

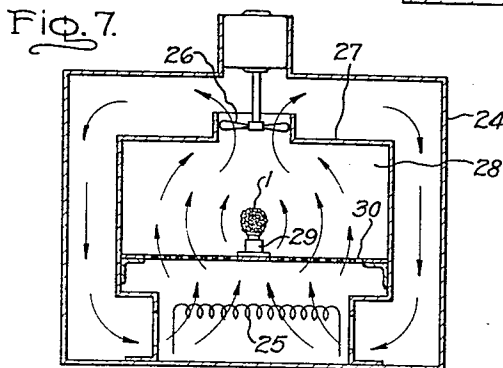
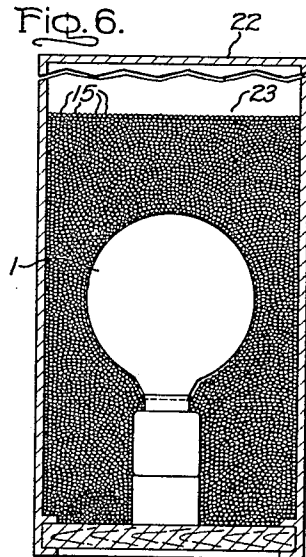
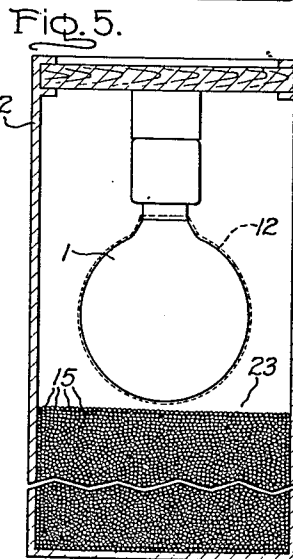
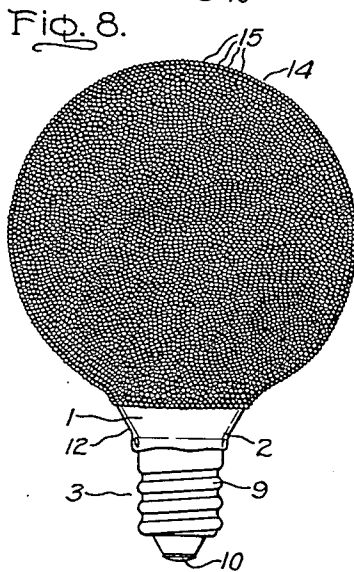
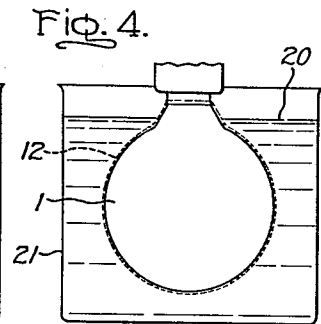
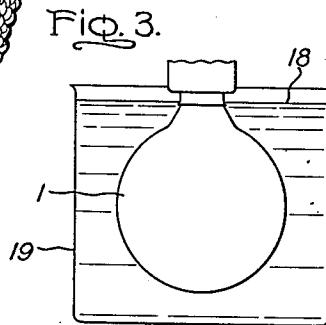
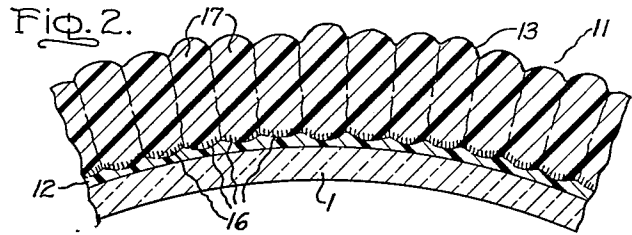
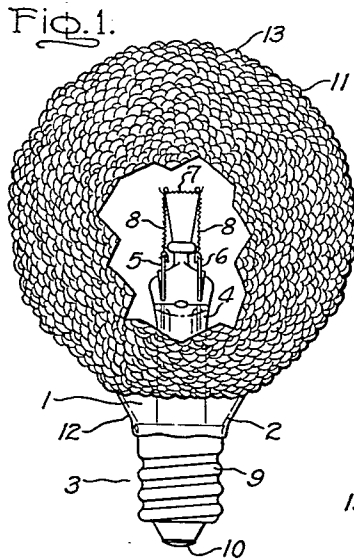
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COATED ELECTRIC LAMP AND METHOD OF MANUFACTURE

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COATED ELECTRIC LAMP AND METHOD OF MANUFACTURE

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This invention relates in general to electric lamps and similar devices, and more particularly to a light-diffusing decorative coating therefor and to a method of manufacturing a lamp or similar device with such a coating.

