Nov. 22, 1966 J. LAURENZO 3,287,688

HOLDER FOR FLUORESCENT LAMPS AND THE LIKE

Filed May 11, 1964

Fig. 2.

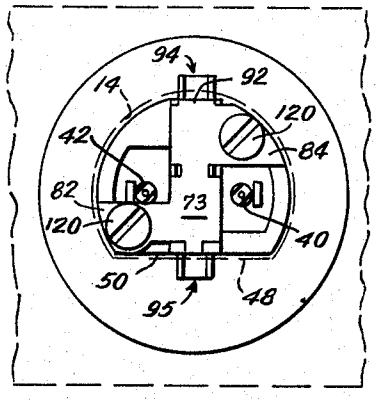


Fig. 1.

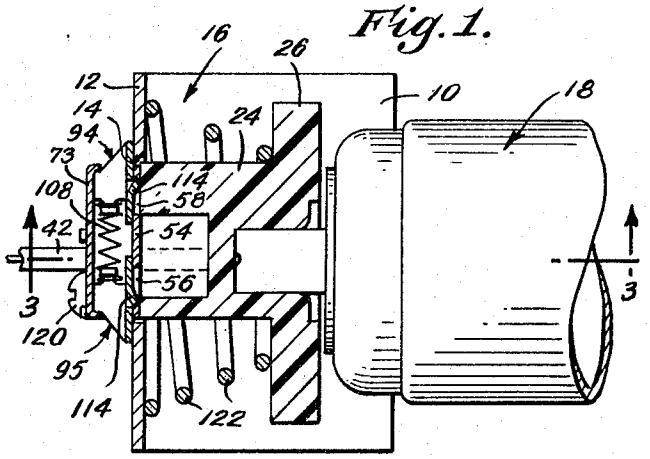


Fig. 3.

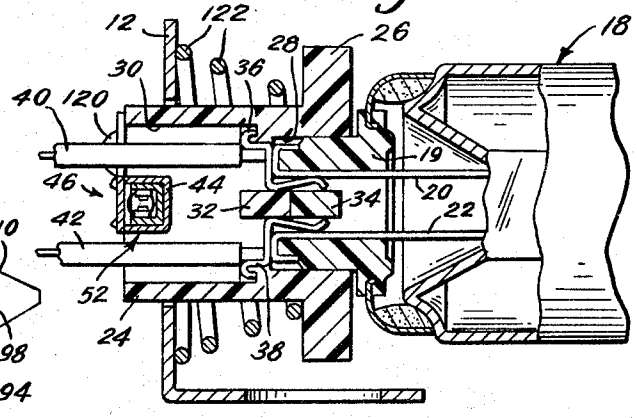


Fig. 5.

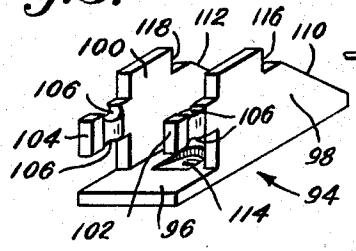


Fig. 4.

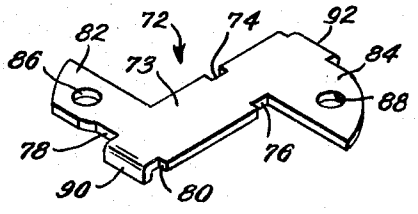
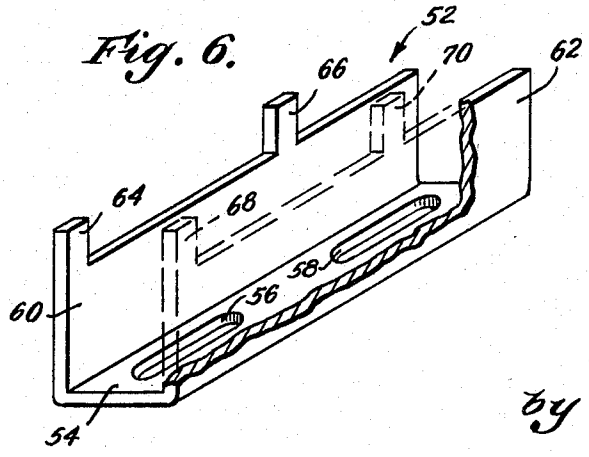


Fig. 6.



