

Aug. 4, 1964

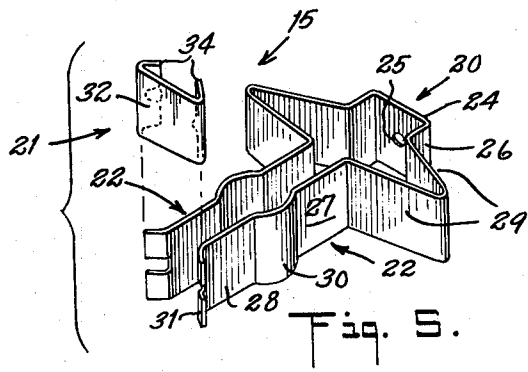
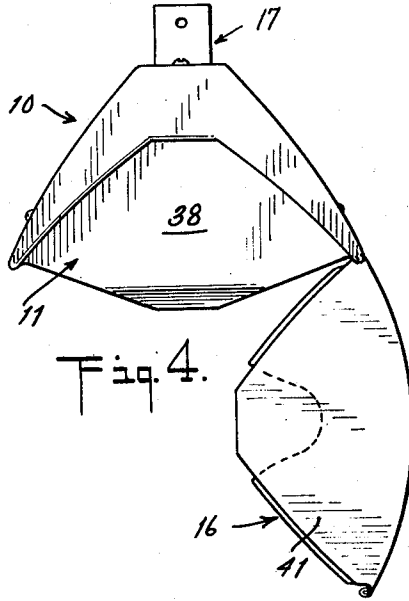
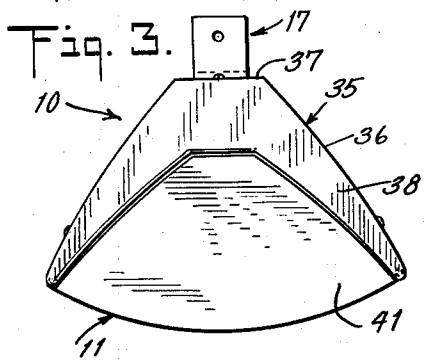
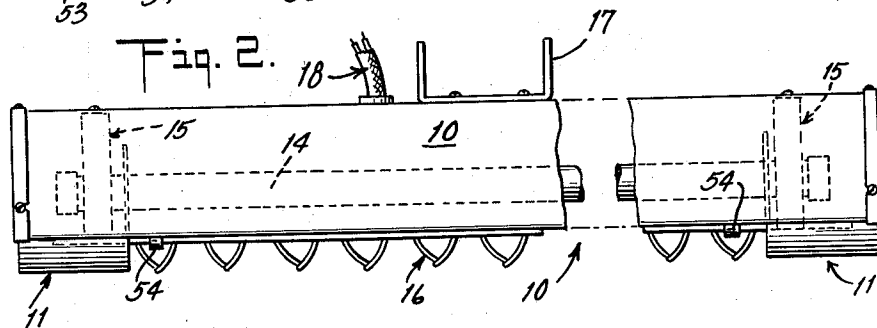
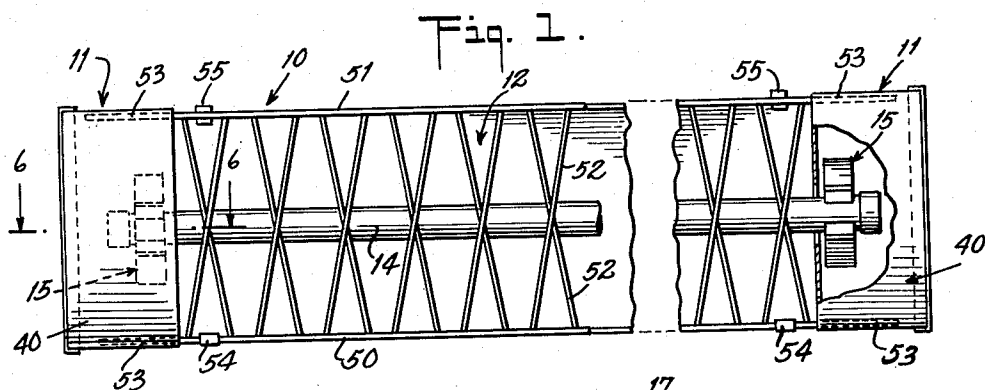
M. APPEL ET AL

