

Nov. 28, 1944.

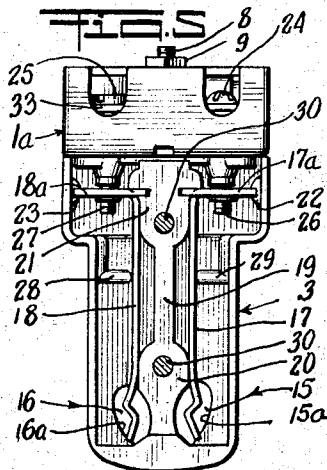
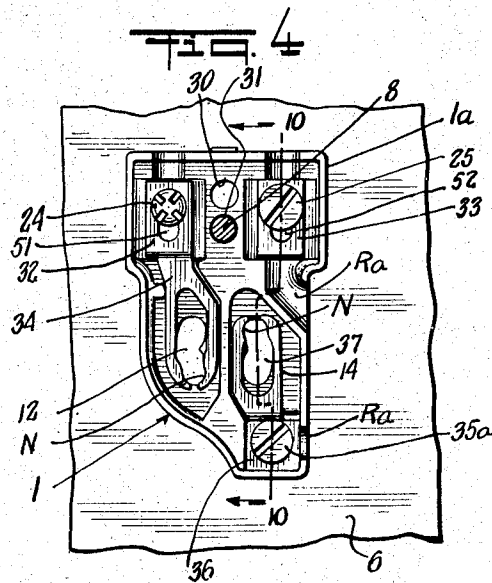
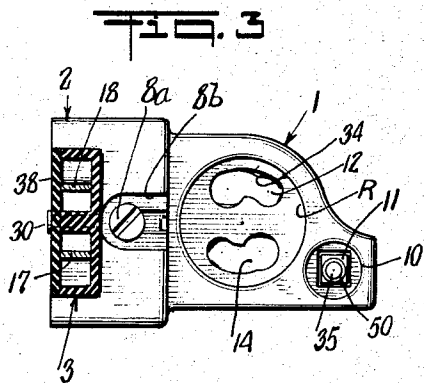
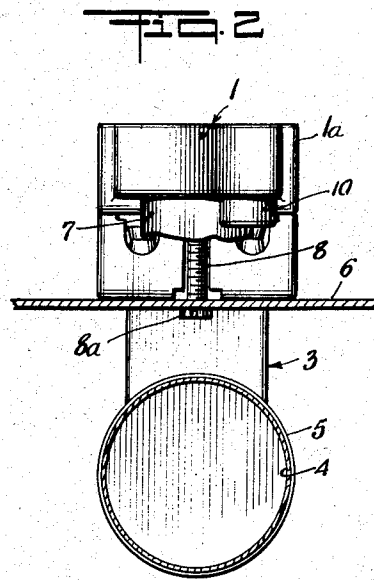
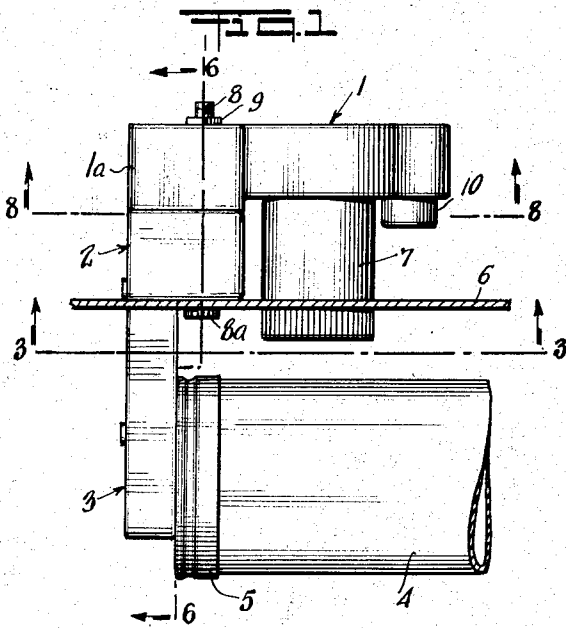
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2,363,734

