

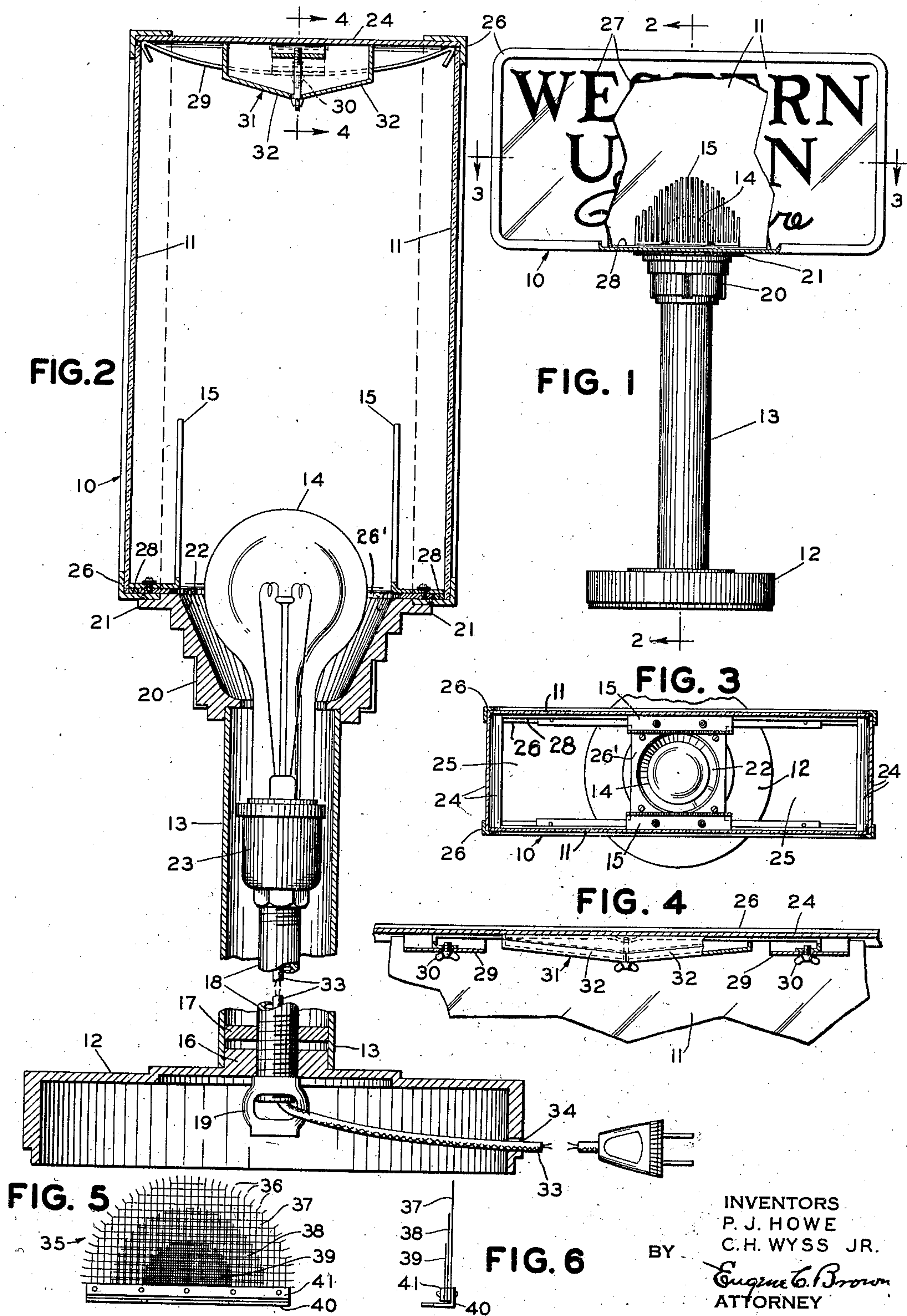
Dec. 20, 1938.

P. J. HOWE ET AL

2,141,139

INTERIORLY ILLUMINATED SIGN

Filed June 5, 1937



INVENTORS
P. J. HOWE
C. H. WYSS JR.
BY
Engene C. Brown
ATTORNEY

UNITED STATES PATENT OFFICE

2,141,139

INTERIORLY ILLUMINATED SIGN

Paul J. Howe, Ridgewood, N. J., and Clement H. Wyss, Jr., New York, N. Y., assignors to The Western Union Telegraph Company, New York, N. Y., a corporation of New York

Application June 5, 1937, Serial No. 146,672

12 Claims. (Cl. 40—132)

This invention relates generally to illumination and more specifically to the lighting of signs or similar objects.

The primary object of the invention is to provide illumination from behind a translucent panel which will have a uniform intensity over the surface of the panel when viewed from the front.

