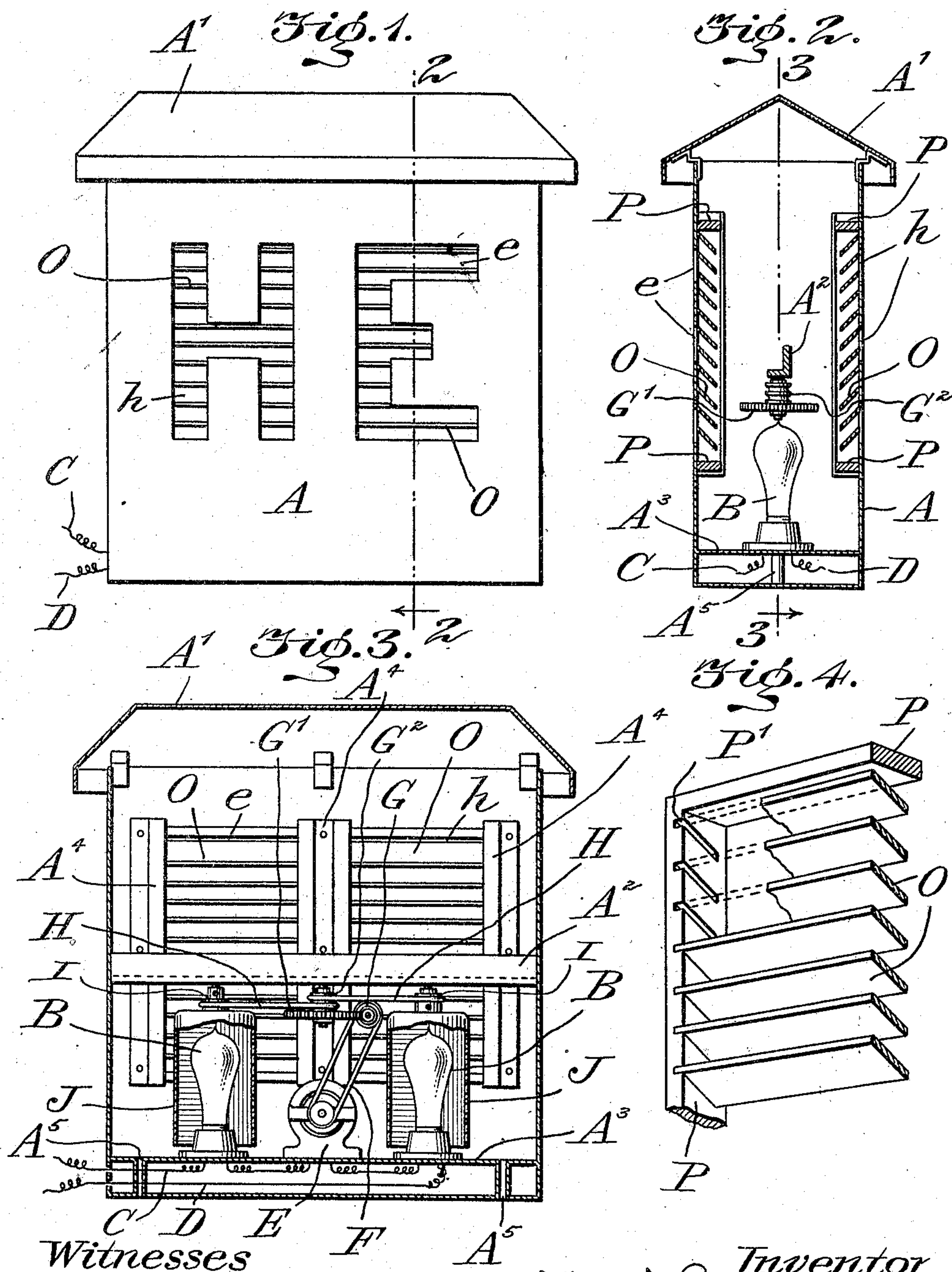


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2 SHEETS—SHEET 1.