COMBINATION LAMP-HOLDER AND STARTER-HOLDER

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2 Sheets-Sheet 1



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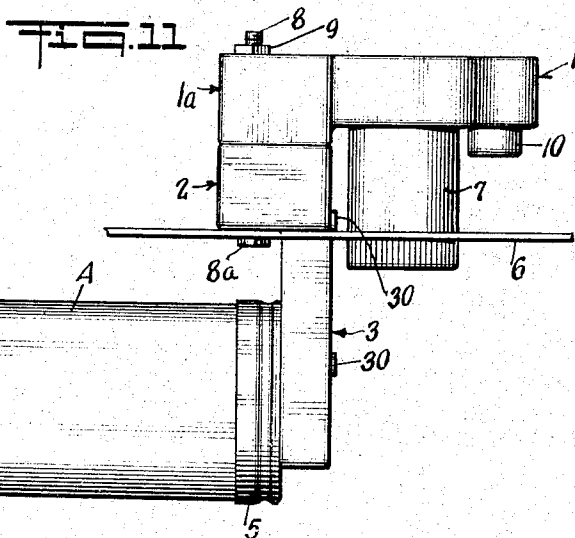
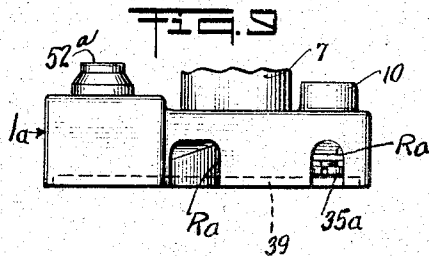
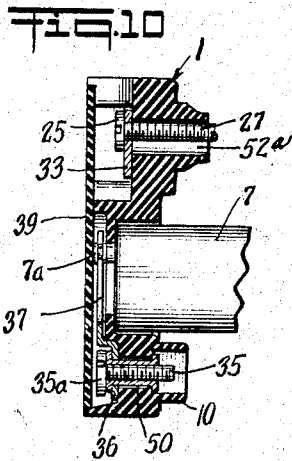
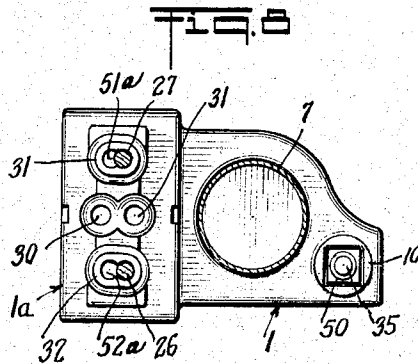
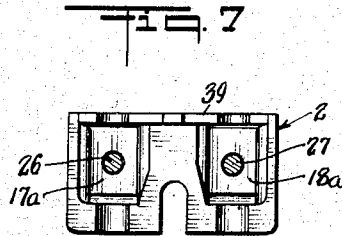
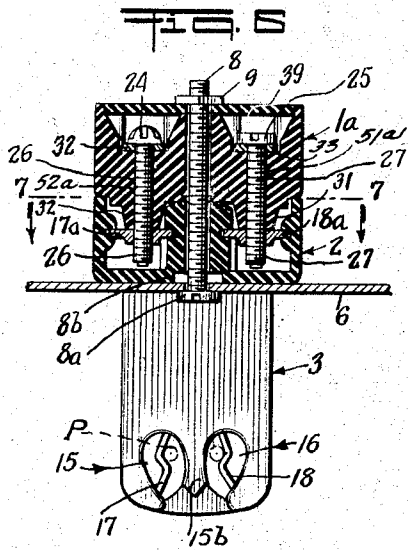
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2,363,734

COMBINATION LAMP HOLDER AND
STARTER HOLDER

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Application February 6, 1942, Serial No. 429,716

1 Claim. (Cl. 173-328)

My invention relates to a new and improved lamp-holder and starter-holder for a lamp of the type which has two metal prongs projecting from each end thereof. Such lamps are exemplified by the familiar fluorescent lamps.

The principal objects of the invention are to provide a device which can be manufactured and assembled at low cost; in which the lamp holder is reversible relative to the starter-holder, so that the casing of the starter switch can be inserted or removed without removing the lamp; in which the contacts of the starter-holder are located inwardly in a single casing, and preferably in the same plane; in which the contacts of the starter-holder are connected to the body of the starter-holder, independently of the cover of the body of the starter-holder; in which the body of the starter-holder has only a single cover; and in which it is impossible for the electrician to make a wrong installation of the device.

Numerous other objects of my invention will be stated in the annexed description and drawings, which illustrate preferred embodiments thereof.

Fig. 1 is a side elevation of one of the improved devices, the representation of the support to which the improved device is connected, being shown in section.

Fig. 2 is a side view of Fig. 1, taken at the right-hand side of Fig. 1.