Another object is to attain the aforementioned object by using a single source of light.

A further object is to utilize a portion of this light to provide a good degree of illumination for the counter or other surface upon which the sign is placed.

While the prior art has sought to attain the first of these objects in a number of different ways with varying degrees of success, none of these attempts have been completely satisfactory. A common device was the use of a plurality of relatively low powered light sources, also often employed in conjunction with a panel having an opaque field and translucent indicia. The former arrangement was productive of a non-uniform illumination of the panel and the latter, while instrumental in reducing the non-uniformity, made very inefficient use of the available light.

By a novel arrangement of instrumentalities, this invention makes possible a sign in which these defects are obviated and, in addition, one which supplies a quantity of light useful for other purposes hereinafter disclosed. A better understanding of the invention will be obtained from the following description of a preferred embodiment thereof taken in connection with the accompanying drawing, of which:

Fig. 1 is a side elevation of the sign with a portion of one panel broken away to show some of the interior details thereof;

Fig. 2 is a vertical section taken through the center of the sign on the line 2—2 of Fig. 1 and illustrating the mechanical structure thereof;

Fig. 3 is a horizontal section of the sign taken on the line 3—3 of Fig. 1 and affording a plan view of the floor details;

Fig. 4 is a partially sectional view taken on the line 4—4 of Fig. 2 and shows in some detail the ceiling reflector and panel positioning members;

Fig. 5 illustrates an alternate form of light distributing member comprising a mesh of varying density; and

Fig. 6 is an end view of the mesh light distributing member of Fig. 5.

Having reference first to Fig. 1, there is shown a framework 10 carrying the sign panels 11 and itself supported on a pedestal comprising a base 12 and an upright column member 13. A lamp 14 is mounted in the pedestal and is screened from the panels 11 by serrated light distributing members 15.

Referring now to Fig. 2, there is illustrated the illuminated sign resting on a pedestal, the base

of which is a hollow cylindrical member 12 open on its under side and provided with a circular inwardly threaded bossed portion 16 on its upper surface. Closely fitting around the boss 16, its end resting on the upper surface of the base 12, is the tubular upright member 13 which is fitted with an inwardly threaded disk 17 near its lower extremity. The column 13 is secured to the base 12 by a pipe 18, one end of which is threaded through the disk 17 and the boss 16 and locked in position with a fixture hickey 19 on the under side of the base 12. Forming a unitary structure with the upper end of the column 13 is a funnel-shaped supporting member 20. The top of this support 20 is extended outward to form a flange 21, and the inner surface of the support is provided with a light reflecting surface 22. By a light reflecting surface, as used in this description and in the claims, is meant one which not only will reflect and direct light but also will disperse it appreciably. The pipe 18 extends upward from the base 12 within the column 13 and carries on its upper end a lamp socket 23.

The sign supporting framework 10 has the general form of an elongated box resting with one of its long narrow sides on the flange 21. A shell 24 forms the top, the two ends and enough of the bottom of the framework 10 to partially enclose this side of the structure. The remainder of the bottom is not enclosed, having the openings 25 disposed on both sides of the flange 21. (See Fig. 3). Forming a unitary structure with the shell 24 are two substantially rectangular bezels 26 attached to the front and rear edges of the shell. Riveted, screwed or otherwise affixed to the inside of the lower horizontal portions of the bezels is an H-shaped supporting member 26', the central portion of which forms a part of the bottom of the framework 10 and also serves to mount the framework on the pedestal. The central portion of the member 26' is also provided with an opening through which the lamp 14 may protrude into the light chamber. Set behind each bezel 26 is a panel 11 which may be of glass or other suitable material on which the sign is inscribed. A preferred embodiment is one in which the field or background for the sign is translucent and the indicia 27 or other matter comprising the sign is opaque. For best results this conditioning of the panels 11 should be done on their inner surfaces.

Each panel 11 is set in the framework 10 with its bottom edge in the channel formed by the inner surface of the bezel 26 and a longitudinal rib 28 fastened to the floor of the framework. The panels are held near their top edges against the bezels 26 by two positioning members 29. These members consist of bowed sheets of spring material arranged to be attached to the ceiling of the framework 10 by the screws 30 (Fig. 4)

passing through holes at or near their centers. By tightening the screws 30, the positioning members 29 tend to be flattened against the ceiling and thereby cause their extremities to exert the desired pressure against the panels 11. The exposed surfaces of these positioning members 29 are conditioned so as to be light reflective.