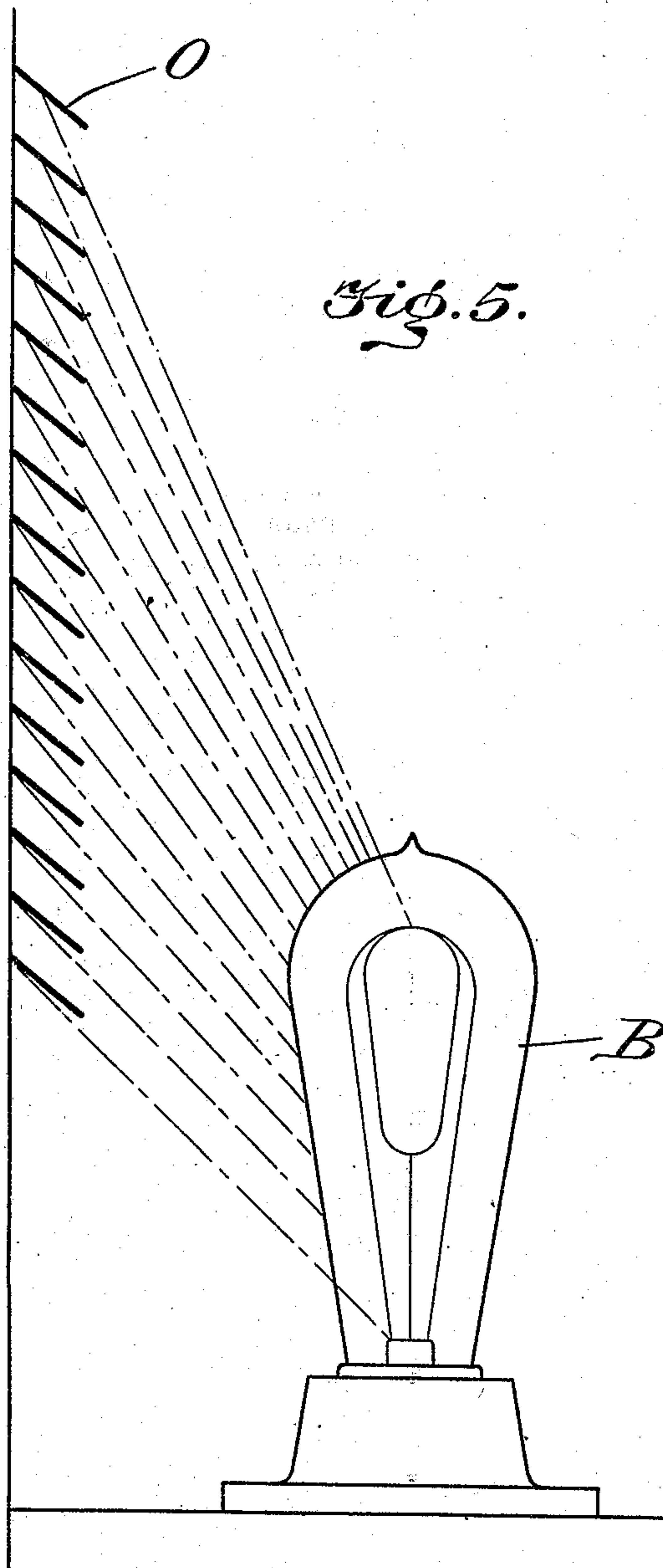
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# UNITED STATES PATENT OFFICE.

ALBERT H. HAWKES, OF NEW YORK, N. Y.

## ILLUMINATED SIGN.

No. 911,557.

Specification of Letters Patent.

Patented Feb. 2, 1909.

Application filed October 19, 1907. Serial No. 398,139.

*To all whom it may concern:*

Be it known that I, ALBERT H. HAWKES, a citizen of the United States, residing in the borough of Manhattan, in the city and State of New York, electrician, have invented a certain new and useful Improvement in Illuminated Signs, of which the following is a specification.

I will describe it as depending for its artificial light on incandescent electric bulbs, but the improvement may apply with other lighting means. I will describe it as used with two such sources of light, but the number may be varied.

I produce the letters or other devices in the long approved way, by cutting or otherwise shaping open spaces of the proper form in opaque sheets of iron or other material which form the vertical sides of the sign.

I have discovered that it is practicable to employ inclined strips of thin metal, or other suitable strong and cheap material, so placed as to serve to present a white surface with light received from the exterior in its universally diffused form by day, and also to present a nearly uniform white surface by reflecting the rays of a lamp or of a number of lamps in the interior at night. There are periods when a lamp is subject to both kinds of light. This is especially the case in well-lighted streets of cities during all the first portion of the night. My sign is well adapted to present its letters or other devices clearly, and with uniform brilliancy under all the varying conditions. It is especially easy to repair, when a blow, as a missile intentionally, or accidentally striking it, shall break the structure or any portion of it.

The following is a description of what I consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a front elevation. Fig. 2 is a vertical section on the line 2—2 in Fig. 1. Fig. 3 is a vertical section on the line 3—3 in Fig. 2. Fig. 4 is a perspective view of a portion on a larger scale. Fig. 5 is a diagram showing the direction of some of the rays of light.

Similar letters and marks of reference indicate like parts in all the figures where they appear.

A is a rectangular casing of sufficiently stout sheet iron or other substantial material, but *h* and *e* are apertures occupying a

large portion of each face, and which it is the purpose of my inclosed slats to illuminate.

A<sup>1</sup> is a removable cover which can be easily lifted off to afford access to the interior.

A<sup>2</sup> is a rigid bar extending horizontally the long way of the rectangle at about mid-height.

A<sup>3</sup> is a false bottom a little above the true bottom, and B—B are ordinary incandescent bulbs supported on such bottom, receiving current through wires C and D, either of which may be a positive and the other a negative connection to a dynamo or other source of electric current not shown. E is a small motor supported also on the false bottom and connected, to be operated by the same current which affords the light. F is a belt from this running upon a pulley G which carries a worm engaging with a horizontal worm wheel G<sup>1</sup>. The latter carries a pulley G<sup>2</sup> which by belts H gives motion to pulleys I, which latter operate inverted glass bells or approximately cylindrical screens J—J. These screens may be varied indefinitely. Their function is to color or otherwise modify the light by their slow revolution induced by the connection to the rapidly revolving motor E.