Fig. 3 is a sectional view on the line 3-3 of Fig. 1, the starter casing being omitted.

Fig. 4 is a top view of Fig. 1, with the top cover of the starter-holder removed.

Fig. 5 is a side view, taken at the left-hand side of Fig. 1, with the vertical cover of the holder removed.

Fig. 6 is a sectional view on the line 6-6 of Fig. 1.

Fig. 7 is a sectional view on the line 7-7 of Fig. 6.

Fig. 8 is a plan view on the line 8-8 of Fig. 1.

Fig. 9 is a side elevation of Fig. 8.

Fig. 10 is a sectional view on the line 10-10 of Fig. 4.

Fig. 11 is a side elevation of Fig. 1, showing the lamp holder reversed relative to the socket-holder.

The socket comprises a starter-holder 1, which is made of any suitable insulating material. This starter-holder 1 has an integral rear enlarged extension 1a. The lamp holder comprises a holder casing 2, which has a depending reduced lamp-holding extension 3. Said casing 2 and its extension 3 are also made of insulating material.

Fig. 1 shows a plate 6 of the support or fixture to which the combination device is fixed. This plate 6 is made of metal or any other suitable material.

A screw 8, which has a head 8a, has its shank extending through a bore of the plate 6 and through a vertical recess of the casing 2 of the lamp holder. Said vertical recess is U-shaped in horizontal cross-section and it is open at the right-hand face or front face of the holder casing 2. The walls 8b of said recess are shown in Fig. 3.

The shank of the screw 8 can be passed through either one of the vertical bores 30 and 31, which are provided in a rib or flange of the rear extension 1a of the starter-holder 1. The shank of the screw 8 is passed through the vertical bore 31, when the holder casing 2 is in the position shown in Fig. 1, and said shank of the screw 8 is passed through the bore 30, when the holder casing 2 and its extension 3 are reversed, as shown in Fig. 11. A nut 9 holds the screw 8 and the extension 1a fixed to the support 6.

The starter-holder 1 and its extension 1a have a single top cover 39, as shown in Fig. 6. This cover 39 covers the open top of starter-holder 1 and its extension 1a. Said top cover 39 is also made of insulating material and it is releasably clamped to the extension 1a by means of the nut 9. This cover 39 fits within the starter-holder 1 and its extension 1a, and the inner face of said cover 39 abuts suitable stop-shoulders of said starter-holder 1 and extension 1a.

Referring to Fig. 4, the extension 1a is provided with suitable recesses, in which separate metal contact posts 32 and 33 are located. These contact posts 32 and 33 are respectively provided with pairs of bores 51 and 52. The respective shanks 26 and 27 of the screws 24 and 25 are located in vertical bores of the metal necks of the contact posts 31 and 32. Said necks fit non-turnably in vertical bores of extension 1a. These bores may be threaded or unthreaded. Said contacts 31 and 32 may be flat plates. The shanks 26 and 27 then extend through vertical bores of extension 1a. The head of the screw 25 has the ordinary diametral slot, so that said screw 25 can be applied or removed by means of the ordinary screw driver. The head of the screw 24 is provided with recesses of any special type, so that it requires the use of a special type of tool or screw driver in order to remove the same. Fig. 4 shows that the shanks of the screws 24 and 25 are located in corresponding end bores 51 and 52 of the contact posts 32 and 33. When the

holding casing 2 is reversed in the manner shown in Fig. 11, the shanks of said screws 24 and 25 are located in the other end bores 51 and 52 of the contact posts 32 and 33. The walls of the bores 51 partially intersect, and the walls of the bores 52 also partially intersect. These bores 51 and 52 of the contact posts 32 and 33 register with respective corresponding bores 51a and 52a of the extension 1a of the starter-holder 1.

