

RECORDING GLOW LAMP

Original Filed June 12, 1929

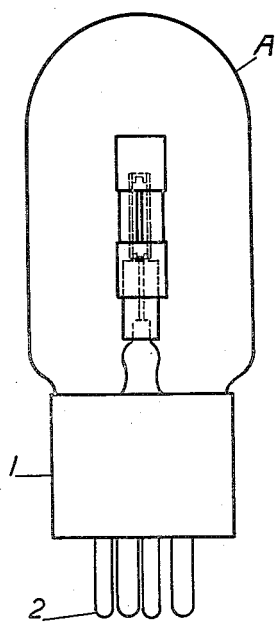


FIG. 1.

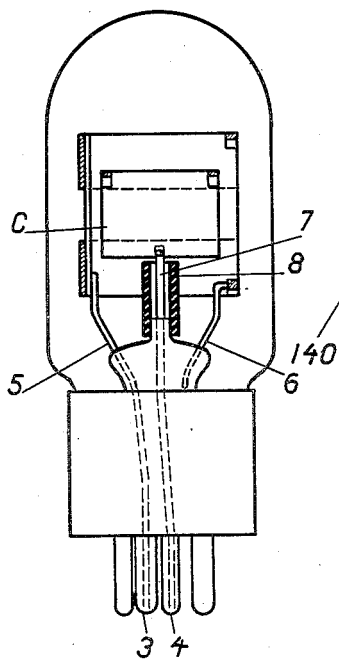


FIG. 2.

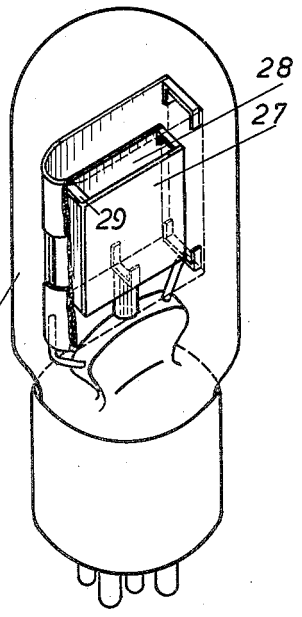


FIG. 3.

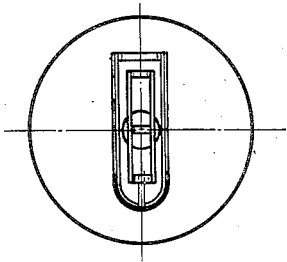


FIG. 4.

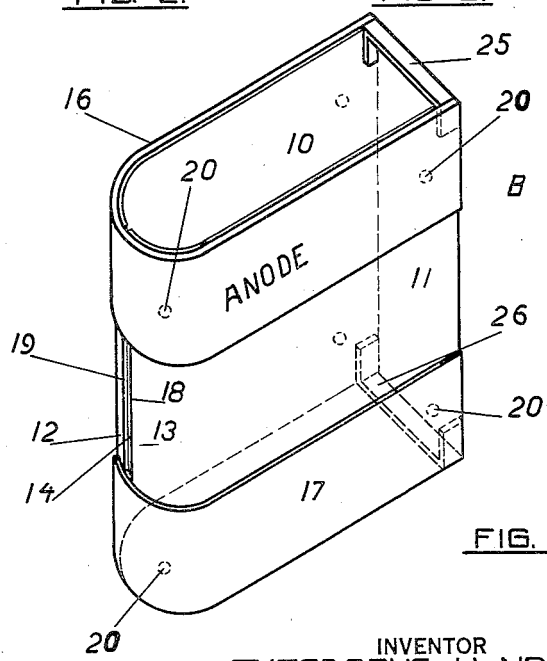


FIG. 5.

INVENTOR
THEODORUS H. NAKKEN.

BY
Ronald H. [Signature]
ATTORNEY

UNITED STATES PATENT OFFICE

THEODORUS H. NAKKEN, OF FOREST HILLS, NEW YORK, ASSIGNOR TO NAKKEN PATENTS CORPORATION, A CORPORATION OF DELAWARE

RECORDING GLOW LAMP

Application filed June 12, 1929, Serial No. 370,293. Renewed March 14, 1931.

This invention relates to glow lamps, more particularly of the type adapted for monitored recording of sound on film.

An object of the invention is to improve the construction of recording glow lamps. A further particular object of the invention is to provide an easily modulated intense source of light having depth and localization and which within the lamp structure itself is limited in its cross-sectional area of exposure. A further object of the invention is to improve the construction of light line defining windows in lamps of this type.

The above and further objects of the invention will be pointed out more particularly in the accompanying claims which are directed to an illustrative embodiment of the invention described in the following specification in connection with the accompanying drawing, but solely for purposes of illustration and not limitation.

In the drawing, Fig. 1 is an elevational view of the glow lamp looking towards the recording slot; Fig. 2 is a side elevation partly in vertical section; Fig. 3 is a perspective view with parts broken away; Fig. 4 is a top plan; and Fig. 5 is a perspective view of the anode drawn to an enlarged scale.

An enclosing glass bulb A, preferably of the best type usually employed in glow lamp construction, serves as an enclosure for the structure and may be provided with a base 1 and plug contacts 2, of which the contacts 3 and 4 are usually alone employed to provide exciting energy for the lamp.