Also removably attached to and at the center of the ceiling of the framework 10 is a reflector 31. The exposed, or under, surface of this reflector presents four flat faces 32 all of which meet at a central point and each of which is set in a different plane. Thus the composite surface resulting therefrom simulates one which is convex downward. The composite surface of the reflector need not be limited to one having four faces, but may be comprised of a virtually unlimited number of facets, each disposed so as to reflect and direct a portion of the light outwardly downward to the sign panels.

The lamp 14 is mounted in the socket 23 and extends upward through the support 20 and far enough into the sign enclosure to bring its filament, or other light emitting source, substantially into the plane of the floor of the framework 10. Preferably, the bulb or envelope of the lamp is frosted or provided with any suitable means for diffusing the light emanating from the source. Electrical energy is supplied to the socket 23 by a double conductor cord 33 passing through an opening 34 in the base 12 and upward on the inside of the pipe 18.

Mounted on the floor of the framework 10 on either side of the lamp 14, between it and the panels 11 and in planes parallel to the panels, are two serrated light distributing members 15. It will be noted in Fig. 1 that the serrations are the longest and the closest spaced at the mid-points of these members and are of diminishing lengths and more widely spaced as the ends are approached.

Fig. 5 illustrates another form of light distributing member 35. Such a member may be constructed from wire mesh of the type commonly used for window screens. It consists of a number (in this case three) of substantially semi-circular pieces of the same, although not necessarily, size mesh, each piece being different in outside dimensions from the others. Several strands 36 of the largest piece 37 are allowed to extend substantially radially from the curved edge so as not to present a sharply defined edge to the light rays, the effect of which would be to produce a corresponding line on the sign panels. The pieces of mesh 37, 38 and 39 are mounted upright by being clamped between a mounting angle 40 and a clamping member 41. The screen members 37, 38 and 39 are superimposed upon one another so that the meshes of no two coincide, thereby producing a light distributing member, the density of which is greatest at the bottom central portion thereof and which is decreased in graduated steps radially outward.

The reflecting surface 22 of the support 20, the under surface of the positioning members 29, the surfaces of the reflector 31 and the light distributing members 15 all cooperate to provide a uniform illumination of the panels 11. Specifically, the light emanating downward from the lamp 14 is redirected upward into the sign enclosure by the reflecting surface 22. The direct light emanating upward from the lamp, together with some of the light reflected from the surface 22, is redirected downward and outward by the reflector 31 in four different directions to the inner sur-

faces of the panels 11. The distributing members 15 are instrumental in so dispersing the light emanating laterally from the lamp 14 and from the reflecting surface 22 that there are visible on the surfaces of the panels 11 no areas of greater or lesser light intensity than that of the rest of the panel. By being characterized as hereinbefore described, these members effect an even distribution of light over the panel even though the density of the light impinging on unit areas thereof varies as a function of the distance by which any given unit area is removed from the light source. However, the light rays which are thus prevented from reaching one panel are redirected by the inner surfaces of the distributing members to the opposite panel, thereby contributing to its uniform illumination.

As noted hereinbefore, there are two openings 25 in the floor of the framework 10, and through these openings a substantial quantity of light is directed downward and thereby illuminates a considerable portion of the surface on which the base 12 rests.

It will be noted that the lamp 14 may be removed and replaced without dismantling the sign in any way. For this purpose, access to the lamp may be had through either of the openings 25. In addition to the lamp 14, the light distributing members 15, the positioning members 29 and the reflector 31 may also be reached and removed through one of the openings 25. Then if it is desired, the panels 11 may be removed. It will also be appreciated that the reflecting surface 22 serves primarily to increase the efficiency of the device, and may be omitted if desired.

It will be obvious that the novel features of this invention may be embodied in signs having other shapes than the one illustrated. For example, a sign which is similar to the one shown, but longer, may have a plurality of light sources, each suitably recessed in the floor, and a light distributing member interposed between each light source and the panels. Also the sign may be multi-sided with translucent panels forming the sides thereof which may be arranged concentrically about a light source. In this case, a distributing member is interposed between the light source and each panel.

Hence, in a sign which is arranged to be interiorly illuminated, it is seen that by the suitable positioning of one or more light sources and by the use of appropriate light distributing and reflecting members, the sides of the sign may be effectively and uniformly illuminated. At the same time illumination is also provided for the counter, desk or other surface upon which the sign is placed. Since the only light absorbing surfaces present in a sign of this nature are the relatively small areas comprising the indicia, a high degree of efficiency is obtained. Also, this invention provides a sign of the class described above, which may be very easily serviced.

The nature of the invention is determined from the foregoing description of a preferred embodiment thereof, and it is obvious that various modifications may be made therein without departing from the spirit thereof. Accordingly, the scope of the invention is defined by the following claims.

What is claimed is:

1. In an illuminating device, a panel to be lighted, a light source, and means interposed between said panel and said light source to provide a uniform illumination of said panel, said means having light transmitting openings varying in

size according to their respective displacements from the light source.

