

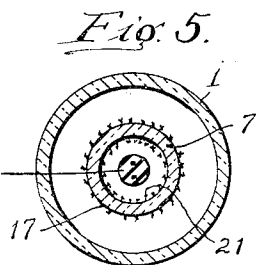
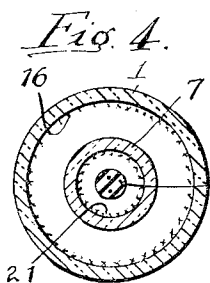
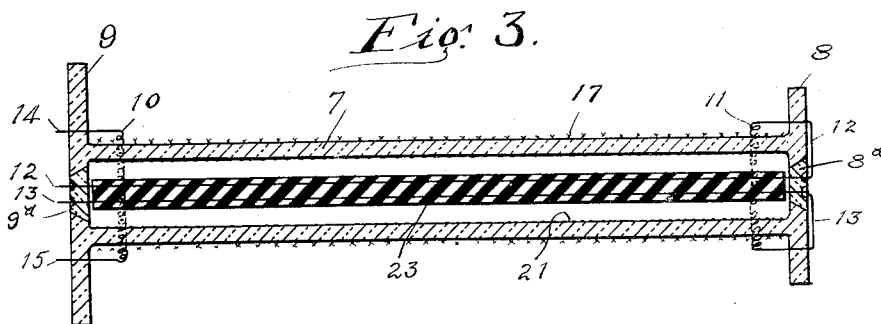
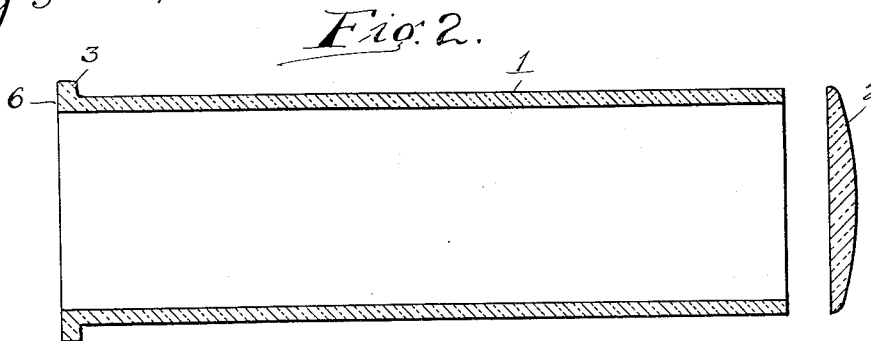
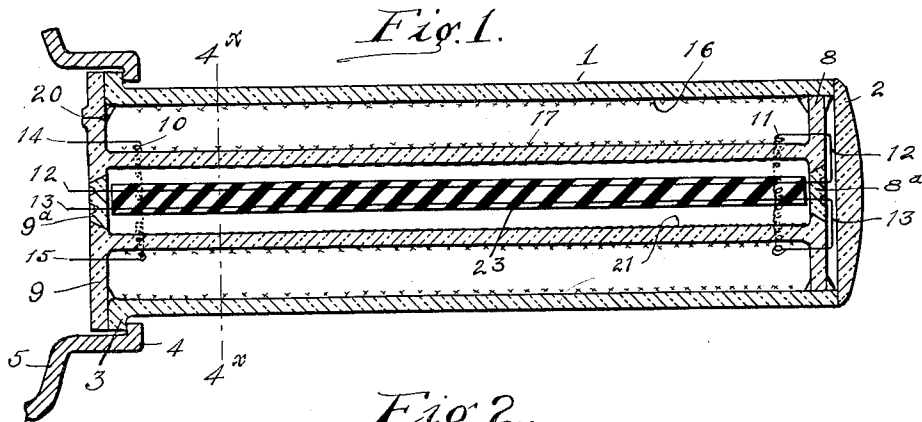
Dec. 28, 1948.

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2,457,503

REFLECTING VAPOR LAMP

Filed Sept. 20, 1946



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2,457,503

REFLECTING VAPOR LAMP

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Application September 20, 1946, Serial No. 698,173

2 Claims. (Cl. 176—122)

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This invention relates to electric lamps of the kind in which an electric discharge is initiated between electrodes located in an envelope containing a body of gas composed in part of a metal vapor.

My invention has for its object to provide an electric discharge lamp provided with a coating of fluorescent or luminescent material which supplements the spectrum of visible light emitted by employing an inner core also provided with a coating of similar material whereby the intensity of the emitted light rays is greatly increased.

Another object of my invention is to provide such a lamp with an inner hollow cylindrical core of transparent material having an inner silvered reflecting surface which acts to reflect all the light developed by the combined action of the electric discharge and the luminescent material outwardly circumferentially in all directions from the lamp.

Still another object of my invention is to provide an electric discharge lamp having one or more fluorescent coated surfaces with an inner core or spool of glass which may be suitably colored to influence the appearance of the light rays emitted by the lamp as desired.

To these and other ends the invention embodies further improvements all as will be fully described in the accompanying specification, the novel features thereof being set forth in the accompanying claims.

