

June 7, 1949.

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2,472,180

FLUORESCENT INSPECTION LAMP

Filed Feb. 1, 1946

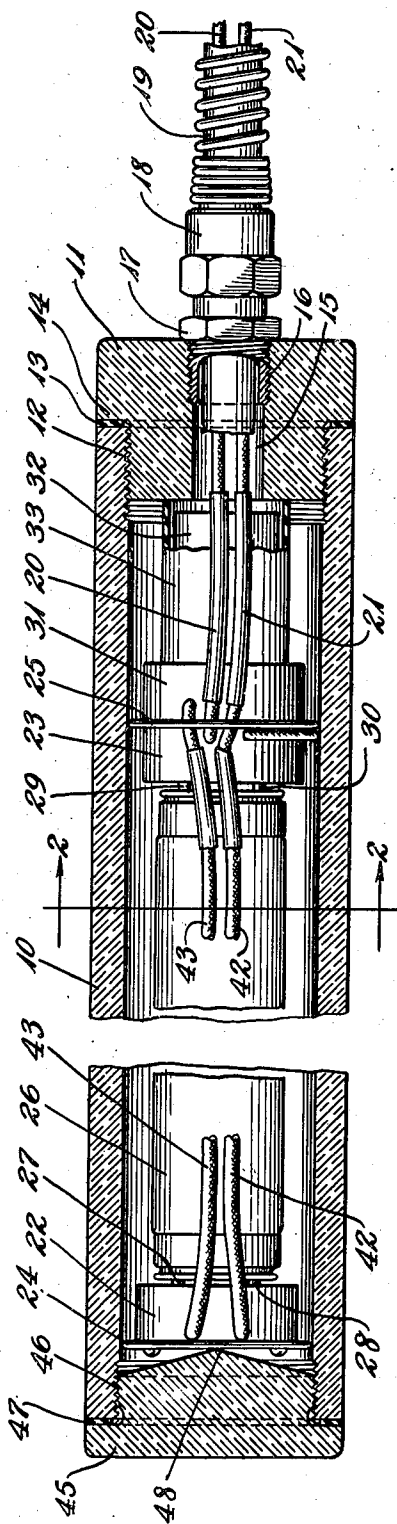


Fig. 1

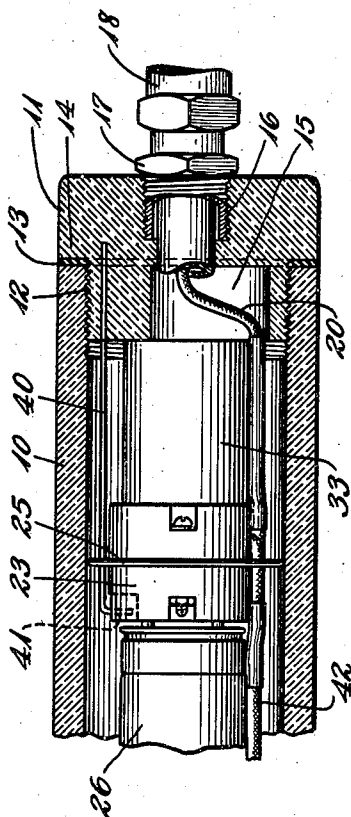


Fig. 2

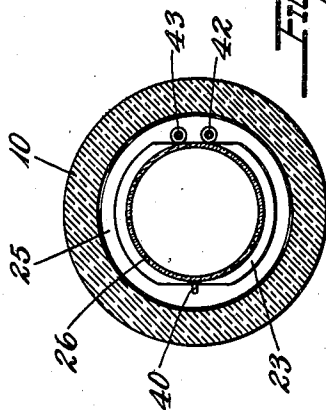


Fig. 3

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UNITED STATES PATENT OFFICE

2,472,180

FLUORESCENT INSPECTION LAMP

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Application February 1, 1946, Serial No. 644,873

4 Claims. (Cl. 240—11.4)

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This invention relates to fluorescent inspection lamps and is especially useful in providing a lamp adapted to be passed through small openings of a container for examining the inside of the container.

Objects of the invention are to provide an inspection lamp that is explosion proof, permitting its use in the presence of inflammable gases. Other objects are to provide high resistance to breakage; to provide a maximum amount of light free from shadows; to provide resistance to mechanical shock and breakage; to provide insulation against electrical shock; to provide an article of light weight; to provide ease of handling; to provide a high degree of light at low temperatures; to provide a lamp which may be passed through small openings; to provide secure sealing of the connections; to provide centering of the fluorescent element with respect to its protective casing; to provide good pressure at all electrical connections and to facilitate replacement and repair of the fluorescent element and starter.

These and other objects will appear from the following description and the accompanying drawings.

Of the drawings,

Fig. 1 is a central longitudinal section of an inspection lamp constructed in accordance with and embodying the invention, parts being broken away.

Fig. 2 is a cross section thereof taken on line 2—2 of Fig. 1.

Fig. 3 is a central cross sectional view of one end of the inspection light taken at 90° to the section of Fig. 1.