3,143,629

HEATING LAMP

Filed March 5, 1962

3 Sheets-Sheet 1



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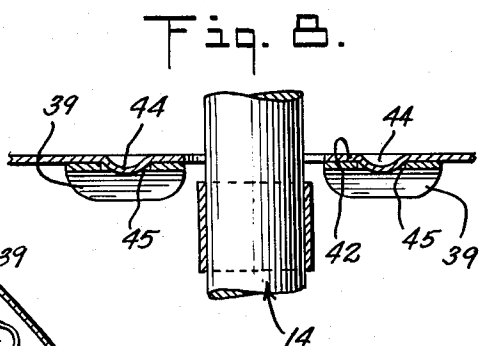
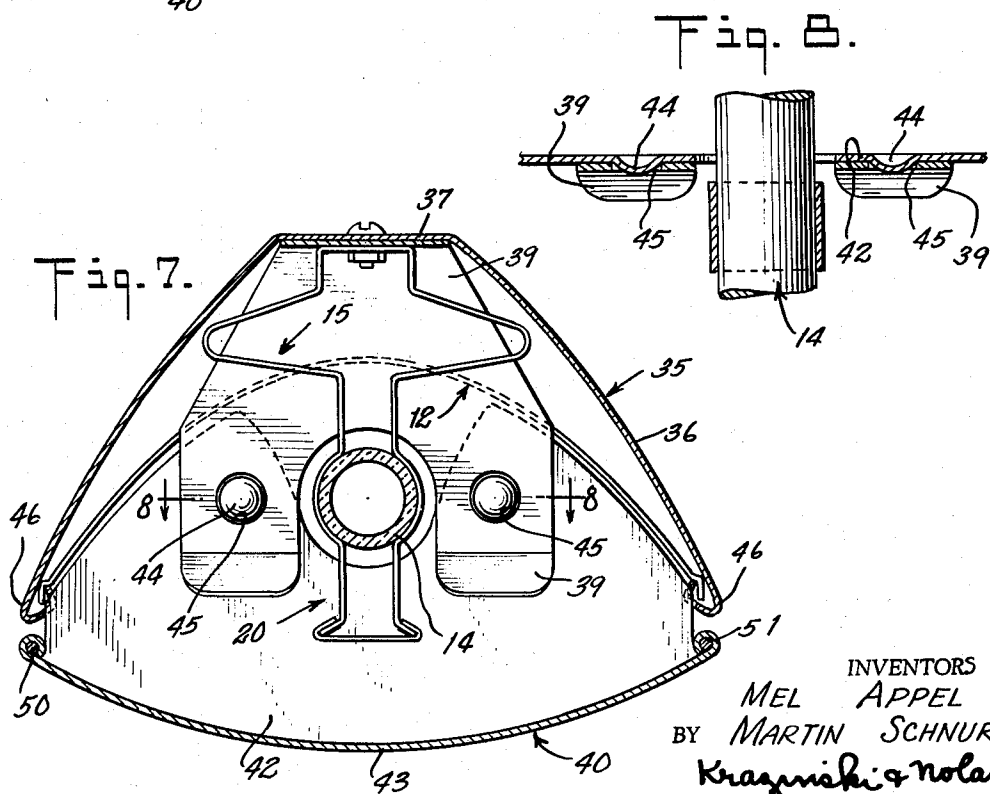
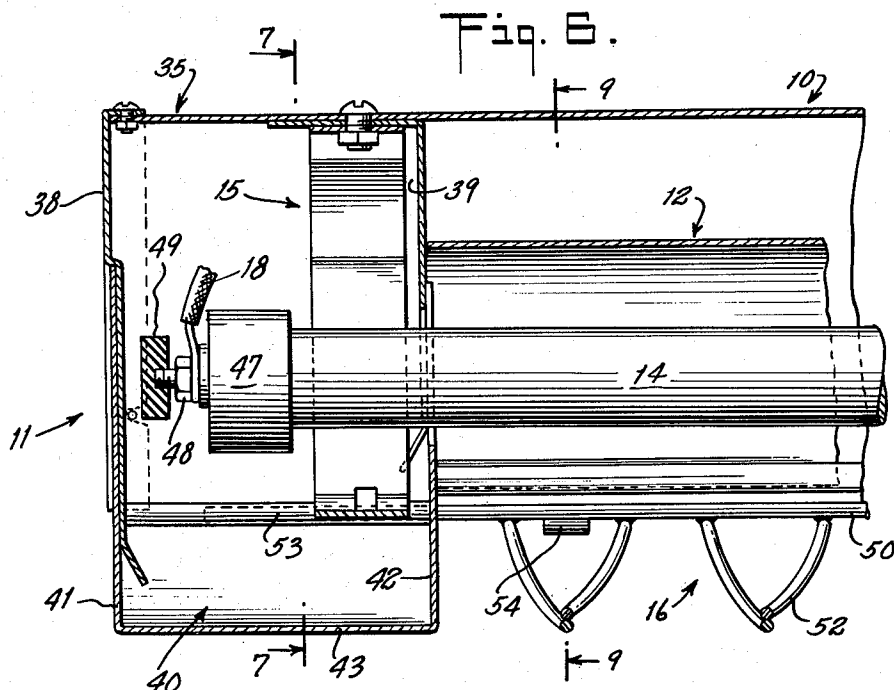
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Fig. 9.