In the drawings:

Figure 1 is a longitudinal view of a gaseous discharge lamp constructed in accordance with my invention.

Figure 2 is a similar view of the envelope thereof illustrating its construction.

Figure 3 is a longitudinal sectional view of the inner core or spool construction carrying the electrodes.

Figure 4 is a transverse sectional view taken on the line 4*—4* of Fig. 1 illustrating the application of fluorescent coatings on the interior of the envelope and the exterior of the core, and,

Figure 5 is a similar view showing the fluorescent coating applied to the exterior of the core.

Similar reference characters in the several figures indicate similar parts.

A lamp embodying my invention comprises an outer transparent glass envelope 1 preferably made from a cylindrical tube, the outer end of which is sealed by a glass disc 2 welded thereto. At its opposite or inner end the envelope has a lateral flange 3 which serves the dual purpose of providing a seat for the rim 4 of a suitable holder

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or mounting 5, and also a plane face 6 against which the interior fittings of the lamp are welded.

Within the envelope or outer shell 1 I provide a core or spool. It may be made of a transparent tube 7 of either plain or colored glass provided at its outer end with a disc 8 fitting the circumference of the shell 1 and adapted to be fixed thereto. A similar disc 9 slightly larger in diameter is formed integrally with the inner end of the tube 7 and welded to the seat 6 thereon.

Electrodes comprising wire coils 10 and 11 surround the core at its two ends adjacent the discs 8 and 9 and their circuit terminal connections lead outwardly through the respective discs. Those of the coil 11 indicated by 12 and 13, are bent inward radially and pass thence through the center of the tube 7 in which they are held in parallel relation by a longitudinally extending member 23 of suitable insulating material. For convenience in handling the lead in portions of these wires and effecting the connections of their inner terminals, I provide central apertures in the discs 8 and 9, which are closed by conical glass plugs 8* and 9* which are welded in place during the assembly of the core. The lead in wires for the electrode 10 indicated by 14 and 15 may extend directly through the disc 9 as shown in Figures 1 and 3.

In carrying out my invention I preferably apply to both the inner surfaces of the envelope 1 and the periphery of the spool or core 7, a coating of fluorescent or luminescent material as indicated at 16 and 17 on the respective parts. These coatings may, for example, be oxygenous salts such as silicates of cadmium and zinc, calcium tungstate or aluminum oxide applied to said surfaces by a suitable binder before the parts shown in Figure 3 are inserted in the envelope. With these two coatings the light emitted by the discharge occurring between the electrodes will fill the entire length of the tube.

It is understood that the sealed tube is evacuated in the usual manner via a tubulation 20 and that the inert gas forming the ionizable medium, such as mercury vapor or other suitable gas, is introduced therein.

Since another important object of my invention is to improve the radiant quality of the lamp, I provide the inner surface of the spool or tube 7 with a silvered reflecting surface 21 which may be used in combination with a single luminescent coating applied to either of the aforementioned surfaces as depicted in Figures 4 and 5, respectively. The reflector may also be used in a com-

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bination including the coating of both of said surfaces.

In order to produce a pleasing effect in the radiated light rays the spool or core 7 may be made of colored glass which will tint the emitted rays irrespective of the coated surfaces 16 on the envelope 17 on the exterior colored tube 7. If desired in connection with a colored tube the silvered surface on the interior of the tube may be omitted to permit the passage of light rays therethrough although this is not necessary as those rays which strike the tube tangentially are reflected and produce the desired color effect.

I claim:

1. An electric discharge lamp comprising a tubular glass envelope initially closed across one end and open at the other having a fixture engaging flange at the open end, a unit assembly consisting of a tubular glass core having welding discs at its opposite ends one fitting within the outer end of the envelope and having peripheral contact with the inner surface thereof, the other closing the flanged end of the envelope, said unit also embodying electrodes surrounding the core adjacent the proximate faces of the discs, and lead in wires for the electrodes extending through the discs, those of the outer electrode being led through the core, the inner surface of the envelope and the outer surface of the core bearing luminescent coatings and being evacuated and containing an ionizable gas.

2. An electric discharge lamp comprising a

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tubular evacuated glass envelope having a fixture engaging flange at its inner end, said tube containing an ionizable gas and having a luminescent coating on its interior surface, a tubular glass core in the envelope similarly coated exteriorly, and having a silvered reflecting coating on its inner surface, welding discs on the opposite ends of the core, one fitting the outer end of the envelope and having peripheral contact with the inner surface thereof, the other embracing said flange, said discs together supporting the core centrally within the envelope, lead-in wires passing longitudinally within the core and through the disc at its outer end, an electrode connected thereto and surrounding the core, a second electrode surrounding the inner end of the core, and lead-in wires therefor passing through the inner disc.

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REFERENCES CITED

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

UNITED STATES PATENTS

Number	Name	Date
1,312,310	Dodds -----	Aug. 5, 1919
2,201,390	Delaney -----	May 21, 1940
2,279,907	Atchley -----	Apr. 14, 1942
2,322,421	Cox -----	June 22, 1943
2,346,522	Gessel -----	Apr. 11, 1944
2,355,258	Biggs -----	Aug. 8, 1944