

Sept. 17, 1935.

A. E. MacFARLAND

2,015,037

ELECTRIC LAMP

Filed Sept. 10, 1932

2 Sheets-Sheet 1

Fig. 1.

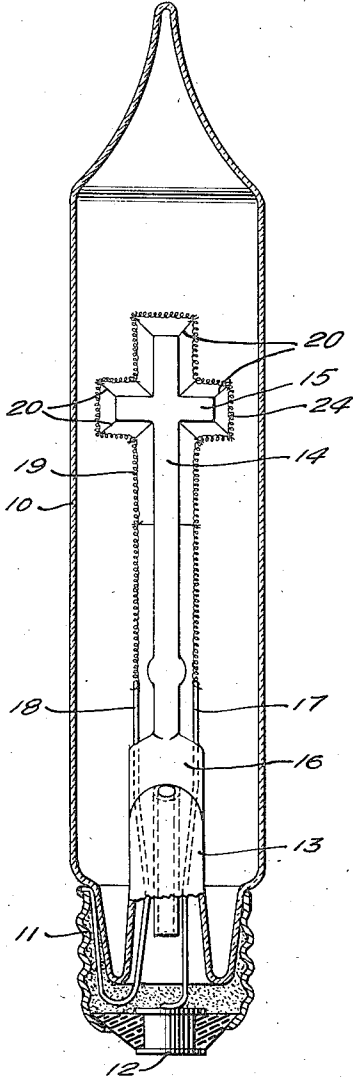


Fig. 2.

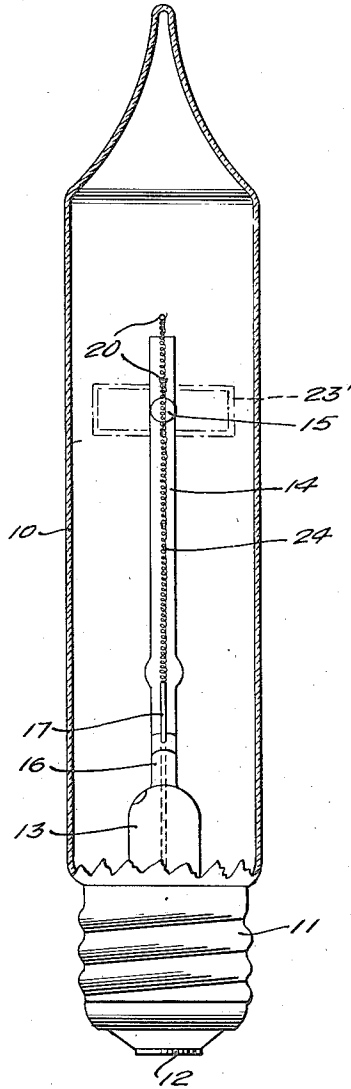
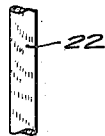


Fig. 3.



Fig. 4.



