

H. C. HEATON.
LUMINOUS SIGN.
APPLICATION FILED DEC. 24, 1919.

1,436,092.

Patented Nov. 21, 1922.

Fig. 1

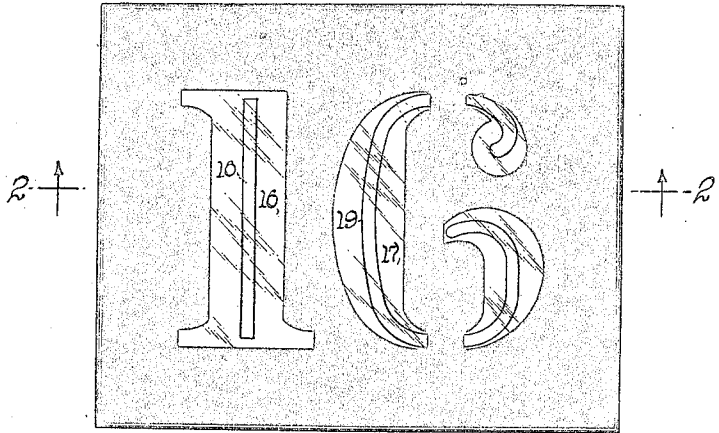


Fig. 2

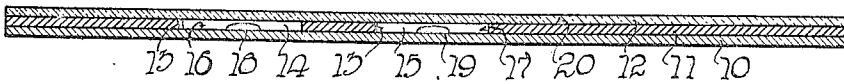


Fig. 3

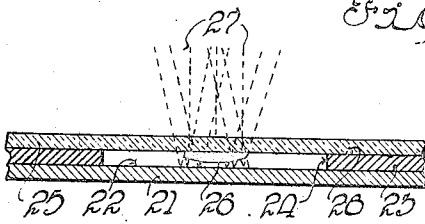


Fig. 6

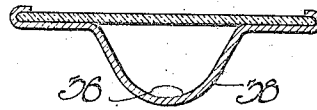


Fig. 4

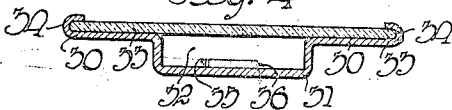


Fig. 7

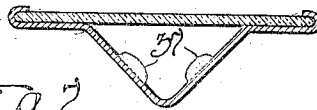


Fig. 5



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UNITED STATES PATENT OFFICE.

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LUMINOUS SIGN.

Application filed December 24, 1919. Serial No. 347,085.

To all whom it may concern:

Be it known that I, HERMAN C. HEATON, a citizen of the United States, residing at Berwyn, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Luminous Signs, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates broadly to signs, labels, markers or indicating devices where-in visibility of the same in the dark is accomplished by means of luminous paint or the like defining in whole or in part the figure or device represented.

In the device of my invention I have contemplated the production of a sign of the class referred to, which is simple, durable economical in construction and clearly legible at any reasonable distance. I provide a sign of this character by employing what I term a cellular construction. In other words, the luminous element is contained in a cell, the complete sign being made up of one or more cells of a shape defining the character, indication or the like, which it is desired to represent.

The cell as preferably constructed comprises a recess which forms part or all of the character to be represented and a transparent cover for the recess. The recess contains luminous material such as a compound of radium. This material may or may not be coextensive with the recess. Preferably the luminous material is not coextensive with the recess defining the character or device which the cell represents, as by this means economy may be practiced in the use of the luminous material.

In the latter construction the back face of the recess which is presented to the eye has a distinctive surface with reference to the background surrounding the recess so that it may be identified or perceived either under the light of the luminous material within the cell or under illumination from an external source of light.

The luminous material may be disposed anywhere within the cell so long as the desired effect is produced. For instance I may place the luminous material on the back face of the transparent cover of the cell. In this form the luminous material gives off light directly and by reflection from the character-

istic surface of the back face of the cell. The transparent cover seals the cell against the entry of moisture or other foreign substances, and it protects the luminous material from wear or injury.

In the preferred form of the invention I employ a white paint or enamel for the bottom part of the cell and deposit the luminous paint which is of substantially the same color upon said background or in such position that it does not affect the background.

