Jan. 12, 1971 R. H. RUDOLPH 3,553,870

ILLUMINATED DISPLAY CHARACTERS

Filed March 25, 1968

Fig. 1

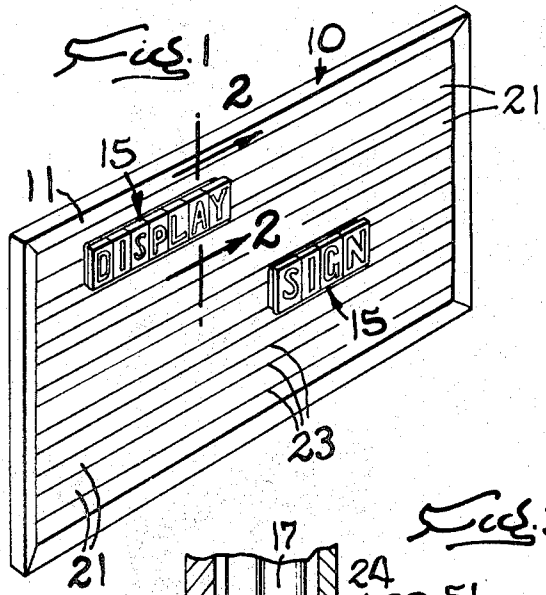


Fig. 2

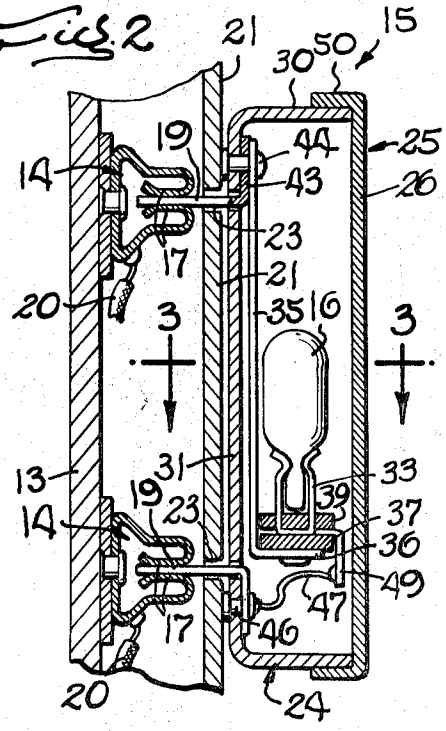


Fig. 3

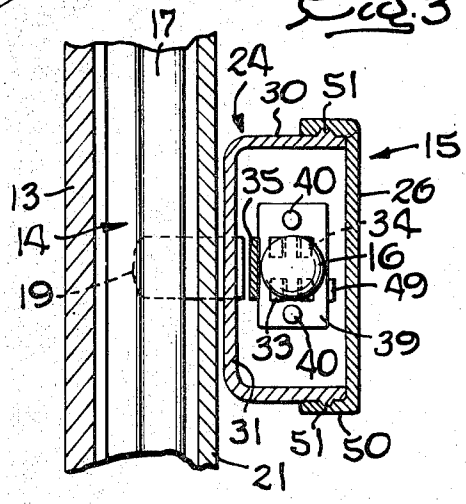


Fig. 4

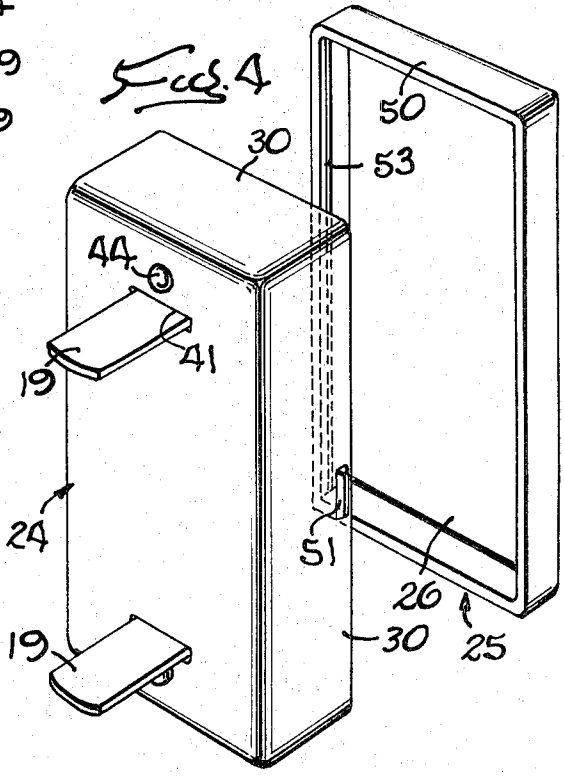
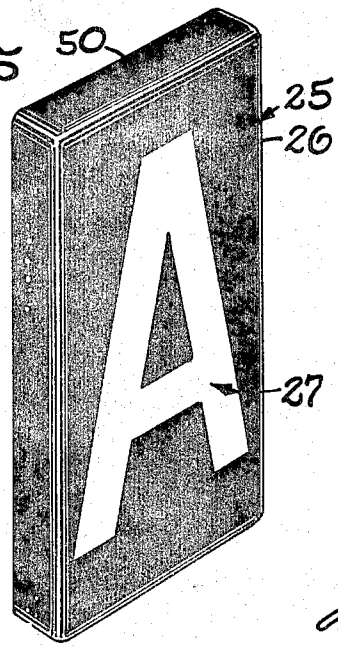


Fig. 5



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ILLUMINATED DISPLAY CHARACTERS

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Int. Cl. G09f 13/00
U.S. Cl. 40—130 4 Claims

ABSTRACT OF THE DISCLOSURE

An illuminated display character for a sign is formed with a rectangular translucent cover detachably secured to a similarly shaped body unit and overlying an electric lamp which is housed within the body unit to illuminate the character. Part of the cover is darkened with opaque material arranged to outline an intelligible translucent letter or number located centrally of the face and illuminated by the lamp. By replacing one cover on the body unit with another of the same size and shape and formed with a different translucent letter or number, the same body unit and lamp may be used to display various letters and numbers.

BACKGROUND OF THE INVENTION

This invention relates to illuminated display characters in the form of numbers or letters which are mounted interchangeably on a sign board to convey an advertising message and are lighted by lamps on the characters themselves. More particularly, the invention constitutes an improvement over the display characters disclosed in U.S. Pats. 3,404,475 and 3,447,253 in which mounting fasteners on the characters and supporting rails on the sign board also serve as conductors for the energizing circuits of the lamps. The characters disclosed in these applications are formed by a body unit and a removable translucent cover each having the geometrical shape of a particular character, the body unit supporting the lamp and the cover overlying the lamp to diffuse the light emitted therefrom.

SUMMARY OF THE INVENTION