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HOLDER FOR FLUORESCENT LAMPS AND THE LIKE

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10 Claims. (Cl. 339—56)

The present invention relates to a holder for fluorescent lamps and the like. More particularly, the present invention relates to a resiliently biased holder for mounting a fluorescent lamp in a lamp fixture.

The fluorescent lamp holder embodied in the present invention has particular application for use with fluorescent lamps having strip terminals that project from the outer ends thereof. In order to mount this type of fluorescent lamp in place in a lamp fixture, at least one spring mounted lamp holder is required so that the lamp may be properly positioned with the necessary electrical interconnection between the lamp terminals and the contacts in the lamp holder. For this purpose the lamp holder of the present invention includes a holder element that is formed with a body portion to which an enlarged flange portion is integrally joined at one end thereof. The body portion is shaped and proportioned for slidably interfitting in an opening that is formed in the lamp fixture bracket, and in order to secure the holder element within the opening of the bracket, a unique clip assembly is provided and is fixed to the outer end of the body portion. The clip assembly includes a housing in which opposed clip fingers are located, the clip fingers having outer ends that enable the body portion to be inserted within the opening in the bracket but that inhibit the withdrawal therefrom. A tension spring is disposed in the housing in which the clip fingers are located and urge the clip fingers to the outer position, whereupon after insertion of the clip fiingers through the opening in the bracket, the clip fingers are urged outwardly by the tension spring in a transverse direction to lock the holder element in place on the fixture bracket.

It is therefore an object of the present invention to provide a holder for mounting a fluorescent lamp on a lamp fixture that includes a clip assembly having transversely movable clip fingers for securing the holder in position on the fixture.

Another object of the invention is to provide a mounting clip assembly for use in a fluorescent lamp holder that includes spring urged clip fingers that project outwardly of the clip assembly housing and in a direction that is transverse to the longitudinal axis of the holder element on which the clip assembly is mounted.

Still another object is to provide a mounting clip assembly for use in a fluorescent lamp holder that includes a housing having openings formed therein, clip fingers being disposed in the housing for movement therein and including detents that project into the openings, wherein the limit of movement of clip fingers are defined by the engagement of the detents with the outer ends of the openings.

Still another object is to provide a housing for a clip assembly that is used in a fluorescent lamp holder, wherein the housing is disposed in a recess that extends transversely to the longitudinal axis of the holder.

Still another object is to provide a fluorescent lamp holder that may be inserted in place in a bracket without the requirement of mounting screws, retainer clips or spring clips and the like.

Still another object is to provide a fluorescent lamp holder that is relatively simple in construction and that is inexpensive to manufacture.

Other objects, features and advantages of the invention will become apparent as the description thereof proceeds when considered in connection with the accompanying illustrative drawings.

In the drawings which illustrate the best mode presently contemplated by me for carrying out my invention:

FIG. 1 is a vertical sectional view of the lamp holder embodied in the present invention, a fluorescent lamp being shown mounted in place in the holder;

FIG. 2 is an end elevational view of the construction illustrated in FIG. 1;

FIG. 3 is a sectional view taken along lines 3—3 in FIG. 1;

FIG. 4 is a perspective view of the cover of the clip assembly housing embodied in the present invention;

FIG. 5 is a rear perspective view of one of the clip fingers of the clip assembly; and

FIG. 6 is an enlarged perspective view with portions broken away of the housing for the clip assembly.

