

June 17, 1952

A. B. LEECH

2,600,664

ANIMATED DECORATIVE LAMP

Filed Oct. 8, 1948

2 SHEETS—SHEET 1

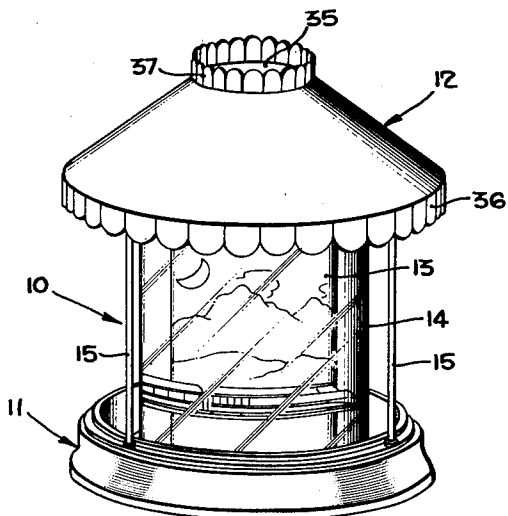


Fig. 1.

Fig. 3.

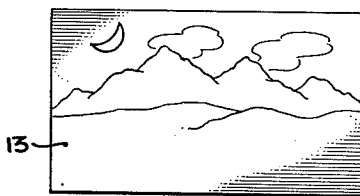


Fig. 4.

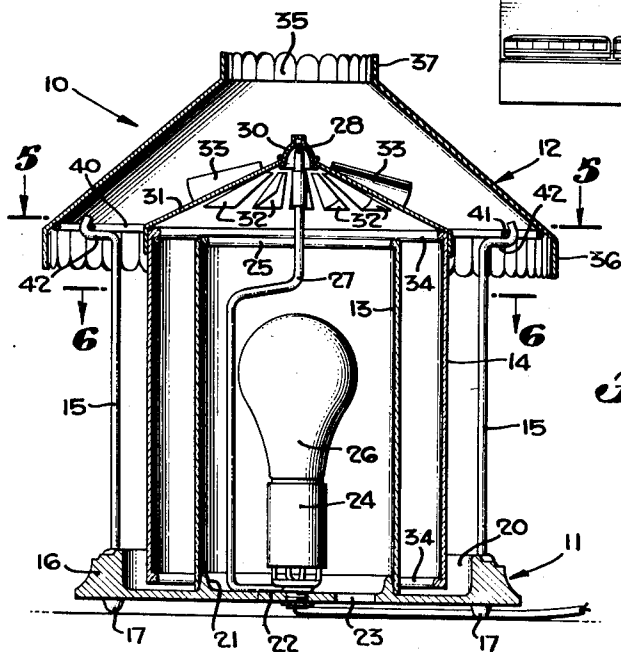
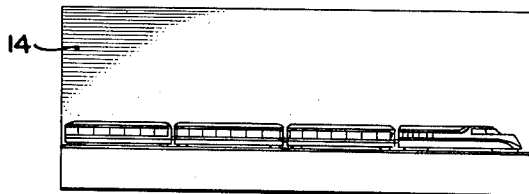


Fig. 2.

