April 14, 1942. E. S. SMITH ET AL 2,280,010

SIGN

Filed March 16, 1940 3 Sheets-Sheet 1

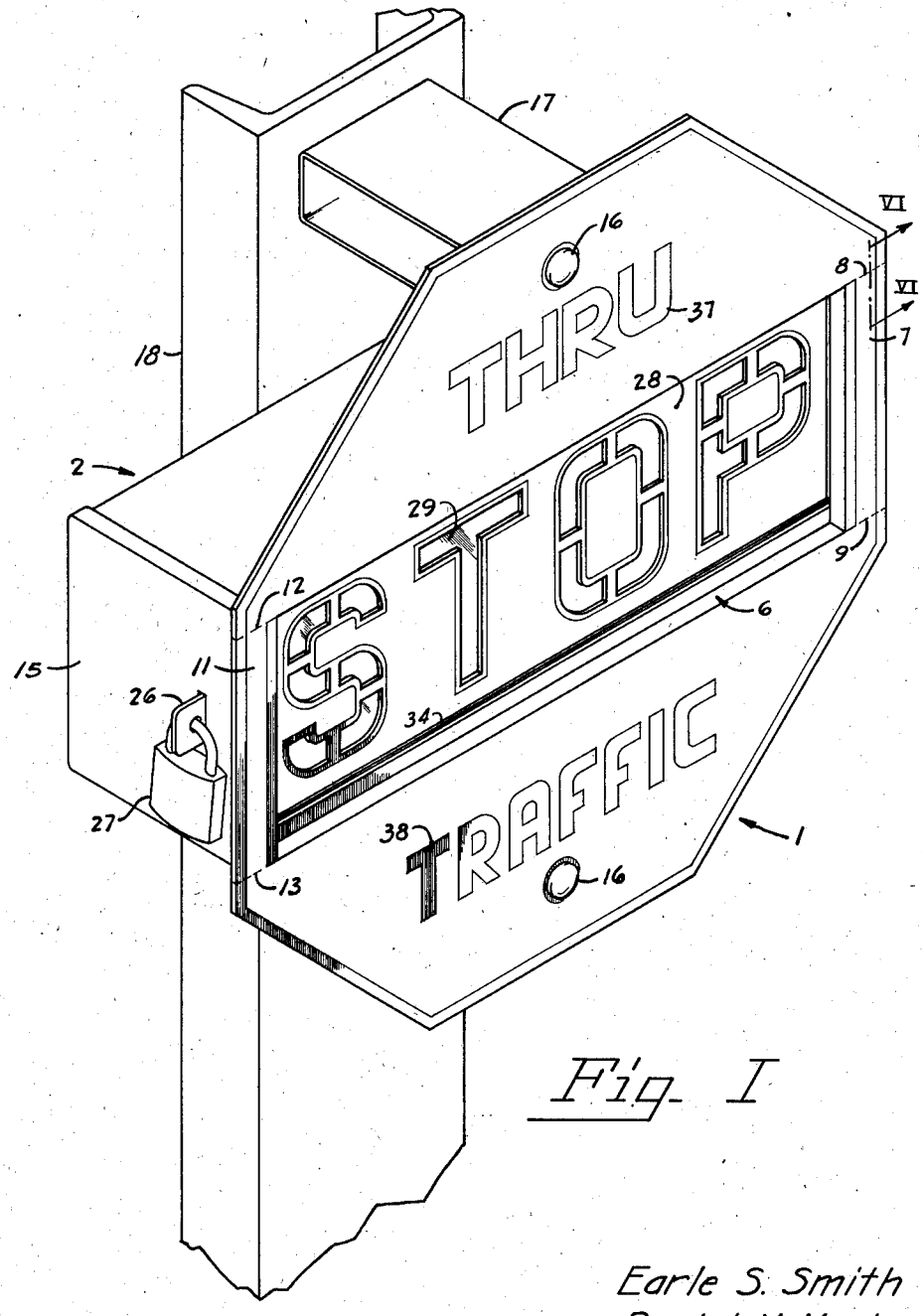

Fig. I

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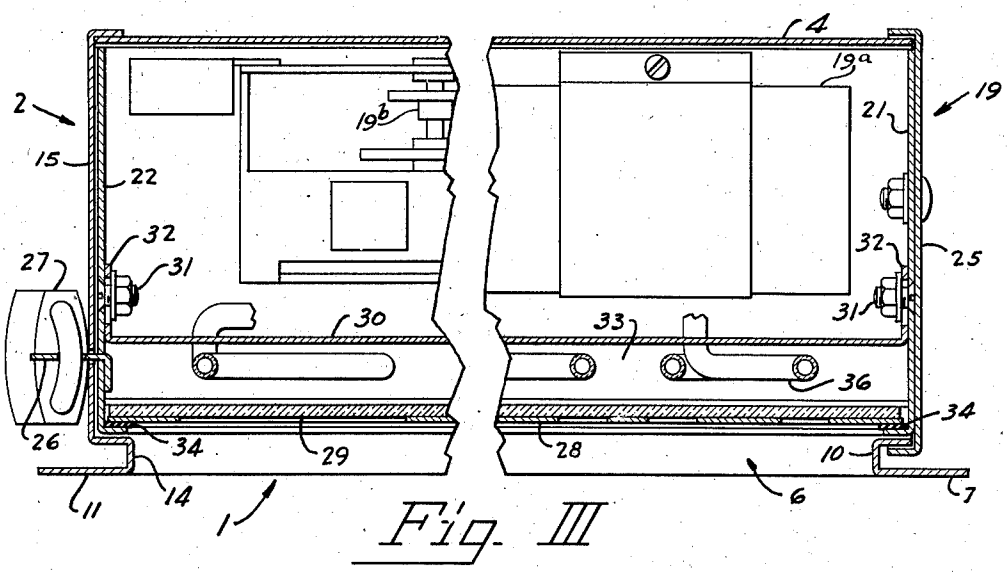

