

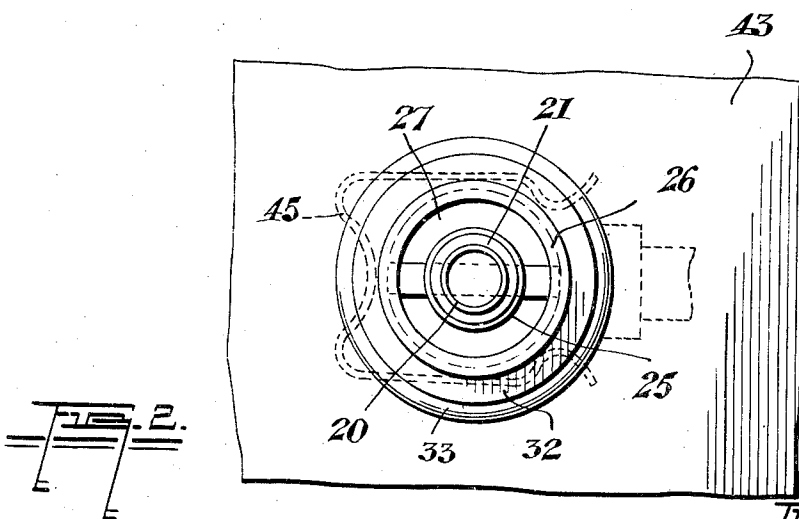
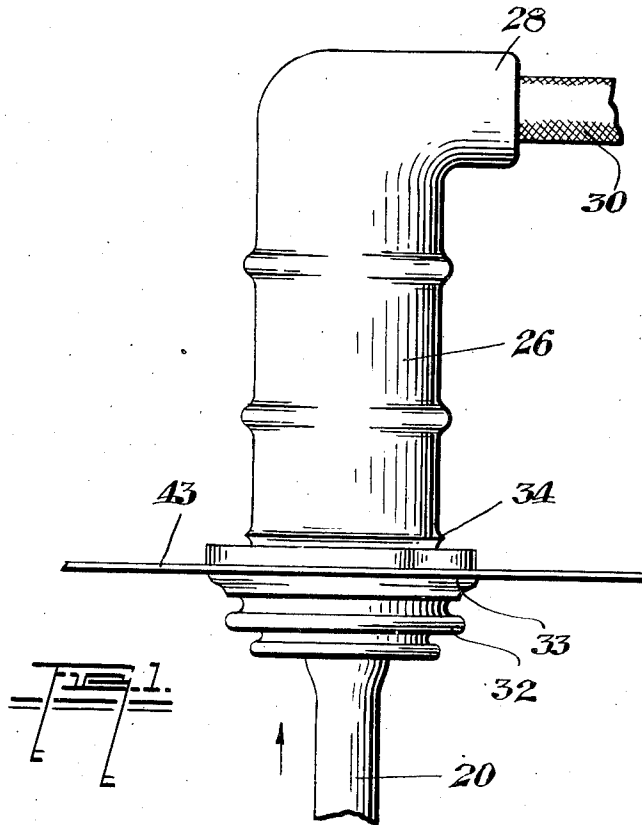
Dec. 13, 1932.

