S. M. KNOPF.

REFLECTING DEVICE FOR ELECTRIC INCANDESCENT LAMPS.

APPLICATION FILED AUG. 22, 1917.

1,353,916.

Patented Sept. 28, 1920.

Fig: 1.

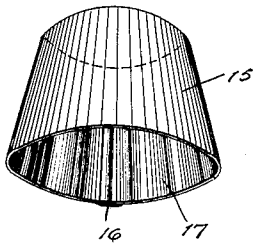


Fig: 2.

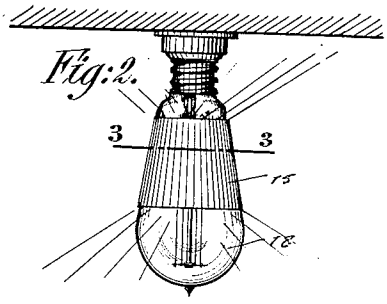


Fig: 3.

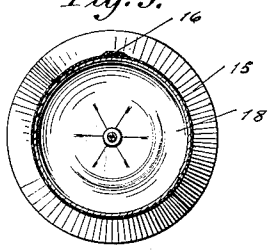


Fig: 5.

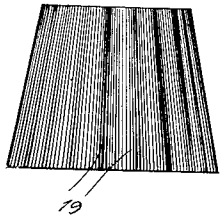


Fig: 6.

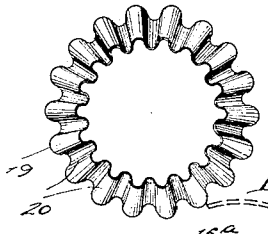


Fig: 7.

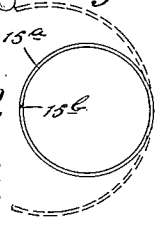


Fig: 4.

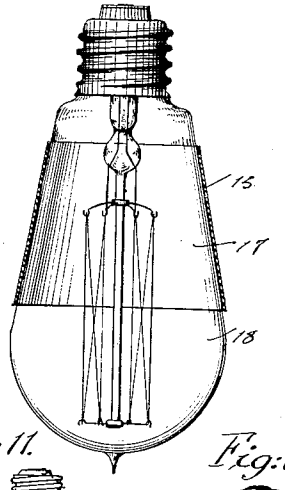


Fig: 8.

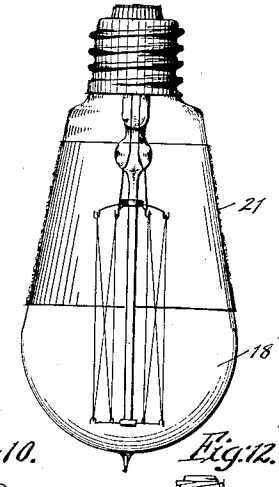


Fig: 9.

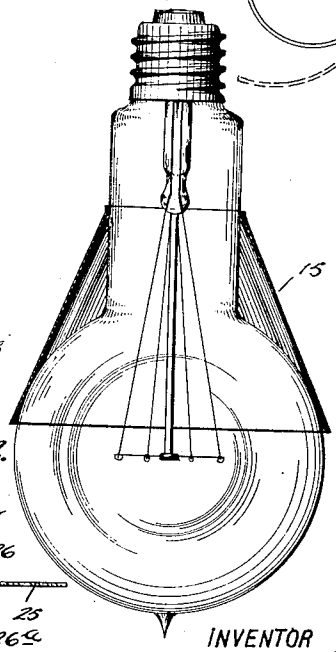


Fig: 11.

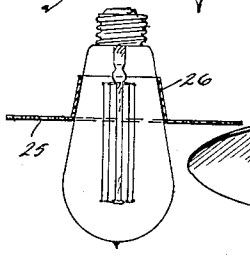


Fig: 10.

