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ILLUMINATED SIGN.

APPLICATION FILED APR. 11, 1908.

926,796.

Patented July 6, 1909.

FIG. 1.

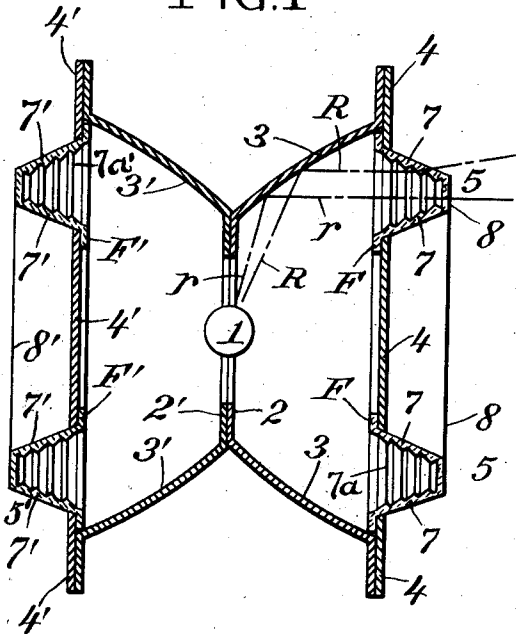


FIG. 2.

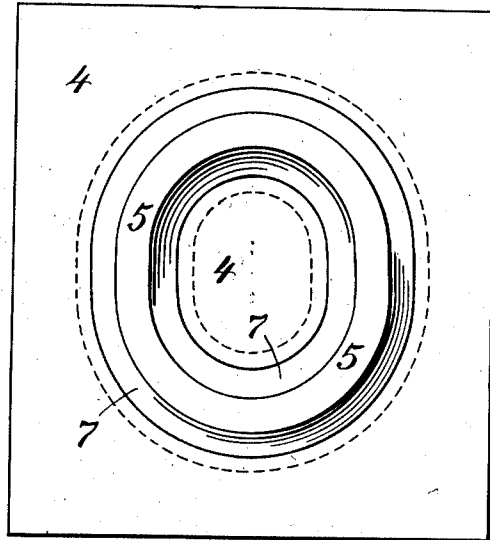


FIG. 3.

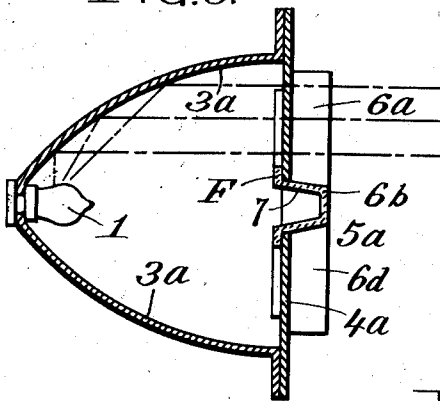


FIG. 4.

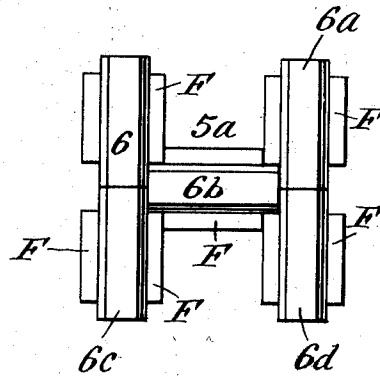
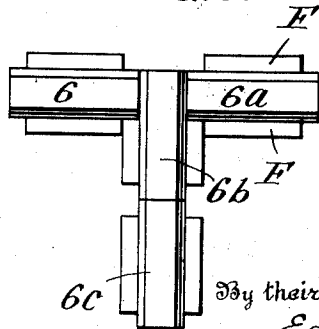


FIG. 5.



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UNITED STATES PATENT OFFICE.

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ILLUMINATED SIGN.

No. 926,796.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, ROY R. WILEY, WALLACE K. WILEY, and WILLIAM S. HOUGH, Jr., citizens of the United States of America, and residents of St. Catherines, in the county of Lincoln, Province of Ontario, Canada, have invented certain new and useful Improvements in Illuminated Signs, of which the following is a specification.

Our invention relates to a device for exhibiting illuminated letters, numerals, and other characters composing an advertising or other kind of sign.

The leading objects of the invention are to secure a sign which is easily visible at long distances, as well as at short range in both directions; to obtain a brilliant effect at the sides of the characters, both day and night; to build different characters of the same portions; to dispense with all lenses, which involve bulk and weight to an objectionable extent; and to improve the details of construction.

