Aug. 18, 1942. C. F. BOOKMAN, JR 2,293,672

LAMP SHADE AND METHOD OF MAKING SAME

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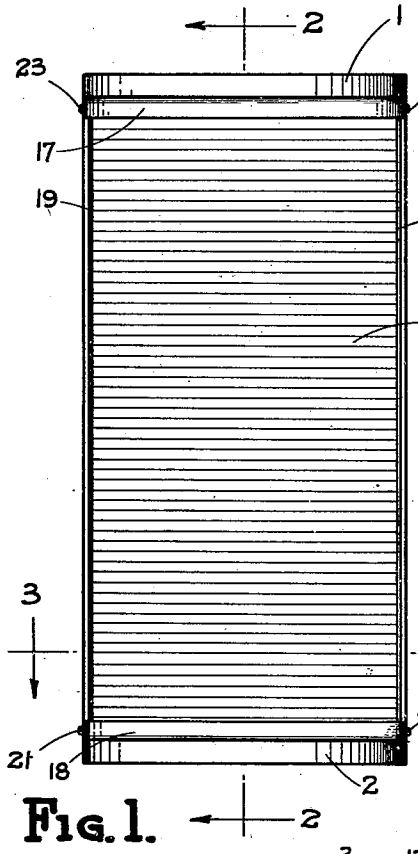

Fig. 1.

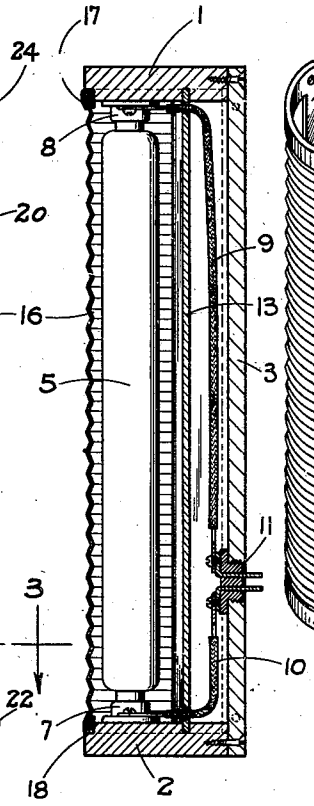

Fig. 2.

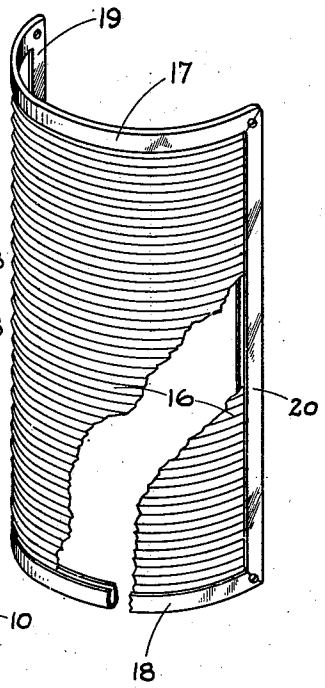

Fig. 4.

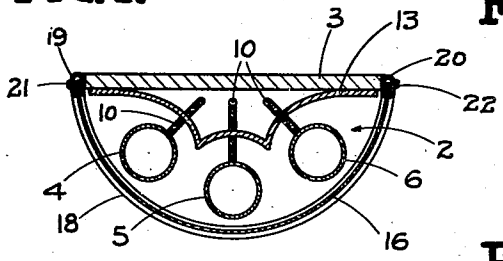

Fig. 3.

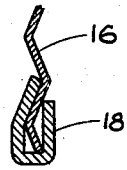

Fig. 5.

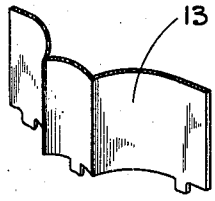

Fig. 6.

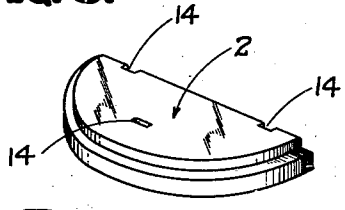

Fig. 7.

