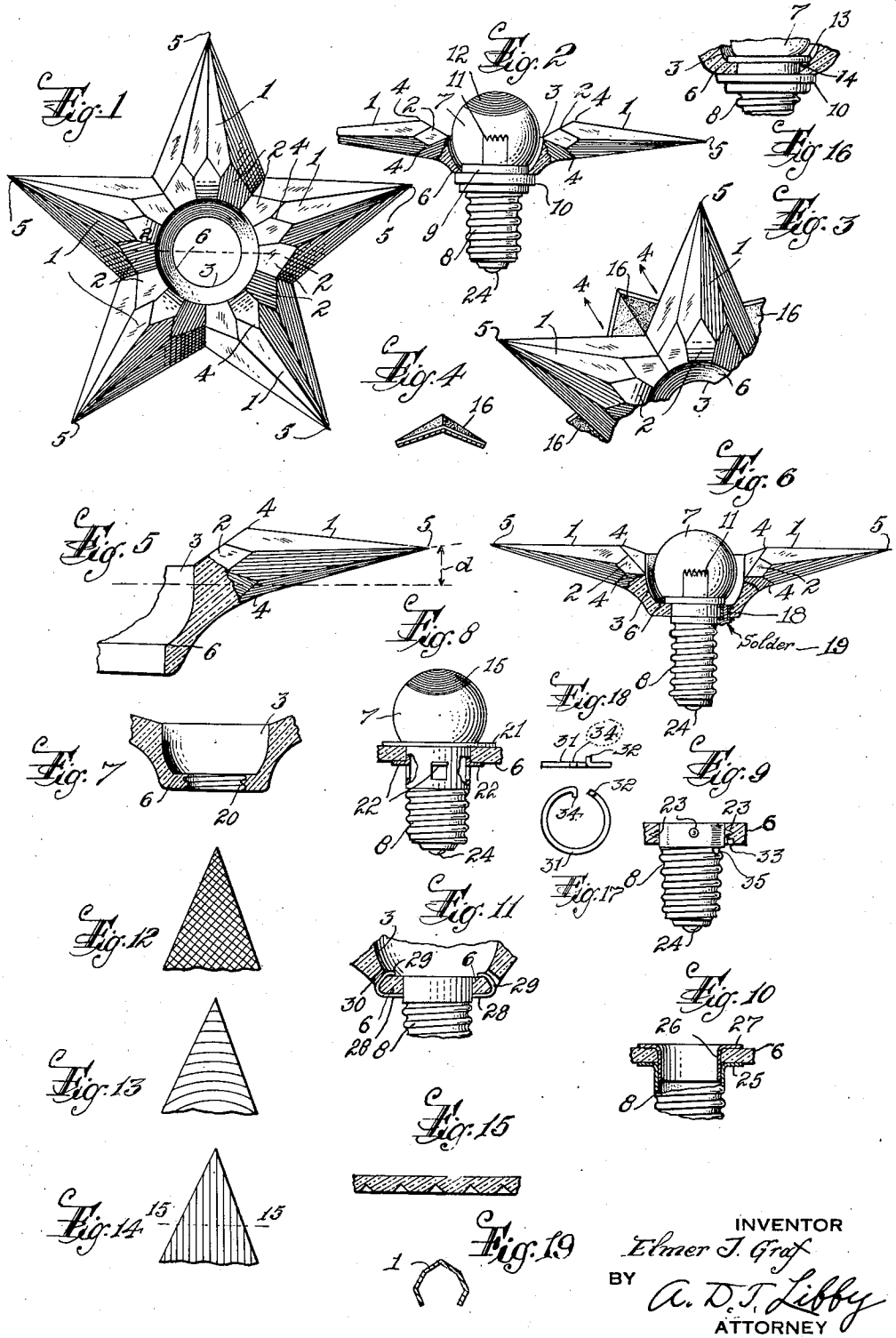
April 16, 1940. E. J. GRAF 2,197,040

ILLUMINATED DECORATIVE UNIT

Filed June 14, 1939



INVENTOR
Elmer J. Graf
BY
A. D. T. Libby
ATTORNEY

Patented Apr. 16, 1940 2,197,040

UNITED STATES PATENT OFFICE

2,197,040

ILLUMINATED DECORATIVE UNIT

Elmer J. Graf, Roselle Park, N. J., assignor to G. B. G. Corporation, Newark, N. J.