Without describing the various scopes of invention, which are attended to in the claim hereinafter annexed, our statement of invention is as follows:—The invention involves a two-way sign, a raised translucent character being on each side, and having sloping sides, which are formed with prismatic elevations; a common source of light, and sectional parabolic reflectors located respectively behind the characters for directing the rays of light in parallel directions and perpendicular to the faces of the characters, but in various directions from the sloping sides.

Figure 1 is a vertical section of the device. Fig. 2 is a front elevation. Fig. 3 is a vertical section of a modification. Fig. 4 is a front elevation of the letter-portion of Fig. 3. Fig. 5 is an elevation of another letter built up of some of the sections.

Like characters represent like parts.

The device consists of a lamp 1, and a reflector 2, having an annular parabolic reflecting surface 3. Importance is attached to the annular reflector 2. By using such, the weight and bulk of the device are greatly reduced, in comparison with the form shown in Fig. 3. The depth horizontally is only about half, and less light is lost by useless reflections inside of the device. The characters need not necessarily be the round kind, be-

cause a cross piece, as 6^b in the letter H, would have the direct rays of the lamp 1. A plate 4 is transverse to the axis of the reflector and fastened to the front thereof, and having a letter-shaped opening, over which is a glass character 5, in this instance, in the shape of the letter O, having a flange F for attaching the letter O to the plate 4 by using cement. Any letter may be in front of such a parabolic reflector, but of course, it is more efficient to use this annular reflector for round letters like C, D, G, O, Q, and U. On the left side the parts are repeated at 5', 8', 3' &c. The lamp 1 is at the common focus of the two reflectors.

We found that the sides 7, if plane, of the letters do not light up very much, as each light ray from the reflector 3, struck the inner surface of the sloping side 7, so obliquely, as to be largely reflected from, instead of being transmitted sufficiently through the glass. It occurred to us to provide prismatic elevations on the inner surface, as indicated at 7^a, in Fig. 1. The rays R are indicated by dots and dashes, as being refracted and transmitted effectively through the glass, giving the brilliant appearance of cut glass. The angles of the rays at the refracting points are not laid out mathematically, as it is intended only to illustrate the general effects of the glass upon the direction of the rays. The principle of such a letter therefore, consists of the face 8, of the letter having sloping sides provided with prismatic elevations 7^a, on the inner surface. The prismatic elevations 7^a may be provided also on the faces of the characters. The outer surfaces of the characters could at the same time be so shaped that the parallelism of the rays would still be preserved. Or, the modification could include the rays not being maintained parallel. Whether the elevations 7^a are over all or parts of the surfaces, we have found that the letters not only have a brilliant effect at night from the light within; but in the day time, by the action of sunlight, the letters look much as if made of small mirrors. These elevations also cut down the blurring effect, which occurs somewhat without them. The blurring mentioned is visible at a comparatively great distance, and is caused probably by the spreading of the rays, and by stray rays which have not been made parallel, by the

parabolic reflector. The spreading, if any, of the intended parallel rays would be due to inaccuracy of the reflector.

In Fig. 3 is shown a practically complete
5 parabolic surface 3^a.

The glass character, 5^a, is the letter H, built up of equally sized sections, 6, 6^a, 6^b, 6^c, and 6^d, fastened to the opening in the plate 4^a. The same pieces may be used for making
10 several other letters, as for example the letter T as in Fig. 5. Each section has flanges F, which may be cemented to the plate 4^a, on the inner side. The sections 6, 6^a, 6^b, &c. of the characters need not neces-
15 sarily be of the same size, nor of the same shape. When of the same size, they may be put together more conveniently to form different letters of the same sections as used in other letters. Thus the sections shown in
20 the letter H in Fig. 4, may be put in any relative order so long as they form another letter, as T in Fig. 5. In any case, the sections consist each of glass having a cross section consisting of a face, and two sides sloping to the
25 face toward each other.

We claim as our invention:

In an illuminated sign, the combination of an opaque plate having an opening therein of the shape of a character, a parabolic reflector whose major axis is at right angles to
30 said plate, a translucent character in said opening and having a portion of its face, which is to transmit the light, parallel to said plate, walls having lateral faces for transmitting light, sloping from said plate toward each
35 other to said first named face, a source of light being located at the focus of said reflector, and prismatic elevations formed on the inner surfaces of the lateral walls.

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