Dec. 17, 1957 F. GALLAGHER 2,817,007

ORNAMENTAL REFLECTOR

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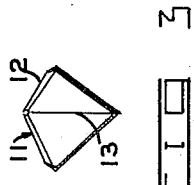


FIG 3

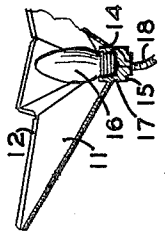


FIG 4

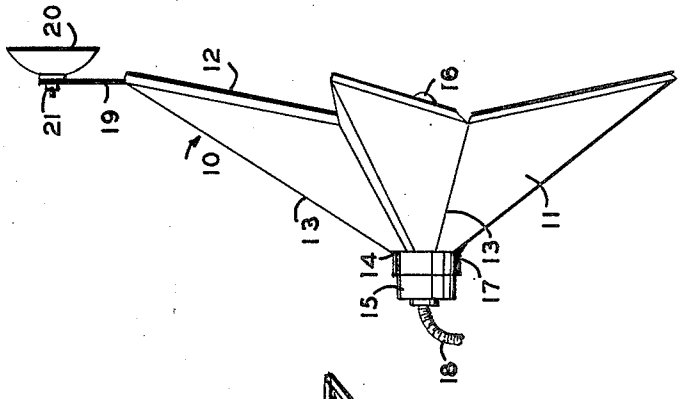


FIG 2

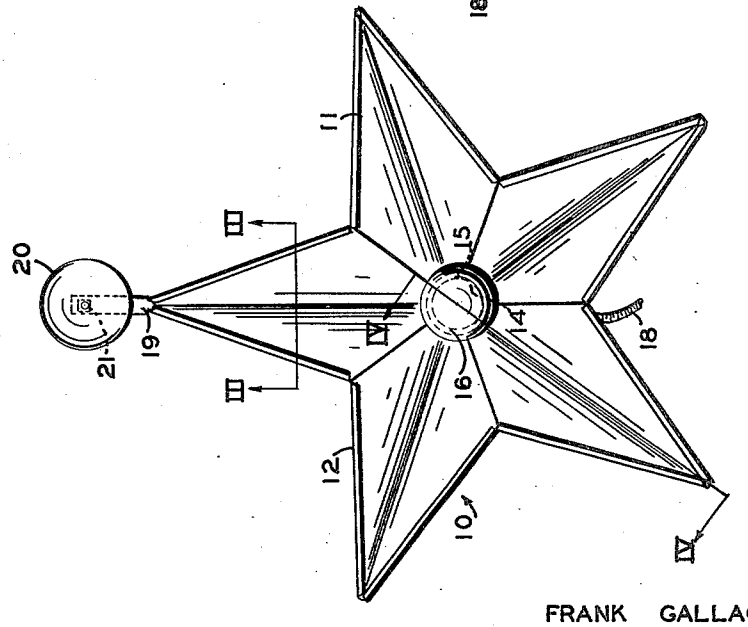


FIG 1

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ORNAMENTAL REFLECTOR

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1 Claim. (Cl. 240—103)

This invention relates to reflectors in general and more particularly to the type of ornamental reflector used with incandescent lamps to distribute and deflect the light thereon in an effective and pleasing manner.

It is a major object of the invention to provide a reflector element constructed in such a manner that to a person looking at the assembled apparatus it would appear that the entire reflector is a source of illumination. There have been many previous reflectors advanced for ornamental purposes but very little thought has been given to the problem of controlling the reflection paths of the generated light rays to obtain nearly uniform illumination across the face of the reflector. In many instances a bright reflection or "hot spot" is present near the base of the electric light bulb while at the outer periphery of the reflector the light density is very low causing the casual onlooker to be unable to identify the shape or the outline of the object.

It is a further object of the invention to provide a reflector of the type wherein the light rays are directed in such a way that the effective glare is almost entirely eliminated thus providing a much more efficient and desirable reflector.

Yet a more particular object of the invention is to provide a reflector assembly consisting of a shaped reflector, a socket for the incandescent lamp, and a support for attaching it to the desired surface that may be easily and inexpensively manufactured and assembled but yet is of rugged and durable construction.

