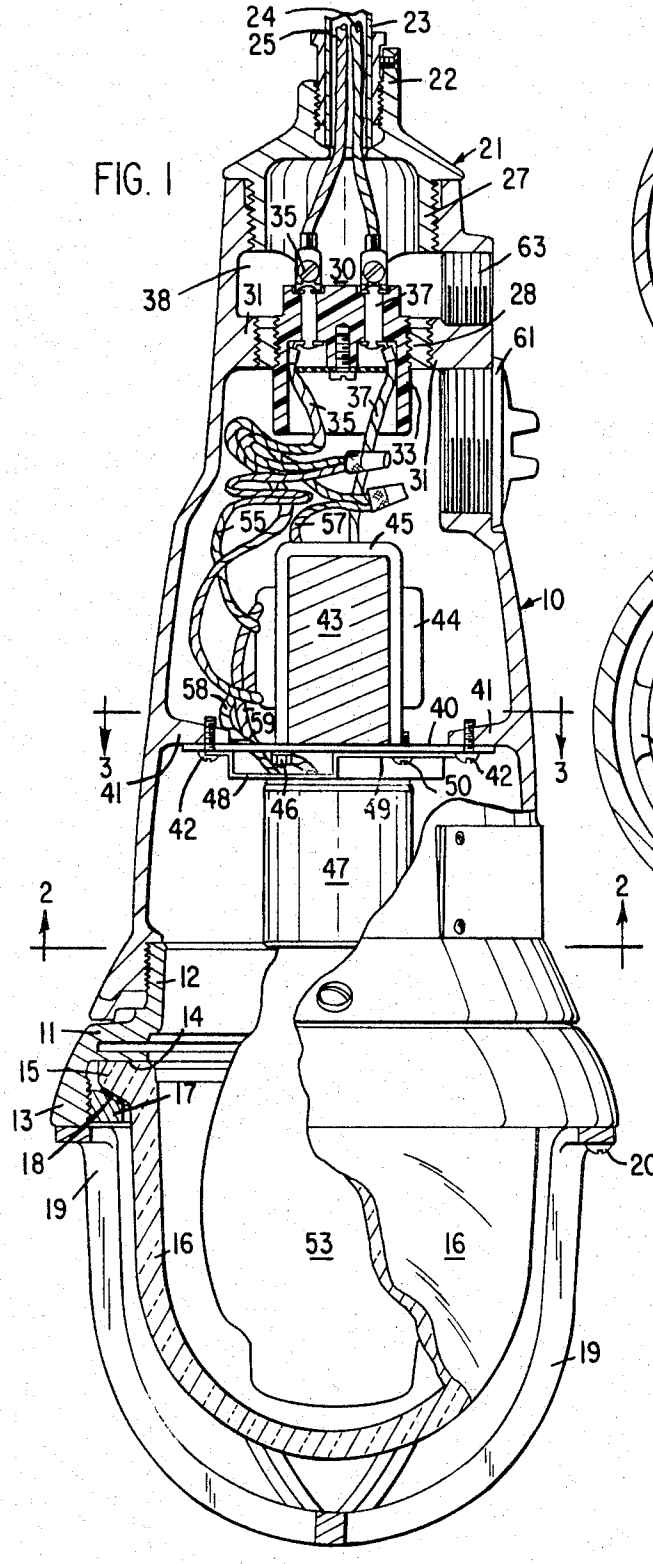
Jan. 16, 1968 D. J. GUNN 3,364,346

EXPLOSION-PROOF MERCURY LAMP LIGHTING UNIT

Filed Sept. 16, 1966

FIG. 1



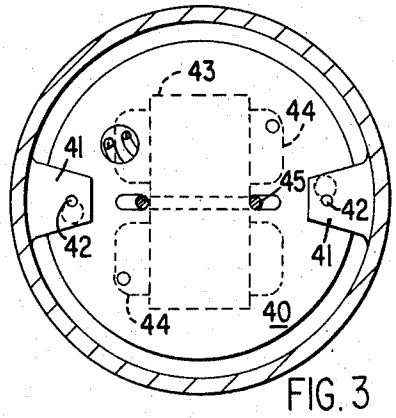


FIG. 3

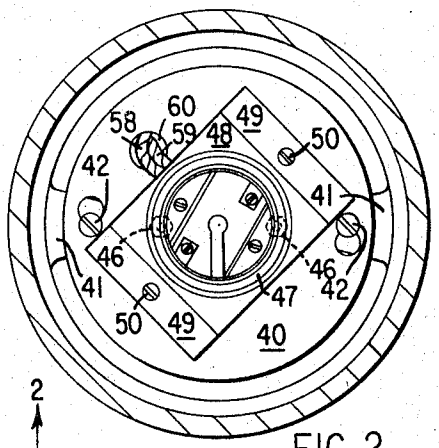


FIG. 2

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EXPLOSION-PROOF MERCURY LAMP LIGHTING UNIT

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3 Claims. (Cl. 240—11.4)

This invention relates to explosion resisting lighting units of the type employing a mercury vapor lamp as a light source. The mercury vapor lamp requires a ballast choke in the lamp circuit. In operation, the ballast generates an appreciable amount of heat.

Heretofore, the ballast was encapsulated in resin material, or potting compound. This encapsulation, and the manner in which the ballast was mounted in the lighting unit, or separate enclosure, prevented the sufficient transfer of heat from the ballast whereby, during operational periods of substantial length, the ballast became overheated and failed.

In such arrangements wherein the ballast was mounted within the lighting unit, disassembly of substantially the entire lighting unit was necessary in order to replace the defective ballast. Accordingly, the maintenance of such lighting units was costly.