The shanks 26 and 27 engage the walls of the internally threaded bores of the heads 17a and 18a of the metal contact springs 17 and 18. The screws 24 and 25 hold the lamp-holder 2-3 and the starter-holder 1 releasably assembled. The lower end of each of these contact springs 17 and 18 has the familiar hook shape, in order to releasably retain the longitudinal prongs P of the metal head 5 of the lamp-envelope 4. These prongs P are parallel to the axis of the cylindrical envelope 4. The front vertical wall of the extension 1a is provided with recesses 15 and 16, which have walls 15a and 16a. The contact springs 17 and 18 are located at opposite sides of the rib 19, which is integral with the body of extension 3. Said rib has a top enlargement 21 and a bottom enlargement 20. At its front, the bottom of said rib has a tapered end 15b, which is above the bottom end wall of extension 3. The resilience of springs 17 and 18 maintain them normally in contact with enlargement 20, as shown in Fig. 5. The walls 15a and 16a have inlets at their bottoms, so that the prongs P can be pushed upwardly into said recesses 15 and 16. For example, one of the prongs P is pushed upwardly through the bottom inlet opening between the hook-shaped end of spring 17 and rib enlargement 20, while the other prong P is below the bottom inlet of the opening 16. The envelope 4 and its cap 5 can then be turned until the other prong P is forced into its final position. The final positions of the prongs P are indicated in broken lines in Fig. 6. Each prong P is then held releasably by one of the springs 17 and 18, which is then slightly separated from enlargement 20.

The heads 17a and 18a are integral with the prongs 17 and 18, and said heads 17a and 18a have tongues which enter suitable recesses which are provided in the enlargement 21 of the rib 19. The outer ends of the heads 17a and 18a also enter recesses in integral beads 22 and 23 which are provided in the transverse vertical walls of the casing 3.

The heads 17a and 18a thus held firmly in position, by means of their engagement with the shanks 26 and 27 of the holding screws.

The extension 3 is provided with a cover 38, also made of insulating material, which is connected to the rib 19, by means of drive screws 30, which enter suitable aligned bores of the rib 19. The cover 38 is thus non-removable.

Referring to Fig. 4, the metal contact post 32 is integral with a metal forked contact member 34. A part of one of the legs of said contact member 34 is in partial registration with a vertical opening 12 which is formed in the horizontal wall of the starter-holder 1. Another metal contact post 36 is fixed to the front end of the starter-holder 1, by means of a screw 35a. Said contact post 36 is integral with a forked metal contact member 37, whose legs are in partial registration with an opening 14 which is provided in the horizontal wall of the casing 1.

As shown in Fig. 10, the screw 35a has a shank 35 which is screwed into the tapped bore of a metal bushing 50, which is located in a suitable vertical

bore at the front end of the starter-holder 1. As shown in Fig. 3, this bushing 50 has a bottom head 11 of square shape, which fits in a corresponding square opening of the starter-holder 1, so that the bushing 50 cannot turn relative to the starter-holder 1. The top portion of said bushing 50 is of cylindrical shape, and the top cylindrical wall of said bushing 50 is enlarged into rivet-like shape, as shown in Fig. 10, so that said rivet-like head firmly engages the contact post 36, both mechanically and electrically. The front end of starter-holder 1 is provided with a depending extension 10, whose outer wall is cylindrical, and whose inner wall is of square cross-section. The rectangular contact posts 32, 33 and 36 fit snugly in corresponding recesses of extension 1a and of starter-holder 1.

The starter switch is of the conventional type, and it is located in a switch casing 7. The switch casing 7 has the usual prongs 7a which are inserted respectively into the openings 12 and 14, to be engaged by the notches or recesses N of the contact members 34 and 37. The horizontal wall of the starter-holder 1 has a cylindrical recess R, in which the upper part of the switch casing 7 of the starter is located. The prongs 7a are first inserted into the openings 12 and 14, so that said prongs are spaced from said notches N, and the switch casing 7 is then turned so as to spring the pins 7a into final position, in which each pin 7a is engaged between the outer notched ends of the legs of the forked contact members 34 and 37. This provides a species of bayonet joint connection for the prongs 7a.

The two leads of the power circuit are connected on the job respectively to the contact posts 33 and 36 by means of the heads of the screws 25 and 35a. A vertical wall of the starter-holder 1 is provided with suitable recesses Ra for the entry of said leads. These recesses Ra are shown in Figs. 4 and 9.

The electrician who installs these combination devices cannot incorrectly connect one of the power wires to the contact post 32 by manipulating screw 24, because he does not have the special type of screw driver which is necessary to operate the screw 24. The electrical connection between the forked contact members 34 and 37 is made through the conventional starter switch in switch casing 7.

In many cases, it is necessary to reverse the holder casing 2 relative to the extension 1a, as illustrated in Fig. 11, in order to permit convenient insertion and removal of the switch casing 7. For example, it will be noted that in Fig. 1 it is necessary to remove the lamp 4, in order to remove the switch casing 7, which extends through an opening in the metal fixture plate 6. The arrangement shown in Fig. 11 is frequently much more convenient, because the switch casing 7 can be inserted and removed without removing the lamp 4.