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LAMP SHADE AND METHOD OF MAKING SAME

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6 Claims. (Cl. 240—108)

This invention relates generally to a lamp shade and the method of making the same, and more particularly to a lamp shade which is well adapted for use with a fluorescent tube type of lamp. Lamps of this type usually comprise one or more tubes which emit a brilliant light and which produce considerable glare. One of the problems has been to provide a shade which will reduce the glare sufficiently and at the same time will not unnecessarily limit the efficiency of the lamp or unnecessarily reduce the amount of light transmitted. Shades for such lamps in the past have been formed of glass or other materials which are not only expensive to manufacture but excessively reduce the light transmitted in order to eliminate objectionable glare.

One of the objects of this invention is to provide a lamp shade which is particularly adapted and suited for use with fluorescent tube lamps and which at the same time is inexpensive to manufacture and well adapted for quantity production at low cost.

A further object of the invention is to provide a combination fluorescent tube lamp and a shade therefor which will materially reduce the glare and at the same time transmit enough light for the proper illumination and efficiency.

A still further object of the invention is to provide a lamp shade which is particularly adapted for use with fluorescent tube lamps and which may be formed of an inexpensive, thin, flexible, translucent material, such as ethocellulose, cellulose acetate or similar material, and which may be formed into a lamp shade in a very simple and inexpensive manner.

Another object of the invention is to provide a lamp shade which consists essentially of a thin strip of cellulose acetate or the like having formed therein a plurality of rows of flutes, ribs or corrugations which are disposed closely adjacent each other and which serve to strengthen the material and at the same time to transmit sufficient foot candles of light for proper illumination.

A still further object of the invention is to provide a lamp shade which comprises a strip of thin, flexible, translucent material which has formed therein a series of rows of folds, flutes, corrugations or ribs which are held in rigid relation with the lamp by means of a frame which maintains the ribs or corrugations preferably at right angles to the longitudinal axis of the tube lamp.

A still further object of the invention is to provide a method of making a lamp shade which is simple and inexpensive and comprises essentially the steps of forming in a thin, flat strip of flexible translucent material a series of rows of closely adjacent corrugations or ribs which extend transversely of the strip and then securing the opposite edges of the strip within a frame which serves to maintain such corrugations in place, the strip being then bent into a curvilinear or any other suitable form in a direction at right angles to such corrugations so as to increase the rigidity of the shade.

Another object of the invention is to provide a method of making the lamp shade herein described.

Further and more limited objects of the invention will appear as the description proceeds and by reference to the accompanying drawing in which Fig. 1 is a view in front elevation of a fluorescent tube lamp having my improved shade applied thereto; Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1; Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1; Fig. 4 is a detail perspective view of the shade removed from the lamp; Fig. 5 is a detail sectional view showing the manner of securing the shade within the frame; Fig. 6 is a detail perspective view of the lamp reflector; and Fig. 7 is a detail perspective view of one of the end members of the casing which supports the lamps.

Referring now to the drawing, the lamp consists essentially of a pair of supporting members 1 and 2 which may be formed of any suitable material and to which is secured a back plate 3. Secured within the casing provided by these parts are a plurality of fluorescent tube lamps 4, 5 and 6, each of which has a lower terminal 7 and an upper terminal 8. Leading from the lamp terminals are wires 9 and 10 which connect with the terminal socket connection 11. Also disposed within the lamp casing is a reflector 13 shaped in section as shown most clearly in Fig. 3, so as to provide curved reflecting portions disposed behind each of the tube lamps, respectively. The reflector has a plurality of projecting portions thereon which fit within notches 14 provided in the supporting members 1 and 2. The shade proper consists of a strip of cellulose acetate or ethocellulose or other suitable translucent material which has first been fluted, ribbed, or corrugated and which is indicated by the reference character 16.

