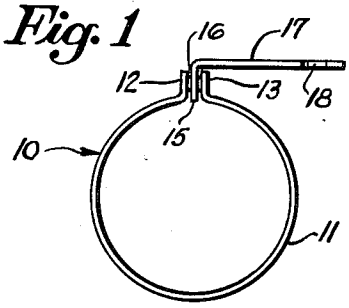
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FLUORESCENT LAMP GUARD

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Fig. 1



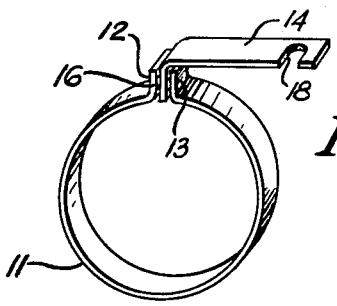


Fig. 3

Fig. 2

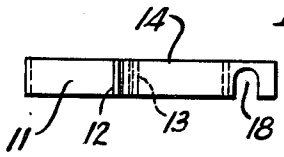
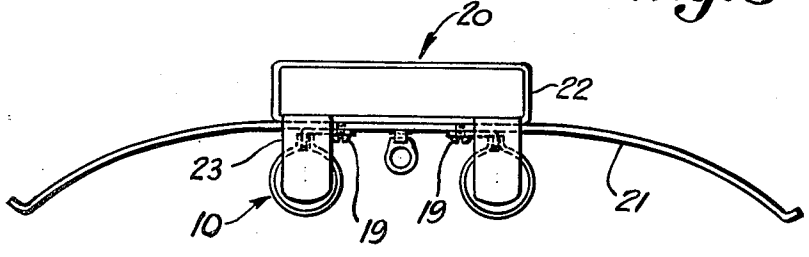


Fig. 4

Fig. 5



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Fig. 7

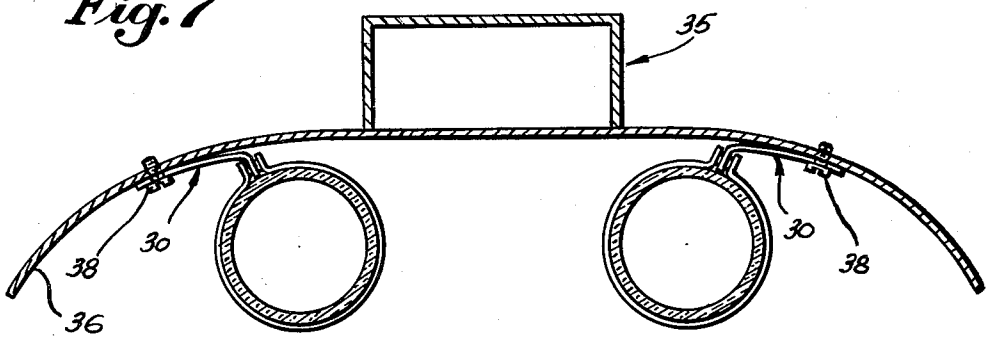


Fig. 6

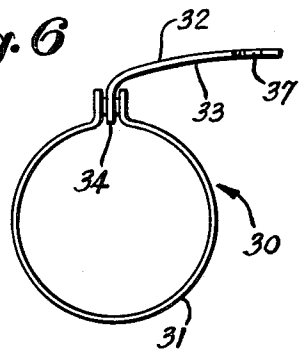
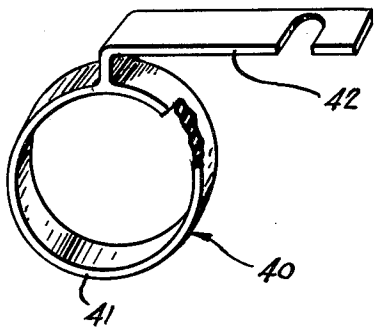


Fig. 8



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3,194,958

FLUORESCENT LAMP GUARD

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1 Claim. (Cl. 240—102)

This invention relates to a safety guard for fluorescent lamps and refers more particularly to a fluorescent lamp guard which can be used with any type of fluorescent lamp unit.

It is known in the art to provide safety guards for fluorescent lamp units to prevent the fluorescent lamps or tubes from accidentally dropping loose from their lampholders under the influence of vibration, etc. Examples of prior art safety guard construction and the reasons attending their use, are more fully described in applicant's U.S. patents, No. 2,448,236 and 2,687,516. In these and other prior art constructions, the safety guard is connected to the lampholder. It has been found, however, that from time to time, the shapes and sizes of the unit lampholders are changed. For example, more efficient and streamlined lampholders are now used, but these lampholders offer no surface of sufficient size to which prior art safety guards may be connected. On the other hand, if the lampholders can be utilized, the prior art safety guards must still be redesigned to fit the various lampholder shapes and sizes.