Referring now to the drawing and particularly to FIGS. 1, 2 and 3, the lamp holder embodied in the present invention is illustrated and includes an L-shaped bracket **10**, a plate **12** being formed as part of the bracket **10** and having an opening **14** formed therein. A holder element generally indicated at **16** is adapted to be secured to the plate **12** of the bracket **10** is constructed for locating a fluorescent lamp indicated at **18** in mounted position. The lamp **18** is of the rapid-start type that does not require starters and thus is formed with a terminal plug **19** through which terminal strips indicated at **20** and **22** extend. It is understood that the construction of the lamp **18** per se is well known in the art and thus forms no part of the present invention.

The lamp **18**, as shown, is mounted in the holder element **16** at one end thereof, it being further understood that the other end of the lamp **18** may be mounted in a similar manner if it is so required. However, in the normal use of such fluorescent lamps as illustrated herein, the end of the lamp opposite to that shown in the drawing, is mounted in a fixed holder, the fixed holder being prevented from movement in a longitudinal direction as contrasted with the holder element **16** to be described hereinafter.

Referring again to FIGS. 1 and 3, the holder element **16** is shown including a body portion **24** to which a relatively enlarged flange portion **26** is integrally joined. Formed in the flange portion **26** and extending into the body portion **24** is a central recess **28** that receives the terminal plug **18** of the lamp through which the terminal strips **20, 22** extend. A chamber **30** is formed in the body portion **24** and is spaced from the recess **28** by a partition **32**, a spacer element **34** being joined to the partition **32** and extending outwardly with respect thereto. Convenient openings are formed in the partition **32** through which contact elements **36** and **28** project, the contact elements being joined to electrical wire leads **40** and **42** in any suitable manner. It is seen that the recess **28** receives the terminal plug **19** of the lamp **18** through which the terminal strips **20, 22** extend, the strips **20, 22** being forced into electrical contact with the contact elements **36** and **38** when the lamp **18** is mounted in the position of use as illustrated in FIG. 3.

Prior to the mounting of the lamp **18** in the position of use thereof, as seen in FIGS. 1 and 3, it is first necessary to locate the holder element **16** in the assembled position on the bracket **10**. For this purpose, the outer end of the body portion **24** of the holder element is formed with a recess **44** that extends transversely with respect to the longitudinal axis of the holder element **16**. Located in the recess **44** is a clip assembly generally indicated at **46**, that is adapted to lock the holder element **16** to the bracket **10** when the body portion **24** of the holder element is inserted through the opening **14** of the plate **12**. In this connection it will be noted in FIG. 2, that the opening **14** is formed with a flat side indicated at **48**, the body portion **16** also being formed with a corresponding flat side **50**. It is seen that the holder element **16** can be inserted through the opening **14** only if the flat sides **48** and **50** are aligned. Since the opening **14** is dimensioned so as to snugly receive the body portion **24**, the holder element **16** will be located in oriented relation when it is inserted through the opening **14**.

Referring now to FIGS. 4, 5 and 6, the clip assembly **46** is shown including a clip housing generally indicated at **52**. The clip housing **52** is stamped and formed from a metal material and as shown comprises a bottom wall **54** in which spaced slots **56** and **58** are formed. Joined to the bottom wall are side walls **60** and **62** which extend in a direction generally perpendicular with respect thereto. The side wall **60** is provided with spaced lugs **64** and **66** that project upwardly therefrom, while the side wall **62** is provided with similar upwardly projecting spaced lugs **68** and **70**. As will be described, the spaced lugs **64**, **66** and **68**, **70** are adapted to be folded inwardly to lock a cover for the housing in place. Referring to FIG. 4, a cover that is adapted to be placed over the upper edges of the side walls **60** and **62** is illustrated and is generally indicated at **72**. The cover **72** includes a plate **73** in which opposed notches **74** and **76** are formed for accomodating the lugs **66** and **70** respectively. Opposed notches are also formed in the plate **73** adjacent an end thereof and accommodate the lugs **64** and **68** therein. Joined to the plate **73** of the cover **72** are oppositely extending ears **82** and **84**, in which holes **86** and **88** respectively are formed. As further shown in FIG. 4, dedending portions **90** and **92** are joined to the plate **73** at opposed ends thereof and define stops, the purpose of which will be described hereinafter.

