claims. (Cl. 173-328)

The present invention relates to lamp holders, more particularly to lamp holders for tubular lamps, such as fluorescent lamps. It is especially useful in lamp holders for tubular lamps of the type having a single oval-shaped contact at each end and it is this application of my invention which I have elected specifically to illustrate and describe. It is to be understood, however, that this is only by way of example and that the invention may be used wherever found applicable.

The object of my invention is to provide an improved lamp holder which offers a high degree of safety as hereinafter pointed out, and for a consideration of what I believe to be novel and my invention, attention is directed to the following specification and to the claims appended thereto.

In the drawing, Fig. 1 is a side elevation showing two lamp holders embodying my invention mounted in spaced relation on a supporting plate and having a tubular lamp mounted therein, the tubular lamp before being mounted in the lamp holder being shown in dot and dash lines; Fig. 2 is a perspective view of one of the lamp holders and an end of a lamp ready to be inserted into the holder; Fig. 3 is a sectional view through the lamp holder; Fig. 4 is a detail sectional view taken on line 4-4, Fig. 3, and Fig. 5 is a detail sectional view showing certain of the parts in a position different from that in Fig. 4.

Referring to the drawing, 1 indicates a tubular lamp having a single oval-shaped contact 2 at each end for insertion into a lamp holder. At opposite ends, the lamp is provided with shoulders 3 for cooperation with the lamp holders as hereinafter pointed out. Lamps of this type are mounted in their holders by inserting the contacts 2 edgewise into the lamp holders and then turning the lamp through an angle of 90° to bring the oval-shaped contacts to a position transverse to the lamp holders.

Referring now to Figs. 2 to 5, inclusive, the lamp holder comprises a base 5 of suitable insulating material, such as porcelain, the base being formed of walls which define a tubular passage 6 which extends from one end of the base to the other. In the present instance, the base is shown as being rectangular so that the passage 6 is rectangular. At its one end, the base is provided with a forwardly projecting portion 7 having integral with it a wall 8 thus providing a recess 9 at this end of the base. At the bottom of recess 9 is a mounting surface 10. At its other end the base is provided with a narrow slot 11 which extends axially from the end of the base inwardly a suitable distance. The wall adjacent slot 11 is countersunk to provide a ledge 12 which surrounds the slot. This end of the base is provided also with inwardly extending projections 13 which

terminate in spaced relation to each other to form a continuation of slot 11. In other words, projections 13 form in substance an end wall for the base through which end wall the slot 11 extends. At its outer portion, the end wall is beveled as indicated at 14 to provide surfaces for directing a contact 2 into the slot 11. On the inner sides of projections 13 are inwardly extending parts 15 which form spaced stops, one on each side of the slot 11.

Fixed against mounting surface 10 is a contact carrying block comprising a rectangular plate 16 of suitable insulating material on the outer surface of which is riveted a metal contact plate 17 by means of rivets 18. One end of the block is attached to surface 10 by a hollow rivet 19, the other end of the block projecting into passage 6. Rivet 19 at its inner end is threaded to receive a contact screw 20 by means of which an electrical conductor may be connected to the lamp holder. Attached to contact plate 17 by means of spot welding or the like is a U-shaped contact member comprising a base 21 and two spring contact arms 22 which extend along the opposite sides of passage 6 as shown particularly in Fig. 4. Thus, the contact arms 22 are connected with the binding post 20 through contact plate 17. The free ends of contact arms 22 are spaced back from slot 11 as shown particularly in Fig. 4 so as to be out of line with the slot. Attached to insulating member 16 by suitable rivets 23 are a pair of spring arms 24 which extend parallel to contact arms 22 and at their free ends terminate in reversely bent parts 25 for the reception of a lamp contact 2 between them. The extremities of spring arms 24 are angularly bent for engagement with stops 15. Spring arms 24 are connected together at their ends adjacent insulating member 16 by a rivet 26 which holds in place also a pair of spring arms 27 which at their free ends have contact buttons 28 which engage with parts 25. The purpose of spring arms 27 is to give added spring tension to the arms 24, the inherent spring of arms 24 plus the spring of arms 27 serving to hold the free ends of arms 24 in engagement with stops 15 and, when spread apart, to hold firmly a lamp end 2.

Normally the several parts stand in the positions shown in Fig. 4 which shows also in dotted lines an oval lamp contact 2 between the spring arms 24. When the lamp is turned through an angle of 90°, the contact 2 is brought to the position shown in Fig. 5 wherein the spring arms 24 and 27 are spread apart and brought into engagement with the contact arms 22, thus connecting lamp contact 2 to the binding screw 20. With this arrangement, it will be seen that a circuit is not closed on a lamp contact until the lamp is turned to bring the contact 2 from the

position shown in Fig. 4 to that shown in Fig. 5. Thus, with this arrangement, when the lamp contacts are first positioned in the two holders, they are not connected into the circuit. They are connected into the circuit, as well as locked in the lamp holders, by turning the lamp through an angle of 90°.