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Fig. 5

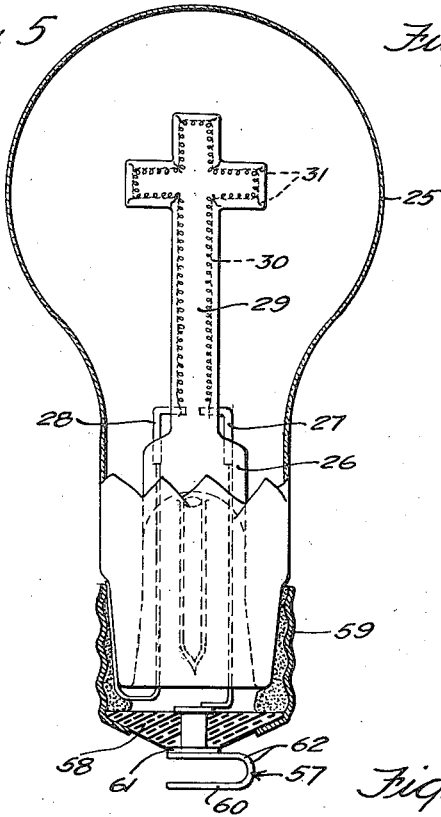


Fig. 7

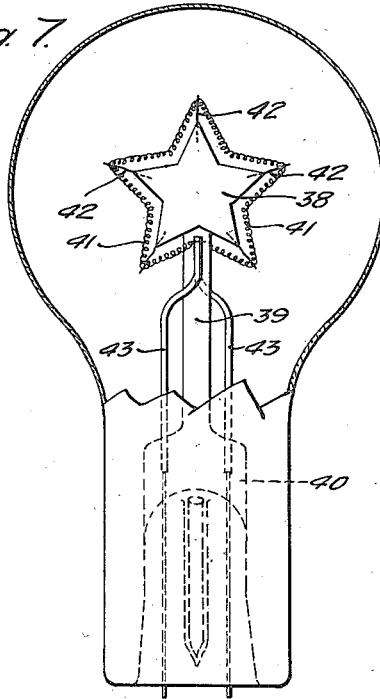


Fig. 6

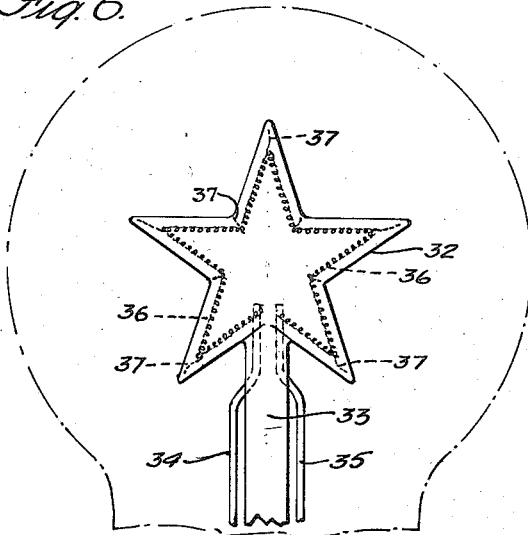
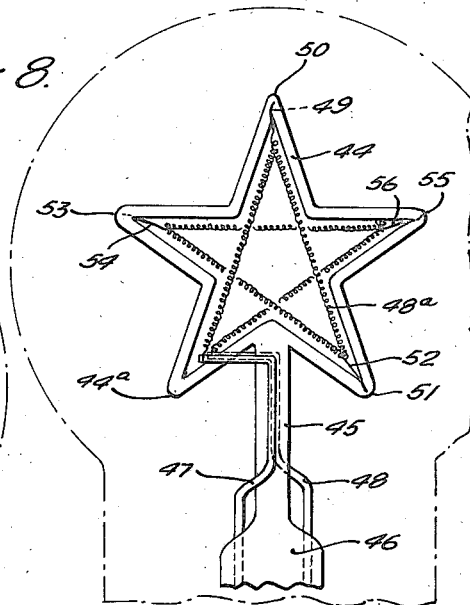


Fig. 8



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2,015,037

ELECTRIC LAMP

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Application September 10, 1932, Serial No. 632,549

5 Claims. (Cl. 176-14)

This invention relates to electric lamps, and particularly to electric lamps of the type adapted for special uses such as for advertising or for home or church uses in observing special occasions, either secular or sacred.

Specifically, the invention consists of an electric lamp of the filamentary type including a casing with inner supporting means on which is mounted a filament of special configuration, the support usually taking the form similar to that of the filament.

In the accompanying drawings in Fig. 1 there is shown an elevation of the lamp with the filament and support in the form of a cross;

Fig. 2 is a similar view with the lamp turned ninety degrees to the position shown in Fig. 1, with the reflected image of the cross-bar of the cross indicated in dotted outline;

Fig. 3 is a detail showing the lamp support coated with a luminous substance;

Fig. 4 is a detail indicating a reflecting surface on the lamp support; and

Figs. 5, 6, 7, and 8 are elevational views of four different embodiments of the invention.

Referring to the drawings, I have indicated in Fig. 1 an electric lamp having a tubular or cylindrical casing 10 to which is attached the usual form of screw base 11 adapting the lamp for insertion in an ordinary lamp socket, the screw shell 11 constituting one terminal of the lamp filament, while the contact plate 12 forms the other terminal.

Within the lamp is the glass support 13 which is formed with an extension 14 and an integral cross-bar 15, giving the support the general configuration of a cross. The upper portion 16 of the base 13 constitutes the press which grips the lead-in conductors 17 and 18. At their lower ends these lead-in conductors, which may be of copper, contact respectively with the screw shell 11 and contact plate 12. The upper ends of the lead-in conductors are joined through metals of appropriate coefficient of expansion to the ends of the filament 19, which may be of tungsten or other refractory metal or composition. The filament 19, which is in coiled form, although other forms may be used, is positioned so as to lie approximately in the plane of the cross support 15 and stem extension 14 and is supported thereon by means of the various wire connectors 20, one end of each of which is embedded in the support glass and the other end of which is looped as shown to hold the encircled filament in position.

