

B. JONES, JR.

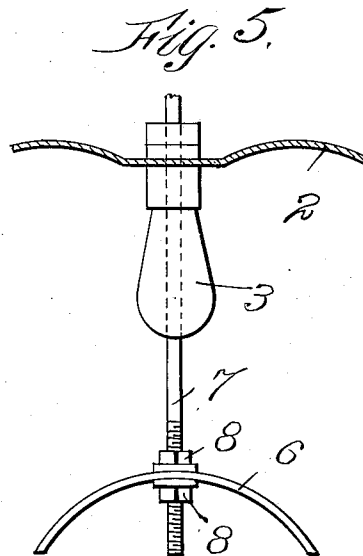
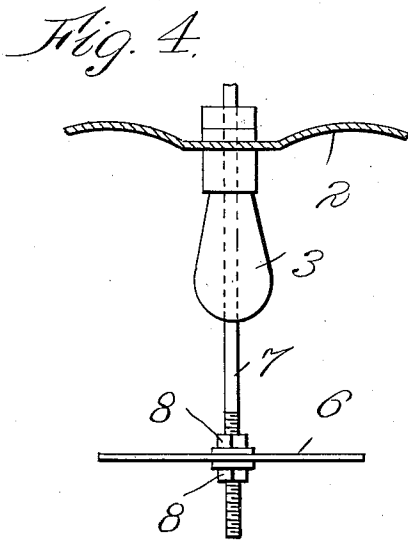
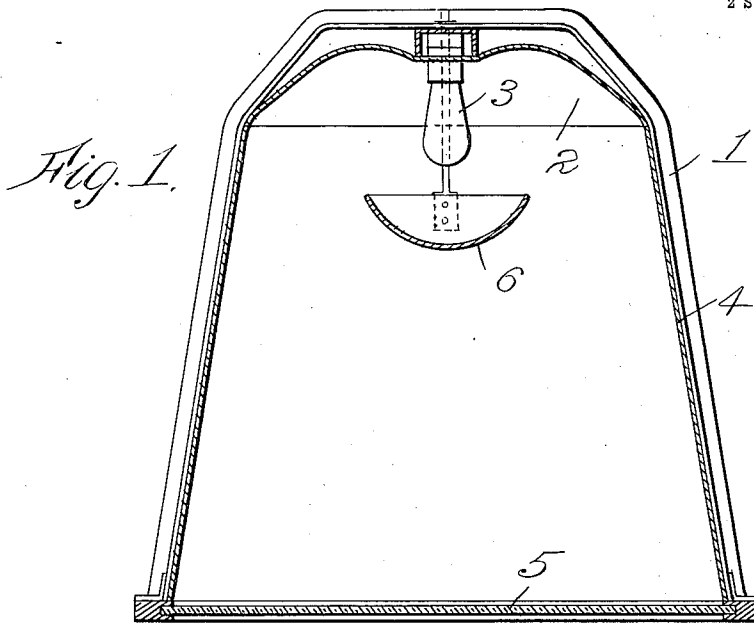
REFLECTOR.

APPLICATION FILED JUNE 15, 1909.

1,050,466.

Patented Jan. 14, 1913.

2 SHEETS—SHEET 1.



Witnesses:
H. Workman
H. Alfred Janke

Inventor:
Bassett Jones Jr.
By his Attorneys
[Signature]