Various types of light-modifying coatings have been employed in the past on electric lamp bulbs for the purpose of providing a lamp producing a decorative lighting effect suitable for various lighting purposes such as Christmas tree and display lighting, luminous signs, and the like. Such coatings, however, have generally been of more or less smooth-surfaced character and for such reason have not presented a particular pleasing or attractive decorative appearance.

It is one object of our invention to provide an electric lamp having a translucent light-diffusing coating on the lamp envelope of distinctive and highly decorative character.

Another object of our invention is to provide an electric lamp having a translucent light-diffusing coating on the lamp envelope which not only presents a highly decorative white appearance when the lamp is in its unlighted state such as to impart to the lamp itself the appearance of an ornament, but which in addition imparts a highly pleasing soft-colored lighting effect to the emitted light from the lamp when in its lighted condition.

Still another object of our invention is to provide an electric lamp having a lamp envelope of substantially globular shape and provided on its exterior with a translucent cellular light-diffusing white coating of a distinctive roughened or lumpy surface configuration such as to impart to the lamp itself the appearance of a snowball when in its unlighted condition.

A further object of our invention is to provide an electric lamp having a translucent cellular light-diffusing exterior coating on the lamp envelope which is firmly adherent thereto at all times throughout the life of the lamp and which is, in addition, of extremely light weight and of high heat-insulating character such that the lighted lamp operates at a sufficiently low outer surface temperature to be cool to the touch.

A still further object of our invention is to provide a novel and simple method of producing a coating of the above-mentioned character on a glass lamp bulb or similar article.

Briefly stated, in accordance with one aspect of the invention, a glass lamp envelope or similar illuminating ware is provided with a translucent external coating consisting of a thin base coat of a suitable light-transmitting adhesive material, and a top layer of translucent expanded synthetic resin or plastic firmly adherent to the base coat. According to a further aspect of the invention, the base coat may be constituted either by a clear or a colored transparent lacquer, and the top coat may be constituted by a translucent white or colored layer of integrated puffed kernels of expanded synthetic resin, suitably a thermoplastic polyvinyl compound such as, for example, polystyrene. According to a still further aspect of the invention, the top layer of expanded synthetic resin is distended or expanded in situ on the lacquer-coated exterior surface of the lamp envelope while the lacquer base coat is in a superficially softened state by application thereto of a reactivating medium which is a solvent for

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both the lacquer base coat and the particular synthetic resin employed for the expanded plastic top layer, whereby the expanded synthetic resin material becomes partially embedded in and firmly united to the base coat.

Further objects and advantages of our invention will appear from the following detailed description of species thereof and from the accompanying drawing.

In the drawing, FIG. 1 is an elevation of an electric incandescent lamp having an envelope provided with a light-modifying coating according to the invention, the envelope being shown partly broken away in order to illustrate the interior parts of the lamp.

FIG. 2 is a fragmentary sectional view, on a greatly enlarged scale, of a portion of the wall of a glass lamp envelope or other glass illuminating ware provided with a coating comprising our invention.

FIGS. 3 to 7 are views illustrating the successive steps which may be employed to apply to the envelope of an electric lamp an external light-modifying coating according to the invention, and

FIG. 8 is an elevation of the lamp at an intermediate stage in the process of applying thereto a light-modifying coating according to the invention.