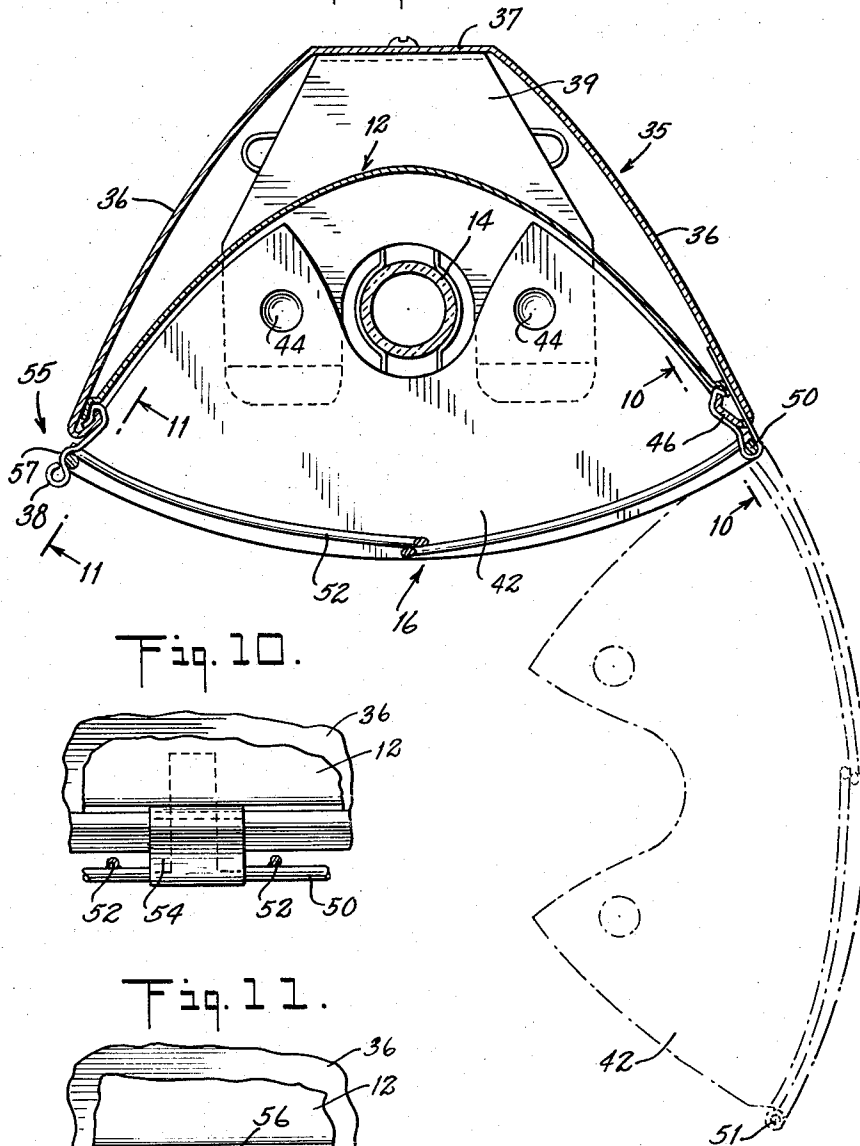


Fig. 10.

