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E. B. NOEL

2,392,828

PROJECTION LAMP

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FIG. 1

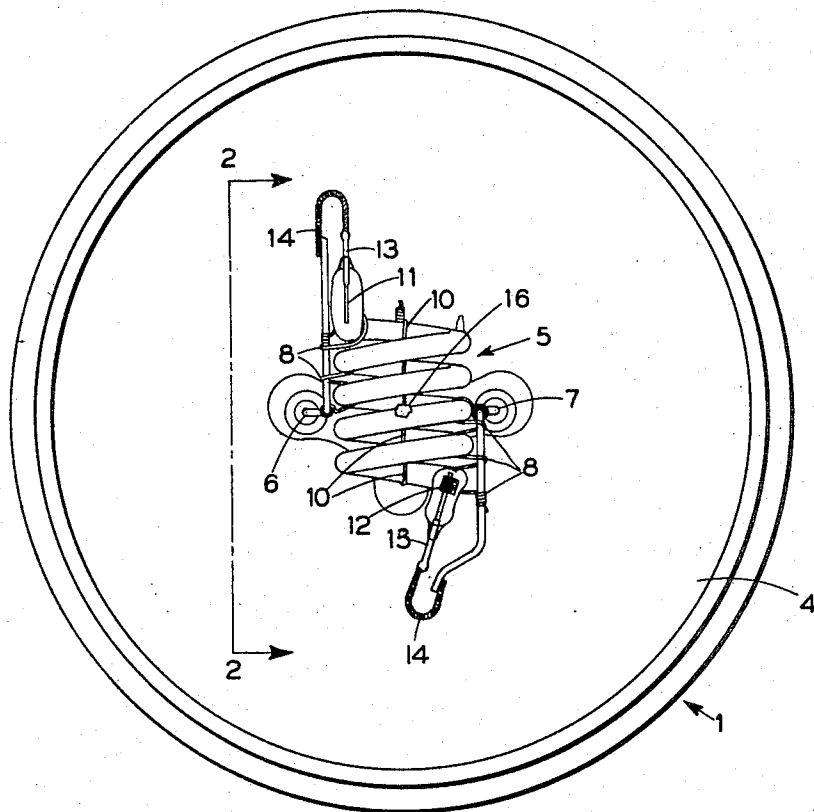
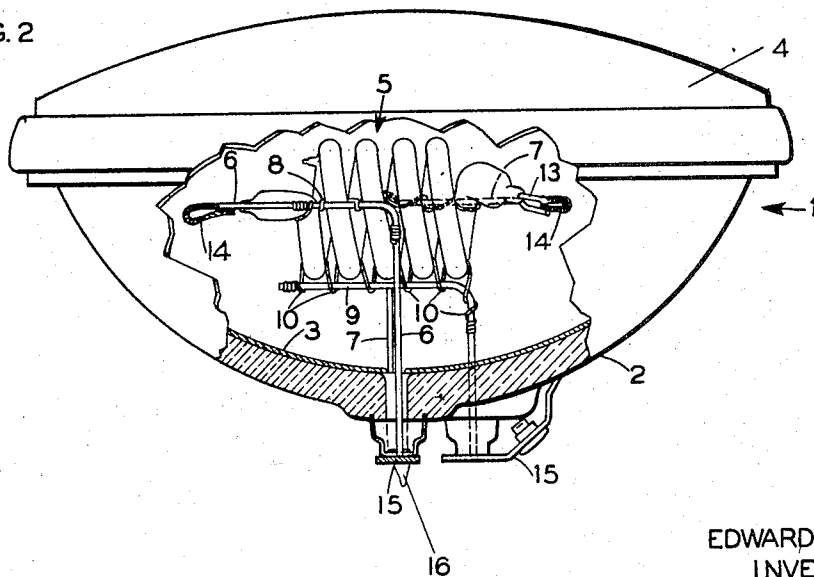


FIG. 2



EDWARD B. NOEL:
INVENTOR,

BY *John H. Anderson*
HIS ATTORNEY

UNITED STATES PATENT OFFICE

2,392,828

PROJECTION LAMP

Edward B. Noel, Cleveland Heights, Ohio, assignor to General Electric Company, a corporation of New York

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5 Claims. (Cl. 176-34)

This invention relates to electric lamps, and is particularly concerned with combining a lighting tube and a reflector as a projector lamp. The invention is hereinafter explained in connection with lamps of a general type such as disclosed in U. S. patents to Daniel K. Wright Nos. 2,148,314 and 2,148,315, granted February 21, 1939, and 2,324,972, granted July 20, 1943, commonly known as the "sealed beam" type. Various novel features and various advantages will become apparent from the description of a species and form of embodiment of the invention, and from the drawing.

In the drawing, Fig. 1 is a plan view of a sealed beam type of lamp embodying the invention; and Fig. 2 is a side view of the lighting tube with a portion of the reflector in section through the axis of the lamp, as indicated by the line and arrows 2-2 in Fig. 1.

A sealed beam lamp bulb or envelope 1 is shown in Figs. 1 and 2 as comprising a rear concave pressed glass reflector portion 2 internally surfaced with a reflective metallic coating 3, and a front radiation-transmitting cover portion 4, also slightly concave and preformed out of pressed glass. The reflecting surface 3 of the rear portion 2 is shown as a paraboloid. The parts 2, 4 may be separately formed out of low-expansion heat-resistant glass such as the borosilicate glass disclosed in U. S. Patent No. 1,304,623 to Sullivan et al., known commercially as "Pyrex," and may afterward be sealed together by fusion at suitably mating surfaces, as described in the aforesaid Wright patents.