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2 SHEETS—SHEET 2

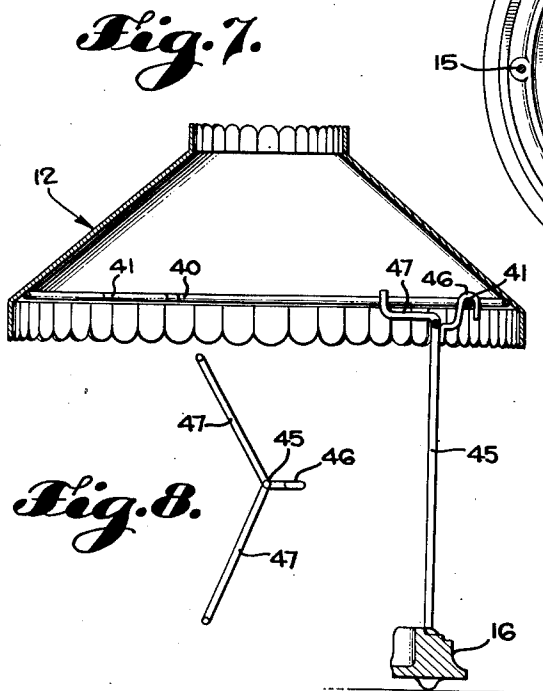
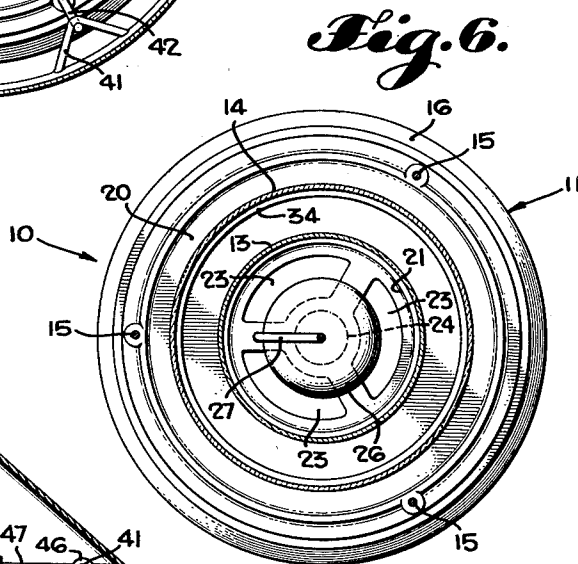
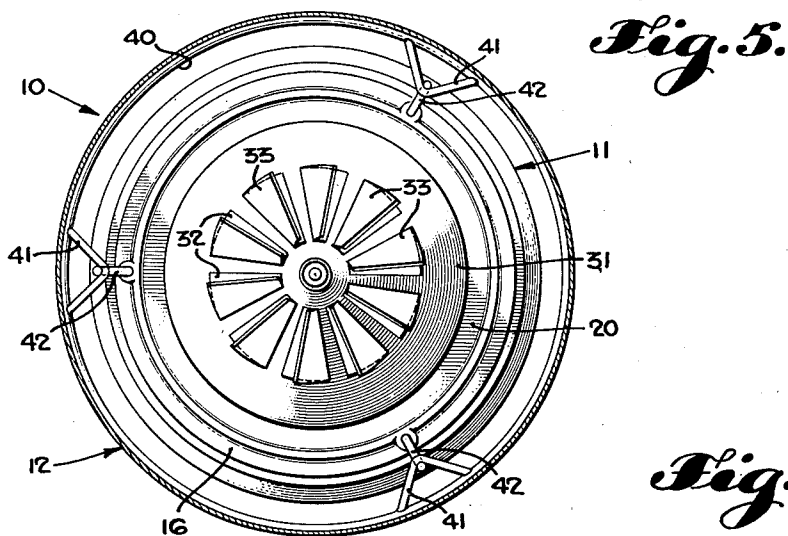


Fig. 8.

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ANIMATED DECORATIVE LAMP

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3 Claims. (Cl. 40—40)

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My invention relates generally to illuminated decorative devices, and more particularly to those which appear to be animated.

It is often desirable to have a lamp of low intensity glowing throughout the night to provide a small amount of illumination in the bedroom while not interfering with the sleep of the occupants of the room. Particularly in the case of children who are afraid of the dark, it is important to have such a light to prevent their being frightened when they waken during the night. In addition, there is a certain soporific effect in observing a slow and constantly repeating movement, the effect being similar to that obtained by the well-known counting of sheep which many resort to. In order to observe this movement, of course, the moving or animated device must be illuminated by either transmitted or reflected light, and consequently a self-illuminated animated device combines both of these functions in a single structure.

It is therefore a major object of my invention to provide a lamp of low intensity suitable for use as a night light in a bedroom.

Another object of my invention is to provide a light of this type having a construction which produces animation of certain of the elements of the light.

It is a further object of my invention to provide a device of this character which is completely noiseless in its operation, thereby preventing any interference with the sleep of a person immediately adjacent it.

Still another object of my invention is to provide a very attractive light of this type having a very simple but rugged construction which particularly adapts it for use in a child's room.

It is a still further object of my invention to provide a device of this type which may be manufactured and sold at a low cost so that it will be within the reach of persons of moderate means.

These and other objects and advantages of my invention will become apparent from the following description of a preferred form thereof, and from the drawings illustrating that form in which:

Fig. 1 is a perspective view of my completed lamp;

Fig. 2 is a vertical section through the lamp;

Fig. 3 is a flat pattern of the inner screen, indicating one possible design applied thereto;

Fig. 4 is a flat pattern of the rotating screen with one possible design shown thereon;

Fig. 5 is a view taken at 5—5 in Fig. 2, showing the rotor in plan view;

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Fig. 6 is a similar view taken at 6—6 in Fig. 2;

Fig. 7 is a vertical section showing an optional method of supporting the shade associated with my device, with the fixed and rotating cylinders, and the major portion of the base being omitted for the sake of clarity; and

Fig. 8 is a plan view of the optional form of shade holder shown in Fig. 7.