In order to lock the holder element **16** in the opening **14** of the plate **12**, the clip assembly **46** is provided with clip fingers generally indicated at **94** and **95** in FIG. 1. Since the clip fingers **94** and **95** are constructed identically, reference herein is made only to the clip finger **94** which is illustrated in detail in FIG. 5. As shown, the clip finger **94** is formed with a main wall **96** to which side walls **98** and **100** are joined. The side walls **98** and **100** are foreshortened with respect to the length of the main wall **96**, but have projections **102** and **104** extending rearwardly with respect thereto. Opposed grooves **106** are formed in the projections **102**, **104** and are provided for receiving the ends of a tension spring **108** illustrated in FIG. 1. The forward portions of the side walls **98** and **100** are angled or inclined as indicated at **110** and **112** respectively, the inclined portions **110**, **112** providing for insertion of the clip fingers **94**, **95** through the opening **14**, as will be described. As further shown in FIG. 5, the main wall **96** of the clip finger **94** has struck out therefrom, a detent **114** that projects downwardly with respect to the main wall **96**.

In the assembled position of the clip fingers **94** and **95**, the inclined portions **110**, **112** project outwardly of the housing **52** as shown in FIG. 1. The tension spring **108** is interposed between the clip fingers in the housing **52** and is secured thereto by engagement of the spring ends with the grooves **106** of the projections **102**, **104**. The detent **114** of each clip finger extends into the appropriate

notches **56** or **58** that are formed in the bottom wall **54** of the clip assembly housing **52**. In order to lock the clip fingers **94**, **95** within the housing, as shown in FIG. 1, the cover **72** is placed on the upper edges of the housing side walls **60**, **62**, and the lugs **64**, **66** and **68**, **70** are turned over into the adjacent notches **78**, **80** and **74**, **76** respectively. The depending portions **90**, **92** project toward the bottom wall **54** of the housing **52** and define stops for abutments or shoulders **116** and **118** that are formed on the side walls **98** and **100** respectively of the clip fingers. It is seen that the outward travel of the clip fingers **94**, **95** is limited by the length of the slots **56**, **58** and the engagement of the detents **114** with the ends thereof. Furthermore, the outer movement of the clip fingers is limited by engagement of the shoulders **116**, **118** with the depending portions **90**, **92**. It is understood that the tension spring **108** normally urges the clip fingers **94**, **95** to the outer positions thereof as shown in FIG. 1.

In order to secure the clip assembly **46** in position, screws **120** are provided and extend through the holes **86**, **88** formed in the ears **82**, **84** respectively of the cover **72**. The screws **120** further extend into threaded openings formed in the body portion **24** and adjacent the chamber **30**, and since the cover **72** is fixed to the housing **52** the clip assembly **46** is locked firmly in position within the transverse recess **44**. In the assembled position of the clip assembly **46**, the clip fingers **94**, **95** are normally located at the outer end of the body portion **24** for movement in a direction that is transverse to the longitudinal axis of the body portion and holder element. It is seen that the clip fingers **94**, **95** will be retracted within the housing **52** as the inclined portions engage the edges of the opening **14** when the body portion **24** is inserted through the opening **14** in the plate **12**.

Disposed about the body portion **24** in enveloping relation is a coil spring **122** that is provided for resiliently mounting the holder element **16** in place on the bracket **10**. Thus, by means of the coil spring **122**, the holder element **16** may be moved in an axial direction so as to provide for mounting of the lamp **18** in the holder element **16**. As shown in FIGS. 1 and 2, the coil spring **122** is located between the inner surface of the flange **26** and the plate **12** of the bracket **10**. The coil spring **122** thus urges the holder element **16** in a direction toward the right as seen in FIGS. 1 and 3. As will now be described, the clip assembly **46** cooperates with the spring **122** to resiliently lock the holder element in position in the bracket **10**.