Within the envelope 1 is mounted a lighting tube 5 wound in the form of a helical coil. This tube 5 may if desired be operated as a flash tube for photographic or other purposes. Current connections 6, 7 may be sealed through the reflector 2 gas and vacuum-tight as shown in Wright Patent No. 2,324,972. As shown, the connector wires 6, 7 into the interior of the reflector are spaced in an axial plane, and are at equal distances to opposite sides of the reflector axis. Inside the reflector, the wires 6, 7 may be slightly offset toward one another, and further inward they are bent laterally in opposite directions across the reflector 2, perpendicular to their common plane aforementioned and substantially parallel to one another. As shown, the helical lighting tube 5 is mounted adjacent and more or less between the laterally bent connectors 6, 7, with the axis of the helix extending in the general direction of said connectors across the reflector 2, substantially parallel with the connectors, in fact. Op-

posite sides of the helix 5 are secured to said connectors 6, 7 by means of fine wire lashings 8. An additional metal member 9 is shown as sealed into or through the reflector 2 similarly to the connectors 6, 7, in a plane midway between and at right angles to that in which they extend inward. The wire 9 extends inward at some distance to one side of the plane of the wires 6, 7, and is bent laterally across the reflector between the inward extending wires 6, 7 and substantially parallel to their oppositely extending laterally bent portions, but closer to the reflector 2. Thus the laterally bent portions of the wires 6, 7, 9 form a sort of cradle extending across the lamp and the reflector 2. As shown, the lighting tube 5 is cradled and lies in this cradle against the wires 6, 7, 9. As its rear side, the coiled tube 5 may be secured to the wire 9 at the bottom of the cradle by means of a fine wire lashing 10 laced alternately around the wire 9 and the convolution of the helical tube.

In the present instance, the lighting tube 5 is shown as a gaseous discharge device having electrodes 11, 12 on leads 13, 13 sealed into its opposite ends, which are bent aside to extend in the general direction of the axis of the helix into which the tube is wound. The tube 5 may contain a working atmosphere of gas or vaporizable metal (or both), introduced and sealed into it after evacuation, such as xenon at a pressure of 70 mm. From the remote end portions of the wires 6, 7, current connections are made to the electrodes 11, 12 by means of flexible multi-standed leads 14, 14 welded to the wires 6, 7 and retroverted to extend back to the leads 13, 13, to which they are also welded. When the lighting tube 5 is of the gas discharge type, the member 9 may serve as a triggering inlead, and its lashing 10 around the tube convolutions as a triggering or starting band. As shown, external bracket terminals 15 are provided for the current connections 6, 7, 9 behind the reflector 2. Through a rear exhaust connection indicated at 16, the envelope 1 may be exhausted and charged with a heat-conductive gaseous atmosphere, such as nitrogen at a pressure of 700 mm., after which the connection 16 may be sealed off.

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

1. In a light projector, the combination of a sealed envelope comprising a rear concave reflector portion, and a helical lighting tube mounted in said envelope with the axis of the helix in a plane substantially perpendicular to the axis of the reflector.

2. In a light projector, the combination of a concave reflector; spaced current connectors sealed through the reflector, and inside the same bent laterally to extend transversely of the reflector axis; and a helical lighting tube arranged with the axis of the helix extending in the direction of the transverse portions of said connectors in a plane substantially perpendicular to the axis of the reflector, and having current connections thereinto from the said connectors; said helical lighting tube being supported by the transverse portions of said connectors independently of said current connections.

3. In a light projector, the combination of a sealed envelope comprising a rear concave reflector portion and a front transmitting portion, a pair of spaced current connectors sealed through the reflector and inside the envelope bent laterally in opposite directions across the reflector, substantially parallel with one another in a plane perpendicular to the axis of the reflector, a helically coiled lighting tube in said envelope between said connectors with the axis of the helix substantially parallel to them and having current connections from the remote portions of the aforementioned oppositely extending connectors back into the opposite ends of said helical tube, and means securing opposite sides of the helix to said oppositely extending connectors independently of said current connections.

4. In a light projector, the combination of a reflector, a pair of spaced current connectors sealed through the reflector and extending inside the same substantially parallel with one another, another member sealed into the reflector between and substantially parallel to said connectors, thus coacting with these connectors to form a cradle, a helically coiled lighting tube cradled in said cradle and having current connections from said current connectors into its opposite ends, and means securing said lighting tube in said cradle independently of said current connections into its ends.

5. In a light projector, the combination of a reflector, a pair of spaced current connectors sealed through the reflector and inside the same bent laterally in opposite directions across the reflector, substantially parallel with one another, another member sealed into the reflector and inside the same bent laterally across the reflector between and substantially parallel to said oppositely extending connectors but closer to the reflector, thus coacting with these connectors to form a cradle, a helically coiled lighting tube cradled in said cradle and having current connections from said current connectors into its opposite ends, and means securing said lighting tube in said cradle independently of said current connections into its ends.

EDWARD B. NOEL.