In constructing the shade, a flat strip of material is first run through a tucking machine which forms a series of closely adjacent rows of folds, ribs, corrugations or flutes which extend trans-

versely of the strip and provide angular surfaces which reflect light. The strip of material is then secured within a frame which comprises end portions 17 and 18 and side portions 19 and 20 which are shaped in section, as shown most clearly in Fig. 5. The strip of translucent material is secured within the frame members and the frame members compressed to the position shown in Fig. 5 so as to firmly hold the strip in place. This operation is performed while the frame members and strip are in a flat condition. The frame with the shade secured thereto is then placed in a fixture and bent to the desired shape in a direction at right angles to the rows of ribs or flutes. The shade so formed is then placed over a mold and subjected to heat so as to relieve the tension therein caused by the bending operation and to more or less set the ribs, flutes or corrugations and to impart the final shape to the shade. The shade, after being shaped in the manner described is applied to the lamp proper and secured in place by screws 21, 22, 23 and 24 disposed at opposite ends thereof. The number and width or depth of the corrugations may be varied somewhat depending upon the nature and properties of the material of which the shade is formed. For a fluorescent lamp having three tubes of approximately 4 feet in length and a diameter of about 1½ inches and having a rating of 40 watts, I obtain very desirable results by using a strip of acetate or the like having about seventeen folds per linear inch, the depth of the folds being approximately $\frac{1}{32}$ inch.

After the sheet of acetate or the like is secured within the frame, the end portions of the frame are formed to the desired shape. Then the shade is placed over a heated form which imparts thereto a final shape. This operation serves to relieve any tension set up in the shade by the bending of the frame and provides a shade which is uniform throughout its length. With such a lamp I am able to transmit approximately 85% of the light and at the same time substantially eliminate objectionable glare. If too much light is transmitted through the shade, additional flutes or corrugations may be provided or the surface of the material may be given a matted finish or a certain amount of coloring matter may be added so as to change the degree of translucency or opacity of the material. While I prefer to use a thin strip of cellulose acetate of about .003 inch in thickness, it is of course understood that other material having the necessary translucency or opacity may be employed.

The particular manner of securing the shade in place and the specific construction and shape of the lamp and shade proper and the means for supporting the same may, of course, be varied in accordance with the particular installation.

It is therefore to be understood that various changes may be made in the material used as well as in the shape and design of the various parts without departing from the spirit of my invention and that the embodiment of the invention herein disclosed is to be considered merely as illustrative and not in a limiting sense as the invention is limited only in accordance with the scope of the appended claims.

Having thus described my invention, what I claim is:

1. The method of making a lamp shade which comprises forming in a strip of cellulose acetate a series of closely adjacent rows of ribs or corrugations which extend transversely thereof and securing the strip so formed within a frame so as to maintain such ribs or corrugations in place, then bending such strip and frame into the desired shape and applying heat thereto so as to relieve the tension therein caused by the bending operation.

2. An elongated lamp shade for tube lamps consisting of a thin sheet of flexible translucent material, said sheet having light modifying characteristics including a plurality of closely adjacent substantially parallel crimps disposed over substantially the entire surface of the shade, such crimps extending in a direction at right angles to the axis of the tube and presenting angularly disposed reflecting surfaces to the light.

3. An elongated lamp shade for tube lamps consisting of a thin sheet of flexible translucent material, said sheet having light modifying characteristics including a plurality of closely adjacent substantially parallel crimps disposed over substantially the entire surface of the shade, such crimps extending in a direction at right angles to the axis of the tube and presenting angularly disposed reflecting surfaces to the light, said strip being arched about the tube axis and confined about its opposite edges.

4. An elongated lamp shade for tube lamps consisting of a thin sheet of flexible translucent material, said sheet having light modifying characteristics including a plurality of closely adjacent substantially parallel crimps disposed over substantially the entire surface of the shade, such crimps extending in a direction at right angles to the axis of the tube and presenting angularly disposed reflecting surfaces to the light, said strip being provided with a frame at its marginal edges to hold the crimps in rigid relation.

5. An elongated lamp shade for tube lamps consisting of a thin sheet of cellulose acetate, said sheet having light modifying characteristics including a plurality of closely adjacent substantially parallel crimps disposed over substantially the entire surface of the shade, such crimps extending in a direction at right angles to the axis of the tube and presenting angularly disposed reflecting surfaces to the light.

6. An elongated lamp shade for tube lamps consisting of a thin sheet of flexible translucent material, said sheet having light modifying characteristics including a plurality of closely adjacent substantially parallel crimps disposed over substantially the entire surface of the shade, such crimps extending in a direction at right angles to the axis of the tube and presenting angularly disposed reflecting surfaces to the light, the crimps in said strip being of the order of approximately seventeen crimps per linear inch and of a depth of approximately one-thirty-second of an inch.

CHARLES F. BOOKMAN, JR.