Referring to FIG. 1, the invention is there shown as applied to an electric incandescent lamp comprising a hermetically sealed transparent glass envelope or bulb 1 provided with a neck portion 2 to which a conventional type lamp base 3 is suitably secured, as by conventional basing cement for instance. The bulb 1 may be of spherical shape as shown, or of any other suitable shape, and it is provided with a reentrant stem 4 which extends into the bulb from the neck 2 thereof and through which are sealed a pair of leading-in wires 5, 6. Interiorly of the bulb, the leading-in wires 5, 6 are electrically connected to the opposite ends of a suitable incandescent filament or light source 7 which may be constituted by a length of tungsten wire of straight, coiled or coiled-coil form and suitably supported in place within the bulb, for example, by means of supplementary filament support wires 8 supported on the glass stem 4. Exteriorly of the bulb 1, the leading-in wires 5, 6 are electrically connected to the side shell and end eyelet contacts 9 and 10, respectively, of the base 3.

The bulb 1 is provided on its exterior surface with a translucent light-modifying coating 11 according to the invention and comprising, in general, a thin layer or base coat 12 (FIG. 2) of a suitable light-transmitting adhesive material, and a rough or irregular surface top layer 13 of translucent expanded synthetic resin or plastic firmly adherent to the base coat and substantially covering the area of the bulb which it is desired to provide with the coating 11. The light-modifying coating 11 may be applied to a portion only of the surface area of the bulb 1, or it may be applied over substantially the entire exposed surface area of the bulb as shown in FIG. 1.

The base layer or coat 12 may consist of a suitable transparent lacquer or varnish, for instance, a cellulosic lacquer such as cellulose acetate or cellulose acetate butyrate, and it may be either clear or of any desired transparent color. A solution of cellulose acetate butyrate in acetone has been found entirely satisfactory as the material for the base coat 12 which may be applied to the bulb 1 in any suitable manner, as by dipping or spraying. As shown in FIG. 1, it is preferred that the lacquer base coat 12 completely cover the surface of the glass bulb 1 all the way down onto the neck 2 thereof and extending to the rim of the base shell 9, and that the translucent expanded synthetic resin top layer 13 cover the surface of the glass bulb only down to the region of the neck 3 thereof and terminating short of the rim of the base shell 9 so as to leave a small area or portion of the lacquer base

coat 12 exposed and visible for ready color identification thereof, the translucence of the expanded synthetic resin top layer 13 normally masking the underlying base coat 12 and preventing the color identification thereof through the top layer 13.

The expanded synthetic resin or plastic top layer 13 may be formed by the heating and expansion, in situ, of a layer 14 (FIG. 8) of small particles or beads 15 of an expandable organic thermoplastic or synthetic resin suitably adhered to the outer side of the lacquer base coat 12. The comminuted expandable organic thermoplastic starting material 15 may be any of the well-known expandable synthetic resin compositions commercially available at present which, on heating, will expand or swell into enlarged puffy kernels 13 (FIGS. 1 and 2) squeezed between one another to form an integrated cellular, foam-like and extremely light-weight plastic mass of translucent and preferably white character. Such expandable thermoplastic materials comprise, in general, a homogeneous mixture of an organic thermoplastic having, in homogeneous dispersion therein, a suitable liquid raising or expanding agent having a boiling point below the softening point of the particular thermoplastic material employed. The liquid raising or expanding agent does not dissolve the thermoplastic material but only swells or expands it, on heating of the mixture to a temperature above the boiling point of the liquid expanding agent and above the softening point of the thermoplastic substance. Suitable expandable organic thermoplastic compositions for the purposes of the invention may be, for instance, those homogeneous dispersions of polyvinyl compounds and raising agents mentioned in U.S. Patent 2,681,321, Stastny et al., dated June 15, 1954. However, of the various materials that may be satisfactorily employed, it is preferred to use expandable polystyrene such as, for example, that commercially known as Pelespan No. 8 which is manufactured and sold by the Dow Chemical Company of Midland, Michigan, and contains, as the liquid expanding or raising agent, pentane in an amount of the order of a few percent by weight of the composition. Another suitable type of expandable polystyrene available at present is that commercially known as Dylite F40 manufactured and sold by Koppers Company, Inc., of Pittsburgh, Pennsylvania. For best results, it is preferred that the content of liquid expanding or raising agent in the expandable thermoplastic starting material be kept within the limits of from approximately 3 to 5 percent by weight of the mixture. Where more than about 5 percent by weight of expanding agent is present in the expandable thermoplastic material, the expanded plastic top layer 13 will tend to eventually separate from the lacquer base coat 12, during the use of the lamp, as a result of the periodic heating of the coating 11 during lamp operation. On the other hand, the presence of less than about 3 percent by weight of expanding agent in the expandable polystyrene starting material will not effect sufficient expansion or swelling thereof to impart the preferred appearance to the finished product.