In such event, the holder casing 2 is reversed at the factory, in the manner shown in Fig. 11. The screw 8 is passed at the factory through the selected hole 30, in order to assemble the casings 1 and 2 in the reverse position which is shown in Fig. 11. In such case it is still unnecessary and impossible for the electrician on the job to manipulate the screw 24. The screw 24 remains electrically and mechanically connected at all times to the contact spring 17, as previously described.

By utilizing the non-turnable bushing 50, which clamps the contact post 36 in a rivet-like man-

ner, it is unnecessary to provide the contact post 36 and its integral contact member 37, with a special clamping cover made of insulating material, which otherwise would be required and which would have to be held in place by special drive screws or the like. Likewise, the use of such additional insulating cover made it necessary to locate the head of the screw 35a externally of the casing 1, which was an added hazard, and such exposed live part had to be insulated by means of sealing wax or other sealing composition. According to the improved construction, the screw 35a is located wholly within an insulating casing.

A single cover 39 thus covers and protects all the live parts, and this eliminates the necessity of using insulating cement or the like.

Likewise, the terminal contact posts 36 and 32 are located in the same horizontal plane, thus making it much more easy to wire up the device on the job.

The cover 39 does not serve to fix any of the contacts to starter-holder 1 or its extension 1a.

The contact post 32 or the screw 24 may be releasably or permanently locked to the extension 1a, at the factory, in any suitable manner, so as to prevent the electrician on the job from connecting a wire to said contact post 32, or to said screw 24. The special configuration of the head of screw 24 is one means of releasably locking the same to the starter-holder 1 at the factory, in order to secure said result. The screw 24 is therefore designated as a factory-locked screw.

The contact posts 33, 36 and 32 are respectively designated as the first, second, and third contact posts. The first and second contact posts 33 and 36 are relatively longitudinally disposed, and the first and third contact posts 32 and 33 are relatively laterally disposed. The second and third contact posts 36 and 32 are connected to each other through the starter switch in switch casing 7.

The invention covers not only the complete combination shown herein, but the sub-combinations and also the novel element or elements of said complete combination.

For convenience, the device is designated in the description and claims, with respect to the position shown in the drawings, in which the longitudinal axis of the starter-holder is horizontal, and in which the longitudinal axis of the lamp-holder is vertical. However, the device can be used in any position.

It is preferred to form the heads of the screws 24 and 25 with respective different shapes, so that the head of the screw 25 interfits with a screw driver or other tool, which does not interfit with the head of the screw 24. However, said screws 24 and 25 may be distinguished by any

suitable means, such as respective visual marking means or the like.

Therefore numerous changes and omissions can be made from the preferred embodiment disclosed herein, without departing from the spirit of the invention.

When the starter-holder and the lamp-holder are assembled, their respective longitudinal axes are perpendicular to each other. In the respective reversed positions of the lamp-holder which are shown in Fig. 1 and Fig. 11, the same lateral end-face of the casing of the lamp-holder abuts the casing of the starter-holder. In each said position the casing 7 of the starter-switch is vertical.

I claim:

In combination, a starter-holder casing and a lamp-holder casing, each casing being made of insulating material, each said casing having a longitudinal axis, said longitudinal axes being perpendicular to each other, said casings abutting each other at respective abutting faces, said abutting faces being parallel to the longitudinal axis of the starter-holder casing, said starter-holder casing having a first contact and a second contact and a third contact located therein, said second contact and said third contact having respective contact members extending therefrom and located in said starter-holder casing, said contact members being located and shaped to contact with the terminals of a starter switch, said lamp-holder casing having contact springs which are shaped and located to contact respectively with the respective prongs of a lamp, said contact springs being respectively conductively fixed to the first contact and to the third contact by respective metallic connecting members, said metallic connecting members being located in respective bores of said starter-holder casing, said second contact being fixed directly to said starter-holder casing by a respective connecting device, said lamp-holder casing having a perforated wall which has perforations for admitting said prongs, said perforated wall being parallel to the longitudinal axis of said lamp-holder casing, said lamp-holder casing being attachable to said starter-holder casing in two respective opposed positions which have an angular separation of 180°, fastening means which fasten said casings to each other, said first contact and said second contact and said starter-holder casing having respective pairs of bores, each said pair of bores being aligned with the longitudinal axis of said starter-holder casing, said connecting members being insertable through either bore of said contacts, said fastening means being insertable in either bore of said starter-holder casing.

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