Application June 14, 1939, Serial No. 279,006

13 Claims. (Cl. 240—10)

This invention relates to an illuminated ornamental device or unit which is especially adapted for use in connection with Christmas-tree decorations. This application is a continuation in greater part of my application Serial No. 126,606, filed February 19, 1937.

In my Patent 2,031,642, issued February 25, 1936, I have shown and described a certain type of such a device.

In my present invention, that part which corresponds to the casing in said patent, is made out of a single piece of translucent material which may be of glass or other moldable material that will pass light rays. The single-piece holder is made with an integral central portion having a plurality of star-like projections extending therefrom and what I term the front or bulb side of the device is preferably provided with numerous facets, the central portion of the holder having a row of facets arranged around a recess and a hole, while other facet portions extend from the basic or circular row of facets in arcuately spaced relation to form a star-shaped figure. A lamp bulb for illuminating the device or unit is positioned in the hole, with the stem, or what corresponds to the stem of the lamp, projecting from the opposite side of the unit, so that the same may be attached directly to a current-supply socket.

It is the principal object of my invention to provide a decorative unit, especially for Christmas-tree decoration, which is highly ornamental in character and which, when illuminated in the manner to be hereinafter described, will present a very pleasing effect.

Another object of my invention is to provide a Christmas-tree ornamental unit which is much simpler and cheaper to make than any device of its kind which has heretofore been proposed.

My improved form of device will be readily understood by reference to the annexed drawing, wherein:

Figure 1 is a front or plan view of the light-dispersing holder, without the lamp.

Figure 2 is a part-sectional and part-elevational view on the line 2—2 of Figure 1, but showing the lamp in place, the axes of the projecting arms being in the same horizontal plane.

Figure 3 is a fragmentary view of a portion of Figure 1, showing a slight modification thereof.

Figure 4 is a view on the line 4—4 of Figure 3.

Figure 5 is a fragmentary view of one of the star-shaped arms in which the axis of the radiating arm is inclined forwardly toward the bulb side of the device.

Figure 6 is a part-sectional and part-elevational view of a device using the construction shown in Figure 5.

Figure 7 is a fragmentary view showing a modified form of the central portion of the holder showing one manner of mounting the bulb therein.

Figure 8 shows a further modified form of attaching the bulb to the holder, only a fragment of the same being shown.

Figure 9 shows a modification in which the shell corresponding to the stem of the bulb is preassembled to the holder.

Figure 10 shows a modification of the arrangement generally disclosed in Figure 9.

Figure 11 shows a further modified form of attaching the lamp structure to the holder.

Figures 12, 13 and 14 show different constructions of the back side of the prismatic-shaped arms of the holder.

Figure 15 is a view on the line 15—15 of Figure 14.

Figure 16 shows a further modified form of attaching the lamp structure to the holder.

Figure 17 is a plan view of a lock ring which may be used for holding the lamp structure in the holder.

Figure 18 is a side elevation of Figure 17.

Figure 19 is a section through one of the projecting arms of the holder, showing how it may be cored out.

The ornamental unit comprises, as heretofore stated, a single piece of translucent material preferably star-shaped and having the various projecting sections, particularly their front sides, broken up into a plurality of facets 1 which extend into cooperation with shorter facets 2 which may be referred to as base portions, which surround a central recess 3 terminating in a hole through the unit. Between the point 4—4, where the base facets meet the elongated facets, the material is the thickest; that is to say, from these points 4—4, the base facets taper inwardly toward the recess 3, and the facets 1 project to points 5.

