

[54] **SNAP-IN FLUORESCENT
LAMPHOLDER WITH FRONT END
RELEASE**

[72] Inventors: **John M. Genovese**, Trenton, N.J.;
Kenneth H. Walterick, Ottsville, Pa.

[73] Assignee: **Circle F Industries, Inc.**, Trenton,
N.J.

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[58] Field of Search **240/51.11; 248/27**

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Primary Examiner—Samuel S. Matthews

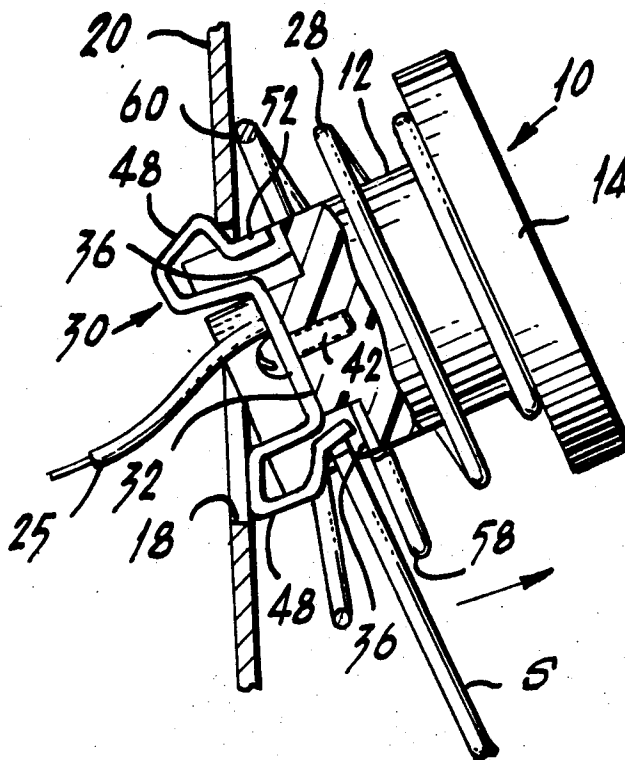
Assistant Examiner—Monroe H. Hayes

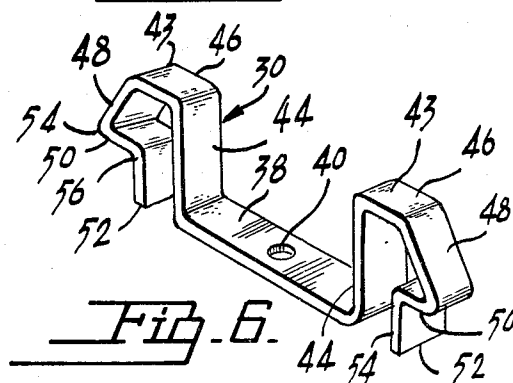
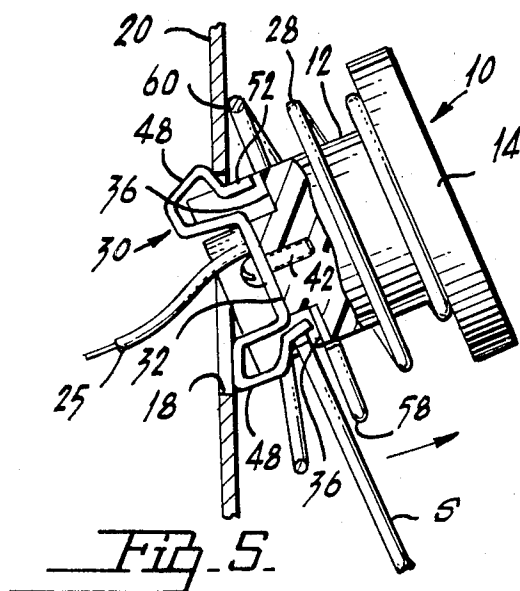
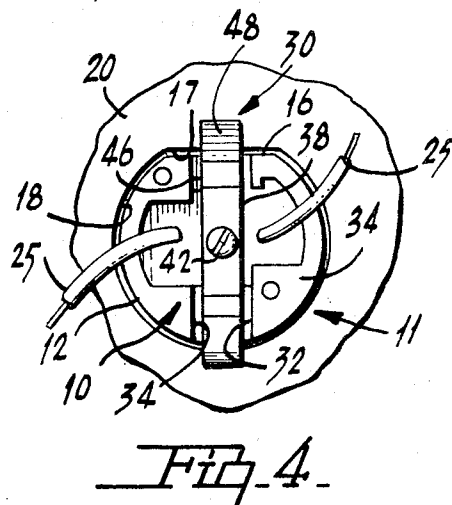
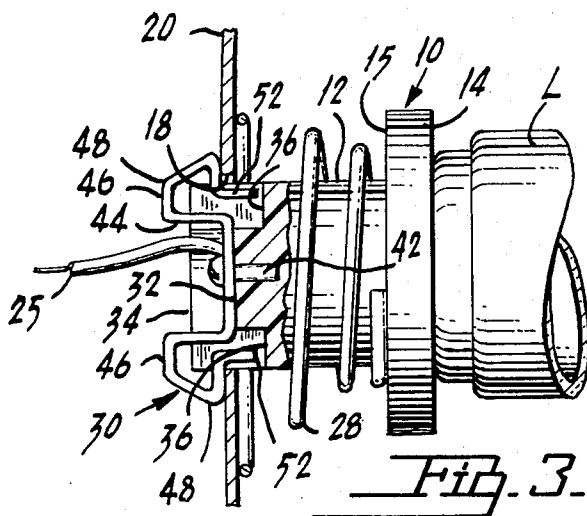
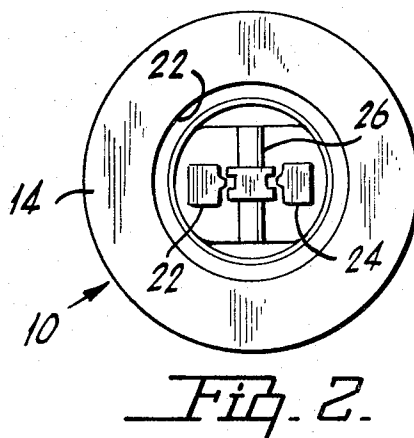
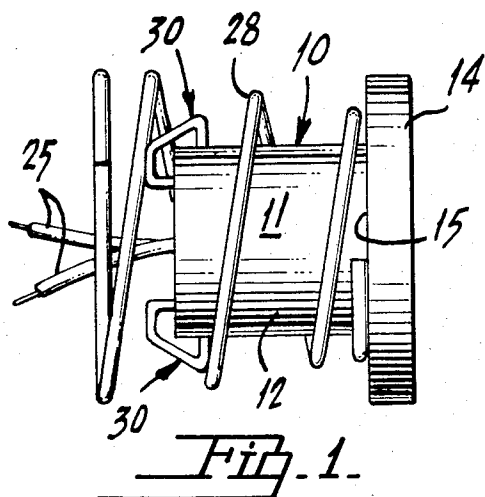
Attorney—Sperry and Zoda

[57] **ABSTRACT**

A compressible lampholder for double ended fluorescent lamps, especially those of the high-output, rapid-start type, has a one-piece mounting clip at its rear end, formed with forwardly opening spring loops that have shoulders normally preventing removal of the lampholder from the mounting hole of a support panel. The loops yield resiliently when the lampholder is inserted in the mounting panel, and cooperate with a compression coil spring to hold the lampholder in its mounted position while leaving it free to compress when the fixture is lamped. The spring loops have distal portions accessible from the front of the mounting panel to deflect the loops to a panel-disengaging position for removal of the lampholder.

3 Claims, 6 Drawing Figures





INVENTORS
JOHN M. GENOVESE &
KENNETH H. WALTERICK

BY *Sperry and Joda*
ATTORNEYS

SNAP-IN FLUORESCENT LAMPHOLDER WITH FRONT END RELEASE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates generally to electrical connectors, in particular receptacles for double-ended gaseous discharge lamps of the fluorescent type, wherein aligned ends of the lamp are seated in and are engaged by the contacts of a pair of lampholders or receptacles, at least one of which is of the so-called spring biased, resilient, or compressible type.

