

GLOW DISCHARGE LAMP

Filed April 8, 1929

Fig. 1.

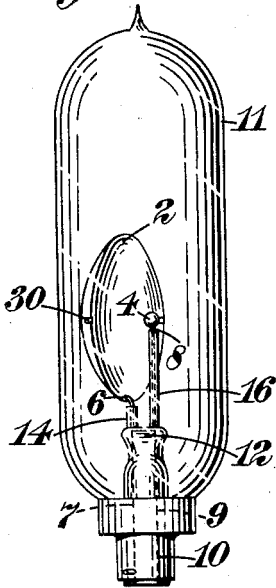


Fig. 3.

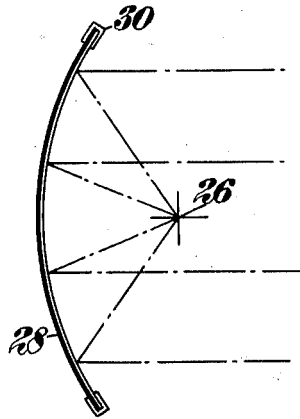
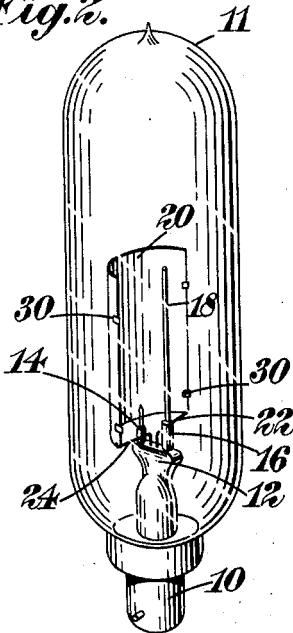


Fig. 2.



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GLOW-DISCHARGE LAMP

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This invention concerns improvements in or relating to glow-discharge lamps and the like, such as neon tubes.

An object of the invention is to provide a glow-discharge lamp that will emit a concentrated light, and that is applicable for use in connection with television or like apparatus.

A feature of the present invention is a glow-discharge lamp or the like (for example a neon tube) having an electrode in the form of a light-concentrating reflector, for example in the form of a concave or a part-cylindrical reflector.

Conveniently a companion electrode of the lamp is situated in or approximately in the principal focus of said reflector, in which case this electrode is preferably ball-shaped if the reflector is concave in form and preferably rod-shaped if the reflector is of a part-cylindrical configuration, the longest dimension of the rod-shaped electrode being disposed parallel or substantially parallel to the axis of the reflector.

To concentrate the light upon an effective area of the lamp, the back of the reflector may be covered or coated with non-conducting material.

Two forms of lamp, in accordance with the present invention, will now be described, by way of example, and illustrated in the accompanying diagrammatic drawings, in which:—

Figure 1 shows one form of lamp;

Figure 2 shows another form of lamp, and

Figure 3 is a transverse section through the reflector-electrode of the lamps of Figures 1 and 2, to illustrate the relation of one electrode to the other.

In the lamp shown in Figure 1, which will be considered as a neon tube, the positive electrode 2 is a spherical, parabolic or other concave reflector in or about in the principal focus of which the ball-shaped negative electrode 4 is situated. Each of the electrodes is supported respectively by conductors 6, 8 electrically connected by leads 7, 9 with insulated contact plates (not shown but of known kind) in the bottom of the holder 10 of the lamp which, of course, includes the

usual tube or container 11. The conductors 6, 8 are supported in the usual "pinch" 12 and are insulated above the pinch 12 by tubes 14, 16 of glass or other suitable non-conducting material.

In the lamp of Figure 2, which also will be regarded as a neon tube, the negative electrode 18 is a rod-shaped member extending substantially parallel with the axis of the part-cylindrical positive electrode 20 and located in or approximately in the principal focus of the positive electrode; in other respects the lamp of Figure 2 is similar to that shown in Figure 1 except that additional supports 22, 24 fast in the pinch 12 are provided for the positive electrode. In cross section the electrode 20 may for example, be spherical or parabolic in shape.

In Figure 3, the position of the negative electrode 4 or 18 in respect to its companion reflector-electrode 2 or 20, is indicated at 26. From this figure it will be apparent that rays due to the glow on the electrode 4 or 18 fall upon the reflector-electrode from which they are reflected in an approximately parallel beam.

To concentrate the glow upon the front or concave side of the reflector-electrode, the back of the electrode may be covered or coated with any suitable insulating material, for instance mica or micanite, which is indicated at 28 in Figure 3. This material may, for example, be secured to the electrode by a few metallic clips 30.

When used in connection with television apparatus or the like, the reflector-electrode 2 or 20 may be as large as or larger than the viewing aperture through which at the receiving station the received image is seen.

I claim:—

1. In a glow-discharge lamp, the combination with an electrode of part cylindrical form having a light reflecting concave surface, of a companion rod-shaped electrode having its longest dimension disposed parallel to the cylindrical elements of the first named electrode and located substantially in the principal focus of the light reflecting surface thereof.
2. In a glow-discharge lamp, the combina-

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tion with an electrode of part cylindrical form having a light reflecting concave surface, of a companion rod-shaped electrode having its longest dimension disposed parallel to the cylindrical elements of the first named electrode and located substantially in the principal focus of the light reflecting surface thereof, the convex surface of said first named electrode being covered with a non-conducting material.

In testimony whereof I affix my signature.
JOHN LOGIE BAIRD.