Another object of the invention is to provide an improved reflector shaped in the form of a star which may be attached to the inside of a house window or other suitable places for ornamental purposes. It should be readily understood that this practice is very common at the time of certain holidays such as Christmas and New Year's when most homes are decorated with appropriate symbols and ornaments.

These and other objects and advantages of the invention will be more fully apparent upon consideration of the accompanying drawing and the following description wherein is found an illustrated embodiment of my invention.

In the drawing:

Figure 1 is a front plan view of the ornamental reflector assembly constructed in accordance with the teachings of my invention;

Figure 2 is a side view of the star shaped reflector and certain other parts appurtenant thereto;

Figure 3 is an end sectional view taken along the section lines III—III of Figure 1; and

Figure 4 is a side view taken along the section line IV—IV of Figure 1.

Referring now to the drawing the numeral **10** designates a star-shaped reflector of the type having a plurality of arms **11** extending with generally sloping sides and in the illustrated embodiment the star is five pointed. The reflector **10** is cupped so that the hub of the arms **11** is depressed more than any other portion of the reflecting

surface. The edges of the arms **11** are folded or bent inwardly to form integral light deflecting guides **12**. It is contemplated that the reflector **10** will be constructed from metal sheet or some other material that can be easily molded or worked but which will retain the formed shape. If the edges **12** are metal it may be necessary to inturn the sharp edges thereof or file them down to prevent accidental injury to a person manipulating the reflector. When the sheet metal is formed a plurality of creases or seams **13** result which in the present invention are used as will be further explained.

Directly in the center of the reflector **10** is an aperture **14** through which a conventional electric socket **15** protrudes to threadably receive the light bulb **16**. The socket **15** is properly insulated from the reflector element as is readily apparent. The socket is held in rigid relation to the reflector by the flange **17** or any other rigid attachment means that is expedient. Communicating with the socket assembly **15** and a source of electric energy, not shown, is the electrical conductor cord **18**. It should be understood that switching and other control apparatus, such as blinking, may be provided to permit flexibility of operation as desired.

Attached to one of the arms **11** at the tip thereof is a resilient member **19** to which is secured a vacuum cup **20** by means of the cooperating bolt and nut **21**, for example. The resilient member **19** is adapted to be flexed and to support the entire reflector assembly when the vacuum cup **20** is attached to the inside of a section of window glass. The hub of the reflector is dished so that when the vacuum cup **20** is fastened to a window pane or other transparent material the reflector rests substantially against the pane of glass. In other words the protruding portion of the electric light bulb **16** does not extend a great degree beyond the surface of the reflector edges **11** as shown in Figure 2. This arrangement not only ensures a compact assembly but also accomplishes the objects initially set forth.

In the ornament shown the bulb **16** emits light waves that travel in a straight line until they hit the sloping sides of the arms **11** and then due to the shiny surface of the reflector, are reflected at some angle of incidence. The magnitude of this angle, of course, is dependent upon the amount of slope the reflector surfaces of the arms **11** have which in turn depends on how much the hub or center is depressed from the plane of the edges **12**. With the proper slope most of the light reflected by the sides of the arms **11** is directed toward the light deflecting guides **12** which in turn bounce the light rays back toward the sloping surface of the arms **11**. This series of reflection and deflection is to some extent endless but it should be understood that the reflection is not entirely complete and light escapes giving the appearance of uniform illumination over the entire area of the reflector.

Since the sloping sides of the arms **11** slope toward the hub and the light bulb **16** the angles are such that the light rays are deflected outwardly toward the tips of the arms **11**. The effect is a more pleasing ornament since the portion of the arm furthest disposed from the light bulb receives a greater portion of the reflection and therefore appears to the casual onlooker to be as bright as the portions of the reflector nearer the hub. In this manner the complete star is fully illuminated thus overcoming the objection to reflectors proposed heretofore where it is sometimes difficult to distinguish the outer periphery and shape of the element since very little light reaches the portions disposed from the light source.