G. LAMY
HOUSING AND MOUNTING FOR THE ELECTRODE CHAMBERS
OF LUMINESCENT TUBES AND THE LIKE

1,890,617

Filed April 13, 1931

3 Sheets-Sheet 1



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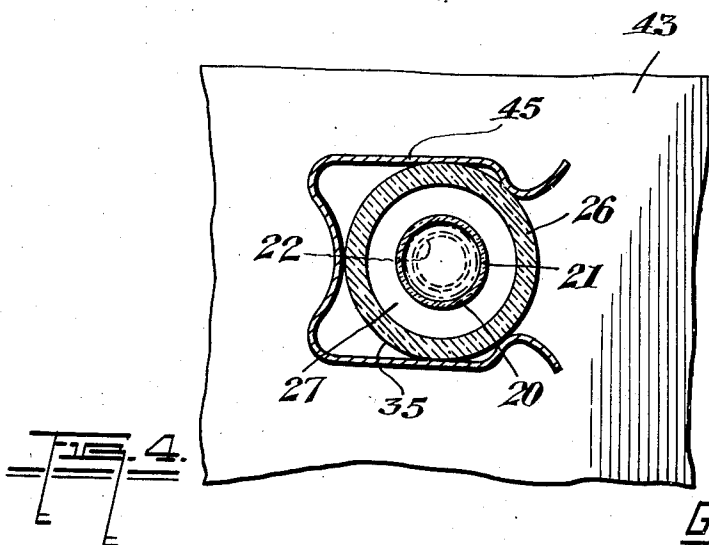
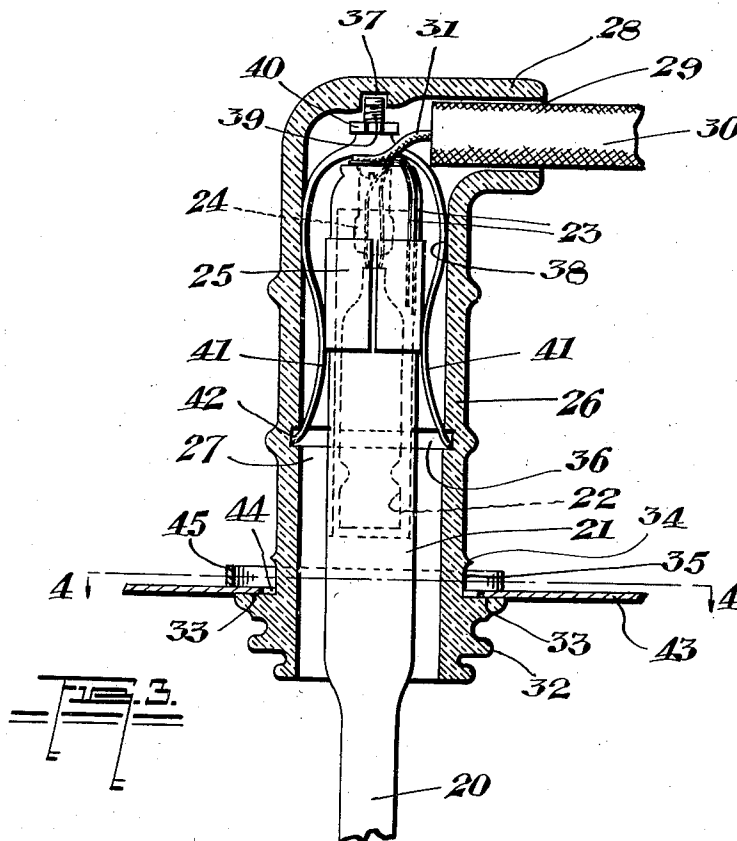
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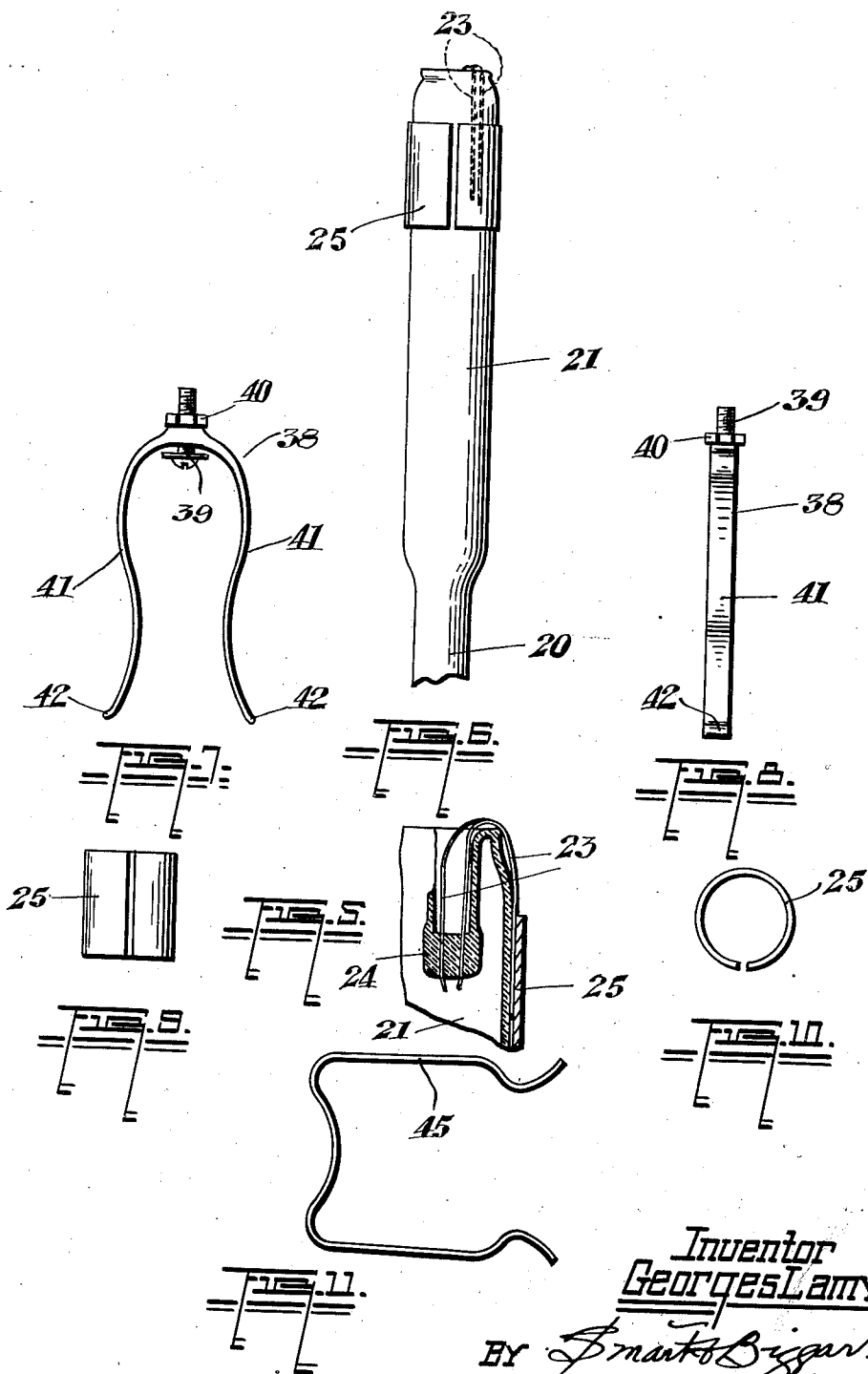
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1,890,617