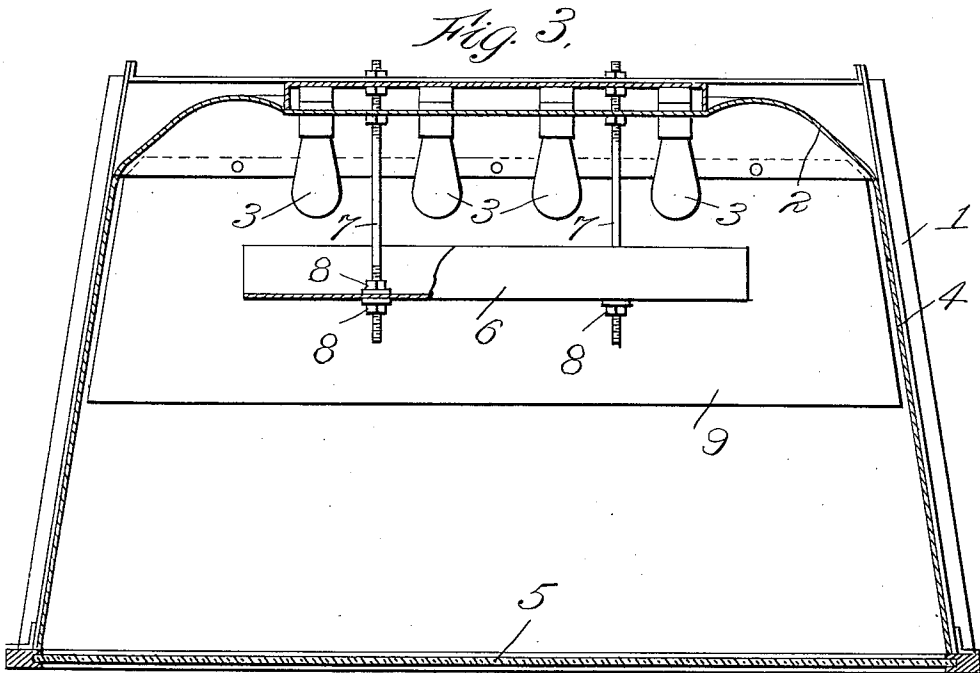
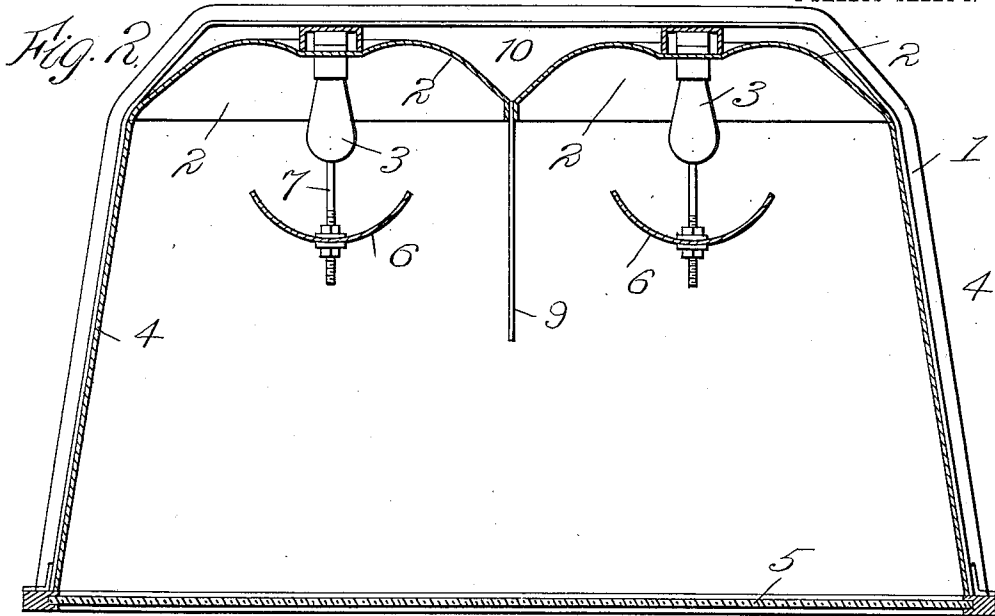
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UNITED STATES PATENT OFFICE.

BASSETT JONES, JR., OF NEW YORK, N. Y.

REFLECTOR.

1,050,466.

Specification of Letters Patent.

Patented Jan. 14, 1913.

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To all whom it may concern:

Be it known that I, BASSETT JONES, JR., a citizen of the United States, and residing in the city of New York, borough of Manhattan, county and State of New York, have invented certain new and useful Improvements in Reflectors, of which the following is a full and clear specification, illustrated in the accompanying drawings, the particularly novel features of the invention being more fully pointed out in the annexed claims.

My invention relates to means for the indirect lighting of rooms, in particular large halls, stairways or the like, in order to obtain a perfectly diffused light throughout the whole room.

The particular object of my invention is to permit the use of bare incandescent lamps suspended not more, or perhaps less, than two feet above a glass area for the purpose of obtaining an even and diffused flux of light through the said glass area and still preventing the appearance of bright spots over this area, due to the proximity of the lamps.

My device consists essentially of a curved reflector suspended above the glass area, the sides of the reflector being carried down to the border of the sash which holds the glass, the whole arrangement being so as to properly diffuse and reflect the light from the lamp upon the sash surface, the lamps being suspended tip down in the upper circular reflector, the upper portion of the reflector being somewhat spherical or parabolic, or having any other shape, as may be best suited in any particular instance. Directly under the lamp is suspended a strip of translucent material of suitable properties to break up the image of the tip end filament of the lamp.

I have found by experiments that the providing of such a strip of glass, or what I might broadly term a deflector, which is translucent to break the image of the filament, not only absolutely removes this image, but also increases the efficiency of the reflecting device by an appreciable amount. The tests have also shown that the use of such a reflector and deflector combined in the manner which will be hereinafter described in detail, with reference to the accompanying drawings, very materially decreases the absorption of light by

the sash through which the illumination of the room is obtained.