In the assembly of the holder element **16** to the bracket **10**, the body portion **24** is inserted into the opening **14** of the plate **12**. It will be noted that the inclination of the angled portions **110** and **112** of the outwardly extending clip fingers **94** and **95** are such as to enable the clip fingers **94** and **95** to be depressed inwardly against the action of the tension spring **108** upon the engagement thereof with the edges of the opening **14**. The spring **108** provides for sufficient retraction of the clip fingers **94** and **95** to clear the opening **14** through which they are inserted, after which the clip fingers are released under the action of the tension spring **108** for movement outwardly to the position illustrated in FIG. 1. The detent **114** and the depending portions **90** and **92** prevent further outward movement of the clip fingers **94** and **95** and retain the fingers in the position within the clip assembly housing as shown in FIG. 1. With the coil spring **122** located in compressed relation and with the clip assembly **46** disposed on the opposite side of the plate **12** so that the projecting portions of the clip fingers **94**, **95** engage the plate **12**, the holder element **16** is firmly mounted in position on the bracket **10**. The lamp **18** may then be easily inserted in position by locating one end of the lamp in a fixed socket and then depressing the holder element **16** to the left against the action of the spring **122**, as seen in FIG. 1. When the holder element **16** is shifted to the left the body portion **24** will be

moved through the opening **14** a sufficient distance to enable the terminal plug **19** of the lamp **18** to be inserted into the recess **28** of the holder element **16**. When sufficient contact has been established between the terminal strips **20**, **22** of the lamp **18** and the contact elements **36**, and **38**, the holder element **16** may be released for movement by the spring **122** to the position shown in FIGS. 1 and 3. The lamp **18** is now firmly mounted in position between the holder element **16** and the fixed holder and in the sockets thereof.

It is understood that the holder element **16** may be removed from the assembled position thereof by squeezing the clip fingers **94** and **95** inwardly, whereupon the body portion **24** of the holder element may then be withdrawn through the opening **14**.

While there is shown and described herein certain specific structure embodying the invention, it will be manifest to those skilled in the art that various modifications and rearrangements of the parts may be made without departing from the spirit and scope of the underlying inventive concept, and that the same is not limited to the particular forms herein shown and described, except insofar as indicated by the scope of the appended claims.

What is claimed is:

1. In a holder for mounting a fluorescent lamp in lamp fixture, a bracket mounted on said fixture and having an opening formed therein, a holder element including a body portion to which an enlarged flange portion is integrally joined at one end thereof, said body portion being shaped and proportioned for slidably interfitting in the opening in said bracket, contact members fixed in said body portion and extending into a recess formed in said flange portion for engagement by the contacts of the fluorescent lamp that is adapted to be mounted on said holder element, a clip assembly secured to the outer end of said body portion and including a housing in which opposed clip fingers are positioned for limiting movement in a direction that is transverse to the longitudinal axis of said holder element, means located in said housing for normally biasing said clip fingers in an outward direction, and a coil spring enveloping said body portion and projecting outwardly beyond the outer end thereof, said coil spring being adapted to engage said bracket for urging said holder element away therefrom, whereby pressure exerted on said holder element will force the body portion thereof through the opening in said bracket against the action of said coil spring, the configuration of said clip fingers permitting insertion thereof through said opening after which said clip fingers are urged transversely outwardly by said biasing means to lock said holder element in said bracket with the coil spring being compressed between the flange of said body portion and said bracket.

2. In a holder for mounting a fluorescent lamp in a lamp fixture, a bracket mounted on said fixture and having an opening formed therein, a holder element including a body portion to which an enlarged flange portion is integrally joined, said body portion being shaped and proportioned for slidably interfitting in the opening in said bracket, contact elements fixed in said body portion and extending into said flange portion for electrical engagement with contacts of the fluorescent lamp that is adapted to be mounted on said holder element, a clip assembly secured to said body portion at the outer end thereof and including clip fingers that are mounted for limited movement in a direction that is transverse with respect to the longitudinal axis of said holder element, means interposed between said clip fingers for urging said fingers in the tranverse direction, and a coil spring for exerting a longitudinally directed force on said holder element when said holder element is mounted in said bracket, said clip fingers permitting insertion thereof with said body portion through said opening after which said clip fingers are urged transversely outwardly by said urging means to lock said holder element in said bracket.