The present invention aims primarily to provide new and improved illuminated display characters of the above general type which are considerably less expensive to manufacture and, at the same time, enable the display of a wider range of different advertising messages with a fewer number of body units and lamps than has been possible heretofore. More specifically, the body units and covers of various ones of the characters are formed of a similar rectangular shape so as to be interchangeable with one another, and each cover is formed with a display face having contrasting lighter and darker areas arranged to define an intelligible character located generally centrally of the face. By removing one cover from a body unit and replacing the cover with one of a series of similarly shaped covers defining different intelligible characters, the same body unit and lamp may be used to produce any letter or number. Thus, with only a small number of body units and a larger number of interchangeable covers, many different messages may be displayed.

The invention also resides in the novel construction of the body units and the covers enabling manufacture of the latter with a comparatively small amount of material and at relatively low costs; in the unique arrangement of the contrasting lighter and darker areas on the display faces of the covers to produce a distinctive visual effect highlighting the intelligible characters; and in the correlation of the color of the characters with that of the sign board to enhance the overall appearance of the display.

Other objects and advantages of the invention will become apparent from the following detailed description taken in connection with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a sign board with display characters embodying the novel features of the present invention.

FIG. 2 is an enlarged fragmentary cross-section taken substantially along the line 2—2 of FIG. 1.

FIG. 3 is a fragmentary cross-section taken substantially along the line 3—3 of FIG. 2.

FIG. 4 is an exploded perspective view of one of the display characters.