The invention has as an object an explosion resisting lighting unit embodying a structural arrangement whereby the ballast and lamp receptacle assembly is mounted within the body of the unit in heat exchanging relation thereto, and the assembly can be conveniently inserted and removed from the lighting unit.

The invention consists in the novel features and in the combinations and constructions hereinafter set forth and claimed.

In describing this invention, reference is had to the accompanying drawings in which like characters designate corresponding parts in all the views.

In the drawings:

FIGURE 1 is a vertical, sectional view of a lighting unit embodying my invention, with a portion shown in elevation. The supporting member, body and globe assembly are all of symmetrical circular cross section.

FIGURE 2 is a view taken on line 2—2, FIGURE 1.

FIGURE 3 is a view taken on line 3—3, FIGURE 1.

10 designates an elongated tubular body formed of heat conducting material, such as aluminum. The open upper and lower ends are provided with internal threads. A globe assembly is detachably secured in flame tight relation to the lower end of the body.

The globe assembly, in the form shown, includes an annular member **11** having an upwardly extending cylindrical flange **12**. The flange **12** is threaded into the lower end of the body **10**, and the annular member **11** is formed with a depending cylindrical flange portion **13**, offset radially outwardly from the flange **12** to provide an annular shoulder **14** against which the rim **15**, encircling the upper end of a globe **16**, is positioned. The rim **15** of the globe **16** is clamped against the shoulder **14** by a ring member **17** threaded into the flange **13**. A gasket **18** is positioned between the rim **15** of the globe and the ring **17**. A guard **19** may be attached to the flange **13**, as by screws **20**.

A supporting member **21** is secured to the upper end of the body **10**, and is formed with an internally threaded hub **22** for attachment to a conduit **23** containing the feed wires **24**, **25**, for the unit. The supporting member **21** is formed with an upper externally threaded cylindrical portion **27** which threads into the upper end of the body **10**. The member **21** is also formed with an externally threaded lower cylindrical portion **28** which is connected to and spaced downwardly from the upper portion **27** by diametrically positioned ribs **30**. The lower cylindrical portion **28** is threaded into a cylindrical flange **31** extending inwardly from the inner surface of the body **10** and spaced downwardly from the upper end of the body. The cylindrical portion **28** is closed by a plug **33** of insulating material. Conductors **35**, **37**, in the form of terminals, are embedded in the plug **33** in flame tight relation in respect thereto. With this arrangement, the supporting member **21**, in conjunction with the body **10**, forms a flame tight compartment **38**.

A metal plate **40** is mounted in the body intermediate the support member **21** and the globe assembly. The plate **40** is secured to bosses **41** extending inwardly from the side wall of the body, this attachment being by way of screws **42**. A ballast, consisting of an iron core **43** and coils **44**, is mounted on the upper side of the plate **40**. The core **43** is clamped tight against the plate **40** by a hold-down member **45** in the form of a U bolt having its ends extending through apertures in the plate **40** and provided with nuts **46**. By this arrangement, the ballast is mounted in heat exchanging relation to the plate **40** which, in turn, is mounted in heat exchanging relation to the body **10**.

A lamp receptacle **47** is attached to the under side of the plate **40**, as by a bracket **48**. The ends of the bracket **48** are formed with offset flanges **49** attached to the plate by screws **50**.

With this arrangement, heat generated by the lamp **53** and the ballast is conducted by plate **40** into the body **10** and is radiated therefrom by its large surface area.

The lighting unit is installed by attaching the canopy, or support member **21** to the conduit **23**. The feed wires **24**, **25**, are attached to the terminals of conductors **35**, **37**. This hook-up being convenient as the terminals are exposed between the ribs **30** of the supporting members. The body **10** is then threaded onto the supporting member. Thereafter, the conductors **35**, **37**, are connected to wires **55**, **57**, extending to the ballast. The output of the ballast is connected to the receptacle **47** by wires **58**, **59**, extending through an aperture **60** formed in the plate **40**. This hook-up is made through a work opening formed in the side wall of the body **10** and thereafter closed by a threaded plug **61**. The body is also formed with an inspection opening closed by plugs **63**, this opening, upon removal of the plug, permitting inspection of the connection of the terminals of the conductors **35**, **37**.

The lower end of the body **10** is of greater diameter than the plate **40** of the receptacle ballast assembly, whereby upon removal of the globe assembly from the body, the ballast assembly can be removed through the lower end of the body.

It will be apparent from the structure described that the lighting unit is convenient to assemble and to install, and the ballast is contained within the body of the unit in heat exchanging relation therewith.

What I claim is:

1. An explosion resisting lighting unit having a mercury vapor lamp, said unit comprising a metallic tubular body, a globe detachably secured to the lower end of said body and forming a flame tight closure therefor, a supporting member secured to the upper end of the body and being formed at its upper end with means for attachment to a conduit containing the feed wires for the unit, said supporting member being closed at its lower end and forming in conjunction with the body a flame tight compartment communicating with said conduit, a lamp receptacle and ballast assembly mounted in said body, said assembly comprising a metallic plate detachably secured in said body in heat conducting relation thereto and extending transversely of the body intermediate the closed end of said supporting member and said globe, an iron core ballast mounted on the upper surface of said plate, means clamping the core of said ballast against said plate in heat con-

ducting relation thereto, and a lamp receptacle fixed to the underside of said plate, conductors sealed in the closed end of said supporting member and extending from said compartment into the area above said assembly, said conductors being connected to said ballast and said ballast being connected to the terminals of the lamp receptacle.

2. An explosion resisting lighting unit as defined in claim 1, and wherein said lamp receptacle and ballast assembly are removable through the lower end of said body upon removal of said globe from the body.

3. An explosion resisting lighting unit as defined in claim 1 wherein said body is formed with a work opening in the said wall thereof intermediate said support member and said assembly, and a flame tight closure for said work opening.

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