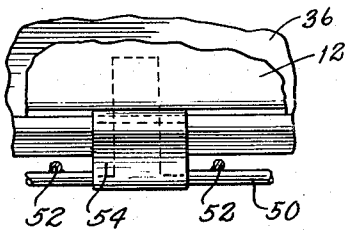
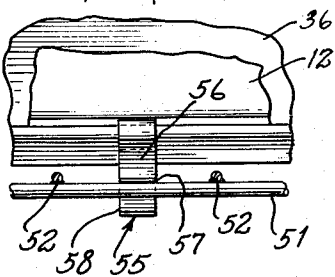


Fig. 11.



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3,143,629

HEATING LAMP

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6 Claims. (Cl. 219-347)

The present invention relates to electrical heating lamps and, more particularly, to an improved casing structure for elongate lamp elements.

The present invention aims to improve existing structures of the foregoing type to overcome various deficiencies and objections heretofore tolerated.

Accordingly, an object of the present invention is to provide an improved lamp casing structure which is simple and economical in construction and is readily assembled.

Another object is to provide such structure having improved mounting means for the ends of the lamp element.

Another object is to provide such mounting means which protect the lamp element against shock or vibration, are readily manipulated to install and remove the lamp element, and enable the lamp element to be disposed in a horizontal, vertical or inclined position.

Another object is to provide improved structure at the ends of the casing for enclosing the mounting means and the electrical connections for the lamp element.

Another object is to provide improved guard structure for the lamp element.

Another object is to provide such guard structure which is connected for moving a closure member for the end structure.

A further object is to arrange the guard structure and the closure member so that they are readily manipulated to install and remove lamp elements without completely detaching the guard and closure members from the casing, so that these members are replaced in their proper position without any skill or effort.

A still further object is to provide such guard structure which affords maximal protection against a person contacting a hot lamp while absorbing a minimum of heat radiated by the lamp elements.

Other and further objects will be obvious upon an understanding of the illustrative embodiment about to be described, or will be indicated in the appended claims, and various advantages not referred to herein will occur to one skilled in the art upon employment of the invention in practice.

A preferred embodiment of the invention has been chosen for purposes of illustration and description and is shown in the accompanying drawing, forming a part of the specification, wherein:

FIG. 1 is a fragmentary bottom plan view of the casing structure in accordance with the present invention.

FIG. 2 is a fragmentary side elevational view of the casing structure shown in FIG. 1.

FIG. 3 is an enlarged end view of the casing structure shown in FIGS. 1 and 2 as seen from either end with the guard structure in place.

FIG. 4 is a view similar to FIG. 3 with the guard structure displaced to install and remove lamp elements.

FIG. 5 is an exploded perspective view of a lamp mounting means in accordance with the present invention.

FIG. 6 is an enlarged sectional view taken along the line 6-6 of FIG. 1 illustrating the end structure of the casing and the guard structure in detail.

FIG. 7 is a sectional view taken along the line 7-7 on FIG. 6.

FIG. 8 is a sectional view taken along the line 8-8 on FIG. 7.

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FIG. 9 is a sectional view taken along the line 9-9 on FIG. 6 illustrating mounting and latch structure for the guard structure.

FIG. 10 is a fragmentary sectional view taken along the line 10-10 on FIG. 9 illustrating means for pivotally mounting one side of the guard structure.

FIG. 11 is a fragmentary sectional view taken along the line 11-11 on FIG. 9 illustrating means for latching the other side of the guard structure.

