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JACKETED AND DOUBLE ENDED LAMP UNIT

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Fig. 1.

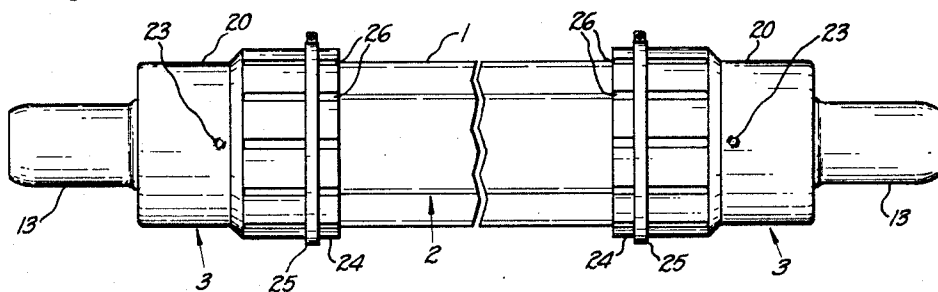
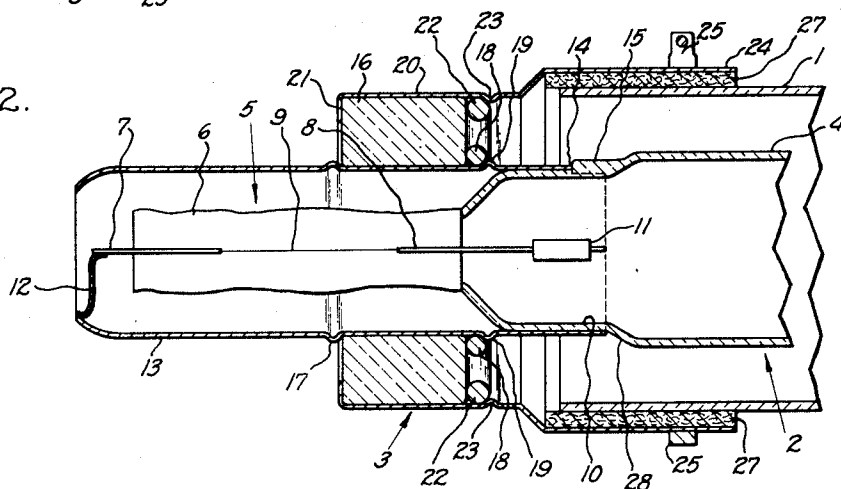


Fig. 2.



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JACKETED AND DOUBLE ENDED LAMP UNIT

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2 Claims. (Cl. 240—11.4)

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The present invention relates to electric lamp units of the type comprising a double-ended elongated electric discharge lamp mounted in an elongated light transmitting jacket and the principal object of the invention is to provide a lamp unit of this type which is readily assembled and disassembled, provides a positive physical connection between the lamp envelope and the jacket and protects the externally protruding lamp stems from accidental injury.

Further objects and advantages of the invention will be apparent from the following description of a specie thereof and from the accompanying drawings, in which Fig. 1 is a side elevational view of a lamp unit embodying the invention and shown broken in the middle to indicate greater length and Fig. 2 is a fragmentary side elevational, partly sectional view of one end of the lamp unit shown in Fig. 1.

Referring to the drawing, the lamp unit comprises an elongated, tubular light transmitting quartz or hard glass jacket 1 in the form of a tube held around an elongated tubular electric discharge lamp 2 by a pair of identical bases 3 readily attachable to and detachable from the ends of both the jacket 1 and the envelope 4 of the lamp 2.

The lamp 2, as best shown in Fig. 2, has at each end of its elongated tubular quartz envelope 4 an externally protruding stem 5 made up of a quartz stem tube 6 hermetically united with the quartz envelope 4 and a current conductor extending through the stem 5 and consisting of two stiff wires 7 and 8, of tungsten or molybdenum for example, attached to a thin metal foil strip 9, such as a molybdenum foil strip, to which the quartz stem tube 6 is hermetically united. Obviously, thick foils may be used instead of wires 7 and 8. Wire 8 extends beyond the internal end of the stem tube 6 and into the neck 10 of envelope 4 to support the electrode 11. The envelope 4 is provided with a sealed off exhaust tubulation, not shown, through which, prior to being sealed off, the envelope 4 during manufacture of the lamp is exhausted of air and filled with a starting gas, such as argon, at a pressure of about 9 to 25 mm. The envelope 4 is also provided with a measured small amount of mercury sufficient to produce a high pressure, unsaturated vapor atmosphere at the operating temperature of the envelope 4. Commercial lamps of this structure are capable of dissipating 1200 watts during operation.

The wire 7 of the conductor extends beyond the external end of the stem tube 6 and is pro-

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vided with a flexible wire 12 of metal for connection to the base 3 as described below.

Each base 3 includes a stiff metal sleeve 13 enclosing the stem 5 and fitting around the neck 10 of the envelope 4 with slight play between the neck and the sleeve to protect the lamp from physical shocks. The sleeve 13 has a longitudinal slot 14 in its end portion around the neck into which extends the rib 15 on the neck 4 to prevent relative rotation between the envelope 4 and the sleeve 13. The opposite end of the metal sleeve is partially closed but provides an opening of sufficient size to give access to the current lead 12 which is attached to the inner surface of the sleeve adjacent its said end, preferably by silver soldering, after the jacket 1, the lamp 2 and the base 3 have been assembled as described hereinafter.