As mentioned previously, it is preferred to employ, as the starting material from which the final expanded synthetic resin layer 13 is made, a clear expandable thermoplastic material such as will produce, on heating an expansion, a translucent continuous cellular thermoplastic layer 13 which is of rough or irregular pebbly-like surface contour and of white character such as to give to the lamp the appearance of a snowball when in its unlighted state. As a result, the lamp according to the invention, in addition to functioning as a decorative light source for Christmas trees or the like, may be advantageously employed as a decorative ornament therefor as well, when the lamp is not in operation. If desired, however, the expanded synthetic resin top layer 13, instead of being formed as a white translucent coating on the bulb, may be in the form of a colored coating instead. To such end, the expandable thermoplastic material 15 from which the final top expanded plastic layer 13 is made may have a suitable color-

ing agent or dyestuff incorporated therein for imparting the desired final color to the expanded thermoplastic material.

For the purposes of the invention, the expandable plastic particles or beads 15 from which the final expanded plastic top layer 13 is formed may be of any desired shape, and they may have a particle or bead size ranging anywhere from 30 microns up to as large as 3 mm., depending upon the particular appearance which is desired for the final expanded plastic coating 13. The larger size particles 15 impart a more pebbly appearance to the final expanded plastic layer 13 while the smaller size particles 15 produce an expanded plastic layer 13 having a smoother surface contour. However, we prefer to employ a particle size for the expandable plastic particles or beads 15 ranging from approximately $\frac{1}{2}$ to $1\frac{1}{2}$ mm. in diameter or thickness. As shown in FIG. 8, the expandable plastic particles or beads 15 are applied to the lacquer coated bulb 1 in the form of a monolayer or single particle layer, the individual particles preferably being disposed closely contiguous one another and preferably completely covering the surface area of the bulb to be provided with the expanded plastic coating so as to insure against the presence of voids in the final expanded plastic coating 13 and also prevent the formation of small unattractive masses of expanded plastic projecting from and loosely adherent to the surface of the expanded plastic layer 13.

In accordance with the invention, the expandable plastic particles or beads 15 are firmly pressed against and embedded to a slight degree in the base coat, and preferably are at least slightly diffused thereinto at their surface layers of contact therewith, as indicated at 16 in FIG. 2, so as to be firmly attached or bonded to the base coat 12. This result may be achieved by applying and pressing the expandable plastic particles or beads 15 onto the base coat 12, and heat-expanding the said particles or beads while thus in place on the base coat, while the surface layer only of the latter is in a softened and tacky state such as results from the brief contacting and superficial redissolving of the of the previously dried base coat 12 with a solvent therefor, as by the dipping of the lacquer base coated lamp bulb 1 in solvent for both the base coat 12 and the organic thermoplastic particles or beads 15 to be applied onto the bulb. The heat expansion of the contiguous plastic particles or beads 15 against one another, while in contact with such a reactivated tacky and softened surface layer of the base coat 12, acts to squeeze the puffed kernels 13 between one another and thus forcibly drive or press each puffed kernel 13 into the softened surface layer of the base coat 12 so as to partially embed it therein, as shown in FIG. 2. In addition, the solvent present in the softened surface layer of the base coat 12 acts to penetrate and dissolve the surface layer of the plastic particles or beads 15 in contact with the base coat 12, thereby causing the plastic particles or beads to diffuse into the base coat at their interfaces therewith, as shown at 16, so as to form a firmly adherent bond therebetween serving to firmly hold or attach the puffed kernels 13 of expanded plastic in place on the lamp bulb 1. The solvent-penetrated surface layer portions 16 of the puffed kernels 13 of expanded plastic function in the manner of continuous plastic links between the base coat 12 and the outer portions 17 of the puffed kernels 13 of expanded plastic which are not penetrated by the solvent from the base coat. Particularly where a colored type of base coat 12 is employed, it is preferable that the puffed kernels 13 of expanded plastic not be embedded at their undersides all the way through the thickness of the base coat since such a condition would produce clear, i.e., uncolored areas, under the expanded plastic kernels 13 such as ordinarily would be undesirable because of its tendency to produce a splotchy effect in the colored light emitted by the lamp.