3 Sheets-Sheet 3



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UNITED STATES PATENT OFFICE

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HOUSING AND MOUNTING FOR THE ELECTRODE CHAMBERS OF LUMINESCENT TUBES
AND THE LIKE

Application filed April 13, 1931. Serial No. 529,757.

This invention relates to improvements in housings and mountings for the electrode chambers of luminescent tubes and the like with more particular and direct reference to neon and other luminous gas discharge tubes, as used in connection with advertising signs and for display purposes and the object of the invention is to provide an improved form of housing and mounting for the electrode chambers of such tubes whereby certain important advantages may be obtained over the practice as hitherto followed in this connection.

One of the objects of the invention is to provide an improved construction which will permit ready and convenient replacement of the individual letters or sections of a sign, thus enabling the various component letters or sections of a sign to be easily replaced at will, therefore simplifying breakage replacements and also facilitating the altering or rearrangement of the sign.

A further object is to provide an improved manner of making the connection between the high tension wire and the electrode of the tube whereby a more perfect and reliable connection is made and whereby the likelihood of short circuiting is greatly minimized.

A further object is to provide an improved reliable and simplified manner of retaining the electrode chamber within the housing whereby the operation of mounting the tube in position is made extremely simple, consisting merely of inserting the electrode chamber into the housing upon which insertion it is effectively and securely held in position within the housing by an improved spring arrangement mounted within the housing and at the same time establish a good electrical connection between the high tension cable and the electrode.

A further object is to provide an improved manner of retaining the electrode chamber within the housing whereby the retaining means normally operates to urge the electrode chamber inwardly of the housing instead of outwardly as in housings hitherto used.

A further object is to provide an improved manner of establishing electrical contact be-

tween the electrode within the electrode chamber and the high tension cable.

A further object is to provide an improved manner of mounting the electrode housing upon the panel of a sign whereby the operation of mounting and dismounting therefrom is extremely simple and does not involve the use of any screws, bolts or securing means other than a simple spring clip and whereby the housing may be instantly attached or dismounted from the sign panel by the simple removal of this spring clip.

A further object is to provide a housing in which that portion of the housing which is exposed at the front face of the sign panel may be readily and conveniently painted or colored to conform to the colour of the sign.

A further object is to provide a housing which will possess greater insulating properties than housings hitherto used for this purpose.

A further object is to provide a housing which will be extremely strong and rugged and of simple and inexpensive construction.

Other objects will appear in the course of the following specification.