In some cases, I prefer to make the back side of what may be termed the casing or holder part of the unit very nearly flat, except around the centrally located hole where an annular boss 6 is provided. The object of making this side substantially flat is to reduce the cost of manufacture, as only the facets on the front side will need to be ground or polished; also, the weight of the unit is reduced, which is advantageous for several reasons which will be apparent.

Located or nested in the recess 3 is a lamp bulb

7 having its stem 8 projecting through the hole and away from the back side of the unit. I prefer to have at least a slight clearance around the bulb 7 and the walls of the recess 3 to give air circulation around the bulb. The lamp structure, in the form shown in Figure 2, is locked in position by a ring 10 which may have threads formed therein to cooperate with the threads on the stem 8, so that when the ring 10 is screwed up against the flange 6, the bulb will be securely held in position, but if desired, cement 9 may also be used at the place indicated in Figure 2, not only to assist in anchoring the bulb structure in place, but to act as a cushion for the lamp bulb. It will be seen from the above that the entire unit can be screwed directly into a socket in the same manner as the units shown in my aforesaid patent.

The construction of the housing part and the location of the lamp structure therein so far described, is such that the filament 11 will be located approximately on a line drawn from the tip 5 through the geometrical center of the base facets formed in each of the projecting sections. By this arrangement, the light rays from the filament will more effectively pass outwardly through the sections of the body or housing member. To prevent direct glare from the filament, the bulb is preferably provided with a corrugated tip portion 12, as shown in Figure 2, or the end of the bulb may be painted, as shown in Figure 8, at 15 with any suitable coloring matter, or covered by a suitable cap.

The space between two of the projecting star-arms may be filled in more or less with a construction 16 such as indicated in Figures 3 and 4, this formation being of course molded integrally with the rest of the holder.

In Figure 5 the arms forming the star-shaped device are moved forwardly toward the bulb side of the holder a distance "*d*" as distinguished from the center-line arrangement heretofore described with respect to Figure 2.

In Figure 6 the holder has the prism-shaped arms formed as shown in Figure 5, but the lamp structure is mounted on a flange 6 which has a hole therethrough to receive a metallic element 18, the outer end of which is fastened to the lamp stem 8 in any satisfactory manner as by solder 19. In the construction shown in Figure 6, I have shown the member 18 as an eyelet, although it may be a pin, and where the holder is made of certain types of moldable material, the pin or even the eyelet may be forced through the material without any hole being previously made therein. The construction of Figure 6 makes a very cheap and efficient arrangement. Preferably the filament 11 of the lamp bulb 7 is arranged as closely as possible in a line through the axes of the various star-arranged arms of the holder.

In Figure 7 the hole in the bottom of the recess 3 is threaded at 20 to receive the threaded portion of the lamp stem 8. If the holder is made of glass, the threads 20 are molded therein, whereas if some other translucent material is used, the threads may be machined therein.

In Figure 8 the lamp structure is provided with a collar 21 at the junction of the bulb 7 and the stem 8 which engages the inner side of the flange 6, and the stem itself is provided with a plurality of projections 22 which may be bent outwardly to engage the under side of the flange 6 after the lamp structure has been put in place.

In Figure 9 the shell or stem which may be part of the lamp structure is made separately from the bulb and is attached to the flange 6 through the medium of an internal tool which forces projections 23 into the material of the flange 6 when this material will permit. If the holder is of glass, the recesses will be molded into the glass to accommodate the projections 23. In this construction the lamp bulb is provided with two extending terminals, one of which will be connected to the stem or shell 8 and the other to a central insulated contact 24, so that after the bulb per se has been put in place, it corresponds to a unitary lamp structure such as shown in Figures 2 and 6.

In Figure 10 the shell 8 is provided with a flange 25 which engages the lower portion of the flange 6. A collar 26 is fastened to one end of the shell 8 and has a flange 27 adapted to engage the inner part of the flange 6 of the holder, this flange being bent downwardly into the position shown in Figure 10 during the assembly operation. Instead of a complete annular flange, the collar 26 may have a plurality of fingers performing the function of a complete flange 27.

