March 13, 1934. T. J. D. FULLER, JR 1,950,548

ILLUMINATED SIGN

Filed July 7, 1932 3 Sheets-Sheet 1

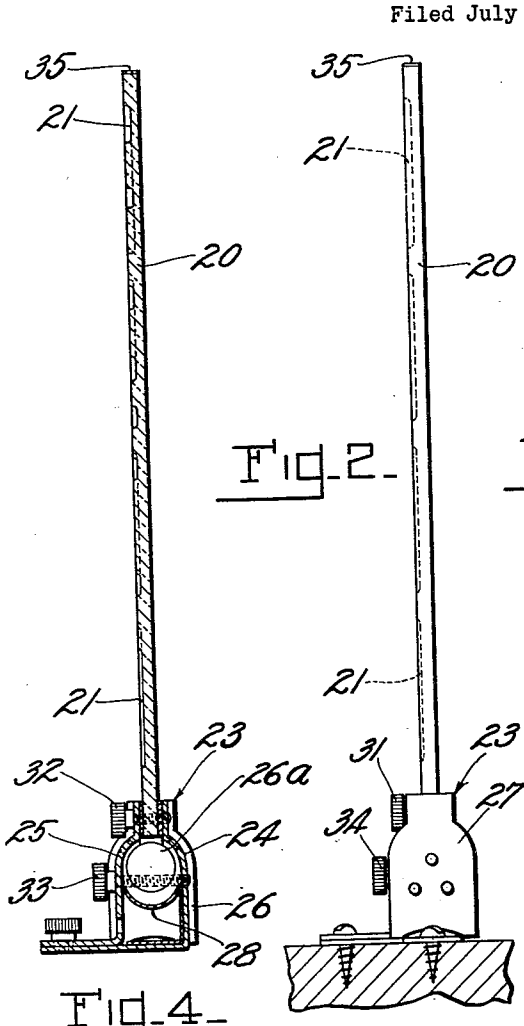


Fig. 2.

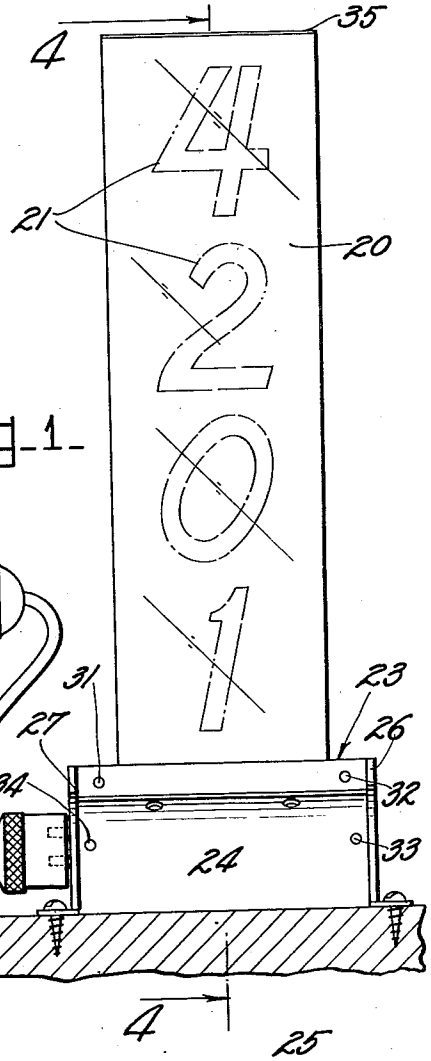


Fig. 1.

Fig. 4.