Referring now to the drawings and particularly to Figs. 1 to 6 thereof, the numeral 10 designates a lamp having a base 11, a top 12, a generally translucent inner cylinder 13, a generally transparent outer cylinder 14, and supporting columns or posts 15 to hold the top 12. Generally, the base 11 will be essentially circular and of a size to fit conveniently upon a night stand or other supporting member (not shown) while the top 12 will generally be slightly larger than the base. The inner cylinder 13 has a design formed thereon in the general nature of a background, while the outer cylinder 14, concentric with the inner cylinder, rotates about the latter and carries the design of an object which is to move with respect to the background.

Turning now to a more detailed description of the lamp, it will be seen that the base 11 includes a generally circular disc having a series of concentric ridges and grooves therein on its upper surface. For convenience in manufacturing, the base is preferably formed of a suitable plastic which may be molded in the desired shape, but it is to be understood that metal, wood, or other suitable material may be used if so desired.

As best seen in Fig. 2, the base 11 includes an outer annular section 16 preferably having suitable ornamentation in the form of curved and grooved surfaces upon its upper and outer surfaces, while feet or protuberances 17 extend from the undersurface to space the base from its support (not shown). Extending inwardly from the annular section 16 is an annular trough or recess 20, bounded by a ring 21 at its innermost edge. The upper surface of the ring 21 is considerably below the upper surface of the annular section 16, and the outer surface thereof is tapered to form the frustum of a cone whose apex is above the base 11. Inside the ring 21, the base 11 is provided with a central recessed portion 22 substantially aligned with the trough 20, having apertures 23 therein and adapted to receive and support a light socket 24.

The inner cylinder 13 is mounted concentrically with the base 11 and is supported by the latter with its lower edge just outside the ring

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21. While the cylinder 13 is light in weight, it is not clamped or otherwise rigidly affixed to the base but is held thereto solely by its weight, and thus is easily removable. It will be appreciated that the conical surface of the ring 21 aids in centering the cylinder 13 when the latter is placed upon the base 11, the inner surface of the cylinder fitting snugly against the lower edge of the ring. While other methods of construction may be used, I prefer to form the cylinder 13 of a transparent flexible material such as some of the so-called plastics now available, joining the ends of a sheet of the latter to form the cylinder, and providing a bead 25 or other suitable stiffening means at the upper end of the cylinder to aid it in retaining its circular shape. Generally, the cylinder 13 will be formed of a colorless transparent material, and on the surface thereof I place a translucent design which either may be painted or otherwise formed directly on the surface of the cylinder, or may be placed upon a sheet of translucent backing material such as paper which is then wrapped around the cylinder. A light globe 26 is placed within the socket 24, and when the globe is illuminated, the cylinder 13 will glow, illuminating the scene thereon by transmitted light.

A further advantage of having the outer surface of the ring 21 tapered will now become apparent. Since the upper surface of that ring is spaced inwardly from the inner surface of the cylinder 13, a certain amount of light from the globe 26 will strike the tapered surface of the ring and be reflected outwardly to illuminate the cylinder 13 to its lower end. In this way, no dark band is formed around the lower end of the cylinder, and the entire background design is thus illuminated.

Extending upwardly from the central portion 22 of the base 11 is a support 27 which may conveniently take the form of a wire attached to the socket 24, offset to clear the globe 26, and provided with a hardened needle point 28 at its upper end. A cap 30 is rotatably supported by the needle point 28 and a rotor element 31 extends between the cap and the outer cylinder 14. The rotor element 31 consists of a flat or conical disc having a series of centrally located radially disposed openings 32 therein, through which air may pass to impinge upon angularly disposed vanes 33 preferably formed of the material removed from the disc to form the openings. The rotor 31 is an old and well-known device for causing the rotation of an element by the upward passage of air which has been heated by an incandescent lamp, and both the flat and conical forms are equally familiar.

As mentioned, the outer cylinder 14 has its upper edge secured to the rotor 31, and thus as the rotor is turned, the cylinder turns with it. As indicated in Fig. 2, the lower end of the cylinder 14 is spaced above the bottom of the trough 20, and the cylinder thus imposes no frictional drag upon the rotor 31. Preferably, the cylinder is formed of a flat sheet of colorless transparent plastic whose ends are joined together to form a cylinder, with beading 34 or other suitable means provided to aid in maintaining the circular shape of the cylinder. Since the beading is substantially as transparent as the remainder of the cylinder 14, its presence is usually undetected even when looking downwardly onto the bottom of the cylinder. A suitable translucent design is placed upon the surface of the outer cylinder 14, the design preferably being of some object which may

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logically move with respect to the background design upon the inner cylinder 13. Examples of such designs are boats, trains, and other vehicles against a background of trees, mountains, etc., or animals against a representation of their habitat. Likewise, the animals of a merry-go-round form an excellent design for a child's room. It will be understood, of course, that the selected design forms no part of my present invention except insofar as the design on the outer cylinder 14 is suitable for movement in a normal manner across or around the design upon the inner cylinder 13.

