

R. F. VENNER.
 MEANS FOR SECURING GLASS BEADS ON SINGLE PERFORATED SIGN BOARDS.
 APPLICATION FILED JUNE 18, 1909.

936,199.

Patented Oct. 5, 1909.

Fig. 1.

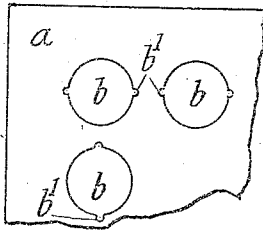


Fig. 2.

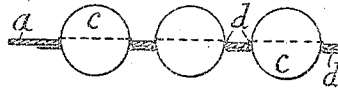


Fig. 3.

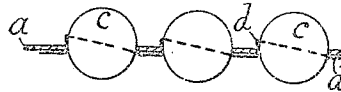


Fig. 4.

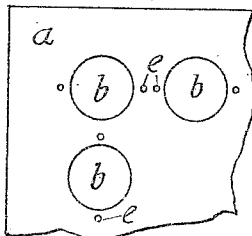


Fig. 5.

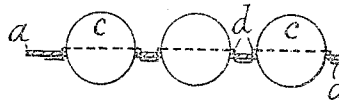


Fig. 6.

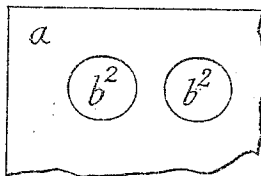


Fig. 7.

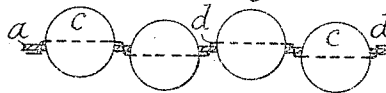


Fig. 8.

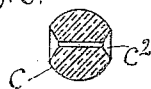


Fig. 9.

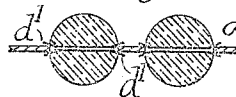
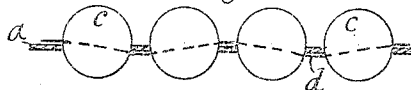


Fig. 10.



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UNITED STATES PATENT OFFICE.

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MEANS FOR SECURING GLASS BEADS ON SINGLE PERFORATED SIGN-BOARDS.

936,199.

Specification of Letters Patent.

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Application filed June 18, 1909. Serial No. 503,018.

To all whom it may concern:

Be it known that I, ROBERT FRANCIS VENNER, a subject of the King of England, residing at Addiscombe, in the county of Surrey, in the Kingdom of England, have invented new and useful Improvements in Means for Securing Glass Beads on Single Perforated Sign-Boards, of which the following is a specification.

10 This invention relates to illuminated sign-boards or the like of that class which have glass beads engaged in perforations and its object is to provide fastening means which will enable the said beads to be securely held in the perforations of a single plate by a wire or wires requiring neither separate attachments nor a backing plate and so enable the beads to reflect the illuminating rays unhindered in every direction and thus allow the sign to be clearly read from various angular points. To this end according to my arrangement, the perforations in the single plate forming the sign-board or the like are of slightly smaller size than the diameter of the beads so as to form retaining seats therefor, and a wire, or wires, is or are, secured in the beads in such a manner as to hold them tight into their seats.

Various embodiments of my invention are shown in the accompanying drawings, in which:—

Figures 1 and 2 are a fractional and a cross-section respectively of a single plate sign-board having perforations with diametrically opposed notches; Fig. 3 is a cross-section of a slightly modified arrangement; Figs. 4 and 5 are a fractional elevation and a cross-section respectively of a single plate sign-board having independent small perforations for the passage of the wire for securing the beads; Fig. 6 is a fractional elevation of a sign-board having elliptical holes for the reception of round beads; Fig. 7 is a cross-section showing beads applied alternately front and back in restricted seats of a single plate; Fig. 8 is a cross-section of a bead having a narrow hole with trumpet-shaped ends; Fig. 9 is a cross-section of a modified wiring method for the beads; Fig. 10 is a cross section of a plate with the beads wired alternately at the front and back of the plate.

Referring to Figs. 1 and 2, the sign-board which consists of a single plate *a* has perforations or holes *b* forming seats for beads *c* of a larger diameter. The holes *b* have dia-

metrically opposed notches *b*¹ for the passage of a retaining wire *d*. As will be seen in Fig. 2, a continuous wire *d* passes through the perforation of each bead at one side of the plate *a* and is then bent so as to lead through the notches *b*¹ to the opposite side of the plate *a*, then alongside the plate through the next notch *b*¹ of another hole *b* where it passes through another bead *c* and again to the rear of the plate until a letter is completed. In this manner the beads *c* are securely retained and drawn tight on to their seats.

Fig. 3 shows the perforation of each bead *c* set at an angle to the plate *a* in such a manner that the fastening wire *d* passes into the bead at one side of the plate *a* and out at the opposite side thereof. This necessitates only one passage of the wire *d* through the plate for each bead.

Figs. 4 and 5 show the plate *a* provided with small openings *e* forming passages for the wire *d* which serves to secure the beads *c* in a similar manner to that shown in Figs. 1 and 2. The same effect can be obtained by securing ordinary round beads in elliptical holes *b*² of the plate *a* so that the retaining wire lies in the major axis of the elliptical holes *b*² and extends backward through the free end spaces. Or round holes *b* may be furnished with beads which leave sufficient space for the passage of retaining wires such as the bead *c*¹ shown in Fig. 8 which has trumpet-shaped mouths *e*¹. If the beads are placed alternately front and back of the plate *a* as at Fig. 7, the retaining wire *d* may pass through small openings *m* between the beads. Beads can also be attached to their seats by two wires *d*² which pass through the perforated bead and respectively grip the plate *a* at its front and back as shown in Fig. 9.

Another manner of securing beads *c* to the plate *a* is shown in Fig. 10, the retaining wire *d* passes from one side of the plate *a* through the angularly disposed perforation of the bead to the opposite side of said plate, then along to the next bead and through same at an opposite angle to that of the previous bead to the front of said plate and so forth.

I claim—

1. In an illuminated sign board, the combination with a single perforated plate, of perforated transparent beads slightly exceeding the diameter of the perforations in

said plate, and means passing through said perforated beads for holding said beads in said perforations.

2. In an illuminated sign board, the combination with a single perforated plate having passages therethrough, of perforated transparent beads located in the perforations of said plate, and retaining means for said beads, said retaining means passing through said beads and through said passages in said plate.

3. In an illuminated sign board, the com-

bination with a plate having a plurality of perforations therein and having notches formed therein at the edge of said perforations, of a plurality of perforated transparent beads seated in said perforations and a retaining wire passing from said beads on one side of the plate and through said notches to the other side thereof, as set forth. 15 20

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