It is, therefore, the primary objective of the present invention to provide a safety guard for fluorescent lamp units which may be connected thereto wihout using the lampholders as connecting surfaces.

Another object is to provide a safety guard for fluorescent lamp units which may be used with any industrial or commercial fluorescent lamp unit.

Still another object is to provide a safety guard for fluorescent lamp units which in use supports the fluorescent lamp or tube with absolute security.

A further object is to provide a safety guard which is simple in construction and thus relatively cheap to make.

Another object is to provide a safety guard which is easily and quickly installed.

Another object is to provide a safety guard which is equally suited for use with standard, rapid start and high power output types of fluorescent lamps.

Other objects of the present invention will become apparent in the course of the following specification.

In achieving the aforementioned objectives of the present invention, it was found advantageous to provide a safety guard which comprises a ring portion which concentrically encloses a fluorescent tube near the end thereof. An L-shaped stem piece is firmly connected with the periphery of the ring, the short leg of the L extending radially outwardly of the ring. The longer leg of the L is provided with a slot adjacent its free end. In use the stem is connected to the underside of the lamp unit channel in the case of strip lighting units, or to the reflector in the case where reflectors are included in the unit, by means of a self-tapping sheet metal screw inserted through the slot. The stem thus firmly supports the ring portion which in turn supports the fluorescent tube.

In accordance with the present invention, the longer leg of the L-shaped stem piece may be slightly arcuate in shape to facilitate using the safety guard with lamp units of the so-called "narrow channel" type.

It is also possible to make the safety guard in a single piece construction from Plexiglas or Bakelite.

The invention will appear more clearly from the following detailed description when taken in conjunction with the accompanying drawings showing by way of example, the preferred embodiments of the inventive concept.

In the drawings:

FIGURE 1 is a front elevational view of a safety guard for fluorescent lamp units constructed in accordance with the principles of the present invention.

FIGURE 2 is a top view of FIGURE 1.

FIGURE 3 is a perspective view of the safety guard shown in FIGURES 1 and 2.

FIGURE 4 is a perspective view looking up into an industrial type fluorescent lamp unit anl illustrates the manner in which the safety guard of the present invention is used.

FIGURE 5 is an end elevational view in reduced scale of FIGURE 4.

FIGURE 6 is a front elevational view of another embodiment of the safety guard for use with industrial or commercial type fluorescent lamp units of the so-called "narrow channel" type.

FIGURE 7 is a transverse sectional view through a "narrow channel" type fluorescent lamp unit showing the manner in which the safety guard of FIGURE 6 is used.

FIGURE 8 is a perspective view of another embodiment of safety guard in which the safety guard is made in a single piece construction.

Throughout the specification, like reference numerals are used to indicate like parts.

Referring now in greater detail to the construction shown in FIGURES 1 to 5, the safety guard **10** is intended for use in fluorescent lamp fixtures of all types and sizes for supporting fluorescent tubes of the regular, 40 watt rapid start, and high power output types. High power output types are those of the 800 and 1500 milliampere class. In general, straight fluorescent tubes of the commonly referred to "T–12" type are 1½" in outside diameter except that certain high power output tubes of the commonly referred to "T–17" type are 2⅛" in outside diameter. The size of the support guard **10**, of course, may be varied for use with tubes of these and other diameters.

The support guard **10** comprises a ring portion **11** which is circular in shape, and the inner diameter of which is slightly larger than the outer diameter of the fluorescent tube with which it is to be used. The ring portion **11** is not a contiguous member, it being split at a point on the circumference and the two ends thereof bent out radially of the ring to provide spaced apart flanges **12** and **13**. Firmly connected with ring portion **11**, is an L-shaped stem piece **14**, the short leg **15** of which is located between and firmly connected with flanges **12** and **13**. The lengths of the short leg **15** and long leg **17** of the stem piece may be varied as required for use on the commercial and industrial fluorescent lamp units of various manufacturers so as to provide clearances etc. with the lampholder and reflector. In connecting short leg **15** with flanges **12** and **13** it was found preferable to use a spot weld as at **16**. Furthermore, it is preferable though not essential, that ring portion **11** and stem piece **14** be made of stainless steel as it simplifies fabrication, is corrosion free and is non-magnetic. The longer leg **17** of stem piece **14** which extends at a right angle with the short leg **15** is provided near its free end with a U-shaped slot **18** for receiving a self-tapping sheet metal screw **19** when connecting the safety guard to the underside of a fluorescent lamp unit reflector **21** (FIG. 4).