Preferably the lamp should be of the vacuum type, but other types of lamps can be readily used,

such as the well known gas type employing argon and nitrogen mixtures at approximately eighty percent of atmospheric pressure. Other mixtures of gases such as argon and neon, or mixtures including any of the inert gases with a metal vapor such as that of mercury might also be used and at different pressures. Pressures and voltages may be modified where desired to produce a luminous gas condition within the lamp of different colors, and also filaments of the type which produce a halo about the filament may be employed for special effects.

I have described the support 13 and stem extension 14 and the cross bar 15 as being of glass. This glass is of the ordinary transparent and practically colorless type, although it is within the scope of my invention to employ a glass of different colors. I also may, in certain instances, employ a cross support which is coated with a luminous substance 21 (Fig. 3) such as one or more of the salts of uranium, which is sensitive to the light given off by the filament and is activated thereby to make the support prominently visible. Also, as shown at 22 in Fig. 4, the support may be silvered.

An outstanding feature of this invention consists in the employment with a filamentary luminous body of a cylindrical transparent lamp casing which, as shown in Fig. 2, displays in the plane of the support figure and filament an image 23 of that portion of the filament 24 attached to and conforming with the cross bar 15 of the support. An observer looking at the lamp at right angles to the lamp position shown in Fig. 1 consequently will see an illuminated central filament with a cross bar which has the appearance of the actual bar although actually an image. By this tubular construction of the casing, therefore, the cross formation is visible practically at all angles in relation to the lamp.

Another feature of the invention consists in the combination of the filament and support wherein these two elements have similar formation. By this means the filament and support form is brought out whether the lamp is energized or not, and when energized, the support serves to accentuate the illuminated filament. This accentuation can be further heightened also, as hereinabove stated, by coloring the support or by coating it with luminous or highly reflecting materials.

While it may be preferred to have the filament follow the contour of the supporting glass structure on the outside thereof in the manner described, it may be desirable in some instances to

position the filament behind the supporting member, making the latter somewhat larger than is shown in the figures heretofore described. In Fig. 5 a construction of this nature is shown where an envelope 25 takes the form of a rounded bulb similar in shape to the ordinary electric light bulb with a press 26 in which the two lead-in wires 27 and 28 are embedded and to which the supporting cross member 29 is fused. This cross member 29 is somewhat wider than the cross member heretofore described both as to the vertical and longitudinal elements thereof and is preferably flattened somewhat so that the filament 30 may be positioned behind it. Small support wires 31 are sealed at spaced points along the surface of the support in a manner similar to that already described, and these members are bent rearwardly as indicated, and the filament 31 is strung in back of the support. Both the support wires 27 and 28 are bent in back of the cross and form the anchor for the lower ends of the filament as is clearly shown.

The support of this construction may be made of clear glass, if desired, so that the filament light shines through it, or portions of it may be frosted, or coated with opalescent or light reflecting or refracting material, or the glass itself may be made in different colors to enhance the effectiveness thereof. Also in some instances it may be desirable to make the support 29 opaque so that it will stand out as a silhouette against a bright background of the rear wall of the envelope and in such a case a reflecting surface may be given the back of the support and the rear inner wall of the bulb.

In Fig. 6 a lamp is shown in which a star-shaped support 32 is mounted on a rod 33 which is fused to the press (not shown). In this case the two filament support rods 34 and 35 are fused into the press at each side of the support 32 and are bent inwardly at the top therebehind to receive the ends of the filament 36 which is strung in back of the star similar to the construction of Fig. 5 with the support wires 37 holding it in position. The star of this construction may be treated similarly to the cross of Fig. 5.

While in all of the figures thus far described the filament has the same configuration as the support member provided for it, such is not always necessary. Thus in Figs. 5 and 6 the supporting member may be a rectangular piece of glass behind which is mounted the filament arranged in the desired insignia.

In Fig. 7 a star 38 of glass or other transparent insulating material is supported on the rod 39 which is fused to the press 40, and this star supports a filament 41 which is spaced around the outer edge of the star by the support wires 42 similar to the filament on the cross of Fig. 1. The support rods 43 attached to the ends of the filament are brought out through the press in the usual manner.