Referring now to FIGS. 1 to 4 of the drawings in detail, there is shown a heat lamp which generally comprises a casing 10 including end structure 11 and an intermediate reflector 12, an elongate heating lamp element or tube 14, means 15 within the end structure 11 for mounting the tube 14, guard structure 16 mounted across the open face of the reflector to prevent contact of the hot heating tube 14 (FIGS. 1 to 3) and adapted to be displaced (FIG. 4) to facilitate removal and replacement of tube 14, a bracket 17 for mounting the casing structure on a wall, ceiling or other support (not shown), and an electrical extension cord 18 for supplying electrical power to the lamp.

In FIG. 5, one of the tube mounting means 15 is shown which includes a tube clamping member 20 and a detachable clip 21 adapted for securement to the member 20 for maintaining the member 20 in clamping engagement with the tube.

The clamping member 20 is a strip of resilient metal, such as used for constructing springs. This strip is formed to comprise spaced apart, symmetrically opposite side portions 22 which are free at one end and are connected at the other end by a flat portion 24 provided with an aperture 25 for receiving a screw or rivet for effecting securement of the clamping member 20 within the end structure 11. Each of the side portions 22 has straight portions 26, 27 and 28 disposed in a plane perpendicular to the flat portion 24, laterally extending converging portions 29 between the portions 26 and 27, an arcuate portion 30 between the portions 27 and 28 for receiving the tube 14 and clamping the same, and an outwardly flared, bifurcated free end portion or tab 31 for receiving the clip 21 in the manner about to be described.

The clip 21 has a flat base portion 32 and inwardly flared tab portions 34 at opposite ends of the base portion 32 for receiving the portions 31 of the clamping member to urge the portions 31 towards each other.

The portions 29 have considerable length and these four portions together constitute a pair of oppositely bowed strip springs to absorb shock and vibration while the tube 14 is clamped in the mounting means. The end portions 31 by being split have the necessary resilience to facilitate attachment and retention of the clip 21 and to maintain the clamp in a state to absorb shock and vibration. Also, by making the tabs 31 more yieldable than other side portions, the tabs will yield upon application of the clip without undue forces being exerted on the tube by the clamp. The tube clamping means 15 just described permit the lamp to be mounted in any desired position while fulfilling their intended purpose.

The casing 10 further includes an elongate member 35 having sides 36 to provide a generally ogival cross-section and having a flat top portion 37 from which the sides depend and to which the bracket 17 is secured. From the description about to follow, it will become apparent that the member 35 serves as a common support for the end structure 11, the reflector 12, the tube mounting means 15 and the guard structure 16.

As shown in FIGS. 6 and 7, the end structure 11 includes a depending outer end plate 38 which is secured at its upper end to the end of the casing member 35 (FIG. 6), a depending inner plate member 39 secured to the

top portion 37 inwardly of the end thereof together with the clamp member 20 and being slotted at the middle thereof to allow the tube 14 to pass therethrough (FIG. 7); and a closure member 40 having an outer end face 41 in frictional engagement with the end plate 38 (FIGS. 3, 4 and 6) and an inner end face 42 in frictional engagement with the plate member 39 and having an arcuate bottom portion 43 closing the underside of the casing member 35 at the end zone thereof.

In order to accurately position the closure member 40 and lock the same in place, the plate member 39 is formed with projections 44 and the end face 42 is formed with openings 45 for receiving these projections (FIG. 8).

As described hereinafter, the closure member 40 is connected to the guard structure 16 for movement therewith, so that the guard and the closure can be displaced as a unit to remove and install lamp elements.

The reflector 12 as shown in FIGS. 6 and 7, is generally parabolic in cross-section and is supported at its lower ends by an upwardly and inwardly folded portion 46 at the lower ends of the casing member 35. The reflector extends lengthwise between the inner end faces 42 at the respective ends of the casing.