In operation:

Referring in more detail to FIGURES 4 and 5, the fluorescent lamp unit **20** comprises a channel member **22** wherein is carried ballast, wiring, etc. and to which is connected a reflector **21**. Lampholders **23**, **23***a* and **24**, **24***a* are provided at each end of the fixture for receiving

the fluorescent tubes **25** and **26**. Before inserting the tubes **25** and **26** in their respective lampholders, a pair of safety guards is slipped over each tube at the opposite ends thereof and side axially along the tube a distance from the tube ends. Each tube requires a left hand and a right hand guard. Thus tube **25** is provided with left hand and right hand guards **10***a* and **10***b*, and tube **26** is provided with left and right hand guards **10***c* and **10***d*. The reason for providing both a left hand and a right hand guard for each tube is that the stem pieces are preferably directed inboard of the tube with the open slots therein directed toward the tube ends.

The tubes **25** and **26** are then inserted in their lampholders. A small ⅛" pilot hole is then drilled through the reflector **21** alongside the slot **18** in each safety guard about 1½" from the lampholders. A self-tapping, sheet metal screw **19** is then inserted in each pilot hole and a few turns taken thereon. The pilot holes are preferably made at 1½" or more from the lampholders, so that sufficient clearance is left to manipulate the locking key on the reflector when it is taken down for cleaning, it being intended that the screws **19** will be loosened but not removed from the reflector during cleaning. The safety guards are then slid axially on the tubes until the slots in each stem piece engage the screws **19** as shown in FIGURE 4 (one safety guard on each tube only being shown engaging the screws for clarity). The self-tapping screws **19** are then taken up tight and the tubes are now firmly supported by the safety guards and cannot accidentally work loose from their lampholders by reason of vibration, etc.

FIGURES 6 and 7 show a somewhat different embodiment **30** of safety guard which is intended for use with lamp units of the so-called "narrow channel" type. It has a ring portion **31** to which is welded a substantially L-shaped stem piece **32**. The long leg **33** of the stem piece is not arranged at a right angle with the short leg **34**. Rather, it is arranged at a slightly larger angle therewith and is also arcuated as shown in FIGURE 6. As shown in FIGURE 7, the safety guard **30** is used with a "narrow channel" type unit **35** wherein it is preferable to have the stem piece **32** directed outboard of the lamps. In connection with the latter, if the stem piece was directed inboard of the tube, the slot **37** would be very close to being directly under the vertical leg of the channel which would make it impossible to insert the screws **38**. To make the stem piece slightly longer to clear the leg of the channel would be unsatisfactory from the standpoint of appearance. The long leg **33** of each stem piece is arcuated to match the contour of the underside of the reflector **36**. The arrangement of the safety guards **30**, slots **37** and self-tapping screws **38** in the same as that previously described.

FIGURE 8 illustrates still another embodiment **40** of safety guard wherein the ring portion **41** and stem piece **42** are made integral. In this construction, the safety guard is preferably made of Plexiglas or Bakelite and is easily made by injection moulding. The safety guard **40** is used in the same manner as previously described for the other embodiments.

It is seen, therefore, that the safety guard of the present invention offers advantages over prior art construction. For one thing, the safety guard is connected with the fixture by means of a self-tapping screw inserted in the reflector or channel of the fixture. Furthermore, the safety guard is easily and quickly installed and removed.

While there is above disclosed but some embodiments of the safety guard, it is possible to produce still other embodiments without departing from the scope of the inventive concept herein disclosed.

What is claimed is:

A safety guard for use on fluorescent tubes in fluorescent lamp fixtures, said safety guard comprising a ring portion adapted to concentrically enclose a fluorescent tube and having spaced apart ends, flanges firmly connected with each of said ends and extending radially outwardly of said ring portion in parallel spaced relation, and an angular stem piece for attaching said safety guard to a fluorescent lamp fixture, said stem piece having a shorter leg portion located intermediate said flanges and firmly permanently connected therewith, said stem piece further having a longer leg portion having a U-shaped slot near the end thereof, said U-shaped slot extending in the direction of the central axis of said ring portion.

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