The anode structure B of any suitable metal such as nickel may be mounted on leads 5 and 6, of which the lead 5 serves as an electrical connector to the plug 3. The cathode C of any suitable metal such as nickel may also be mounted on a lead 7 serving as an electrical connection from the plug 4. All of the lead 7, however, within the evacuated enclosure is preferably insulated as by an insulating sleeve 8.

In its preferred construction, the anode B comprises two spaced opposite parallel plates 10 and 11 of sheet metal having inturned lips 12 and 13 along contiguous edges which are spaced apart the desired distance to form a

light slot 14. Reenforcing anchoring straps 16 and 17 are preferably employed to hold the plates 10 and 11 and maintain the spacing for the window 14. In constructing this anode, it has been found convenient first to lay two identical plates of sheet metal edge to edge with their edges 18 and 19 ground to accurate knife edges and spaced apart a definite desired distance by interposed spacer, with a thickness of two or three-thousandths of an inch or of the thickness of the desired amount for the method. Straps 16 and 17 then in straight flat form are spot-welded as by spot-welds 20 preferably localized contiguous to the edges of the plates 10 and 11 and involving the straps 16 and 17. The entire structure, then involving the straps 16 and 17 and the plates 10 and 11 may be bent over a form preferably to assume the shape shown in Fig. 5. Spanners 25 and 26 are then welded at their ends to anchor the book-shaped structure in its finished form. The mounting leads may be welded to this structure for mountings as indicated in Figs. 2 and 3.

The cathode comprises two identical spaced metal plates 27 and 28 cross-connected by welded spanners 29 at its corners. The mounting stem 7 is preferably welded directly to the interior walls of the cathode plates 27 and 28 and its upper end is a fork construction as indicated. The spacing between contiguous faces of plates 27 and 11 and 28 and 10 should be less than one-sixteenth of an inch in accordance with my experience. In any event, the spacing should be such as to effect so-called short-path insulation. By this I mean that there is too short a path between these contiguous parts of the anodes to effect illuminating ionization in this locality when the lamp is excited so that all illuminating ionization is limited to the space bounded by the cathode plates 27 and 28, their edges being spaced back from the cross-wall 12 and 13 sufficiently to prevent local ionization directly back of the window 14. By this construction I obtain a great depth of glow light coextensive substantially with the plates 27 and 28 so that the light view through the window 14 has great intensity

and sufficient extent for it to serve as a primary source of light through the window 14 and permit considerable divergence for optical purposes in the focussing of the secondary light source formed by the window 14.

It is also evident that the interior glow between plates 27 and 28 is visible at the rear of the lamp opposite window 14 for purposes of monitoring or to be used for any purpose desired.

In the construction illustrated, the convection of the residual gas employed in the lamp for purposes of effecting the glow is upward against the top of the bulb A. Likewise, it is to be noted that all bombardment of that portion 140 of the glass bulb A opposite the window 14 is prevented by the shielding effect of the anode so that this portion of the glass bulb remains clearly transparent for a great length of time. It is through this portion that the recording light must pass.

What I claim and desire to secure by United States Patent is:

1. In a glow lamp an anode comprising opposed parallel plates having a cross-wall at one side provided with a slot-like window; and a cathode within said anode comprising spaced parallel plates substantially separated from said cross-wall and short-path insulated from the parallel plates of said anode.

2. In a glow lamp a bulb adapted to maintain a vacuum and having a transparent wall; an interior anode in the form of two opposite metal plates spaced apart and parallel with each other except for cross-wise extending lips along similar edges which lips provide therebetween a slot-like light aperture; a cathode comprising spaced parallel plates mounted within said anode; and an insulated stem for mounting said cathode.

3. In a recording glow lamp a combined anode and light area comprising spaced parallel plates; an interior cathode having plates parallel with the plates of said anode with contiguous surfaces short-path insulated therefrom whereby the glow is limited to the space between the plates of said cathode.

4. A glow discharge variable intensity light source comprising a bulb, a hollow electrode within the bulb comprising two flat parallel wall portions and having an accurately formed light orifice in its wall in the form of a narrow slit parallel with said parallel wall portions, and an electrode within the hollow electrode also comprising two flat wall portions of an extent at least equal to the length of said slit.

5. A glow discharge variable intensity light source comprising a bulb; a cathode within the bulb comprising two parallel plates adapted to form a glow discharge therebetween of relatively great depth and of substantial width and of substantially greater extent parallel to the plates and of substantially uniform intensity; means

forming an anode and a barrier shield for said glow discharge and said shield being provided with an accurately formed light slot extending parallel to said plates, whereby a light line for photographic purposes of substantially uniform intensity throughout its extent is provided.

6. A glow discharge variable intensity light source comprising a bulb; a cathode comprising two spaced parallel plates adapted to confine the glow discharge therebetween; means comprising two anode plates parallel to said two cathode plates and closely spaced apart therefrom to provide short path insulation therebetween and a light shield across the space between said cathode plates, which shield is provided with an accurately formed light slot parallel to said plates.

7. A glow discharge variable intensity light source comprising a bulb; cathode means providing a narrow rectangular area of edge-on glow discharge; and means providing an anode and a light shield provided with an accurately formed light slot mid-positioned opposite said rectangular glow discharge, whereby the entire extent of said light slot receives uniform intensity of illumination.

THEODORUS H. NAKKEN.

100

105

110

115

120

125

130