The invention consists essentially of an improved housing and mounting for the electrode chamber of a luminescent tube constructed and arranged as hereinafter more particularly described and illustrated in the accompanying drawings in which;

Figure 1 is a top plan view of the improved housing and associated parts showing the manner of its mounting and connection to a sign panel.

Figure 2 is a front elevation of Figure 1 looking in the direction of the arrow.

Figure 3 is a view taken similarly to Figure 1 but with the sign panel and housing shown in section to illustrate the interior construction of the housing and the manner in which the electrode chamber is held therein.

Figure 4 is a section taken on the line 4-4 of Figure 3.

Figure 5 is a detached fragmentary sectional detail of the inner end of the electrode chamber of a luminescent tube showing the manner in which, according to the present invention, the lead in wires from the elec-

trode of the tube underlie a metallic band encircling the electrode chamber.

Figure 6 is a detached view of the electrode chamber of a luminescent tube as shown in Figure 3 and as fitted in accordance with the present invention.

Figure 7 is a detached view of a U-shaped spring clip mounted within the housing in accordance with the present invention.

Figure 8 is an edge view of the spring clip shown in Figure 7.

Figure 9 is a side view of a split metallic band encircling the electrode chamber in accordance with the present invention.

Figure 10 is an end view of Figure 9.

Figure 11 is a view of a spring clip employed in connection with the housing for securing the housing in position upon the sign panel in accordance with the present invention.

In the drawings like characters of reference indicate corresponding parts in the different views.

The present invention has to do with the electrode chambers of luminescent tubes and the manner of mounting these tubes to form the individual letters or parts of an advertising sign or display device. It will be understood that luminescent tubes of this type consist of an elongated tube, part of which is indicated by the numeral 20, which tube is suitably shaped to form a letter or a certain desired section of a display device.

At each end of the tube 20 is formed an electrode chamber 21 within which the electrode proper of the tube, indicated by the numeral 22, is mounted and, in operation, upon the two electrodes 22 in the opposite ends of the tube being connected to a source of high tension current a luminous discharge is established within the tube 20.

In the making and operation of advertising signs of this class, it is a great advantage to arrange for the mounting of the individual tubes forming the different parts of the sign with the greatest possible facility and this is one of the main features of the present invention.

In the form illustrated the lead in wires 23 which are connected to the electrode 22 lead outwardly through the end of the electrode chamber through the fused tip 24 which seals the inner end of the electrode chamber, these wires 23 extending exteriorly of the chamber 21 and being bent over to lie along the exterior surface of the chamber.

A split metal band 25 encircles the chamber 21 intermediately of its length and the ends of the lead in wires 23 underlie this band so that they are firmly held between the band and the wall of the chamber 21 by the resilient action of the band 25 and therefore a very close, intimate and complete electrical contact is established between the band 25 and the wires 23 so that this band 25 is

in electrical communication with the electrode 22 within the chamber 21.

The electrode housing, in accordance with the present invention, comprises a tubular casing 26 preferably made of porcelain but which may be made of glass, pyrex or other suitable substance and this housing is of novel form as will now be described.

The casing 26 comprises a hollow cylindrical interior 27 which is open at its front end to permit insertion therinto of the electrode chamber 21 and is formed at its rear end with a laterally directed elbow 28 which elbow is formed with an orifice 29 to permit passage of a cable 30 containing the high tension wire 31 so that this wire 31 may be connected to the electrode chamber, as will be hereinafter explained.

The housing is formed at its front end with an annular enlargement 32 presenting a rearwardly directed shoulder 33 and immediately to the rear of this shoulder 33 the housing is formed with an annular protuberance or rib 34 so that between the shoulder 33 and the protuberance 34 there is formed about the circumference of the chamber 26 an annular recess 35, the purpose of which will be presently explained.

Formed about the interior periphery of the casing 26 intermediately of its length is an annular recess 36 and in the rear or inner end of the casing and centrally thereof, is formed a recess 37 which will presently be referred to.

Detachably mounted within the inner end of the housing is a substantially U-shaped spring clip 38, the legs of which are of concavo-convex form, as clearly shown in the drawings. Extending through the base of this clip is a screw or binding post 39 which carries a nut 40. This clip 38 is mounted within the housing and is so positioned therein, that the legs 41 thereof, extend axially along the inner walls of the casing partially of the length thereof, and the clip is retained in position within the casing by the engagement of the front ends 42 of the legs 41 within the annular recess 36 and also by the engagement of the end of the screw 39 within the central recess 37 in the inner end of the casing.

