No. 733,800. PATENTED JULY 14, 1903.

H. M. BEUGLER.

DAY OR NIGHT SIGN.

APPLICATION FILED MAR. 10, 1903.

NO MODEL.

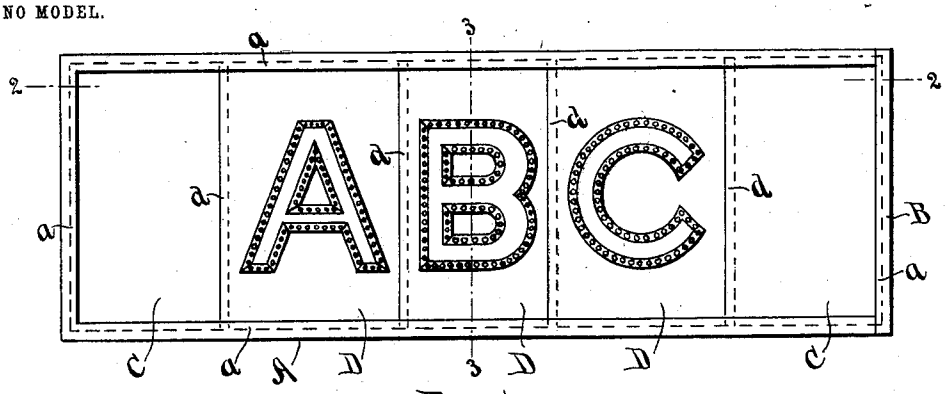


Fig. 1

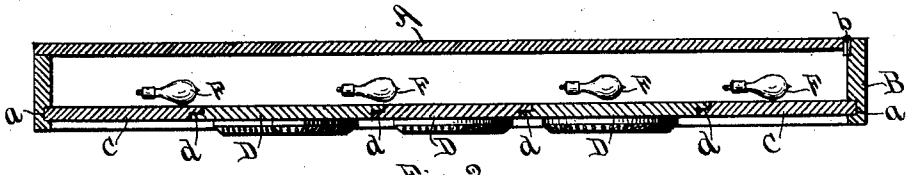


Fig. 2.

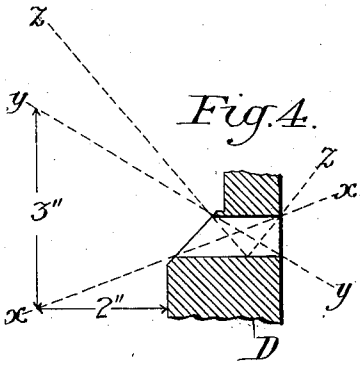


Fig. 4.

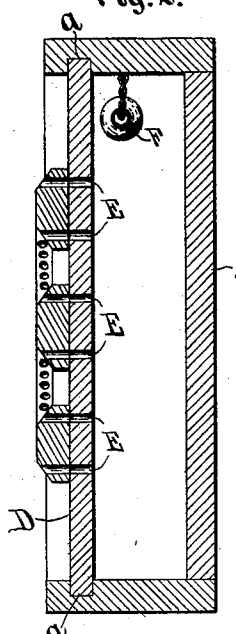


Fig. 3

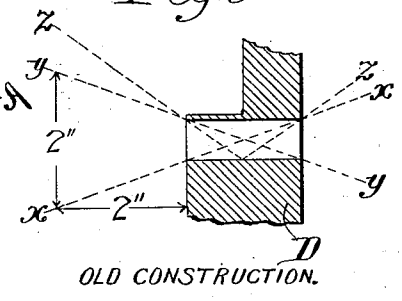


Fig. 5.

OLD CONSTRUCTION.

WITNESSES:

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No. 733,800. Patented July 14, 1903.

UNITED STATES PATENT OFFICE.

HUGH M. BEUGLER, OF ELMIRA, NEW YORK, ASSIGNOR TO W. CHARLES SMITH, OF ELMIRA, NEW YORK.

DAY OR NIGHT SIGN.

SPECIFICATION forming part of Letters Patent No. 733,800, dated July 14, 1903.

Application filed March 10, 1903. Serial No. 147,191. (No model.)

To all whom it may concern:

Be it known that I, HUGH M. BEUGLER, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Day or Night Signs, of which the following is a specification.

My invention relates to improvements in signs for various advertising purposes which are to be readable by day or night; and the object of my improvements is to provide novel features of construction whereby the illumination of the letters at night will be more efficient, so as to make them clear-cut and with the points of light so diffused as to render the letters solid in appearance and readable at a considerable distance.

A further object is to so arrange the illuminating openings on the letters that they will be practically invisible during the day-time, and a final object is to simplify and cheapen the construction and operation of this class of signs and to so arrange them that the letters may be readily changed, if desired.

I attain my objects by means of a sign arranged and constructed in the manner illustrated in the accompanying drawings, in which—

Figure 1 represents a front elevation of a sign embodying my improvements; Fig. 2, a horizontal section on the line 2 2 in Fig. 1; Fig. 3, a vertical section on the line 3 3; and Figs. 4 and 5, details in diagram, illustrating the increase in the divergence of the light-rays in letters formed in accordance with my invention, Fig. 5 representing an old form of construction in which the light-aperture is cut at right angles by the surface of the letter.

Like letters refer to like parts in the several views.