Fig. III

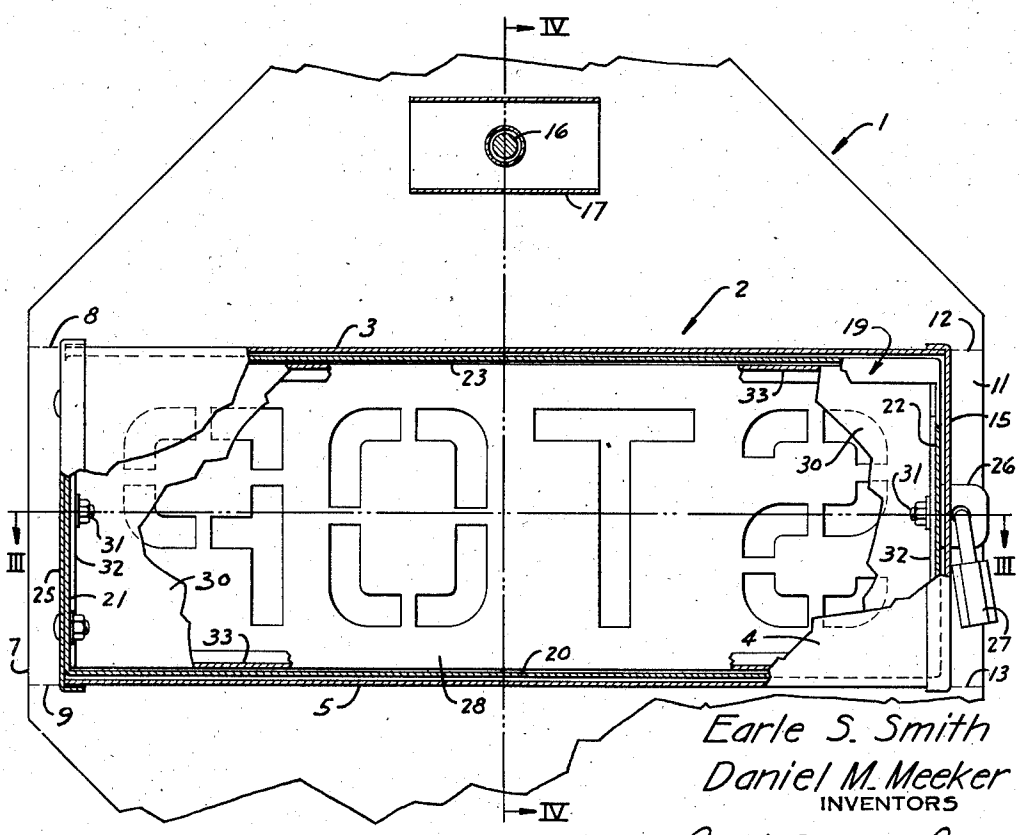

Fig. II