Referring to the drawings the numeral 10 designates a tube of transparent plastic material having a high resistance to breakage and of a nature adapted to be machined readily. The tube is preferably of polymerized methyl methacrylate or other suitable plastic material having the property of readily conducting light. One end of the tube 10 is provided with a closure member 11, also of transparent plastic material such as that of the tube 10. The tube and the closure member are provided with threads 12 whereby they may be removably secured to each other, and a sealing gasket 13 may be provided between the ends of the tubes and a flange 14 of the closure member. The closure member has a central passage 15 therethrough and this passage is threaded as at 16 to receive a threaded bushing 17 of a cable sealing and strain resistor member 18 through which the flexible cable 19 extends. The cable encloses supply wires 20, 21 which are connected

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through the usual ballast (not shown) to power lines for supplying electric current. Within the transparent tube a pair of opposed fluorescent socket members 22, 23 are mounted upon discs 24, 25 respectively, of insulating material which engage the inner walls of the tube and center the sockets within the tubes. Between the sockets the fluorescent lighting element 26 of the ordinary construction having contact pins 27, 28 at one end thereof for engaging in the socket 22 and contact pins 29, 30 for engaging in the socket 23 is mounted between the sockets 22 and 23 so as to be concentrically arranged with respect to the transparent tube 10.

A starter socket 31 is mounted on the insulation disk 25 at the opposite side from the socket 23 for receiving the starter 32. For insulating the starter 32 and providing a housing therefor while at the same time spacing the socket 31 from the closure member 11, a tube 33 of insulating material such as fiber is provided and is arranged with one end abutting against the closure member 11 and the other end abutting the starter socket 31. For further supporting the socket 23 from the closure member 11 a rod 40 preferably of wire has one end fixed in the closure member and the opposite end is bent inwardly as at 41 and is secured to the socket 23. Wires 42, 43 connect the socket 22 to the socket 23 for supplying current to the opposite end of the fluorescent element and these wires extend through the spacing disk 25 and along the fluorescent element between the element and the inner wall of the tube 10.

For holding the socket 22 at the far end of the light in contact with the fluorescent element, for supporting all of the parts within the tube in proper relation to each other, and to seal the far end of the tube 10 against entrance of inflammable gasses or vapors, a second closure member 45 is removably secured to the far end of the tube 10 and for this purpose the end of the tube and the closure member are provided with cooperating screw threads 46. For sealing the threaded joint a sealing gasket 47 may be provided. For applying centralized pressure to the parts contained within the tube 10, the pressure member is preferably formed with a conical nose 48 which engages the disk 24 only at its center. The disk 24 which is preferably of thin compressed fiber insulation, is of a resilient nature and the single point engagement of the closure member with the disk provides equalized pressure on the contacts of the fluorescent tube which, due to the resilience of the disk 24, prevents any loose electrical contacts.

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The invention provides an inspection lamp which is not readily broken, which is sealed against flame and which provides substantially shadowless light in all directions. Replacement of the fluorescent element may be readily accomplished by removal of the closure member 45 whereupon the socket 22 may be readily withdrawn from the end of the fluorescent element, the wires 42 and 43 being sufficiently long to permit such removal without disconnecting the wires. The fluorescent element may then be removed and replaced through the open end of the tube 10. The removable nature of the closure member 11 permits access to the starter 32 for replacement.

Variations may be made without departing from the scope of the invention as it is defined by the following claims.

I claim:

1. A fluorescent inspection lamp comprising a tube of transparent plastic material having threaded ends, a fluorescent lighting element arranged within the tube, a starter mounted within the tube at one end of the element, a closure member of transparent plastic material removably threaded to one end of the tube and having a passage therethrough for a flexible supply cable, said cable being sealed within said passage, a second removable closure member of plastic material threaded to the opposite end of said tube, a spacing tube surrounding said starter for spacing said element from the first said closure member, means at the second said closure member for holding said element, said starter, and said spacing tube against the first said closure member, said means comprising a central protuberance of the second said closure member and a resilient disc mounted between said protuberance and said element and resiliently supporting said element from said closure member, and means for sealing said closure members to said tube.

2. A fluorescent inspection lamp comprising a tube of transparent plastic material having threaded ends, a fluorescent lighting element extending longitudinally within the tube, a starter mounted within the tube at one end of the element, a threaded closure member of transparent plastic material removably secured to one end of the tube and having a passage therethrough for a flexible supply cable, said cable being sealed within said passage, a second removably threaded closure member of plastic material at the opposite end of said tube, a spacing tube surrounding and

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housing said starter of a length exceeding said starter for spacing said element from the first said closure member and holding said element against the second said closure member said threaded closure members permitting adjustment to accommodate variation in the length of said element while maintaining said element in place, and means for sealing said closure members to said tube.

3. A fluorescent inspection lamp comprising a tube of transparent plastic material having a bore and internally threaded end portions, a fluorescent lighting element arranged longitudinally of said tube with contact terminals at each end thereof, socket members at opposite ends of said lighting element and engaging said contact terminals, discs of resilient insulating material mounted on said socket members and engaging the said bore of the tube for centering said lighting element, a starter removably mounted on one of said discs, a threaded closure member engaging one threaded end of said tube and having a passage therethrough for a flexible supply cable, means for sealing said supply cable in said passage, a tubular spacer of insulating material between the disc on which said starter is mounted and said closure member surrounding and housing said starter, said tubular spacer exceeding the length of said starter so as to transmit the columnar stress of the assembly, a second threaded closure member engaging the threads at the opposite end of said tube, said second closure member having a central protuberance for engaging the center of the disc at the opposite end of the tube and with said disc resiliently holding said element in contact with said socket members, and means for sealing said closure members to said tube.

4. A fluorescent inspection lamp as defined by claim 3 in which said second closure member has a conical face providing said central protuberance as a relatively small bearing surface.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
2,336,750	Roney et al.	Dec. 14, 1943
2,347,174	Cross et al.	Apr. 25, 1944