An annular, electric insulator 16, of porcelain or lava, for example, is tightly mounted on the sleeve 13 being held in fixed position thereon by the roll flange 17 on the sleeve wall against which the insulator 16 is held by the metal snap ring 18 forced against the insulator by four protuberances 19 in the sleeve 13 and spaced apart an angular distance of 90 degrees.

Each base 3 also includes a metal skirt 20 tightly secured to periphery of the insulator 16 by an inwardly extending flange 21 thereof engaging one side of the insulator 16 and by a snap ring 22 inside the skirt 20 and forced against the other side of the insulator 16 by the four indentations 23 spaced 90 degrees apart in the wall of the skirt 20.

Each base 3 is secured to the end of the jacket 1 by the portion 24 of the skirt 20 overlapping the end portion of the jacket 1 and clamped thereto by the metal clamping band 25. The portion 24 of the skirt 20 is provided with a multiplicity of longitudinally extending slits 26 so as to be readily compressible by the clamping band 25. In assembling the lamp unit, a strip 27 of asbestos paper moistened with a solution of sodium silicate is wrapped around the end portion of the jacket 1 before the slit portion 24 of the skirt 20 is slipped over the end of the jacket 1.

It is apparent from the foregoing that the lamp unit shown and described is readily assembled and disassembled and is held together when assembled by the readily accessible and releasable clamping bands 25. In assembling the unit, one end of the lamp 2 with the flexible lead 12 attached to the stiff outer lead 7 thereof is slipped into the sleeve 13 of a preassembled base 3 with the rib 15 engaging the sides of the slot 14. An

end of jacket 1 provided with the strip 27 is then inserted in the skirt 20 of the base 3 and the clamping band 25 may then be tightened to clamp the skirt around the end of the jacket. The opposite base 3, also preassembled, is then slipped onto the opposite end of the lamp 2 and the jacket 1 and the clamping band 25 at that end of the lamp is tightened to complete the assembly of the unit except for fastening the flexible leads 12 to the inner surface of the sleeves 13 at the ends of the unit. Slight play is allowed between the shoulders 28 of envelope 4 and the ends of the sleeves 13 to protect the lamp from physical shocks.

The unit is readily disassembled, for lamp replacement purposes for example, by loosening one of the clamping strips 25, separating the connection between the wires 7 and the sleeves 13, removing from the unit the base 3, the band 25 of which has been loosened, and then withdrawing the lamp 2 from the jacket 1 and the base 3 still attached thereto. A new lamp 2 may be then slipped into the jacket 1 and into the one base 3 which is still secured to the jacket, and the opposite base 3 may be replaced and resecured to the jacket 1. The flexible leads 12 on the replacement lamp may then be fastened to the sleeves 13 as described above.

The lamp unit is a rigid one with slight play between the lamp 2 and the sleeves 13 and the parts thereof are held in predetermined relationship to each other to the end that the unit may be mounted with accuracy in lighting or other equipment in which precise positioning of the light source is critical for obtaining the desired results. Also the lamp stems 5 are adequately protected from accidental injury by the surrounding stiff metal sleeves 13.

What I claim as new and desire to secure by Letters Patent of the United States is:

1. A lamp unit comprising in combination a double-ended tubular electric discharge lamp having stems protruding from the ends of its envelope, a light transmitting tubular jacket around said lamp, and bases at the ends of said unit holding said lamp and said jacket in predetermined spaced relation, each of said bases comprising a stiff metal protective sleeve around the end portion of the lamp envelope and extend-

ing around and beyond the protruding stem thereon, each of said sleeves having an external roll flange in its wall between its ends, an annular inelastic insulator fitting around said sleeve, a split snap metal ring forcing said insulator tightly against said flange, said ring being held against said insulator by radially spaced protuberances on said sleeve, and a metal skirt tightly secured to the peripheral portion of said insulator and clamped around the end portion of said jacket whereby said unit is capable of accurate mounting by said sleeves in equipment designed therefor and said stems are protected by said sleeves.

2. A lamp unit comprising in combination a double-ended tubular electric discharge lamp having stems protruding from the ends of its envelope and ribs extending longitudinally along its end portions, a light transmitting tubular jacket around said lamp, and bases at the ends of said unit holding said lamp and said jacket in predetermined spaced relation, each of said bases comprising a stiff metal protective sleeve around the end portion of the lamp envelope, each of said sleeves having a slot engaging the rib on the corresponding end portion of the envelope, extending around and beyond the protruding stem thereon and having also an external roll flange in its wall between its ends, each of said bases comprising also an annular inelastic insulator fitted around said sleeve and a split snap metal ring forcing said insulator tightly against said flange, said ring being held against said insulator by radially spaced protuberances on said sleeve, and a metal skirt tightly secured to the peripheral portion of said insulator and clamped around the end portion of said jacket whereby said unit is capable of accurate mounting by said sleeves in equipment designed therefor and said stems are protected by said sleeves.

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