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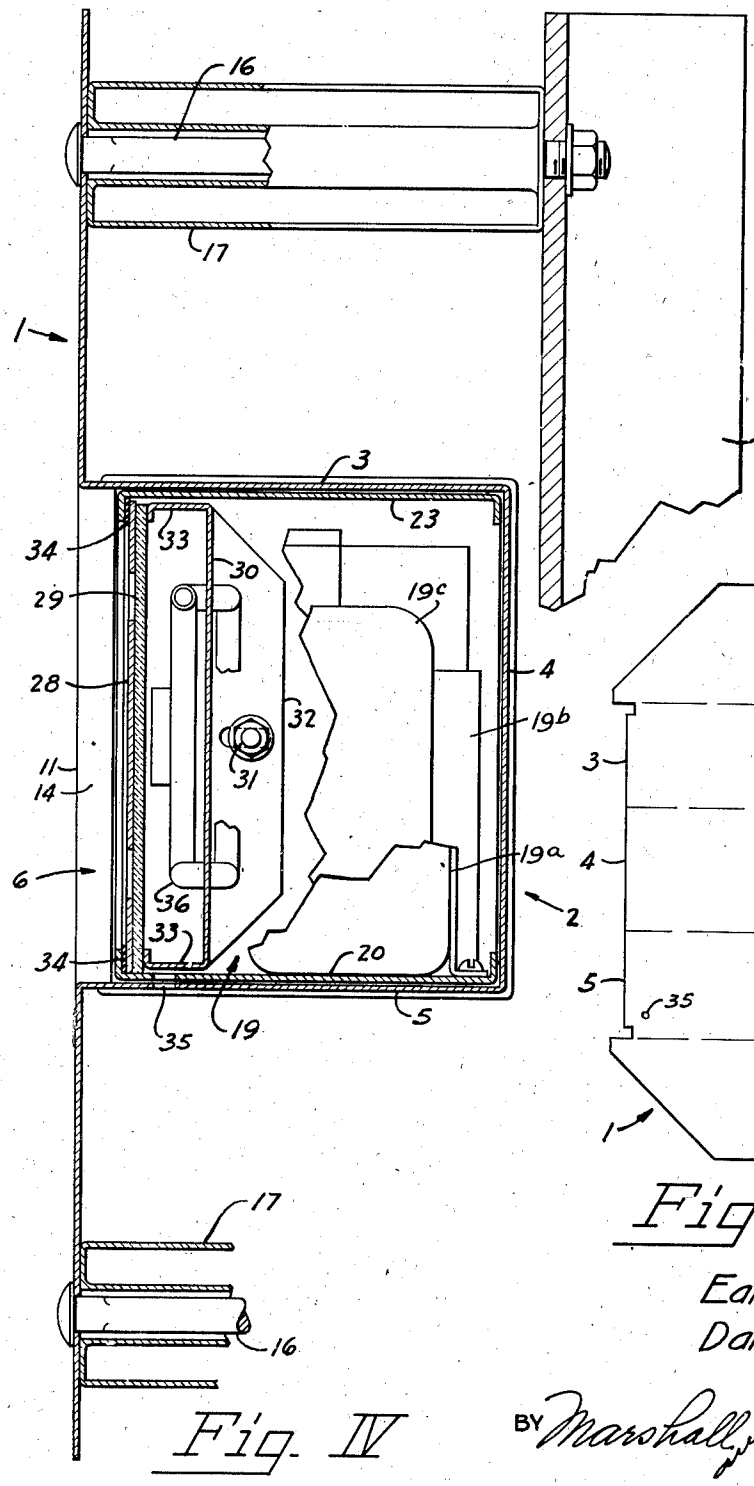