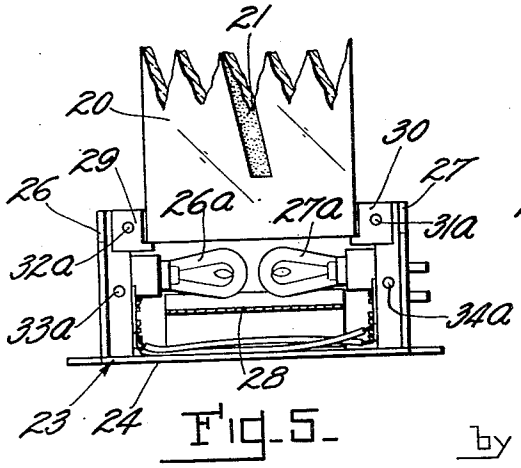


Fig. 5.

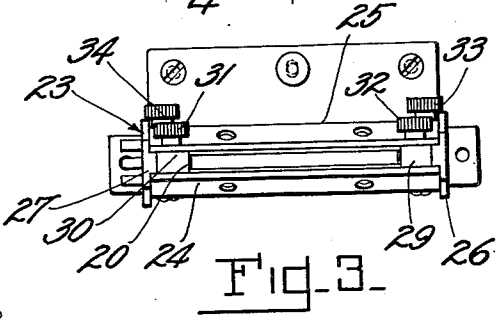


Fig. 3.

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ILLUMINATED SIGN

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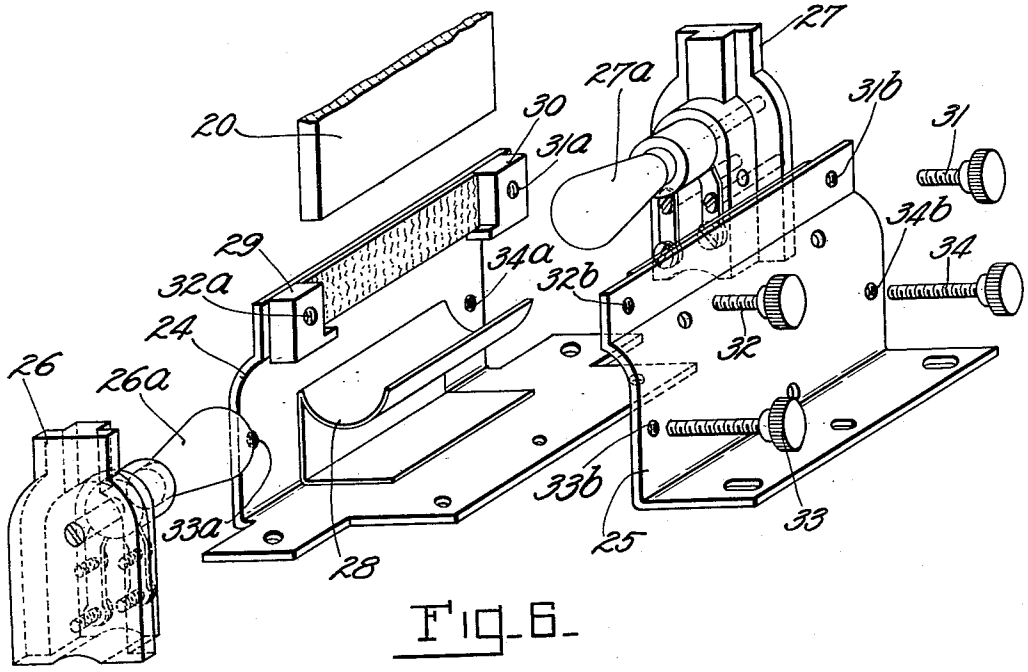


Fig. 6.