The lamp element or tube 14, as already described, is mounted at its ends by the clamping members 20 and, as shown in FIG. 6, each end of the tube 14 has an electrical connector 47 removably coupled thereto to which one wire of the extension cord 18 is secured at a terminal 48. The terminals 48 have an insulation 49 thereon to prevent electrically conductive contact being made with the end structure of the casing 10. The foregoing described arrangement allows the tube 14 to be removed by first displacing the guard 16 and the closure member 40, uncoupling the connectors 47, removing the clips 21 and withdrawing the tube 14. Similarly, the tube 14 can be installed by performing these operations in the reverse order.

As shown in FIGS. 1, 2, 6, 7, 9, 10 and 11, the guard structure 16 comprises a pair of elongate rods 50 and 51 each adapted to be disposed adjacent a lower edge of the casing member 35 and each having their ends secured at 53 to the closure members 40 at the respective ends of the casing for movement therewith; and wire elements 52 connected to the rods 50 and 51 and extending crosswise therebetween and beneath the bottom of the reflector 12 and the casing member from one closure member 40 to the other to thereby prevent a person from contacting the hot lamp element 14.

The rod 50 is pivotally mounted by a plurality of hinge clips 54 (FIGS. 1, 2 and 10) secured to one lower edge of the casing member 35 to enable the guard structure 16 and the closure members 40 to be swung away from the bottom of the casing member 35 to open its lower end for access to the tube 14 and its electrical connections (FIGS. 4 and 9). The rod 51 is adapted to be engaged by a plurality of resilient latches 55 (FIGS. 1 and 11) which are attached to the other lower edge of the casing member, so that the guard structure 16 may be releasably locked in a position to close the bottom of the reflector and the casing member 35 (FIGS. 1, 2, 9 and 11).

Each of the latches 55, as shown in FIGS. 9 and 11, has a yieldable finger 56 formed with a recess 57 for receiving the rod 51 and with a bead 58 at the free end to facilitate manual engagement for releasing the rod and to guide the rod into the recess 57 upon moving the guard structure into its closed position.

The guard elements 52 are arranged in pairs with their ends welded to the rods 50 and 51 at points so that the elements 52 of each pair cross directly beneath the tube 14 (FIGS. 1, 2, 6 and 9). In this manner, the heat radiated by the tube 14 and directed vertically downwardly is ob-

structed only by one thickness of the wire elements 52 at their crossing point, whereby a greater area of the reflector 12 and the tube 14 is exposed for radiating and directing heat than if all the wire elements were parallel to each other. Also, the cross-over arrangement of the wire elements 52 strengthens the guard structure, particularly when the elements of each pair are welded together at their crossing point.

From the foregoing description it will be seen that the present invention provides an improved heating lamp having novel and useful features and which can be fabricated in an economical manner and can withstand such rough usage to which it normally may be subjected.

As various changes may be made in the form, construction, and arrangement of the parts herein, without departing from the spirit and scope of the invention and without sacrificing any of its advantages, it is to be understood that all matters are to be interpreted as illustrative and not in any limiting sense.

What is claimed is:

1. In a heating lamp, the combination of an elongated casing member having an open bottom and side edges at the bottom, an outer end plate secured to each end of said casing member, an inner end plate secured to said casing member inwardly of each outer end plate, tube clamping means mounted between each of said inner and outer end plates, guard structure for the open bottom of said casing member, hinge means pivotally connecting one side of said guard structure to one side edge of said casing member, latch means at the other side edge of said casing member for releasably locking the other side of said guard structure, and a closure member secured to each end of said guard structure for movement therewith for enclosing the bottom portion of said casing member between said inner and outer end plates.

2. In a heating lamp according to claim 1, wherein said closure member has inner and outer faces for frictionally engaging said inner and outer plates, respectively.

3. In a heating lamp according to claim 2, wherein said inner faces and said inner plates have interengaging means for releasably locking said faces and plates.

4. In a heating lamp according to claim 2, wherein said inner faces and plates have aligned openings at the middle thereof to enable a heating tube to pass therethrough.

5. In a heating lamp according to claim 1, wherein said tube clamping means and said inner plate at each end of said casing member are secured to said casing member by common connecting means.

6. In a heating lamp according to claim 1, wherein said guard structure includes a rod at each side thereof one of which is pivotally mounted by said hinge means and the other of which is engaged by said latching means, and both of said rods at each end are secured to one of said closure members.

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