2. Description of the Prior Art

Lampholders have been heretofore designed, especially adapted to receive lamps the bases of which are of the type disclosed in patents such as Lemmers U.S. Pat. No. 2,716,739 issued Aug. 30, 1955; and J. M. Pistey U.S. Pat. No. 2,742,621 issued Apr. 17, 1956.

To facilitate lamping of a fluorescent electrical fixture, it is common practice to provide lampholders in sets or pairs, with one of the lampholders being stationarily mounted or substantially so, and the other being axially compressible to a substantial degree, whereby to facilitate the insertion of the lamp ends in the lampholders, after which the compressible lampholder exerts an axial pressure upon the lamp, causing it to be tightly engaged at its respective ends in the lampholders of the set.

Typical of lampholder patents in this art are Kulka U.S. Pat. No. 3,116,098 issued Dec. 31, 1963; and Laurenzo U.S. Pat. No. 3,287,688 issued Nov. 22, 1966. In both of these patents, the compressible lampholder is of the snap-in type, that is to say, the lampholder is equipped with a spring clip that permits the lampholder to be snapped into a mounting panel as a labor-saving expedient.

It has been found desirable in the art to facilitate the release of the lampholder from the mounting panel from the front of said panel. This is desirable, for example, if the lampholder should malfunction, or should otherwise become faulty in operation. In many instances, the mounting panel is part of an electrical fixture, or is mounted directly against a wall of a room, or other supporting structure, in such fashion as to be inaccessible or at least difficult to reach from the back. Hence, front end release of lampholders of this type is a desirable feature.

In the above-mentioned Kulka patent, there is a provision for front end release. However, this patent, in common with the Laurenzo patent also mentioned above, has disclosed a lampholder possessing an excessive number of parts, particularly as regards the clip means.

The manufacture of lampholders of this type is an extremely competitive business. This is by reason of the fact that in their essential characteristics, all lampholders intended to receive gaseous discharge lamps of the type described, must have certain dimensions, electrically insulative characteristics, and electrical ratings, in common. In other words, all of these lampholders are alike electrically, and in fact conform to requirements established by Underwriters' Laboratories or by industry codes. It is for this reason that the industry is so highly competitive, and it becomes extremely important to design a lampholder which will meet the stringent requirements established therefore, while at the

same time being capable of manufacture at an extremely low unit cost.

The lampholders of the Kulka and Laurenzo patents mentioned above possess, in respect to the mounting clip feature thereof, an excessive number of parts, and this adds to the unit cost not only with respect to materials or parts, but also with respect to the cost of assembling said parts in a complete lampholder.

This problem, in the prior art, is one that is important to overcome, and the present invention is addressed to the solution of said problem.

SUMMARY OF THE INVENTION

To this end, the compressible lampholder comprising the present invention has, in common with those of the Kulka and Laurenzo patents, an insulating body having a flanged head portion in which is provided a forwardly opening recess having therein contact means especially adapted to receive the associated end of a high output, gaseous discharge, double ended fluorescent lamp. The present invention also has in common with the prior art devices a compression coil spring, the convolutions of which become progressively larger in a direction rearwardly from the head portion, said spring being compressed between the flanged head portion of the device and the mounting panel receiving the device.

The present invention, however, as distinguished from the prior art devices, has a one piece spring clip secured to its rear end, said clip having an intermediate portion extending diametrically of the body of the device and terminating in spring legs that are projected forwardly and that are formed with reentrant angles receiving opposed edge portions of the mounting hole. Said legs have forwardly projecting extensions, against which a user may position a screwdriver bit or the like, to press a selected leg inwardly, after which the fluorescent lampholder can be easily rocked out of the mounting hole if it is to be removed and replaced.