Since the outer cylinder 14 is transparent except where it is covered with the translucent design, the article represented by the latter has the appearance of actually being supported upon the appropriate portion of the background design, while the spacing therefrom increases the illusion of depth to give a very realistic appearance. This appearance is heightened by the fact that the lower end of the outer cylinder 14 is within the trough 20 and so is shielded from view except when a conscious attempt is made to see the lower end thereof. This type of construction also has the advantage of producing these results while leaving the rotor 31 and the outer cylinder 14 completely free of all contact with non-rotating members except the needle point 28. Consequently, the outer cylinder rotates freely, a very important feature since the force produced by the vaned rotor 31 is quite small.

To enclose the upper portion of the lamp 10, the top 12 is provided and supported by the standards or posts 15. As indicated in Figs. 1 and 2, the top 12 is generally conical in shape, and has a central opening 35 therein to permit the ready escape of the heated air rising from the globe 26. While other methods of construction may obviously be used, I have found one convenient manner of constructing the top 12 is to cut a relatively heavy sheet of paper in the form of a sector of a circle, removing a portion of the center of this sector to provide the opening 35. By trimming the edges of the sector-shaped member with a series of radially extending fingers, the scalloped or fringed effect shown in Figs. 1 and 2 may be obtained. The ends of the sector are then joined together to provide the generally conical-shaped top 12, while the fingers along the outer edge are bent downwardly to form the fringe 36, and the fingers along the inner edge are bent upwardly to form the fringe 37. Around the base of the top 12 just above the fringe 36 I mount a circular stiffening member such as a wire 40 adapted to stiffen the top and aid in its support. This latter is accomplished by the provision of generally triangular offsets 41 extending inwardly from the circular member 40 in the general plane of the latter. As indicated in Figs. 2 and 5, the triangular members 41 are adapted to be engaged by the upper ends of the supporting columns 15. The latter are mounted with their lower ends extending into the annular section 16, and with a horizontally extending, radially outwardly directed offset 42 near the upper end of each of them. The upwardly extending portion of the column 15 above the offset 42 fits into the triangular member 41, the latter resting upon the upper surface of the horizontal offset to support the top 12.

It is sometimes desirable to have the top 12 supported by a single upright or supporting member so that an unobstructed view is obtained of the inner and outer cylinders 13 and 14, re-

spectively. While there are obviously many different methods which may be used to accomplish this, I have found that the form of upright shown in Figs. 7 and 8 operates very satisfactorily and can be used in conjunction with the top 12 shown in my previously described form. As indicated in Fig. 7, I provide a single upright member 45 securely anchored to the annular member 16, and provided at its upper end with a generally radially extending hook 46 adapted to engage one of the offsets 41. It will be noted that the hook 46 extends rearwardly from the upright 45, and is adapted to engage the upper surface of the offset 41 to prevent upward movement of the latter. A pair of outwardly and forwardly extending arms 47 are attached to the upper end of the upright 45 and bear against the top 12, touching either the conical surface thereof, or the stiffening wire 40. It will be appreciated that since the center of gravity of the top 12 is located forwardly of the point of contact of the arms 47, the latter will act as fulcrums about which the top will tend to rotate, this rotation being counteracted by the hook 46. In this way, a top 12 may be supported by the supports 15, or by the modified form of supports shown in Figs. 7 and 8.

The operation of my device will now become apparent. When the light 26 is illuminated, the heat generated thereby will cause air within the inner cylinder 13 to be heated and rise so that a stream of air is discharged through the openings 32 of the rotor 31 to impinge upon the vanes 33 and cause the rotor to turn. Cold or cooler air is drawn through the openings 23 in the base 11 to replace the heated air which has been discharged through the rotor, and a continuous stream of air thus passes upwardly through the cylinder 13. I am aware that the heat from an incandescent lamp has previously been used to operate a rotor of either the flat or conical type, but in general these rotors have been used to turn a cylinder immediately surrounding the lamp, corresponding to the cylinder 13. Previous attempts to rotate a cylinder of considerable diameter as compared with the size of the incandescent lamp have generally failed because the heat generated by the lamps has been insufficient to produce the air velocity necessary to rotate the cylinder. I have found that by using an inner cylinder, the air stream is confined and acquires a sufficient velocity to operate a rotor having its vanes substantially aligned with the end of the cylinder. Furthermore, I have found that the lower the lamp is placed within the cylinder, and the greater distance the cylinder extends above the lamp, the more effective the air stream will be and the greater the torque will be which is developed by the rotor 31. In this connection, the top 12 continues the so-called chimney effect and further improves the operation of the device, while covering the less ornamental portions of the rotor and the upper ends of the cylinders 13 and 14.