Referring to FIGS. 3 to 7 illustrated a suitable pro-

cedure which may be employed to apply a decorative light-modifying coating 11 according to the invention onto a lamp bulb, the surface area of the bulb 1 which is to be provided with the coating 11 (substantially the entire surface area of the bulb in the particular case illustrated) is first coated with a layer of the lacquer or other light-transmitting adhesive material which is to constitute the base coat 12. As shown in FIG. 3, the lacquer base coat 12 may be applied to the lamp bulb 1 by dipping it in a reservoir 18 of the lacquer coating material contained in a tank 19 or other container. The lacquer coating material 18 may advantageously consist of a viscous solution of cellulose acetate butyrate in a solvent such as acetone. The viscosity of the lacquer coating solution 18 is so selected as to produce a lacquer coating 12 on the bulb of a thickness ranging approximately from $\frac{1}{2}$ to 3 mils.

Following the removal of the lacquer coated lamp bulb 1 from the lacquer base coat dipping tank 19, the lacquer film 12 on the lamp bulb is allowed to dry or set, after which the portion of the surface layer of the dried base coat 12 which is to be covered with expandable thermoplastic particles or beads 15 is then reactivated or softened by applying thereover a suitable reactivator solvent for the lacquer of the base coat 12, such as acetone for example. As shown in FIG. 4, this reactivation of the surface of the lacquer base coat 12 may be accomplished by immersing or dipping the lamp bulb 1 to a predetermined level in a reservoir 20 of acetone or other solvent contained in a tank or other container 21. The lacquer base coated lamp bulb 1 is maintained in contact with, i.e., kept immersed in the acetone or other reactivator solvent, for a short period of time (for example from ten to twenty seconds or thereabouts at room temperature) sufficient to superficially dissolve and soften the surface of the base coat 12 to a predetermined depth.

Immediately after the reactivation or softening of the surface layer of the lacquer base coat 12 on the lamp bulb 1, the lamp is held base end up and the tip end of the bulb 1, opposite the base end 3 of the lamp, is touched momentarily on a suitable non-absorbent surface to thereby remove the drip solvent therefrom which, if left on the lamp, would cause non-uniform expansion of the expandable polystyrene particles 15 which are subsequently applied to the coated bulb and expanded thereon. In addition, such non-removal of the drip solvent on the lamp would be apt to cause bleeding of the colored base coat 12 through the expanded plastic top layer 14 which, of course, would be highly objectionable from an appearance standpoint particularly where the expanded plastic top layer 14 is of white character.

Immediately following the removal of the drip solvent from the lamp bulb 1, and while the surface layer of the lacquer base coat 12 is still in a softened and tacky condition from the solvent reactivation thereof, a layer 14 of the expandable plastic particles or beads 15, for example, expandable polystyrene particles or beads such as that commercially known as Pelespan No. 8 having a particle size within the range of from approximately $\frac{1}{2}$ to $1\frac{1}{2}$ mm. and containing from 3 to 5 percent of pentane in homogeneous dispersion therein, is applied to and pressed against the softened and tacky surface of the base coat 12 on the lamp bulb 1. This may be conveniently accomplished by supporting the bulb 1 in a closed container 22 in a position above a bed or loose filling 23 of the expandable plastic beads 15 contained therein (FIG. 5), and the inverting the container 22 and the bulb 1 supported therein so as to cause the filling 23 of expandable plastic beads 15 in the container to completely envelop or submerge the bulb 1, as shown in FIG. 6. To assure the uniform coverage of the lamp bulb 1 with expandable plastic particles 15 so as to avoid the occurrence of undesired open areas in the applied layer of particles, the filling 23 of expandable plastic particles 15 in the con-

tainer 22 is preferably sufficient to completely submerge the bulb 1 to a depth of at least about $\frac{1}{2}$ inch or so above the top of the bulb. In this manner, the weight of that portion of the expandable plastic particle filling 23 lying above the top of the bulb then exerts the necessary pressure on the rest of the particles or beads 15 in the container 22 to not only insure the pressing of expandable plastic particles into engagement with, and more or less uniformly over, the entire tacky surface area of the bulb but to also effect the pressing of the particles against the bulb with sufficient pressure to cause them to partially embed themselves in the base coat 12. This assures adequate adherence of the expandable plastic particles 15 to the bulb, for a limited time following the particle application step, such as prevents the particles from falling off the bulb when the latter is removed from the bed 23 of plastic particles in the container 22.