In Fig. 8 another construction is shown in which the star is made of a rod 44 which is bent in that shape and is supported upon a glass support rod 45 which is fused to the press 46. In this case some of the support wires are bent forward while others are bent backward, thus positioning the filament within the star but spaced apart wherever two portions cross each other. The support rod 47 which is fused into the press, extends up substantially parallel to the glass rod 45 and is bent to the left so as to be positioned at the lower left hand point 44a of the star just inside the rod 45. In the same manner the sup-

port rod 48 which is also fused in the press follows the glass rod 45 but is behind it and has its end parallel to the bent end of the rod 47. One end of the filament 48a is attached to the upper end of the support rod 47 which is in front of the star and then extends upwardly to the small support wire 49 sealed into the front of the top point 50, then downwardly to the point 51 at the bottom where it is attached to the support wire 52 which is also sealed in the front of the point, then upwardly to the left and rearwardly to the point 53 where it is attached to the support wire 54 sealed in the back of the point, then across to the point 55 where it is attached to the support wire 55 sealed in the back of the point, and then downwardly to the top of the support rod 48. This construction permits the use of only four small support wires against a much larger number used with the constructions of the preceding figures. The filament sections may be separated from each other where they cross sufficiently to prevent arcing or short-circuiting at these points. When viewed from the front or rear the star shows up clearly. In this case also the support forming the star may be made of any desired color, or may be made reflecting, or may be otherwise treated to increase the desired effect.

It will be noted that in all of the modifications described it is desirable to have the lamp positioned so that the figure is facing the observer. In most electric lamp sockets the center contact is mounted resiliently so as to make good contact with the terminal on the base of the lamp, and this fact will usually permit the lamp to be screwed into the socket with the figure in its proper position. However, in order to give some adjustment and insure the lamp fitting properly into any type of socket, wherever positioned, I may provide a spring contact 57 which I have illustrated on the lamp of Fig. 5 attached to the center contact 58 which forms one of the lamp terminals, the other being the threaded shell 59 which engages the socket into which the lamp is screwed. The contact 57 may be U-shaped, having a lower disc 60 which is connected to an upper disc 61 by means of the curved connecting spring 62. The upper disc 61 is soldered or riveted to the center contact of the bulb 58, being close enough to the base to permit the thread 59 to engage in the thread of a standard socket. With this construction the lamp may be screwed down into a socket until the disc 60 strikes the contact in the bottom of the socket after which considerable rotation is permitted against the tension of the spring 62 without breaking the contact or forcing the lamp in any way, so that the insignia contained therein may be positioned at its proper angle.

This invention has been described specifically as a lamp holding a cross-shaped or star-shaped support and filament. I do not desire, however, to limit my invention to these particular configurations, as the figure may be modified in any desired manner according to the particular use of the lamp. The lamp casing, while ordinarily of transparent materials, may also be made of translucent substances or may be opalescent or colored in any desired manner although not to such an extent as to conceal the contour of the filament image. I have found such a construction to be especially useful where it is desired merely to bring out the outline of the filament without the related effects of the support.

Also, it may be found desirable to make the envelope of the desired shape and the filament con-

forming in shape to the envelope, or the support of any given shape may be enlarged so as to contain the filament.

5 Various other modifications of the invention may be apparent to those skilled in the art, and hence I do not desire to be limited to any specific and detailed embodiment of the invention except as is required by the claims hereto appended.

What I desire to claim is:

10 1. In a lamp the combination of a translucent cylindrical envelope, a base secured thereto, a support mounted upon said base and within said envelope, said support having an extension in the form of a cross with lateral extending elements, a filament mounted on said cross in the plane there-
15 of and displaced therefrom, and means for maintaining the relative position of said support and filament.

20 2. An electric lamp comprising an envelope, a support within said envelope, a filament mounted upon said support in spaced relation thereto and having the configuration of a cross, a base on said envelope adapted to be screwed into an ordinary lamp socket, and means on said base to permit rotational adjustment within said socket with-
25 out breaking the circuit so as to position said filament in a desired plane.

30 3. A lamp construction comprising a tubular envelope, a base secured thereto, a support mounted on said base and extending along the axis of

said envelope, and a filament mounted on said support and conforming in contour thereto, said support and filament lying approximately in the same plane, said support having plural opposed sections offset from the axis, and said envelope
5 being formed of a translucent material permitting visibility of the lighted filament from all directions around the side of the envelope.

4. A lamp construction comprising a cylindrical envelope, a base secured thereto, a support mount-
10 ed on said base and extending along the axis of the envelope, and a filament mounted on said support and conforming in contour thereto, portions of said filament being offset on opposite sides of said support to points adjacent the envelope and
15 intermediate the envelope and its axis, said envelope being formed of translucent material permitting visibility of the lighted filament from all directions around the side of the envelope.

5. In a lamp the combination of a cylindrical
20 envelope, a base secured to one end thereof, a support mounted on said base and extending along the axis of the envelope, and a filament having two refractory sections, said sections having portions offset radially with reference to the envelope
25 axis to lie adjacent the envelope wall, and said envelope being formed of a translucent material permitting visibility of the lighted filament from all directions around the side of the envelope.

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