It is to be understood that the background design formed upon the inner cylinder 13 and the foreground or animated design formed upon the outer cylinder 14 may either be formed directly upon the cylinders themselves as integral parts thereof, or may be formed on independent bases such as paper, cellophane, or other suitable material which may be easily replaced. If this latter method is used, both the background and animated design may readily be changed whenever desired.

To replace the light globe 26, it is only necessary to remove the top 12 and lift the outer cylinder 14, together with the rotor 31, from the needle point 28. Thereafter, the inner cylinder 13 is removed from the base 11, and the globe 26 is exposed for replacement. The lamp may be reassembled in a comparable manner, and the whole operation may be performed in a time substantially equal to that necessary to replace the light globe of a conventional table or floor lamp.

While I have shown a preferred and optional form of my device, it will be apparent that modifications such as those mentioned may be made without departing from the scope of the invention as herein defined. Consequently, I do not wish to be restricted to the particular form or arrangement of parts herein described and shown, except as limited by my claims.

I claim:

1. An animated decorative lamp which includes: a base having an outer rim, an annular trough inwardly from said rim, an inner rim shaped as the frustum of a cone whose apex is above said base, and a central member with holes therein through which air may pass from beneath said base to the space thereabove; a socket for receiving a light globe, mounted on said central member of said base; a transparent inner cylinder having a translucent background design thereon for illumination by said globe, mounted on said base coaxially therewith and centered by engagement with the conical surface of said inner rim, the latter being positioned to act as a reflector illuminating the lower end of said inner cylinder; an outer cylinder of transparent material surrounding said inner cylinder and rotatable with respect thereto, said outer cylinder being spaced from said inner cylinder and having its lower edge extending into said trough so as to be normally hidden from view, and having a translucent design thereon of a figure to be moved across the said background design on said inner cylinder to produce animation; a pivot member attached to said base and extending upwardly therefrom to a point above said inner cylinder, coaxial with said base; a rotor pivotally mounted on said pivot member, extending to and supporting said outer cylinder, and having a plurality of generally radially extending vanes and associated openings aligned with said inner cylinder for the passage of heated air from said inner cylinder, through said openings, to impinge on said vanes to turn said rotor and said outer cylinders; and a top covering the upper ends of said cylinders and said rotor, spaced from said base.

2. An animated decorative lamp which includes: a stationary inner cylindrical member of light-permeable material; a rotatable outer cylinder surrounding said inner member; a base having an annular trough on its upper surface for receiving the lower ends of said inner member and said outer cylinder, the outer wall of said trough having a substantially vertical inner surface and being relatively high as compared with the inner wall thereof, and said inner wall having an angularly positioned radially outward surface forming a frustum of a cone whose apex is above said base, said inner wall acting to center said inner member, and the bottom of said trough supporting said inner member; a light source mounted on said base within said inner member above said trough, positioned to cast light upon said angularly positioned surface of said inner wall for reflection outwardly there-

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from; and supporting means connected to said base and extending upwardly therefrom to support said outer cylinder for rotation with respect to said base, the lower end of said outer cylinder normally being concealed from view by said outer wall of said trough.

3. An animated decorative lamp which includes: a base having an annular trough on its upper surface, the outer wall of said trough being relatively high as compared to the inner wall thereof, said outer wall having a substantially vertical inner surface and said inner wall being formed at an angle to the vertical to form a frustum of a cone whose apex is above said base; a socket for receiving a light globe, mounted on said base and positioned to hold said light globe with its light emitting portion centrally located above said base, whereby a portion of the light from said globe strikes said inner wall of said trough and is reflected outwardly therefrom; a light permeable cylindrical member resting upon the bottom of said trough and surrounding said inner wall thereof, said inner wall positioning said member on said base; an outer

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cylinder surrounding said cylindrical member and rotatable with respect thereto and to said base, said outer cylinder extending into said trough well below the upper edge of said outer wall, but spaced from the bottom of said trough for free rotation with respect thereto; a rotor connected to the upper end of said outer cylinder for rotation thereof by the air stream caused by the operation of said globe; and means connected to said base, supporting said rotor and said outer cylinder.

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