Fig. IV

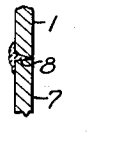

Fig. VI

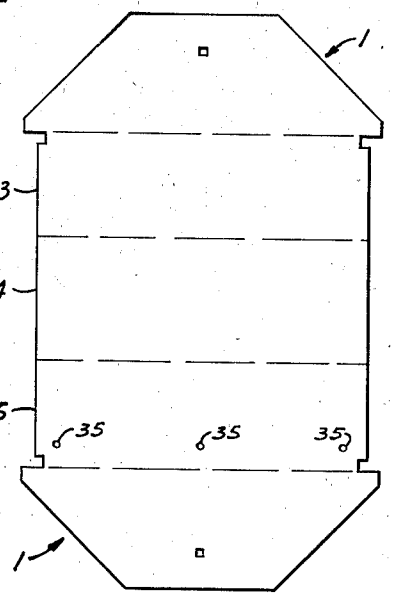

Fig. V

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2,280,010

UNITED STATES PATENT OFFICE

2,280,010

SIGN

Earle S. Smith and Daniel M. Meeker, Toledo, Ohio, assignors to The Toledo Porcelain Enamel Products Company, Toledo, Ohio, a corporation of Ohio

Application March 16, 1940, Serial No. 324,383

8 Claims. (Cl. 40—132)

This invention relates to signs, and particularly to signs to be located along streets and highways to warn and direct motorists.

It is an object of the invention to provide a sign having electric illuminating and/or flashing mechanism so incorporated therewith as to be readily removable and replaceable.

Another object is to provide a sign having readily removable and replaceable electric illuminating and/or flashing mechanism which, nevertheless, is well protected from the weather.

A further object is to provide a sign having a replaceable drawer containing electric illuminating and/or flashing mechanism.

A more specific object is to provide a sign having a drawer to contain electric illuminating and/or flashing mechanism, which may be economically constructed of sheet metal.

Another specific object is to provide a sheet metal sign construction which is adapted for the incorporation of electric illuminating and/or flashing mechanism, and which also is adapted to be coated with vitreous porcelain enamel.

A still more specific object is to provide a sheet metal sign construction in which the major portion of the sign and the major portion of a drawer receptacle are formed integrally from a single sheet of metal.

Another object is to provide a sign equipped with electric illuminating or flashing mechanism which is well protected against missiles and well secured against tampering.

Other objects and advantages will be apparent from the following description, in which reference is had to the accompanying drawings illustrating a preferred embodiment of the invention and wherein similar reference numerals designate similar parts throughout the several views.

In the drawings:

Fig. I is a view in perspective of a sign embodying the invention;

Fig. II is a fragmentary rear elevation, with parts in section, of the sign illustrated in Fig. I;

Fig. III is a sectional plan view, the section being taken as indicated by the line III—III of Fig. II;

Fig. IV is a fragmentary side elevational view, with parts in section, taken as indicated by the line IV—IV of Fig. II;

Fig. V is a view on a reduced scale showing a sheet metal blank from which a major part of the sign is formed by folding the blank along the broken lines of Fig. V; and

Fig. VI is an enlarged, fragmentary, sectional view taken substantially as indicated by the line VI—VI of Fig. I.

The body of the sign consists of a face plate 1 and a compartment 2 at the rear of the face plate. In order that the structure may be particularly well adapted for finishing with porcelain enamel, it is important that the face place be as nearly as possible free of seams, rivets or rough areas which have been subjected to welding operations, because seams, rivets and rough areas which have been subjected to welding operations are liable to cause blemishes in porcelain enamel applied over them.

Liability to such blemishes has been avoided in the structure of this invention by forming the major portions of the face plate 1 and the compartment 2 of a single sheet of metal. By inspection of Figs. IV and V of the drawings it will be observed that the sheet metal of the face plate 1 is folded backwardly, downwardly and forwardly along the broken lines of Fig. V to form the top 3, back 4 and bottom 5 of the compartment 2, thus leaving a transverse gap 6 at the center of the face plate.