I have illustrated in the accompanying drawings various modifications showing how my invention may be reduced to practice. These modifications are merely examples and do not constitute an exact limitation as to the form of the reflector and the deflector, as these might vary considerably, according to the distance at which the lamp is suspended from the sash and also according to the purpose for which the device is used. In these drawings—

Figure 1 is a vertical section through a reflector, in which only a single lamp is used. Fig. 2 is a transverse section through a double reflector. Fig. 3 is a longitudinal vertical section through such double reflector. Figs. 4 and 5 are modifications of the form of the deflector shown in Figs. 1, 2 and 3.

In Fig. 1, 1 is the shell or casing, which is open at the bottom. 2 is the reflector, in the center of which the lamp 3 is disposed, tip downward. The reflector 2 extends downward on either side, as indicated at 4, to the rim of the casing. Casing 1 is closed at the bottom by a sash 5, extending over the whole surface of the opening, which sash may consist of any suitable transparent or translucent glass, but preferably so-called "granite glass" is used for hiding the structure of the reflector from the observer. The downward extensions 4 of the reflector 2 are at an angle, the degree of which may vary according to the height at which the lamp 3 is disposed above the sash and according to the width of the casing. However, it should always be at such an angle as to reflect the light thrown from the lamp directly onto this extension, or indirectly from reflector 2 onto it down onto the sash 5. The reflector 2 may have any suitable shape, such as parabolic or partially spheric, so that all light which strikes the reflector will be either thrown onto the sash 5, or, as previously mentioned, onto the lateral extension 4 of the reflector and thence onto the sash. A suitable distance below lamp 3 is suspended from the frame above a deflector 6, made of translucent material. While other suitable material for this deflector may be used, which will break up the tip end filament image of the lamp, I prefer to use so-called "granite glass",

which I have found to give the best results. As shown in Fig. 1, this deflector has the shape of a trough of such size that it will shade off any direct light which falls from the lamp onto sash 5. The material used for this deflector being translucent, light will, indirectly, through it reach the sash in diffused form. Moreover, this material having also reflecting qualities, it will reflect part of the direct light of the lamp, which otherwise would fall onto the sash and throw it onto reflector 2, from which it is in turn reflected directly or through lateral extensions 4 indirectly onto sash 5. By this arrangement it will be seen that no image of the filament produced by the irregularities in the glass of the lamp bulb will be thrown onto the sash, but all the light radiated from the lamp will be thrown diffused onto the sash, so that it will be of practically uniform intensity.

To obtain the proper deflection of light, the deflector 6 must not necessarily have the shape as shown in Fig. 1, but it may be also shaped as, for instance, shown in Fig. 4, in which it has the form of a straight plate, or as shown in Fig. 5, in which it forms a trough with the opening downward. All these deflectors I have found operate with good results so long as they intercept the direct light of the lamp onto the sash. Of course it will be apparent to any one skilled in the art that the shape of the reflector must be accordingly to suit the shape of the deflector in order to obtain the best results. This, however, is a mere matter of skill and can be easily determined by figures or by practical experiments. It is also important that the deflector be disposed the exact distance below the lamp according to the size and shape of the casing, and for this purpose I have shown, in Figs. 4 and 5, as an example, how the height of the deflector may be varied, by indicating a thread on rod 7 on which the deflector is suspended and nuts 8, 8 on the threaded portion of rod 7 between which the deflector is held, which nuts may be raised or lowered until the deflector is in the proper position.

The device shown in Fig. 1 is meant to contain only one single lamp, and such device will be suited for comparatively small sashes only. For larger sashes, for which a greater number of lamps must be employed in order to obtain the proper light intensity, I prefer to use the modification shown in Figs. 2 and 3. The essential features of this modification, so far as the principle described above is concerned, are the same as illustrated in Fig. 1, that is to say, the lamp 3 is disposed centrally of the reflector, and the lateral walls are slanting at a suitable angle, and underneath the lamp is disposed the deflector which intercepts the direct light thrown from the