A represents a box of any suitable length and height, dependent upon the sign to be produced. The box will be preferably about six inches in depth or sufficient to so arrange the lights as to direct the rays through the apertures in the letters by reflection from the back surface of the box. At the front of the box I attach raised letters, with a three-quarter chamfer running around the edges. Along these chamfer edges of the letters I bore holes of a size and distance apart dependent upon the size of the letters—for instance, in an eighteen-inch letter to produce the best result I find that the holes should be five-eighths of an inch in diameter and set about five-eighths of an inch apart, and I propose to retain this ratio of size and spacing when the letters are increased or diminished in size. The letters will be preferably coated with gold or silver leaf and the inside of the holes painted or bronzed to correspond. On the inside of the box lights sufficient to properly illuminate the letters are so spaced and located, as indicated at F, Fig. 2, that only the reflected rays therefrom will show through the holes in the letters. The holes E in the letters are bored straight through, so that their outer ends are cut diagonally by the chamfer. By this arrangement of the holes in the gilded or silvered letters the effect at night is a solid mass of light of the form of the letter, clear-cut and distinct, and the individual holes cannot be distinguished at a distance beyond one hundred or one hundred and fifty feet, and the greater the distance from the sign the better will be the effect. Were these holes to be cut perpendicular to the face of the letter, the light shining through each hole would present a distinct and separate point of light discernible at a distance, and the effect would be a letter outlined by points of light, which would render the sign indistinct and difficult to read, especially when viewed at an angle; but by bringing the holes out on the chamfer surface I attain a greater deflection and diffusion of the light, as it shines through the holes, whereby the stronger rays of light are spread farther apart and blended together as they emerge from the holes and the letter is so lighted up as to produce the effect of a solid mass of light of the form of the letter. An inspection of Figs. 4 and 5 will show this difference in divergence of the light-rays passing through holes terminated by faces perpendicular to the holes, and through holes terminated by faces cutting the holes at an angle, as in my chamfered letters. In these figures, xx and yy represent the direct rays of greatest divergence passing through the holes, and upon the scale to which the figures are drawn it will be seen that at a distance of two inches from the face of the letter these rays will be spread but two inches

apart where the face is perpendicular, as shown in Fig. 5, while the same rays will be spread three inches apart in the chamfered letter, as shown in Fig. 4. A still greater difference is shown in the reflected rays by comparing the lines *z z* in each of the figures. If desired, the back of the box may be painted, preferably with enamel-paint, in colors, whereby different color effects may be produced in the letters at night. In the daytime these holes through the letters will not be visible beyond a short distance from the sign, and the letters will appear as a solid block of raised gold or silver or other color, if they be otherwise painted, it being understood that the face, chamfer, and sides of the letters will be coated by the coloring preparation, whether it be paint, bronze, or gold or silver leaf. Moreover, by reason of the chamfers the letters of the sign will be readable at an angle, as well as directly in front, whether by day or night.

To render the letters of such a sign changeable, I attach each letter to a back board or face-plate D, which is adapted to be slipped into the grooves *a* in the sides of the box. The sections D are cut to form a lap-joint where they abut against one another at *d*, so as to prevent the light from passing through the joints. Blank sections C are also provided for spacing the words and for filling the spaces at the ends of the box. If desired, however, the letters may be set up close to the ends of the box without such spacing-sections. In order to remove and change the letters, I make one of the ends, as B, removable, attaching it at the back of the box by hinges at *b*. If desired, the back boards or face-plates D may be made square, so as to fit the grooves *a* when turned in any position. In this way a sign may be changed from a horizontal to a vertical position, and by the use of a suitable alphabet of such letters the sign may be changed from time to time, as for announcing the changes in theater attractions and the like. Moreover, a sign-maker with a stock of such letters may box them in and produce a sign at very short notice.

It will be noted that the sign is made entirely of wood and that the holes are merely bored through the letters and are not provided with glass or jewels to produce the lighting effects. I also attain a maximum lighting effect for the letters by the use of a minimum number of lights, so that the maintenance of a sign of this character is greatly cheapened.

Signs of this general character may be put together and used in a variety of ways, and I do not, therefore, limit myself to the exact details of construction and arrangement as shown for purposes of illustration in the accompanying drawings.

Having thus described my improvements, what I claim as my invention, and desire to secure by Letters Patent, is—

1. In a sign, the combination with a face-plate or board, of a letter or character chamfered around the edges and having holes passing through the chamfers to transmit the rays from a source of light behind the face-plate.

2. In a sign, the combination with a face-plate or board, of a letter or character chamfered around the edges and having holes bored through the chamfers at right angles to the face-plate, and lights behind the face-plate positioned to transmit reflected rays through said holes.

3. In a day and night sign, the combination with a face-plate or board, of a gilded or silvered letter or character chamfered around the edges and having holes passing through the chamfers to transmit the rays from a source of light behind the face-plate, said holes being coated or painted to correspond with the face of the letter or character.

4. In a sign, the combination, with a box or casing, of a sectional face-plate removably attached to the front thereof and a source of light within the box behind the face-plate, the sections of said plate carrying perforate letters or characters and being so united to one another and to the box as to prevent the passage of light from the illuminating source except through the perforate letters or characters.

5. In a sign, the combination with a box or casing, of a sectional face-plate fitted into grooves in the sides of the box, each section of said plate being joined to its neighbor by a lap-joint, and perforate letters or characters carried on the outer faces of said sections.

In testimony whereof I have affixed my signature in presence of two witnesses.

HUGH M. BEUGLER.

Witnesses:
DWIGHT S. WISEMAN,
MEENA E. VERBECK.