The various creases and seams **13** resulting from the forming of the metal serve a useful and worthwhile purpose. Since all of the sides of the arms **11** slope toward the folds or creases **13** it is inevitable that more

light will be reflected from these portions of the reflector. Another good reason for this is that the light deflecting guides **12** are least effective to rays deflected from the area near the creases **13**. Therefore, to a person looking at the ornament when the light is energized, the creases **13** have a much deeper hue or color than that of the adjacent portions. This serves to further outline the shape of the star shaped reflector so that it is more easily recognizable.

Because the light rays are bounced from one reflecting surface to another before being emitted the intensity of the rays are somewhat diminished but this is very desirable since the glare associated with most ornamental reflectors is curtailed and practically alleviated. This provides a much better reflector that is not hard to look at for extended periods of time since the harmful glare has been removed.

In the contemplated construction of the assembly, sheet metal is used to form the reflector proper. As is well known, highly polished surfaces are necessary for the complete reflection of light rays and I intend to use the brilliant surface of the sheet metal for this purpose without further processing. It should of course be apparent that the reflecting surface may be further worked or painted with lacquer to enhance its reflecting qualities if desired. It is also contemplated that colored lights will be used since the hues and colors are very effective in outlining the star shaped ornament and the light is much softer, still further reducing the glare.

The vacuum cup **20** has been provided for attaching the assembly to the inside of a window glass so that no suspension system need be utilized by the home decorator. Many of the window ornaments today have no ready attachment means and this necessitates rigging some sort of support which is usually accomplished by a nail being driven in the window frame and wire or cord descending to hold the ornament in place. This manner of supporting ornaments is completely undesirable because the nail tends to split the frame and leave undesirable holes. It also is time-consuming and frustrating to rig such a delicate suspension system and when the ornament is supported at a long distance by string or wire it tends to act as a pendulum and moves in any direction at the slightest provocation. Obviously the arrangement using the vacuum cup which supports the ornament directly adjacent to the reflector is much easier to attach to the window. All that is necessary is for the cup to be pressed against the pane causing a vacuum that is sufficiently strong to hold the ornament in place. To remove the ornament from the window the vacuum cup is merely pulled away from the pane of glass.

It is also apparent that the construction of the parts is such that ease of manufacture and assembly are afforded resulting in a reflector whose cost is in the price range of the average homeowner wishing to decorate for the Christmas holidays. It should be understood that forms other than stars can be readily manufactured, such as a corona, providing the complementary reflecting surfaces are positioned to effect a pleasing decorative lighting effect.

It should therefore be apparent that I have accomplished the objects initially set forth by providing an improved ornamental reflecting assembly wherein the entire reflecting surface is illuminated so that the shape of the object may be distinguished and the glare substantially eliminated by the use of inturned light guide deflectors.

I have also provided a star shaped reflector where the creases and seams formed in the reflector are utilized to further distinguish and accentuate the shape and form of the reflector. For ready attachment to the inside of a pane of glass a vacuum cup is secured by a resilient member to the reflector proper which precludes the use of any undesirable suspension means.

The entire assembly, consisting of the reflector, light bulb and socket, and the vacuum cup, is so constructed to afford easy and cheap manufacture while yet providing a compact and pleasing final configuration.

While the invention has been described in specific detail with the example of the star shaped reflector, the example is illustrative only and reference should therefore be made to the appended claim in determining the full and complete scope and intent of the invention disclosed herein.

I claim:

An ornamental light reflector comprising a unitary and opaque sheet metal member having at least one specular surface, said member being deeply dished and star-shaped with said specular surface being on the generally concave side of said member, a light socket deeply recessed and secured in the center portion of said star-shaped member, a light bulb mounted in said socket and extending axially of said star-shaped member with the principal light-emitting portions thereof positioned wholly within the concavity of said star-shaped member, each of the arms of said star-shaped member projecting forwardly and outwardly of said socket in general conformity to the concavity of said star-shaped member, each of said arms having a pair of upwardly divergent side walls and being generally V-shaped in cross section, each of said side walls of each of said arms having an integral flange inturned toward the center of the arm associated therewith, each of said flanges extending inwardly over a portion of the side wall associated therewith, the inner specular surface of said flanges being in sight of said light-emitting portion of said bulb, and said bulb emitting light rays which impinge directly but acutely on the specular surfaces of said arms and said flanges and are redirected from said flanges onto the radially outward portions of the specular surfaces of said arms.

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