lamp onto the sash 5. However, while the device shown in Fig. 1 is meant to be substantially equal in width and depth, the device illustrated in Figs. 2 and 3 is composed of two devices of the form and width shown in Fig. 1, but of considerably greater depth, as shown in Fig. 3, in order to accommodate a greater number of lamps. As already pointed out above, the shape of the device of course varies considerably with the shape of the sash to be illuminated. The modification shown in Figs. 2 and 3 is meant to illustrate how a sash of considerable area may be illuminated. In this case I prefer to use two of the devices of the form shown in Fig. 1 in transverse section of a depth sufficient to accommodate, for instance, four lamps, as shown in Fig. 3. The reflector 2, in this instance, extends substantially elliptically around the four lamps 3, and the deflector thus assumes the shape of a long trough to intercept the light from all four lamps to the sash 5, similarly as indicated in Fig. 1. Also, in this case, the deflector may have the form of a plate or a downward opening trough, as shown in Figs. 4 and 5. By adding two of such units as shown in Fig. 1 together, of course the lateral reflector extension adjoining that of the other unit must be omitted. However, in order to avoid, in this case, direct light from the lamp falling beyond the edges of the deflector (which for obvious reasons can not be made too large), and from directly striking sash 5, I provide a partition 9, which extends from the point where the reflectors of the two units join, as indicated at 10, part way downward, a sufficient distance to shade off the light not intercepted by the deflector, from the sash. This wall will serve the same purpose as the lateral extension of the reflector, inasmuch as any light which might strike it directly from the lamp, or indirectly from reflector 2, is reflected by it onto the sash. This partition 9 extends throughout the whole depth of the device, as indicated in Fig. 3.

The reflector may be made, of course, of any suitable material, for instance, of polished metal of any kind, and the lateral extensions 4 may be, for instance, painted flat white, so as to diffuse the light as completely as possible.

The device, of course, may be also used without the sash, where the appearance is immaterial, and a slightly higher efficiency may be obtained than with the sash. Through practical tests, I have, for instance, found that when omitting the sash and using only a deflector the efficiency of the reflector increases from 44½% to 48%; 44½% being the efficiency of the reflector without the deflector. With the use of a deflector and a sash of granite glass, the increase in efficiency was from 40% to 43%.

These tests, however, were made with a rather roughly built pasteboard model and it is safe to state that with a carefully built device, with a good reflector and carefully painted lateral extensions, the efficiency will not be below 50%.

The actual appearance of the sash with the deflector and reflector in use is that of an absolutely evenly illuminated surface in which the eye cannot detect any variation in intensity.

These reflectors may be built of standard width and of any length desirable to accommodate any number of lamps, as shown in Fig. 3, and any number of these units may be placed side by side, as shown in Fig. 2, with a partition between them to suit any size of sash.

I have described and illustrated my invention as used for lighting rooms and halls from the ceiling. It is of course obvious that my device may be also used to the same effect for lighting rooms from the side, for instance through windows, which is of particular advantage in cases where large halls or stairways are located in the building so that their windows open to air shafts only, through which only insufficient daylight can be furnished. In such instances, my device when placed outside of such windows, will give same the appearance as if they were evenly illuminated by daylight.

What I claim is:

1. In a reflecting device of the character described, the combination with a lamp, a reflector thereon to throw the light substantially in one direction, and a sash of suitable translucent material disposed at a distance from said lamp in said direction; of a deflector of translucent material between the sash and the lamp for intercepting any direct light thrown from said lamp onto said sash, said deflector suitably shaped to throw a portion of the light striking it toward said reflector to be reflected onto said sash.

2. In a reflecting device of the character described, the combination with a lamp, a reflector thereon, and a casing open at the bottom containing said lamp and said reflector in the top, the sides of said casing inclined at a suitable angle to form lateral extensions of said reflector, a sash of trans-

lucent material across the bottom opening of said casing, said reflector and said extensions reflecting the light of said lamp striking it onto said sash; of a deflector of translucent material disposed a suitable distance below the lamp and adapted to diffuse the direct light thrown from the lamp onto said sash and suitably shaped to reflect the portion of the light not diffused by it onto said reflector and its extensions to be reflected onto said sash.

3. In a reflecting device of the character described, the combination with a lamp, a reflector thereon, and a casing open at the bottom containing said lamp and said reflector in the top, the sides of said casing inclined at a suitable angle to form lateral extensions of said reflector, a sash of translucent material across the bottom opening of said casing, said reflector and said extensions reflecting the light of said lamp striking it onto said sash; of a trough shaped deflector of translucent material disposed a suitable distance below the lamp and adapted to diffuse the direct light thrown from the lamp onto said sash and suitably shaped to reflect the portion of the light not diffused by it onto said reflector and its extensions to be reflected onto said sash.

4. In a reflecting device of the character described, the combination with a casing open at the bottom and a sash of translucent material disposed across said opening and a lamp in the top of said casing; of reflecting means on the walls and in the top of the casing, and deflecting translucent means between said lamp and said sash for preventing any direct light from said lamp from striking said sash.

5. In a reflecting device of the character described, the combination with a casing open at the bottom and a sash of translucent material disposed across said opening and a lamp in the top of said casing; of reflecting means on the walls and in the top of the casing, and trough shaped deflecting and translucent means between said lamp and said sash for preventing any direct light from said lamp from striking said sash.

BASSETT JONES, Jr.

Witnesses:

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