Within a short period of time, e.g., from one to two minutes, following the application to the lamp bulb 1 of the layer 14 of expandable thermoplastic particles or beads 15, and while the surface layer of the lacquer base coat 12 is still in a softened and tacky condition from the application of the solvent 20 thereto, the bulb is suitably heated, as in an oven 24, to a temperature above the softening point of the thermoplastic material of which the particles or beads 15 are composed, and for a period of time sufficient to effect the desired expansion of the expandable thermoplastic particles or beads 15 into an integrated continuous cellular layer of puffed kernels 13 of expanded thermoplastic material or plastic foam. Where the expandable thermoplastic particles or beads 15 are composed of expandable polystyrene such as the commercial Pelespan No. 8 grade previously referred to, the temperature to which the bulb is heated in the oven 24 may range from 100° C. to 150° C. With such particular type of expandable polystyrene, however, we have found that the heating of the coated lamp bulb 1 in an oven 24 at a temperature of approximately 130° C. for a period of approximately seven minutes will produce the desired expansion of the expandable polystyrene particles or beads 15 and the desired final appearance of the expanded polystyrene top layer 13.

As shown in FIG. 7, the oven 24 may be of the electrically heated type which is heated by an electric resistance heating coil 25. The oven 24 is preferably constructed to heat the expandable plastic bead layer 14 on the lamp bulb substantially uniformly over its entire surface area so as to effect more or less uniform or even expansion of the expandable plastic beads 15 throughout the entire coating 14 on the bulb. To this end, the oven 24 may be provided with a motor-driven circulating fan 26 mounted in the roof or ceiling 27 of the oven chamber 28 for circulating the heated air in the manner indicated by the arrows in FIG. 7 past the electric heating coil 25 and thence upwardly through the heating chamber 28 and around the coated lamp bulb 1 mounted therein on a holder or socket 29 supported on a screen or perforated mounting plate 30 extending across the oven and supported on the walls thereof. Because of their lying closely contiguous to and in contact with one another, the expansion of the expandable thermoplastic particles or beads 15, during the heating of the lamp in the oven 24, acts to squeeze the expanding and puffed kernels 13 of the thermoplastic material between one another and forcibly press them downwardly against and into the softened and tacky surface layer of the lacquer base coat 12 so as to become partially embedded therein and firmly attached thereto.

The resulting expanded plastic top layer 13 produced by the expansion of the individual thermoplastic particle or beads 15 comprising the coating 14, is translucent in character and therefore acts to highly diffuse the light passing therethrough from the lamp filament 7 when the lamp is lighted. A soft light is thus produced from the lamp which is particularly pleasing, especially where the lamp is provided with a colored base coat 12, a soft o

pastel colored lighting effect being imparted in such case to the emitted light from the lamp. Also, because of its translucent character, the expanded plastic top layer 13 effectively masks the base coat 12. As a result, where the expanded plastic top layer 13 is left uncolored so that it possesses its natural white translucent appearance, and the base coat 12 is of a suitably colored character, the resulting lamp will have a white appearance under incident light, that is, when the lamp is in its unlighted state, and a different or colored appearance when it is in its lighted state, due to the color filtering effect of the colored base coat 12 on the light transmitted therethrough from the lamp filament 7. Moreover, where the bulb 1 is of globular shape, and the expanded plastic top layer 13 is uncolored so as to have a white translucent character, the result is a lamp having the appearance of a snowball in its unlighted state. As a result, the lamp according to the invention admirably serves as a highly decorative ornament for a Christmas tree or other ornamental display even when the lamp is in its unlighted condition. Also, because of its highly cellular and foam-like structural character, the expanded plastic top layer 13 possesses high heat-insulating properties such as renders the surface of the lamp bulb exceptionally cool during lamp operation and cool to the touch so that the lamp is extremely safe to handle and to operate even in association with highly inflammable objects or ornamental displays such as a Christmas tree, for instance. The cellular foam-like structure of the expanded plastic top layer 13 also provides an effective shock-absorbent coating on the lamp such as protects it against breakage when the lamp is accidentally dropped or otherwise subjected to severe physical shocks or impacts.