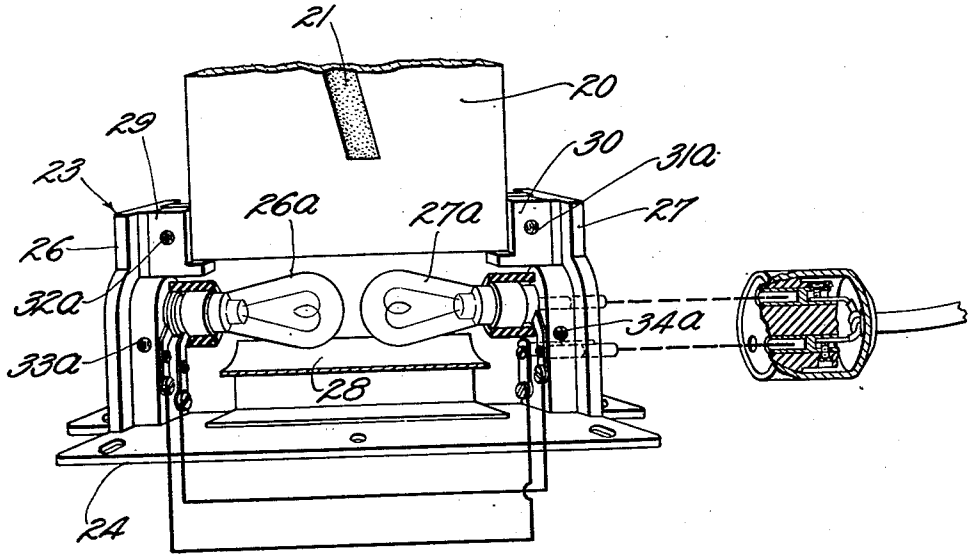


Fig. 7.

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ILLUMINATED SIGN

Filed July 7, 1932 3 Sheets-Sheet 3

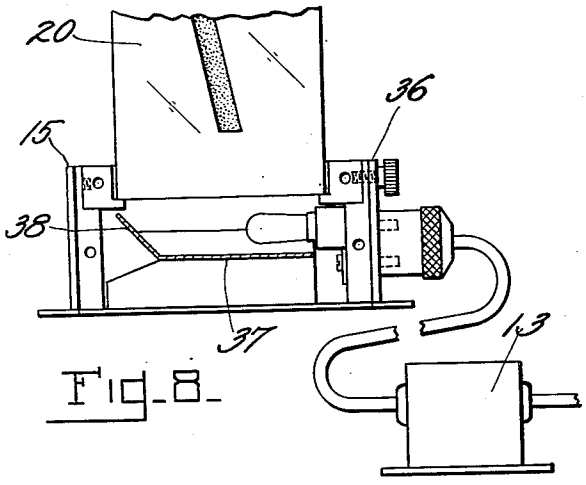


Fig. 8.

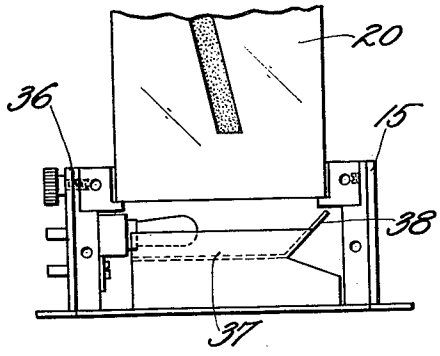


Fig. 10.

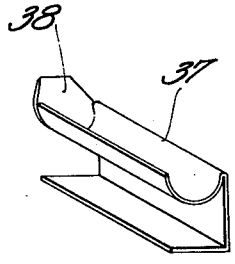


Fig. 9.