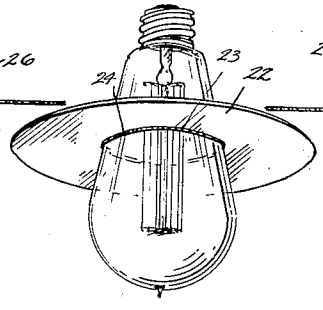
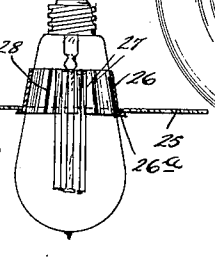


Fig: 12.



INVENTOR

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UNITED STATES PATENT OFFICE.

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REFLECTING DEVICE FOR ELECTRIC INCANDESCENT LAMPS.

1,353,916. Specification of Letters Patent. **Patented Sept. 28, 1920.**

Application filed August 22, 1917. Serial No. 187,617.

To all whom it may concern:

Be it known that I, SIDNEY M. KNOPF, a subject of Austria, and resident of the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Reflecting Devices for Electric Incandescent Lamps, of which the following is a specification.

The present invention relates to improvements in reflecting devices for electric incandescent lamps, and particularly such reflectors intended for individual attachment to such lamps. With these lamps as at present in use, the diffusion of light is for the most part in a lateral direction, and there are practically no rays of light directed downwardly from the lamp, except those rays which are reflected from the surrounding surfaces. This is especially true in the so called "Mazda" lamps where the filament is perpendicularly disposed forming a cylinder of light. Workers operating directly beneath the lamps therefore, do not receive the required amount of light unless a great number of lamps are employed, and the glare of the surrounding surfaces which receive the rays of light is such as to produce unsatisfactory working conditions.

An object of the present invention therefore, is to provide an improved reflector which may be furnished independently of the lamps, and which may be readily attached and detached therefrom, and which after attachment will in appearance and utility form a part of the lamp itself, requiring no more space than the lamp.

To this end, I propose to provide a reflector which will snugly engage the lamp by substantially hugging contact therewith in such manner as to prevent breakage of the lamp, and to so intensify and reflect the light as to produce a brilliance of illumination not possible without the reflector.

Another object is to so reflect and diffuse the rays of light that they will be directed in the most effectual manner so that the maximum degree of illumination may be obtained where the same is most needed.

A still further object is to provide such a device which will be inexpensive and simple to manufacture, and which will be practically indestructible, permitting of its use upon one lamp after another, as they become broken or burnt out.

It is also an object of the invention to provide for the reflection and diffusion of light upon the ceiling or upwardly from the lamp, and to also so separate the reflector from the metallic part or plug of the lamp that there will be no danger of contact therebetween.

With these and other objects in view, several preferred embodiments of my invention are shown in the accompanying drawing, and these embodiments will be hereinafter more fully described with reference thereto, and the invention will be finally pointed out in the claim.

In the accompanying drawings;

Figure 1 is a perspective view of one embodiment of my invention, showing the same detached from the lamp;

Fig. 2 is a side view of a ceiling lamp, showing the device illustrated in Fig. 1 attached thereto;

Fig. 3 is a sectional view along the line 3—3 of Fig. 2;

Fig. 4 is a vertical sectional view;

Figs. 5 and 6 are side and front views respectively of a modified form of reflector, in which the same is fluted;

Fig. 7 is a diagrammatic view of a further slightly modified form;

Fig. 8 is a partial sectional view of another modified form;

Fig. 9 is a similar view, showing the adaptation of my invention to different shapes of lamps;

Fig. 10 is a perspective view of still another modified form; and

Figs. 11 and 12 are partial sectional views of further modified forms.

Similar reference characters indicate corresponding parts throughout the several figures of the drawings.

Referring to the drawings, and particularly to Figs. 1 to 4 thereof, the embodiment of my invention shown therein consists of a shell 15 in the shape of a truncated cone, and formed preferably of a light metal which may be spun to shape, or bent and joined by a seam 16. It will be understood that any suitable substance may be employed, and the same may be shaped in any suitable manner. The interior of the shell is given a highly reflective surface as at 17, and this may be produced in any suitable manner, as by nickel plating or the like.