I may construct the cell in various specific forms. For instance, the cell may be built up of a thin sheet of material of the desired thickness to furnish the sidewalls of the cell. This sheet is cut out to form the figure or device to be represented and defines the lateral boundaries of the cell. It is superimposed upon the back plate or foundation of the shell. Upon the combination of plates there is placed the transparent cover plate. The luminous material is disposed within the cell thus formed.

The cell may also be formed of a metallic stamping or a milled out plate having a recess or depression corresponding to the outline of the device or figure to be represented, also provided with a transparent cover plate.

While I shall describe my invention as embodying a particular structure and arrangement of parts, it will readily appear that by slight modifications changes may be made in the structure, such as the placing of the luminous element on the side walls of the cells, or at the juncture of the side walls and bottom of the cells, without departing from the spirit of the invention.

Other objects and advantages will appear from the following detail description and the appended claims, taken in connection with the accompanying drawing, in which: Figure 1 is a front elevation of a sign embodying the improvements of the invention;

Figure 2 is a transverse sectional view taken on the line 2—2 of Figure 1;

Figure 3 is a detail sectional view of a modified form of the invention;

Figure 4 shows in section a form of cell employing a metallic body, and

Figures 5, 6 and 7 show modifications of the same.

Referring more particularly to the drawing, wherein one embodiment of my inven-

tion is illustrated, 10¹ designates the base or back plate of the sign, 11 representing the filler or plate in which the design is outlined, and 12 representing the cover plate.

5 As shown, the cover plate 12 is transparent and is coextensive with the back plate and filler. However, it will be readily apparent that the transparent surface 12 need not be
10 opaque and provided with transparent openings. In fact, the transparent plate may be entirely omitted if desired, but as will appear later, the provision of the same enhances the durability of the device and
15 serves as a protective measure for the luminous element described later.

The filler 11 may be constructed of heavy cardboard or the like and the base plate 10
20 of white celluloid or any other material having a light reflecting surface. The filler is provided with a plurality of openings 13 forming cells 14 and 15, of suitable shape to outline a letter or numeral, as the case may be. By virtue of the opening 13 correspond-
25 ingly defined portions of the upper surface of the base plate 10 are exposed as at 16 and 17, these surfaces being light reflecting.

Luminous paint or the like is placed within the cells 14 and 15 on the reflecting sur-
30 faces 16 and 17, as at 18 and 19. The luminous paint is placed on the surfaces 16 and 17 in the manner best shown in Figure 1, conforming to the outline of the figure represented, but being noncoextensive with the
35 reflecting surfaces 16 and 17.

The outer surface 20 of the filler is preferably light absorbing, so that the outline of the numeral or letter represented will be accentuated. It will also be noticed that the
40 side walls of the cells 14 and 15 are light reflecting so as to cooperate with the bottom wall to enhance the illumination given forth by the luminous element.

In Figure 3 a modified form of the invention is shown, the backing or base plate
45 21 having a light reflecting surface 22 and receiving thereon the filler 23 provided with a suitable opening 24, or a plurality of the same, to represent a numeral or letter. A
50 transparent plate 25 is provided, and instead of mounting the luminous element on the reflecting surface of the back plate, I mount the same on the under surface of the transparent plate as at 26. Thus the illumina-
55 tion given forth by the luminous element is reflected outwardly as indicated by the dotted line 27 from the reflecting surface. As in the first desired form of my invention, the luminous element is non-coexten-
60 sive with the reflecting surface or the surface on which the same is mounted. The plate 25 being transparent permits the luminous element to be seen through said plate, so that the light from both sides of said
65 luminous element is used. In this form of

the invention the outer surface 28 of the filler is light absorbing similar to the surface 20 of the filler 11.

It will be readily appreciated that the as-
70 sociation of the backing plate, filler and transparent protecting plate may be accomplished by means of cement or other adhesive, or the same may be clamped in a suitable frame, or in any other manner de-
75 sired.