The high tension cable 30 extends through the orifice 29 in the elbow 28 at the rear end of the housing and the inner end of the wire 31 is secured to the spring clip 38 by means of the screw 39, so that an intimate and close electrical contact is established between the spring clip 38 and the wire 31.

The sign panel 43 is provided with a suitable orifice 44 so that the casing 26 may be passed rearwardly through the opening 44 from the front of the panel in which operation the rearwardly directed shoulder 33 abuts against the front face of the panel 43 and limits the penetration of the casing with

respect to the panel. The housing is retained in this position by simply mounting the spring clip 45 upon the casing 26 so that it engages within the external annular recess 5 35 formed between the annular rib 34 and the shoulder 33, this clip being pressed against the rear face of the panel by the rib 34 so that the panel 43 is gripped between the clip 45 and the shoulder 33 and the housing is securely held in position. The spring clip 45 is of such shape, as shown in Figure 4, that it clips firmly about the circumference of the casing 26.

The split metal band 25 is mounted upon 15 the electrode chamber by simply slipping it over the end thereof and in its mounted position is as illustrated in Figure 6.

The manner of employing the housing in the present invention is as follows:

20 The sign panel 43 is provided with the necessary openings 44 properly spaced and arranged and the housings are mounted in position as previously described, by simply passing them rearwardly through these openings 25 and securing them in position by attaching the spring clips 45. This is an extremely simple and convenient operation and does not involve the use of any screws for attaching the housing, nor the provision of any screw 30 holes in the panel. Previous to mounting the housing upon the panel the spring clips 38 would be assembled therein and the high tension wire 31 secured to these clips.

35 After the housings have been thus mounted upon the panel, in order to attach the various letters or sections of the sign it is simply necessary to insert the electrode chambers 21 of the various tubes into the proper housings and the simple operation of inserting 40 them also securely mounts the tube in operative position and establishes the proper electrical contact. The construction is such that a very intimate and close electrical contact is established with the electrode 22 of the tube 45 as the metal band 25 is in electrical contact with the electrode 22 and the concavo-convex legs 41 of the spring clip 38 press inwardly upon this band 25 which is located intermediately of the length of the electrode chamber 50 21 and thus form a close electrical contact between the spring clip 38 and the band 25 and since the high tension wire 31 is connected to the spring clip 38 a perfect electrical communication is established from the wire 55 31 to the electrode 22.

A feature of the present invention is the manner in which the electrode chamber is held within the housing and it will be noted by reference to Figure 3 that the action of 60 the spring clip 38 is to urge the electrode chamber into or rearwardly of the housing rather than to urge it outwardly, as is the case with many constructions hitherto used, in which a coil spring was employed to engage 65 the inner end of the electrode chamber.

It will also be noted that the housing of the present invention is of extremely simple construction and is in the form of a one piece structure which may be simply and inexpensively manufactured and which is of extreme- 70 ly strong and durable form. Also, the connection of the high tension wire is completely covered and is of such form that the possibility of short circuiting is very remote.

In constructing the housing of porcelain 75 the entire external surface thereof would be glazed with the exception of the front face of the enlargement 32 which might be unglazed so that this enlargement which is exposed on the front face of the sign panel might readily 80 be painted or coloured to agree with the colouring of the front face of the panel.

From the foregoing it will be apparent that the present invention provides an improved housing and mounting for the electrode 85 chamber of a luminescent tube whereby the objects set forth have been attained.

Various modifications may be made in this invention without departing from the spirit thereof or the scope of the claims, and therefore the exact forms shown are to be taken 90 as illustrative only and not in a limiting sense, and it is desired that only such limitations shall be placed thereon as are disclosed in the prior art or are set forth in the accompanying claims. 95

I claim:

1. In combination, a housing for the electrode chamber of a luminescent tube comprising, a tubular casing having its front 100 end open for the reception of the electrode chamber of the tube, and provided at its rear end with a cable admitting orifice, the inner wall of the casing formed intermediately of its length with an annular recess, a U-shaped 105 spring clip within the rear end of the casing, the legs of said clip directed forwardly and extending axially along the inner wall of the casing, said legs being of concavo-convex form and adapted to grip therebetween the 110 electrode chamber intermediately of its length to retain it in position within the housing, the forward ends of the legs of the spring clip engaging within the annular recess in the casing. 115