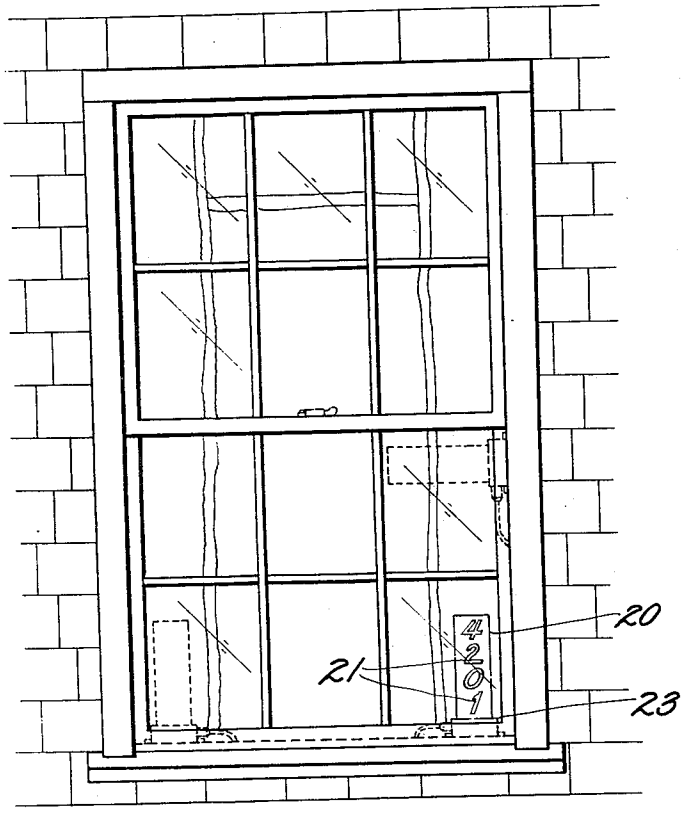


Fig. 11.

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Patented Mar. 13, 1934 1,950,548

UNITED STATES PATENT OFFICE

1,950,548

ILLUMINATED SIGN

Thomas J. D. Fuller, Jr., Cambridge, Mass.

Application July 7, 1932, Serial No. 621,168

5 Claims. (Cl. 40—130)

This invention relates to illuminated signs, and particularly to edge-illuminated glass signs. Such signs employ a panel of plate glass in which the letters or figures of the sign are sand-blasted or otherwise etched, and which is illuminated through one edge. The rays of light which enter the glass at greater than the critical angle of reflection are confined within the volume of the glass theoretically cannot escape out except at the opposite end, but there are reflected back into the glass by a mirrored surface. The rays of light are thus caught by the letters and figures, making the sign stand out clearly against the transparency of the glass.

I have adapted this principle of illumination to a small, economical, neat and sightly sign capable of ready installation indoors, in a home, office, or store and utilizing the house current and electrical outlets. In the drawings I have shown the sign displaying the house number, and adapted for installation in a home, but it is obvious, of course, that the wording of the sign can be varied as desired and likewise its place of installation.

There has long been a demand for small signs in homes, stores and offices, but previous signs with which I am acquainted have been too large, costly, bulky and unsightly, and required the services of a carpenter or electrician to install. Unless essential to a commercial enterprise, people would not bother with them.

My illuminated sign has a number of unusual features and advantages which add to its usefulness and attractiveness. It is very easily installed inside a house and removed. It does not require the services of a carpenter or electrician, as it utilizes existing facilities in any house wired for electricity. It is intended to be displayed from inside the window of a house, where it is easily seen from the street, and stands upright on the sill, or can be attached to the side or suspended from the top of the window. The device can be built to be operated on regular house voltages or at reduced voltages obtained through a resistance unit or step-down transformer. It uses either direct or alternating current and consumes very little electricity.

Other objects and advantages of this invention will all appear in the following description and appended claims, reference being had to the accompanying drawings forming part of the specification wherein like reference characters designate corresponding parts in the several views.

Fig. 1 is a front elevation of my standing double lamp form of my invention.

Fig. 2 is a side elevation of the same from the left in Fig. 1, with the current plug removed.

Fig. 3 is a plan view of the same.

Fig. 4 is a transverse sectional view on lines 4—4 of Fig. 1.

Fig. 5 is a rear elevation of the base of the sign, with one of the base sections removed to show the interior.

Fig. 6 is a fragmentary perspective view showing the various parts in disassembled relation.

Fig. 7 is a schematic view showing the wiring and the parts in assembled relation.

Fig. 8 is a side elevation of the base portion of a single lamp form of my invention, with one of the base sections removed.

Fig. 9 is a perspective view of the reflector used in the second form of my invention.