2. In an illuminating device, a panel to be lighted, a concave reflector having its opening disposed in a plane perpendicular to said panel, a light source associated with said reflector, and means interposed between said panel and said light source to distribute the light emanating directly from said source and reflected from said reflector uniformly over said panel, said means having light transmitting openings varying in size according to their respective displacements from the light source.

3. An interiorly illuminated sign, comprising a pedestal support, a light source carried thereby, a framework having a base mounted on said support, a plurality of translucent panels demountably positioned in said framework and bearing thereon indicia adapted for interior illumination, a light reflecting surface characterized by multiple facets and mounted in said framework above said light source, openings in the base of said framework to provide exterior illumination below the sign, and a plurality of light distributing members suitably interposed between said light source and said panels to cooperate with said reflecting surface in uniformly illuminating said panels, said members being characterized by light transmitting openings varying in size according to their respective displacements from the light source.

4. An interiorly lighted sign, comprising a pedestal support, a recessed portion in the top thereof adapted for reflection of light rays, a light source carried by said support and located within said recessed portion, a framework having an enclosed top and open bottom and mounted on said support, a plurality of translucent panels mounted vertically in said framework and disposed substantially concentrically about said light source, said panels bearing indicia adapted for interior illumination, a reflector having a plurality of facets adapted for angular reflection of light rays and mounted directly above said light source on the under side of the top of said framework, and a plurality of serrated light distributing members suitably interposed between said light source and said panels to provide for the uniform impingement of the light rays upon the surfaces of said panels.

5. An interiorly lighted sign, comprising a pedestal support, a generally concave recessed portion in the top thereof adapted for reflection of light rays, a light source within said recessed portion and carried by said support, an upright supporting framework having enclosed top and ends and open sides and bottom and internally adapted for reflection of light rays, said framework being centrally mounted on said pedestal support, translucent panels bearing indicia adapted for interior illumination and positioned in said framework forming the sides therefor, a reflector centrally mounted on the inside of the top of said framework and having four facets adapted for angular reflection of light rays, and serrated members interposed between said light source and said panels in planes substantially parallel to the panels, the depth and breadth of the serrations of said members being varied, the depth in inverse proportion and the breadth in direct proportion to the displacement of the serrations from said light source, said panels being

uniformly impinged by light rays distributed by said serrated members and reflected from the aforementioned reflecting surfaces.

6. An interiorly illuminated sign comprising a pedestal support, a light source carried thereby, a framework having a base mounted on said support, a plurality of translucent panels demountably positioned in said framework and bearing thereon indicia adapted for interior illumination, a light reflecting surface mounted in said framework above said source, openings in the base of said framework to provide exterior illumination below the sign, and a plurality of screen meshes having a varied density and being suitably interposed between said light source and the panels to cooperate with said reflecting surface in uniformly illuminating said panels.

7. A device for uniformly illuminating a panel, comprising a source of diffused light, reflecting members disposed adjacent to the edges of said panel, and a light distributing member interposed between said source and said panel, said member being provided with light transmitting openings varying in size directly as their respective displacements from the light source.

8. A device for uniformly illuminating a plurality of panels, comprising a source of diffused light, reflecting surfaces disposed adjacent the edges of said panels, and a plurality of light distributing members interposed between said source and said panels, said members having serrations varying in length and spacing whereby the ratio of the quantity of light transmitted through unit areas thereof to the quantity of light impinging upon said areas varies inversely as the quantity of light impinging upon said areas, the interrupted light rays being redirected to another of said panels.

9. In combination, a member having a surface to be illuminated, a source of light disposed adjacent one edge thereof, and a serrated light-distributing member disposed intermediate said surfaced member and said light source.

10. In combination, a member having a surface to be illuminated, a source of light spaced from said surface adjacent one edge thereof, and a member having a plurality of notches interposed between said surfaced member and said light source for transmitting predetermined quantities of direct light to said surface.

11. In an illuminating device, a surface to be uniformly lighted, a source of light disposed adjacent one edge thereof, a serrated light-distributor disposed intermediate said surface and said light source for transmitting predetermined quantities of direct light to said surface, and a light-reflector disposed in spaced relation to said light source for supplying said surface with predetermined quantities of reflected light.

12. In an illuminating device, a member having a surface to be uniformly lighted, a source of light spaced from said surfaced member, a toothed light-distributing member interposed between said surfaced member and said light source for intercepting a predetermined number of light rays emanating from said source, and a plurality of reflecting surfaces including the surfaces of said light-distributing member adjacent said light source for supplying reflected light to portions of said surfaced member deficient in direct light.

PAUL J. HOWE.
CLEMENT H. WYSS, JR.