2. In combination, a housing for the electrode chamber of a luminescent tube comprising, a tubular casing having its front end open for the reception of the electrode chamber of the tube, and provided at its rear end 120 with a cable admitting orifice, the inner wall of the casing formed intermediately of its length with an annular recess, a U-shaped spring clip within the rear end of the casing, the legs of said clip directed forwardly and 125 extending axially along the inner wall of the casing, said legs being of concavo-convex form and adapted to grip therebetween the electrode chamber intermediately of its length to retain it in position within the hous- 130

ing, the forward ends of the legs of the spring clip engaging within the annular recess in the casing, a binding post screw extending rearwardly through the base of the spring clip, the rear wall of the casing formed centrally with a recess into which the end of said screw is adapted to extend.

3. A housing and mounting for the electrode chamber of a luminescent tube comprising, the combination with the electrode chamber of the tube and the electrode therein, of a metal band encircling the electrode chamber intermediately of its length and in electrical contact with the electrode within said chamber, a tubular casing having its front end open for the reception of the electrode chamber and provided at its rear end with a cable admitting orifice, spring means within the casing, said spring means adapted to grip the band to retain the electrode chamber in position within the housing, and wire attaching means carried by the spring means.

4. A housing and mounting for the electrode chamber of a luminescent tube comprising, the combination with the electrode chamber of the tube, the electrode therein and the lead in wires extending from the electrode exteriorly of the chamber, of a metal band encircling the electrode chamber intermediately of its length, the lead in wires in conducting electrical contact with said band, a tubular casing having its front end open for reception of the electrode chamber and provided at its rear end with a cable admitting orifice, spring means within the casing adapted to grip the band to retain the electrode chamber in position within the housing, and wire attaching means carried by the spring.

5. A housing and mounting for the electrode chamber of a luminescent tube comprising, the combination with the electrode chamber of the tube, the electrode therein and the lead in wires extending from the electrode exteriorly of the chamber, of a split metal band encircling the electrode chamber intermediately of its length, the lead in wires underlying said band, a tubular casing having its front end open for the reception of the electrode chamber and provided at its rear end with a cable admitting orifice, spring means within the casing adapted to grip the band to retain the electrode chamber in position within the housing, and wire attaching means carried by the spring.

6. A housing and mounting for the electrode chamber of a luminescent tube comprising in combination, a panel upon which the housing is to be mounted, the electrode chamber of the tube and the electrode therein, the lead in wires extending from the electrode exteriorly of the chamber, a split metal band encircling the electrode chamber intermediately of its length, the lead in wires underlying said band, a tubular casing having its front end open for the reception of the

electrode chamber and provided at its rear end with a cable admitting orifice, spring means within the housing, wire attaching means carried by said spring means, and spring means carried by the housing for retaining it in position upon the panel.

7. A housing and mounting for the electrode chamber of a luminescent tube comprising in combination with the electrode chamber of the tube, the electrode therein and the lead in wires extending from the electrode exteriorly of the chamber, of a split metal band encircling the electrode chamber intermediately of its length, the lead in wires underlying said band, a tubular casing having its front end open for the reception of the electrode chamber of the tube and provided at its rear end with a cable admitting orifice, the inner wall of the casing formed intermediately of its length with an annular recess, a U-shaped spring clip within the rear end of the casing, the legs of said clip directed forwardly and extending axially along the inner wall of the casing, said legs being of concavo-convex form and adapted to grip therebetween the band to retain the electrode chamber in position within the housing, the forward ends of the legs of the spring clips engaging within the annular recess in the casing.

8. A housing and mounting for the electrode chamber of a luminescent tube comprising in combination, a panel upon which the housing is to be mounted, the electrode chamber of the tube and the electrode therein, the lead in wires extending from the electrode exteriorly of the chamber, a split metal band encircling the electrode chamber intermediately of its length, the lead in wires underlying said band, a tubular casing having its front end open for the reception of the electrode chamber of the tube and provided at its rear end with a cable admitting orifice, the inner wall of the casing formed intermediately of its length with an annular recess, a U-shaped spring clip within the rear end of the casing, the legs of said clip directed forwardly and extending axially along the inner wall of the casing, said legs being of concavo-convex form and adapted to grip therebetween the split metal band to retain the electrode chamber in position within the housing, the forward ends of the legs of the spring clip engaging within the annular recess of the casing, and spring means carried by the housing for retaining it in position upon the panel.

In witness whereof I have hereunto set my hand.

GEORGES LAMY.