Fig. 10 is a side elevational base portion of the second form of my invention showing the lamp in reversed position.

Fig. 11 is a front elevation of a house window with my invention installed in various positions.

Before explaining in detail the present invention, it is to be understood that the invention is not limited in its application to the details of construction and arrangement of parts illustrated in the accompanying drawings, since the invention is capable of other embodiments and of being practised or carried out in various ways. Also it is to be understood that the phraseology or terminology employed herein is for the purpose of description and not of limitation, and it is not intended to limit the invention beyond the terms of the several claims hereto appended as considered in view of the prior art and the requirements thereof.

As shown in Figs. 1 to 7 illustrating the standing double lamp form of my invention, 20 represents the plate glass panel into which the letters, figures or other characters 21 are etched, preferably by sand-blasting. The figures should not be cut into the glass at a uniform depth, but are preferably graduated in depth from bottom to top of the panel, the depth increasing as the letters are farther away from the source of illumination. The glass panel is held firmly in a vise-like base portion denoted generally as 23. The base portion is made up of two main side sections 24 and 25, preferably stamped from metal, and two end sections 26 and 27. The two sides sections 24 and 25 are roughly L-shaped and the section 25 is fitted into the section 24. A reflecting element 28 is fixed in the side section 24 on its inside in a position to reflect light upwardly, and is preferably coated on its inner reflecting surface with a suitable substance, many being well known in the art, to provide a satisfactory reflecting surface. Bracket members 29 and 30 are fixed to the top inner side of the side section 24 to hold the glass panel 20 at its lower edge. The inner portion of the top edge of the side section 24, and the corresponding inside portion of the side section 25, holding the glass panel 20 are preferably lined with felt or other resilient material abuting the glass panel.

The end portions 26 and 27, preferably made

of bakelite or other insulating material, hold the lamps 26*a* and 27*a* which provide the illumination, the two lamps preferably being wired in series to reduce current consumption and increase the length of life of the bulbs. The end section 27 is fitted with a three pronged connection cooperating with a three hole plug leading to the source of current, whereby either and only one of the lamps may be lighted at the same time, or both, if desired. The end portions 26 and 27 are reversible in the base portion and consequently the plug attachment may be placed in the side most accessible on a window sill.

It will be noted that the side sections 24 and 25 are both bowed or convex outwardly on their vertical sides to provide a chamber and clearance for the lamps and reflector 28 contained within, when the parts are in assembled position. The parts are assembled by bringing them together as shown in Figs. 1 to 7. The end portions 26 and 27 holding the lamps 26*a* and 27*a* are brought into position on the side portion 24, the glass panel 20 is inserted into the bracket members 29 and 30, and the side section 25 is brought up to hold them in place. The parts are held together by connecting screws 31, 32, 33 and 34, placed in corresponding screw holes 31*a* and 31*b*, 32*a* and 32*b*, 33*a* and 33*b* and 34*a* and 34*b* in the two side sections 24 and 25 respectively. The side sections 24 and 25 may likewise be held together by screws or other suitable means along their horizontal portions. It will thus be seen when the lamps are illuminated from the house current, the light produced thereby is entirely confined within the side portions 24 and 25, the end portions 26 and 27, and the reflector 28 so that it is forced to escape upwardly through the glass. The light passing upwardly through the edge of the panel is held substantially within the confines and volume of the glass, the upper edge 35 of the glass panel 20 being silvered so as to reflect the light backward through the panel. The lines of the characters roughly etched or blasted in the glass are composed of angular facets so that that part of the light which is incident on some surfaces of facets at less than the critical angle escapes into the air rendering the character visible and luminous. The characters, therefore, stand out very clearly against the transparency of the glass, which makes a very satisfactory illumination of the characters intended to be displayed. It will be noted that if the bulbs burn out, they are easily replaced by merely taking apart the base portion of the sign or removing pins 33 and 34 and withdrawing ends 26 and 27 outward from between sides 24 and 25. The strength of the illumination can be increased or diminished by merely turning the connecting plug. The sign is so narrow as to fit easily behind curtains without interfering with the shade and the L-shaped base permits the sign to stand close to the window. The base likewise is adjustable to fit varying thicknesses of sign glass. As shown in Fig. 11 the sign can be installed on either side of a windowsill because of the reversability of the plug connections and can likewise be attached to the side of the window frame if desired.