By forming the coating 11 on the bulb 1 in the manner according to the invention, i.e., by freely or unrestrictedly expanding the expandable thermoplastic particles 15 in situ on the lamp bulb without the use of an enclosing or surrounding mold, and while the underlying lacquer base coat 12 is in a superficially softened state from the previous application thereto of a solvent therefor, an expanded thermoplastic top layer 13 is provided on the bulb which not only will be firmly attached thereto at the outset but which, in addition, will remain in such firmly attached condition at all times during the life of the lamp. The expanded thermoplastic top layer 13 produced in accordance with the invention will not undergo such further structural change, under the influence of the periodic heating to which it is normally subjected during lamp operation, as would cause it to separate from the bulb 1 or split open, as would be the case where the expanded thermoplastic layer 13 is formed, for instance, by premolding it in two hemispherical halves and then cementing the two half-sections together around the lamp bulb 1.

What we claim as new and desire to secure by United States Letters Patent is:

1. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of a light-transmitting adhesive and a translucent top coat consisting of a layer of integrated puffy kernels of expanded synthetic resin firmly adherent to said base coat.

2. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of a transparent lacquer and a white translucent top coat consisting of a layer of puffy kernels of expanded synthetic resin completely integrated with each other into a continuous coating firmly adherent to said base coat.

3. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of a transparent lacquer and a colored translucent top coat consisting of a layer of puffy

kernels of expanded synthetic resin completely integrated with each other into a continuous coating firmly adherent to said base coat.

4. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin colored base coat of a transparent colored lacquer and a white translucent top coat consisting of a layer of puffy kernels of expanded synthetic resin completely integrated with each other into a continuous coating firmly adherent to said base coat and of a translucence sufficient to obscure said colored base coat under incident light.

5. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of transparent lacquer and a translucent top coat consisting of a layer of puffy kernels of expanded polystyrene completely integrated with each other into a continuous coating firmly adherent to said base coat.

6. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin colored base coat of transparent colored lacquer and a white translucent top coat consisting of a layer of puffy kernels of expanded polystyrene completely integrated with each other into a continuous coating firmly adherent to said base coat.

7. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of cellulose acetate butyrate lacquer and a translucent top coat consisting of a layer of puffy kernels of expanded polystyrene completely integrated with each other into a continuous coating firmly adherent to said base coat.

8. An electric lamp comprising a transparent glass bulb having a neck end portion, a base secured to the said neck end of the bulb, a light source in said bulb, and a translucent coating on said bulb comprising a thin colored base coat of a transparent colored lacquer completely covering the bulb and extending down onto the said neck portion thereof to the said base, and a white translucent top coat consisting of a layer of puffy kernels of expanded synthetic resin completely integrated with each other into a continuous coating firmly adherent to said base coat and of a translucence sufficient to obscure said colored base coat under incident light, said expanded resin top coat completely covering said bulb down to the region of the neck portion thereof but terminating short of the said base to leave a small surface area portion of the colored base coat exposed for visual color identification thereof.

9. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of a transparent lacquer and a translucent top coat firmly adherent to said base coat and consisting of the heat-expanded product of a layer of organic thermoplastic particulate material containing in homogeneous dispersion therein from approximately 3 to 5 percent by weight of an organic volatilizable liquid raising agent having a boiling point below the softening temperature of the said thermoplastic material and in which the said thermoplastic material is insoluble.

10. An electric lamp comprising a transparent glass bulb containing a light source and having a translucent coating on at least a portion of the exterior surface thereof comprising a thin base coat of a transparent lacquer and a translucent top coat firmly adherent to said base coat and consisting of the heat-expanded product of a layer of polystyrene particles containing in homogeneous dispersion therein from approximately 3 to 5 percent by weight of pentane.

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