After the metal sheet is thus folded, a narrow sheet metal strip 7 is welded to the side of the face plate 1, as indicated by the dash lines 8 and 9, so that the narrow strip extends vertically across the right end of the gap 6. As shown in Fig. III, the strip 7 has a strengthening channel 10 along its inner edge.

Another strip 11 is welded to the side of the face plate 1, as indicated by the dash lines 12 and 13, so that the strip 11 extends vertically across the left end of the gap 6. The strip 11 also has a channel 14 along its inner edge, and extending rearwardly from the channel 14 is an integral, flanged plate 15 that closes the left end of the compartment 2.

Roughness at the short welds 8, 9, 12 and 13 on the front surface of the face plate is removed by grinding or otherwise, so that the surface of the face plate 1 at and adjacent the welds is smooth and unbroken.

The welds 9, 12 and 13 are like the weld 8 which is illustrated in Fig. VI.

The sign body thus formed, consisting of the face plate 1 and the compartment 2, is mounted, by means of bolts 16 and sheet metal spacers 17, upon an upright post 18 which is set adjacent a street or highway intersection or other location where it is desired that motorists be warned or directed.

The principal warning or direction signal and the illuminating and/or flashing mechanism by

which the signal is to be brought to the attention of motorists preferably are incorporated in a replaceable drawer 19, the bottom 20, ends 21 and 22, and top 23 of which may be formed of a single sheet of sheet metal, with strengthening flanges along their edges. Secured to one end 21 of the drawer 19 is a flanged closure plate 25 which, when the drawer is pushed into the compartment 2, completely covers the compartment end. A hasp 26 is fixed to the other end 22 of the drawer 19 and, when the drawer is in place, projects through a slot in the flanged plate 15, where it receives a padlock 27 that prevents unauthorized removal of the drawer.

The front side 28 of the drawer 19 consists of flat metal through which stencil-like letters are cut in proper grouping, such as "Stop," and lying against the inner surface of the front side 28 of the drawer is a pane of glass 29. The glass pane 29 renders the interior of the drawer practically weatherproof, without preventing the passage of light through the stencil-like letters, while the metal front side 28 of the drawer protects the glass against breakage.

Back of and spaced from the glass pane 29 is a metal wall 30 which is adjustably fixed to the drawer ends 21 and 22 by means of short bolts 31 which pass through elongated openings in rearwardly bent end flanges 32 on the wall 30. Top and bottom flanges 33, bent forwardly from the wall 30, engage the glass pane 29 and hold it in close engagement with the front side 28 of the drawer, and the front side of the drawer in turn is pressed against a gasket 34. Drainage openings 35 are provided in the bottoms of the drawer 19 and the compartment 2 to permit any water that may leak into or condense in the drawer to escape.

The wall 30 is provided with holes through which passes glass tubing 36, a portion of which lies back of and is bent into the shape of the stencil-like letters in the front side 28 of the drawer 19. The tubing 36 contains rarefied neon or other rarefied gas, and the drawer 19 contains an electric battery 19*a*, an automatic circuit maker and breaker 19*b*, and a transformer 19*c*, connected and arranged to pass intermittently an electric current, of proper characteristics, through the rarefied gas and thus cause the gas intermittently to become luminous. Any suitable arrangement of electric mechanism can be used, and since suitable electric mechanisms are known, and since the electric mechanism generally illustrated in the drawings is not per se the invention of the applicants, it is not illustrated, or described herein, in detail.

The metal surfaces of the sign preferably are coated after being welded together, but before mechanical assemblage with vitreous porcelain enamel. Vitreous porcelain enamel is fused to the metal at high temperatures, and the construction of the sign body of this invention is such that it will withstand such high temperatures without warpage and without setting up strains that are liable to cause after-failures. The construction also is such that vitreous porcelain enamel will fuse upon the surfaces smoothly, and without blistering or other blemishes, and will not be liable to after-cracking or scaling.