In the use of the device the feature of the luminous element being non-coextensive with the surface on which the same is mounted, produces illumination of the numeral or letter which does not blur, and which is clearly
80 legible at some distance. The device is particularly adapted for use in Pullman cars, for house street numbers, keyhole plates, labels, signs and the like.

In Figure 4, I have shown the cell made
85 of metal stamping with a transparent plate for a cover. The metal backing 30 is depressed as by stamping as shown at 31 to form the space 32. The cover of transparent material 33 is held in place by folding the
90 edges 34 over the edges of the plate 33.

The interior of the depressed portion is preferably coated with a reflecting material 35 and the luminous material 36 is laid in a thin ribbon along the center of the same.
95 In the form shown in Figure 5 the luminous material 36 is coextensive with the bottom of the cell. Otherwise the construction is like that shown in Figure 4.

Figure 6 shows the adaptation of the
100 walls 38 to a shape forming a reflector for casting the light outwardly in a forward direction. The walls are formed into an approximately parabolic shape and the luminous material 36 is deposited adjacent
105 the focus of the parabola. Any other suitable shape may be employed. For instance in Figure 7 the cell is formed by a V shaped groove with the luminous material 37 distributed on each side of the groove so that
110 the cell may be more plainly visible from each side.

While I have shown and described a specific form of my invention, I do not limit myself to the details thereof, but reserve
115 the right to make certain changes therein that do not depart from the spirit and scope of the claims.

I claim:

1. In a device of the class described, the
120 combination of a recessed member, the recesses in said member defining the indicia to be illuminated, a self-luminous element in said recesses covering only a fractional part of the area of each recess, the remaining
125 area of said recess constituting a light reflecting surface for reflecting the light radiated by said element, and for reflecting light entering from an outside source.

2. In a device of the class described, the 130

combination of a recessed member, the recesses in said member defining the indicia to be illuminated, a self-luminous element in said recesses covering only a fractional part of the surface of each recess, said luminous element being located medially in said recess whereby the remaining area of said recess to either side of said element constitutes a light reflecting surface for reflecting light diffused by said element and any light entering from an outside source.

3. In a device of the class described, the combination of a sign having indicia thereon the characters of which are formed as reflecting surfaces, a band of light absorbing and radiating material extending along the reflecting surfaces defining the characters, such band of light radiating material constituting only a fractional part of the width of each character, whereby the light radiated from said band will be reflected from the reflecting surfaces constituting the remaining portion of the character.

4. A sign comprising a base plate having a reflecting surface, a filler having a light absorbing surface and provided with openings to form cells when the filler is placed on the base plate, a luminous element disposed in the cells but of less area than that of the cells, and a transparent cover on said filler.

5. A sign comprising a base plate having a light reflecting surface, a filler having a plurality of openings therein defining a figure to be represented and having a light absorbing surface, a transparent cover, a luminous element in said opening but of less area than the same, and means connecting said base plate, filler and transparent cover to hermetically seal the opening.

6. A sign, comprising cellular enclosures shaped to define the desired indicia and having one transparent wall and the remaining walls reflecting, and luminous material defining a relatively small portion of the indicia, the major portion of the indicia being visible because illuminated by the luminous material.

7. A sign comprising a reflecting plate, a spacing plate overlying said reflecting plate and cut away to expose portions of said reflecting plate defining the desired indicia, and means for illuminating the exposed portions of said reflecting plate.

8. A sign comprising a reflecting plate, a spacing plate overlying said reflecting plate and cut away to expose portions of said reflecting plate defining the desired indicia, and a cover plate overlying said spacing plate to form complete enclosures of said cut away portions.

9. A sign comprising a reflecting plate, a spacing plate overlying said reflecting plate and cut away to expose portions of said reflecting plate defining the desired indicia, a cover plate overlying said spacing plate to form complete enclosures of said cut away portions, and means within said enclosures defining a relatively small centrally located portion of said indicia, for illuminating the entire enclosure.

10. A sign comprising enclosures shaped to define the desired indicia, said enclosures having transparent front walls and reflecting side and rear walls, and a narrow central strip of material in said enclosure emitting light in all directions.

In witness whereof I hereunto subscribe my name this 2nd day of December, 1919.

HERMAN C. HEATON.