In Figure 11 the bulb is provided with a metal collar 28 which is fastened to the stem 8 of the bulb and has a plurality of fingers 29 passing through orifices 30 in the flange 6 of the holder to lock the lamp in position in the holder.

In the different devices, the back sides of the radiating arms may have their surfaces provided with different formations such as shown in Figures 12, 13 and 14. In Figure 12 this surface is diamond-shaped, while in Figure 13 it consists of a plurality of curved surfaces, and in Figures 14 and 15 the surface may be broken up as indicated. Other forms of surfaces may be used for assisting in dispersing the light coming from the lamp bulb.

In Figure 16, the lamp structure is provided with an inner collar 13 of any satisfactory material, preferably metal, securely soldered or otherwise fastened to the stem 8 for engaging the flange 6 on its inner face, while the clamping ring 10, preferably of insulating material, is threaded onto the stem 8 so as to engage the flange 6, thereby clamping the bulb 7 securely in position in the recess or hole 3. To prevent the bulb from being arcuately displaced for any reason, the collar 13 may be provided with a detent 14 to engage a cooperative recess in the flange 6.

It may be noted in passing that the anti-glare means, such as 15 shown in Figure 8, may also act as a reflector to turn the direct rays from the bulb filament back into the material comprising the holder.

While I have indicated in Figure 9, a shell or lamp stem which is adapted to be mounted to the holder prior to the assembly of the bulb therein, and have described the terminals as being fastened to the shell 8 and the centrally located contact 24, it will be understood that two insulated contacts may be carried at the end of the stem to provide a twin contact base arrangement such as is used in certain types of automotive vehicle lamp structures.

In Figure 9, I have shown a recess 33 in the flange 6 of the holder, and likewise a recess 35 in the shell 8, or which may be in the stem of the bulb, where the bulb and stem form part of an integral structure. These recesses are adapted to take, respectively, the projections 32 and 34 of the snap ring 31 shown in Figures 17 and 18, thereby securely locking the lamp structure in place in the holder, it being understood that when this construction is used the projections 23 are not used, the two constructions being alternative.

but both being indicated in Figure 9 to save a separate view.

Furthermore, while I have mentioned the fact that the front side of the holder is provided with facet portions and the rear side with formations such as shown in Figures 12, 13 and 14, both sides may be finished with facet portions, or both surfaces may be broken up in a manner such as illustrated in Figures 12, 13 or 14, or in some other preferred form for the purpose of dispersing the light.

Another change which may be made is that with certain types of moldable material of which the holder may be made, the radiating arms and the central portion may be cored out so as to reduce the amount of material used, as well as to lighten the device and reduce the cost of manufacture thereof.

Other changes in the details may be made without departing from the spirit of my invention or the scope of the appended claims.

What I claim is:

1. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having a plurality of star-like projections with at least the front side subdivided into a plurality of facets, said holder having a centrally located recess and a flange forming a hole through the holder, a lamp bulb nested within the recess and having its stem projecting through the hole beyond the rear side of the holder, and means for anchoring the bulb in the position described, said means including a collar on the bulb stem to engage said flange on one side, the collar and flange having cooperative positive positioning means, and a clamping member carried on the bulb stem and gripping the flange on the side opposite to that engaged by the collar, the bulb stem serving to mount the unit directly in a current-supply socket.

2. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having a plurality of star-like projections extending from an integral central portion thereof, said portion having a recess therein and a hole therethrough, a lamp structure including a bulb and stem, the bulb being positioned in said recess and the stem extending through the hole, and threaded means including the threads on the stem for anchoring the lamp to the holder, the stem extending away from the holder for mounting the unit directly in a current-supply socket.

3. A decorative unit of the class described comprising an integral holder of insulating and light-transmitting material having a continuous circular central portion and arcuately spaced portions, each having facets at least on one side extending from said central portion and meeting at a point, a lamp structure including a bulb and stem, said central portion having a recess therein to receive said bulb, and a hole therethrough to pass only the stem which extends away from the holder for mounting the unit in a current-supply socket, and threaded means including the threads on the lamp stem for anchoring the lamp structure to the holder.

4. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having a plurality of star-like projections extending from its central portion, said central portion having a recess therein and a hole therethrough, a lamp structure having a bulb and stem, the bulb fitting within said recess and the stem passing through said hole leaving the bulb exposed on the recess side of the holder, and the stem extending from the reverse side for screwing the unit directly into a current-supply socket, and threaded means cooperative between said stem and the holder for anchoring the lamp structure to the holder.

5. A decorative unit of the class described, comprising a single-piece holder of insulating and light-transmitting material, said holder having a central portion with a recess therein and a hole from the bottom of the recess therethrough, said central portion having a row of facets around the recess and tapering facet portions extending from said row of facets in arcuately spaced relation to form a star-shaped figure, a lamp structure having a bulb and stem, the bulb fitting within said recess and the stem passing through said hole leaving the bulb exposed on the recess side of the holder, and the stem extending from the reverse side for screwing the unit directly into a current-supply socket, and threaded means cooperative between said stem and the holder for anchoring the lamp structure to the holder.

6. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of star-like projections extending therefrom, said portion having a recess therein and a hole therethrough, a lamp structure including a bulb and stem, the bulb being positioned in said recess and the stem extending through the hole, and means including formations carried by the stem in cooperation with parts on the holder for anchoring the lamp to the holder, the stem extending away from the holder for mounting the unit directly in a current-supply socket.

7. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of star-like projections extending therefrom, said portion having a recess therein and a hole therethrough, a lamp structure including a bulb and stem, the bulb being positioned in said recess and the stem extending through the hole and away from the holder for mounting the unit directly in a current-supply socket, and means for anchoring the lamp to the holder.

8. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of star-like projections extending therefrom, said portion having a recess therein and a hole therethrough, a lamp structure including a bulb and stem, the bulb being positioned in said recess and the stem extending through the hole and away from the holder for mounting the unit directly in a current-supply socket, and a metallic element passing through a part of the holder adjacent said hole therein and anchored to the lamp structure.

9. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of star-like projections extending therefrom, said portion having a recess therein and a hole therethrough, a lamp structure including a bulb and stem, the bulb being positioned in said recess and the stem extending through the hole and away from the holder for mounting the unit directly in a current-supply socket, and an eyelet passing through the holder adjacent said hole therein and fastened to the stem of the lamp structure.

10. A decorative unit of the class described,

comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of star-like projections extending therefrom, said portion having a recess therein and a hole therethrough, a metallic shell having external thread formations thereon and carrying a centrally located insulated contact at its outer end, the shell being positioned in said hole and fastened to the holder and extending away from the holder for mounting the unit directly in a current-supply socket, and a light bulb seated in the recess and having its terminals connected one to the shell and the other to the insulated contact carried by the shell.

11. A decorative unit of the class described, comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of star-like projections extending therefrom, said portion having a recess therein and a hole therethrough, the front of said projections having facet surfaces while the rear parts of said projections have formed surfaces for dispersing the light, a lamp structure including a bulb and stem, the bulb being positioned in the recess and the stem projecting through the hole and away from the holder for mounting the unit directly in a current-supply socket, and means for anchoring the lamp structure to the holder.

12. A decorative unit as set forth in claim 7, further defined in that the means for anchoring the lamp to the holder comprises a snap-ring having fingers for engaging cooperative recesses in the holder and lamp stem.

13. A decorative unit of the class described comprising a single-piece holder of light-transmitting material having an integral central portion with a plurality of starlike projections extending therefrom, the projections being cored out for the purposes described, said central portion having a recess therein and a hole therethrough, the recess being of a size and shape to provide air circulation around a lamp bulb which may be positioned therein, a lamp structure including a bulb and stem, the bulb being positioned in said recess and extending through the hole and away from the holder for mounting the unit directly in a current-supply socket, and means for anchoring the lamp to the holder.

ELMER J. GRAF.