The combination of the one piece mounting clip, with the compression coil spring, in a manner effective to permit swift and easy mounting of the lampholder; secure positioning of the lampholder when in use; and equally swift and easy removal of the lampholder when necessary, is one not previously suggested by the prior art, to our knowledge. This combination has produced an important improvement in lampholders of this type, in the light of the highly competitive nature of the industry as described above. This has been achieved, it may be noted, without sacrifice of efficiency in the mounting means, and without increase in the difficulty of removal of the lampholder when and if this becomes necessary.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view of a lampholder according to the present invention, as it appears prior to mounting in a supporting panel;

FIG. 2 is a front elevational view thereof, as seen from the right of FIG. 1;

FIG. 3 is a view of the lampholder, partly in side elevation and partly in longitudinal section, as it appears when mounted, an associated supporting panel being illustrated fragmentarily and in section;

FIG. 4 is a rear elevational view of the lampholder in its mounted position, the supporting panel being illustrated fragmentarily, as seen from the left of FIG. 3;

FIG. 5 is a view similar to FIG. 3 in which a screwdriver bit has been inserted, and utilized to disengage the lampholder, which is shown partially rocked out of its mounted position prior to complete removal from the mounting panel; and

FIG. 6 is a perspective view of the one piece mounting clip per se.

DESCRIPTION OF THE PREFERRED EMBODIMENT

The lampholder 10 comprising the present invention includes a body 11 of electrical insulation material, such as a molded plastic or the like, having a cylindrical body portion 12 integral at its front end with an enlarged, flat collar or flange constituting a head portion 14 the underside of which comprises an abutment 15. The body portion 12 is formed (See FIG. 4) with a flat 16, corresponding to a flat edge 17 of an otherwise circular mounting hole 18 formed in a mounting plate 20, which may constitute a portion of an electrical fixture in which a double ended gaseous discharge lamp L is supported.

Formed in the front surface of head portion 14 is a recess 22 for the lamp end, and provided in the recess are lamp contacts 24, respectively connected to leads 25 projecting out of the rear end of the body portion 12. Within recess 22 there can be provided, for the purpose of separating the lamp contacts 24, a partition 26 integrally molded in body portion 12 as part thereof. Recess 22 has a shoulder 27 adapted to receive a gasket, now shown, as a seal between the lamp and holder.

The construction so far described is already known, as may be readily noted by reference to Kulka U.S. Pat. No. 3,116,098. Also known to the prior art, as seen from the Kulka patent, is a compression coil spring 28, the convolutions of which are normally widely spaced as shown in FIG. 1, said convolutions being progressively increased in diameter in a direction away from the head portion 14. At its front end, spring 28 bears against abutment 15. The smallest convolution can be so formed as to grip the body portion, to hold the coil spring assembled with the body 11 of the lampholder while awaiting use.

Generally designated at 30 is a retaining or mounting clip including the inventive features of my lampholder. Clip 30 is formed from a single piece of spring steel, in a preferred embodiment, which as shown in the drawing is of constant width from end to end thereof. This, as will be readily appreciated, simplifies the construction of the device, and manufacturing costs and procedures, to a marked degree. By forming a clip of this type from a constant width, flat length of strip stock, the clip can be cheaply and swiftly formed, by mass production techniques, in four-slide presses or similar equipment. Of importance, in this regard, further, is the fact that the clip is so designed as to permit a single clip to be required for each lampholder, as distinguished from the prior art in which a multiplicity of clip parts is needed.

Referring to FIG. 4, clip 30 extends diametrically across the rear end of the body 11, which is formed with a diametrically extended recess 32 receiving the clip and defining opposed walls or abutments 34 to prevent relative rotational movement of the clip and body.

At the opposite ends of the clip, the recess 32 is formed with end portions or extensions 36 of greater depth in a direction axially of body portion 12.

Clip 30, as shown to best advantage in FIG. 6, is formed with a flat, elongated intermediate portion 38, having medially between its ends an aperture 40 through which extends a drive screw 42 or equivalent fastening means, engaged in body portion 12 for the purpose of fixedly securing the clip to the body portion.

Intermediate portion 38 merges at its opposite ends into end portions 43 of the clip, each of which end portions is in the form (See FIG. 3) of a forwardly opening spring loop having an inner wall or rearwardly extending member 44, which projects rearwardly from the intermediate portion 38 at right angles thereto. The rearwardly extending members 44, at their rear ends, merge into laterally outwardly extending connecting members 46, which in the preferred embodiment are parallel to the intermediate portion 38. These merge, in turn, into forwardly extending spring members 48, which as shown in FIG. 3 are so inclined as to converge in a direction rearwardly from the head portion of the body.