In Figs. 8 to 10 a single lamp form of the standing sign is illustrated. This is substantially like the double lamp form of sign except that arrangements for one lamp illumination are made. The end portion 26 holding the lamp 26*a* is replaced by a blank end portion 15 which merely closes the end of the base. The end portion 36 is substantially like the end portion 27 in the previous form of my invention except that the three prong plug need not be provided. The blank end of the reflector 37 is bevelled off as shown at 38. The single lamp type may be operated from a transformer 13 providing decreased voltage.

It is also to be understood that if illumination by one or two lamps should prove insufficient for a particular purpose, as for daylight display, the illumination can be doubled merely by adding a second illuminating unit to the opposite end of the last panel in place of the mirrored surface 35. In that case the characters cut into the glass would be preferably graduated in depth from the ends towards the middle, the depth increasing as the figures are further away from the source of illumination.

It will be seen by means of my invention that I have provided a neat, economical and novel appearing sign, which entirely eliminates the objectionable features of previous types of signs. These features make my sign particularly desirable for displaying house numbers, a type of sign for which there is a large demand not supplied by previous types.

I claim:

1. An illuminated sign, comprising a transparent panel with the characters etched thereon, electric lamps for illuminating said characters, a base portion enclosing said lamps and holding said panel at one edge to permit light to pass from said lamps through the edge of said panel and to be confined substantially within said panel, said base portion comprising side sections capable of attachment to an external support and end sections having lamp sockets, means for holding said sections together, and means for varying the amount of illumination of said panel.

2. An illuminated sign, comprising a transparent panel with the characters etched thereon, electric lamps for illuminating said characters, a reflector for reflecting the light therefrom, a base portion enclosing said lamps and reflector and holding said panel at one edge to permit light to pass from said lamps through the edge of said panel and to be confined substantially within said panel, said base portion comprising side sections capable of attachment to an external support and end sections having lamp sockets, means for holding said sections together, and means for varying the amount of illumination of said panel.

3. An illuminated sign, comprising a transparent panel with the characters etched thereon, two electric lamps for illuminating said characters, a reflector for reflecting the light therefrom, a base portion enclosing said lamps and reflector and holding said panel at one edge to permit light to pass from said lamps to the edge of said panel and to be confined substantially within said panel, said base portion comprising two side sections capable of attachment to an external support and two end sections having lamp sockets connected in series, and one section connected to a source of current and both end sections being interchangeable, means for holding said sections together, and means connected to the source of current to permit illumination of said panel by means of either or both of said lamps at the same time.

4. An illuminated sign, comprising a transparent panel with the characters etched thereon, electric lamps for illuminating said characters, a base portion enclosing said lamps and holding said panel at one edge to permit light to pass

from said lamps through the edge of said panel and to be substantially confined within said panel, said base portion comprising side sections capable of attachment to an external support and end sections having lamp sockets, and adjustable means for holding said sections together to accommodate panels of varying thicknesses.

5. An illuminated sign, comprising a transparent panel with the characters etched thereon, at depths increasing with the distance from the source of light, electric lamps for illuminating said characters, a base portion enclosing said lamps and holding said panel at one edge to permit light to pass from said lamps through the edge of said panel and to be substantially confined within said panel, said base portion comprising side sections capable of attachment to an external support, interchangeable end sections having lamp sockets, and adjustable means for holding said sections together to accommodate panels of varying thicknesses.

THOMAS J. D. FULLER, JR.