While there are a great many makes of lamps at present on the market, all of these

come within a comparatively few classes of shapes and sizes, so that it is reasonably possible in view of the inexpensive construction of the present device to produce reflectors adaptable to any of these forms. Thus Figs. 1 to 4 show one very common type of lamp, while Fig. 9 illustrates another type and shows the adaptation of my improvements thereto.

The shell 15 is placed over the lamp before it is attached in its socket, and huggingly engages the same, as clearly indicated in Fig. 4, thereby providing a mirror surface which is practically a part of the bulb itself. The shell is so positioned that the lateral rays of light from the filament are reflected downwardly and upwardly from the lamp, the upper edge of the shell being at a point substantially below the metal plug of the lamp so that considerable space is provided, permitting the rays to reflect upon the ceiling or other surrounding wall surface. Also there is no danger of contact with the metal plug.

In Figs. 5 and 6, I have illustrated a slightly modified form of construction, in which the reflector 19 is fluted as at 20. While this fluting is shown as circular, it may also be angular or any other suitable shape. The purpose of this it will be understood, is to add an increased reflecting surface, and also this form will not become so highly heated from the lamp.

In Fig. 7, I have shown a form of construction in which the shell 15^a is split as at 15^b, and is formed of spring metal or other suitable spring material, thereby permitting of the reflector being sprung over the lamp without necessitating its removal from the socket.

In the form shown in Fig. 8, the principle is the same as shown in Figs. 1 to 4, but instead of providing a mirror surface on a separable piece, I coat the glass of the bulb therewith as at 21.

In Fig. 10, I have shown a still further modified form of construction, in which I provide a reflector 22, in the shape of a disk, having a central opening 23 therein. This disk 22 may be formed of mirror glass or any other suitable reflecting material, and may have a reflecting surface on the under side only, or upon both the under and upper sides. The same is placed over the lamp, as clearly illustrated in the figure, and between the edge of the opening 23 and the lamp, I preferably place a layer of felt or other suitable substance 24, to prevent breakage of the glass bulb which might result from the expansion of the glass due to the heat of the lamp.

The reflecting surface, it will be noted, is at right angles to the vertical axis of the lamp, and the rays are reflected downwardly. Where the upper surface of the disk 22 is not reflective, the ceiling is lighted by the direct rays from the filament, but the same is provided with a reflecting surface the ceiling will be more brilliantly illuminated by reflected light.

In Fig. 11, I have shown a still further embodiment of the principle illustrated in Fig. 10, and in which I provide in addition to a disk 25, a shell 26 similar to the construction shown in Figs. 1 to 4, and in Fig. 12, I show a still further modification in which the shell 26 is provided at its lower edge with a flange 26^a, upon which the disk 25 rests, thereby obviating danger of breakage of the bulb by reason of the contact of the edge of the disk therewith. The shell 26 in this form is preferably fluted as at 27, in a manner similar to the constructions shown in Figs. 5 and 6, and is also formed of spring metal split as at 28, so that the same may be sprung over the lamp.

My improvements, it will be seen, are simple and inexpensive, and may be readily attached to any of the standard types of incandescent lamps at a very small cost, and without employing an expert electrician, or necessitating putting the light out of use for any appreciable time. When the lamps become burnt out, the reflectors may be readily placed upon new lamps.

I have illustrated and described preferred and satisfactory embodiments of my invention, but it is obvious that changes may be made therein within the spirit and scope thereof, as defined in the appended claim.

I claim:

A reflector for incandescent electric lamps, comprising a shell in the shape of a truncated cone, a flange at the lower edge of said cone, and a disk supported on said flange, said disk being in a plane at right angles to the axis of said shell, said shell being provided with an inner reflective surface, and said disk being provided with a lower reflective surface.

In testimony that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

SIDNEY M. KNOPF.

Witnesses:

MARJORIE E. CLARK,

MOE. M. WEINBERG.