The porcelain enamel applied to the front of the face plate 1 and the front side 28 of the drawer 19 is of a bright color, such as white, yellow or light orange, while the porcelain enamel applied to the back of the sign, and to the interior of the compartment, and to the drawer may be black. When the tubing 36 is not illuminated, the stencil-like letters will appear in dark contrast to the bright color of the front side 28 of the drawer as well as to the bright color of the face plate 1. Illumination of the tubing 36, particularly flashing illumination, attracts attention to the sign in daylight and in darkness and also renders the lettering conspicuously visible, especially at night.

The face plate may be marked permanently with lettering, such as is shown at 37 and 38 on Fig. 1, to supplement that displayed through the opening 6.

The embodiment of our invention herein shown and described is to be regarded as illustrative only, and it is to be understood that the invention is susceptible to variation, modification and change within the spirit and scope of the subjoined claims.

Having described our invention, we claim:

1. A sign having a face plate portion and a compartment portion integrally formed of a sheet of metal, the top and bottom of the compartment portion being bent rearwardly at substantially right angles to the face plate portion, there being metal strips at each side of said face plate portion welded to and connecting the upper and lower parts thereof, one of said metal strips having a plate integral therewith, said plate extending over and closing an end of said compartment portion.

2. A roadside sign comprising a face plate, a compartment fixed to the rear of said face plate, and a removable and replaceable drawer adapted to be contained in said compartment, said face plate having an opening in front of said compartment, said drawer having stencil-like indicia which are positioned behind said opening when said drawer is contained in said compartment, said drawer carrying mechanism for causing illumination behind said stencil-like indicia and means to energise said illuminating mechanism.

3. A roadside sign comprising a face plate, a compartment fixed to the rear of said face plate, and a removable and replaceable drawer adapted to be contained in said compartment, said face plate having an opening in front of said compartment, said drawer having stencil-like indicia which are positioned behind said opening when said drawer is contained in said compartment, said drawer carrying tubing containing rarefied gas and containing electrical energizing means and means energized by said electrical energizing means for causing said gas to become luminous, said tubing being located behind said stencil-like indicia.

4. A roadside sign comprising a face plate, a compartment fixed to the rear of said face plate, and a removable and replaceable drawer adapted to be contained in said compartment, said face plate having an opening in front of said compartment, said drawer having stencil-like indicia which are positioned behind said opening when said drawer is contained in said compartment, said drawer carrying tubing containing rarefied gas and containing electrical energizing means and means energized by said electrical energizing means for causing said gas to become luminous, said tubing being located behind said stencil-like indicia and conforming to the shape thereof.

5. A roadside sign comprising a face plate, a compartment fixed to the rear of said face plate, and a removable and replaceable drawer adapted to be contained in said compartment, said face

plate having an opening in front of said compartment, said drawer having stencil-like indicia which are positioned behind said opening when said drawer is contained in said compartment, said drawer carrying tubing containing rarefied gas and containing electrical energizing means and means energized by said electrical energizing means for causing said gas to become luminous, said tubing being located behind said stencil-like indicia and conforming to the shape thereof, and a pane of glass located behind said stencil-like indicia to protect the mechanism carried by said drawer from the effects of wet weather.

6. A roadside sign comprising a face plate, a compartment at the rear of said face plate, a removable and replaceable drawer bearing illuminable indicia and containing means for illuminating said indicia and mechanism for energizing said illuminating means, said drawer being adapted to be contained in said compartment, said face plate having an opening through which said indicia are visible when said drawer is in said compartment, and means for locking said drawer against tampering.

7. A roadside sign comprising a face plate, a compartment with a removable drawer therein, said face plate having an opening in front of said compartment, indicia capable of illumination, said drawer containing illuminating means and mechanism for intermittently energizing said illuminating means to intermittently illuminate said indicia and render them visible through said opening when said drawer is contained in said compartment, and means for locking said drawer in said compartment.

8. A roadside sign comprising a face plate, a compartment with a removable drawer therein, indicia adapted to be displayed by said face plate, said drawer containing illuminating means and mechanism for intermittently energizing said illuminating means to illuminate said indicia and thus render them visible in flashes when said drawer is contained in said compartment, said drawer and compartment enclosing said illuminating means and said intermittent mechanism so as to protect said means and said mechanism from weather and against missiles.

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