It is important to the success of my invention, as it will preferably be worked, that the light shall be uniform in color up and down the whole side of the sign. The purpose of the revolving screens is to change that light at intervals. The glass of which the screens are made is colored in stripes up and down. One side is left entirely open. In other words, the cylinder is not complete; it is left with one side omitted. It may sometimes be preferred to have the light uniform. In such case the motor is disconnected by any ordinary means and the bulbs are allowed to serve constant, giving either the ordinary nearly white color, or red or other color, as the glass of the screen may be colored and adjusted.

A<sup>4</sup> are slides riveted in the interior of the sign, one set on each side. P P are light frames matching in ways formed by these slides, and adapted to be inserted and removed from above. It remains to describe what I esteem to be the most important feature of the construction,—the reflectors. Each of these frames is formed with a series of deep inclined grooves P<sup>1</sup>, shown clearly



in Fig. 4. These frames may have any character of surface; I will assume that the material thereof is ordinary iron.

O O &c. are slats of iron or low steel having surfaces especially prepared with reference to reflecting light. The surfaces may be smooth mirrors, or they may be irregular mirrors produced by the aid of broken material of various degrees of fineness. I prefer for general use, and especially for convenience of cleaning, that the surfaces shall be smooth white enamel. The lower surface is the one which is useful. The lamp is usually higher than the spectator. The lower surface reflects both the diffused daylight under day conditions, and the artificial light from the interior under night conditions. In the latter case it adds so much exterior light as is available.

Modifications within the scope of the appended claims may be made without departing from the principle or sacrificing the advantages of the invention.

The drawings show good proportions of the bulbs and of the slats, and of the carriages or frames in which the slats are carried, but all these parts may be varied within wide limits. Fig. 5 illustrates a good proportion, but is not intended as defining exact proportions.

Parts may be employed without the whole. I can omit the screens J—J and the provisions for revolving them and provide other means for changing the colors or be content with maintaining the colors uniform. The cover A<sup>1</sup> overhangs the body of the lamp and allows a considerable space for ventilation. The tubular provisions, A<sup>2</sup>, in the bottom allow air to enter freely at those points. When the light is electrical as shown, these provisions are less important, but they may always be of use, especially in case of a driving snow or other cause inducing the presence of water in the sign. These apertures in such cases drain the structure effectually. In all the forms the slats are plane and the rays emitted by the two bulbs B or other source of artificial light in a low portion of the interior is received directly and is reflected outward horizontally.

I have shown the sign double-faced and such are required in many situations. Both faces are illuminated by the same light. There are other cases where a single-faced lamp will serve well. In such, the back face may often be omitted, and the casing fitted as closely as may be to the front of the building. The invention will serve well thus applied.

I claim as my invention:

1. In an illuminated sign, an opaque plate stencil-cut with the desired letters or de-

vices in combination with a series of plane slats having reflective surfaces set inclined adjacent to and behind such plate, arranged to receive light directly from the source and reflect it outward horizontally.

2. In an illuminated sign, an opaque plate stencil cut with the desired letters or devices a series of slats having reflective surfaces and obliquely set in a series adjacent to said letters in frames P, the casing having ways for guiding such frames and a removable cover allowing a frame and its slats to be conveniently inserted and removed at will.

3. In an illuminated sign a body or casing having an opaque plate stencil-cut with the desired letters or devices, and a series of supporting and guiding ways extending up and down, in combination with frames matched easily in such ways adapted to allow any to be removed and replaced at will, and a series of slats having reflective surfaces carried in inclined grooves in such frames.

4. In an illuminated sign, an opaque plate stencil-cut with the desired letters or devices, removable frames arranged behind such plate equipped for supporting inclined slats in combination with the series of slats adapted therefor of metal with one face enameled, adapted to reflect either daylight or artificial light and provisions for electrically lighting the space behind such slats.

5. In an illuminated sign two opaque plates stencil-cut each with the desired letters or devices in combination with connecting end plates, means for lighting and draining the lower portion, means for removably protecting the upper portion against the weather, and with two series of inclined slats with reflective surfaces arranged on the opposite sides of the casing and to be illuminated by a single series of artificial lights in the lower portion of the interior, all substantially as herein specified.

6. In an illuminated sign, an opaque plate, stencil-cut with the desired letters or devices, a series of inclined slats having reflective surfaces, and frames movable in supporting and guiding ways these frames having inclined grooves receiving and supporting such slats and allowing any to be removed and placed at will, in combination with a particular screen and a motor for slowly revolving it, all arranged for joint operation substantially as herein specified.

Signed at New York city in the county of New York and State of New York this fifteenth day of October A. D. 1907.

ALBERT H. HAWKES:

Witnesses:

THOMAS DREW STETSON,  
EMMA F. HUNT.