In connection with the foregoing arrangement, it is important to avoid any possibility of the contact at either end of the lamp being accidentally connected to a contact arm 22 while the lamp is being inserted, it being important that such contact be made only after the contacts at both ends of the lamp have been properly inserted into the holders and the lamp then turned. Otherwise the person inserting the lamp might receive an electrical shock. To obviate the possibility of a contact at one end of a lamp being inserted in the holder and moved to an angle such that a spring arm 24 is brought into electrical contact with a contact arm 22, there is provided a guide or guard 30 on each lamp holder which makes it necessary that the lamp be in line with the two slots 11 when the contacts 2 are inserted into the slots. The guide or guard comprises two parallel arms 30^a which define between them a groove 31 which stands in line with slot 11 and is spaced a suitable distance from the adjacent surface of base 5. In the present instance, arms 30^a are shown as being formed integral with a base plate 30^b which is attached to a flange 32 which forms an integral part of base 5. Arms 30^a are spaced apart a distance equal to the diameter of the end of lamp 1. The guide or guard 30 is fastened to flange 32 by means of a bolt 33 which serves also to fasten one side of the lamp holder to a base or support 34, the other side of the lamp holder being fastened to the base or support 34 by a bolt 35 which extends through an opening in a flange 36 formed integral with the other side of base 5. Base or support 34 may be a part of a lamp fixture.

Carried by flange 32 and mounted thereon so that it may swing to a limited extent is a hook 37 which may be used to temporarily support a lamp end when the lamp is being positioned in its holders. In the present instance, hook 37 is shown as being provided with two inwardly facing ends 38 which hang in notches in flange 32. The cross bar 39, which forms a part of the hook, is spaced sufficiently from the under surface of flange 32 to permit of the desired amount of swinging movement of the hook. Hooks 37 serve also to catch a lamp and support it should a lamp accidentally fall out of the lamp holders.

Fig. 1 shows two lamp holders mounted on a common support 34 and spaced apart a distance to receive the two contact ends of a lamp, the arrangement being such that when the lamp is positioned in the holders, the shoulders 3 fit against the ledge 12, i. e., they fit in the counter-sunk portion which surrounds slot 11. Ordinarily, fixtures for lamps of this type are mounted on a ceiling with the slots in the holders facing downwardly. The lamps are of considerable length, a 3 kilowatt lamp having a length of the order of 5 feet, for example. A lamp is inserted in the holders usually by a person standing on a ladder. In inserting a lamp in a holder, one end of the lamp may be rested in the hook 37 of one holder after which the other end of the lamp is positioned in the hook 37 of the other holder after the manner shown in dot and dash lines

in Fig. 1. Following this, the lamp is moved upwardly to bring its ends between the two guides 30, the contacts 2 at the same time entering the slots 11 and being brought to a position between spring ends 25, as shown in Fig. 4. The lamp is then turned through an angle of 90°, thus locking the contacts 2 between the spring ends 25 and at the same time spreading the spring ends apart to make engagement with the contact arms 22. By the provision of guides or guards 30, it is not possible after a contact 2 has been inserted into a slot 11 to move the lamp angularly to one side or the other to bring a spring arm 24 into engagement with a contact arm 22. Were it not for the guides or guards 30, this might happen thus accidentally closing a circuit on one end of the lamp, a thing which might result in the person inserting the lamp accidentally receiving an electrical shock. The arrangement of the contacts in the holders so that the lamp is not connected into the circuit until it is turned to lock it in position in the holders, in combination with the guides or guards 30, gives to the lamp holder a high degree of safety. I regard this arrangement as being an important feature of my invention.

In accordance with the provisions of the patent statutes, I have described the principle of operation of my invention, together with the apparatus which I now consider to represent the best embodiment thereof, but I desire to have it understood that the apparatus shown is only illustrative and that the invention may be carried out by other means.

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

1. A lamp holder for an elongated discharge lamp having contact means at each end comprising, in combination, a base having a guide slot therein extending to one edge of the base, a contact member carried by said base with an end adjacent the slot but out of alignment therewith, a movable member positioned in said base between an edge of the slot and said contact member and being adapted to be engaged by the lamp contact means seated in the slot, said movable member being normally spaced from said contact member so that it is out of the electric circuit but being movable upon rotation of the lamp contact means to complete an electrical connection between the contact member and the lamp contact means, and a member having guide edges parallel with the edges of the slot but spaced therefrom to provide a guide for the lamp end for guiding the lamp contact means into the slot for engagement with the movable member upon transverse movement of the lamp, said guide edges preventing angular sideways movement of the lamp so that said movable member cannot be moved into engagement with the contact member except upon rotation of the lamp.

2. In a lamp holder for an elongated discharge lamp, a base having walls provided with a guide slot, contact means carried by said base adjacent the slot, said slot being adapted to guide a lamp contact into engagement with said contact means and hook means carried by said base for initially supporting a lamp spaced from said base but so that the lamp contact is in alignment with said slot for engaging said contact means upon transverse movement of the lamp into the lamp holder.

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