3. In a holder for mounting a fluorescent lamp in a lamp fixture, a bracket mounted on said fixture, a holder element including a body portion that is adapted to be mounted on said bracket and including an inner end and an outer end, contact elements fixed in said body portion adjacent the inner end thereof for establishing electrical communication with contacts of the fluorescent lamp that is adapted to be mounted on said holder element, a clip assembly secured to said body portion at the outer end thereof and including clip fingers that are mounted for movement in a direction that is transverse with respect to the longitudinal axis of said holder element, means interposed between said clip fingers for urging them in the transverse direction thereof, and a coil spring for exerting a longitudinally directed force on said holder element when said holder element is mounted on said bracket, said clip fingers being retractable for insertion thereof through said bracket, after which said clip fingers are forced transversely outwardly by said urging means to lock said holder element to said bracket.

4. In a holder as set forth in claim **3**, said clip assembly further including a housing the axis of which is transverse to the longitudinal axis of said holder element, said clip fingers being located in said housing and extending outwardly therefrom at opposed ends, said urging means being defined by a tension spring that is located in said housing between said clip fingers for urging said clip fingers in the transverse outer direction.

5. In a holder as set forth in claim **4**, a transversely extending recess being formed in the outer end of said body portion for receiving the clip assembly housing, said housing including slot means and said clip fingers being formed with detents that are movable in said slot means and that limit outer movement of said clip fingers by engagement with the ends of said slot means.

6. In a holder as set forth in claim **5**, a cover secured to said housing and being formed with outwardly extending ears through which securing elements extend, said securing elements being secured to said body portion for securing said clip assembly thereto.

7. In a holder as set forth in claim **4**, the outermost ends of said clip fingers being angularly formed, and said bracket including an opening for receiving said body portion in close fitting sliding relation, said angularly formed clip fingers providing for insertion thereof in said opening and preventing withdrawal thereof from said opening after the insertion of said clip finger therein.

8. In a holder as set forth in claim **7**, said holder element including an enlarged flange portion that is joined to said body portion at the inner end thereof, said coil spring enveloping said body portion and engaging said flange portion, said coil spring thereby being compressed, between said flange portion and said bracket when said holder element is locked to said bracket.

9. In a holder for mounting a fluorescent lamp in a lamp fixture, a bracket mounted on said fixture and having an opening formed therein, a holder element including a body portion and a flange portion, said body portion being shaped and proportioned for insertion in said opening in close fitting relation, contact elements fixed in a recess in said flange portion for receiving a terminal portion of the fluorescent lamp, and a clip asembly for mounting said holder element on said bracket, said clip assembly including a housing that is located in a transverse recess formed in the outer end of said body portion, clip fingers disposed in said housing and projecting outwardly from opposed ends thereof, a tension spring located in said housing between said clip fingers and normally urging said clip fingers to an outer position, means formed on said clip fingers and cooperating with said housing for limiting outer movement of said clip fingers, and a coil spring enveloping said body portion and engaging said bracket and flange portion for exerting a longitudinally directed force on said holder element when said holder element is mounted in said bracket, wherein said holder is firmly re-

tained in position in said bracket, said clip fingers being retractable against the action of said tension spring for insertion through the opening in said bracket, after which said clip fingers are forced transversely outwardly by said tension spring to lock said holder element to said bracket.

10. In a holder as set forth in claim **9**, said housing including slot means and said clip fingers including detents formed thereon that are received in said slot means, the end of said slot means defining the outer limit of movement by said clip fingers in a transverse direction as urged thereto by said tension spring.

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