At their forward ends, the spring members 48 merge into inwardly extending shoulders 50, which are substantially parallel with the intermediate portion 38 and connecting members 46. Shoulders 50, at their inner ends, in turn merge into forwardly projecting distal members 52, which are short in length, and which are recessed within the extensions 36 of recess 32 of body portion 12.

The end portions 43 of the clip can be considered as respectively comprising the members 44, 46, 48, 50, and 52. It can thus be seen that each end portion is in the form of a forwardly opening spring loop, it being understood that the material of the clip is spring steel, and that the spring loops can be moved toward a closed position as shown by the lower spring loop in FIG. 5, against the inherent tension of the spring material thereof. Normally, the spring loops tend to open to aposition as shown in FIG. 3.

Further, it can be considered that members 48, 50, 52 of each end portion 43 of the clip together comprise a spring leg. Accordingly, the clip has at its ends spring legs which are adapted to be deflected radially inwardly of the body portion when the body portion is being mounted. Further, a selected one of the spring legs can be pressed inwardly by a tool or instrument held by the user, when the device is to be removed.

In use, one mounts the lampholder merely by inserting it through the mounting hole 18 in a direction toward the left in FIG. 3. As a result, the opposite edges of the mounting hole bear against the inclined spring members 48, camming them radially inwardly until said members clear the edges of the mounting hole. Then, the lampholder can be considered as mounted, by reason of the fact that the act of inserting the body through the mounting hole compresses the coil spring 28 between mounting panel 20 and abutment 15 (See FIG. 3). Spring 28, tending to expand, causes shoulders 50 to bear firmly against the back surface of the mounting panel.

The device is now ready for use, and can be temporarily compressed whenever a lamp L is to be engaged by the lampholder.

To remove the lampholder, as for example when the lampholder needs replacement, one may insert a screwdriver bit S to position it in the reentrant angle 56 defined between shoulder 50 and distal member 52. With the screwdriver bit so positioned, one simply presses inwardly upon the distal member, temporarily closing the spring loop engaged by the screwdriver bit and causing shoulder 50 thereof to clear the edge of the mounting hole 18. The screwdriver bit, in these circumstances, can be rocked against the adjacent convolution 58 of coil spring 28, so that the entire lampholder rocks in the direction shown in FIG. 5, pivoting upon point 60 where the coil spring 28 bears against mounting plate or panel 20, until the lampholder is sufficiently clear of the mounting hole to permit it to be removed. This is accomplished with maximum speed and ease.

It will be noted that the construction permits the mounting or removal of the lampholder with equal facility, and that all this is accomplished with a very inexpensive, one piece spring steel clip as distinguished from the prior art which utilizes a multiplicity of parts for the same purpose.

We claim:

1. A fluorescent lampholder of the compressible type adapted for engagement in a mounting hole of a support panel having front and back surfaces, comprising:

- a. a body of electrical insulation material including
 1. a body portion having front and rear ends, and
 2. a head portion at the front end of the body portion having a forwardly opening recess, said head portion providing a rearwardly facing abutment at the front end of the body portion:

- b. lamp contact means in said recess;
- c. a compression coil spring receiving said body and bearing at one end against said abutment, the other end of the spring being free for compression of the spring between the front surface of the support panel and the head portion; and
- d. a mounting clip including a pair of generally U-shaped, forwardly opening spring loops partially recessed within the rear end and side of the body portion and formed with inner walls affixed to the body portion, said loops additionally including rearwardly converging spring legs connected to the inner walls in laterally outwardly spaced relation thereto, said legs diverging forwardly and being formed at their divergent ends with reentrant angles, defining shoulders projecting radially outwardly beyond the circumference of the body portion and additionally defining short distal members projecting forwardly from the shoulders and terminating at their forward ends adjacent the rear end of the body portion in close proximity to the open ends of the loops.

2. A lampholder as in claim 1 wherein each spring loop circumscribes a wholly open area with the spring legs being deflectable over their full lengths toward the adjacent inner walls of the loops.

3. A lampholder as in claim 2 wherein the body portion is spaced from the spring loops over the full lengths of said loops for deflection of the entire loops against the spring tension thereof free of interference from the body portion.

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