FIG. 5 is a perspective view of one of the covers for the display characters.

DESCRIPTION OF THE PREFERRED EMBODIMENT

As shown in the drawings for purposes of illustration, the invention is embodied in a display sign of the type especially suitable for use in restaurants, bars and other establishments for advertising and merchandising purposes. Herein, the sign comprises a display board **10** formed by a generally rectangular frame **11** surrounding a backing panel **13** (FIG. 2) to which is fastened a series of vertically spaced rails **14** for supporting interchangeable display units or sign characters **15**. The latter are arranged on the rails to convey an advertising or informative message and are individually illuminated by one or more electric lamps **16** (FIG. 2). While the display characters have been shown specifically as representing letters of the alphabet, it will be understood that numbers, symbols and other such intelligible characters may be displayed equally well.

In the exemplary sign board **10**, the rails **14** parallel one another and extend horizontally of the backing panel **13** just rearwardly of the forward face of the frame **11**. Each rail is made from an elongated strip of spring metal which is suitably bent and shaped to form a forwardly opening mouth defined by upper and lower resiliently yieldable lips **17** (FIG. 2) which are urged into light pressing engagement with one another by virtue of the resilience of the metal. To support the characters interchangeably on the board, two metal fasteners in the form of prongs **19** attached to each character are snapped into adjacent ones of the rails and are gripped securely but releasably by the resilient lips, the prongs being spaced vertically from one another in accordance with the spacing of the rails. In addition to supporting the characters, the rails conduct electrical current to the lamps **16** from a suitable power source (not shown) connected to the rails by leads **20**. Each pair of prongs is connected electrically to the terminals of the lamp of its respective character so that an energizing circuit illuminating the lamp is completed through the rails and the prongs as an incident to attaching the character to the sign board.

To enhance the appearance of the sign, a display face for the sign board **10** is formed by a series of horizontally extending and vertically spaced slats **21** which substantially cover the rails **14** and establish an attractive background for the characters **15**. As shown most clearly in FIG. 2, the slats are fastened at their ends to the frame **11** and are spaced vertically from one another to define narrow elongated slots **23** alined with the rails and accommodating projection of the prongs **19** past the slats and into contact with the rails. Thus, the slats, which preferably are made of plastic, hide the rails from view and present an attractive display face forming a background for the characters **15**.

Herein, each character **15** comprises a supporting element or body unit **24** (FIG. 4) and a cover **25**, the body unit supporting the lamp **16** and the prongs **19** and being fastened detachably to the cover. The cover overlies the lamp to protect the latter and the interior of the body unit and also to diffuse the light emitted from the lamp.

In accordance with the present invention, each cover **25** is formed with a display face **26** having contrasting lighter and darker areas arranged to define a particular intelligible character **27** (FIG. 5), and various covers and body units **24** are constructed of a similar size and shape so that different covers can be used interchangeably with different body units. As a result, various different messages can be displayed with the same body units simply by using the latter in conjunction with other covers having different contrasting lighter or darker areas arranged to define different intelligible characters **27**. The number of body units required to display different messages thus is reduced since only a different cover is needed to change the visual effect produced by any particular character **15**.

In the present instance, each body unit **24** is preferably but not necessarily shaped as a relatively deep rectangular dish and is molded in one piece from an opaque black plastic material. Shaped as a dish, the body unit defines a box-like enclosure formed by side walls **30** projecting outwardly from the margins of an inner base plate **31** to leave the body unit with an open outer side which is closed by the cover **25**. The lamp **16** is housed within the body unit **24**, with the side walls **30** advantageously being sufficiently deep, herein about ¾ of an inch, to project outwardly into surrounding relation with the lamp and thereby enclose the sides of the lamp.

As shown most clearly in FIGS. 2 and 3, the lamp **16** is of the miniature type adapted to be snapped into a conducting socket supported on the base plate **31** within the confines of the side walls **30**. The socket comprises a pair of U-shaped spring metal clips **33** and **34** which receive and grip a neck on the lamp to hold the latter in place. Two short terminal wires (not shown) formed as part of the lamp and connected to the filament thereof lie alongside the neck and contact the clips to conduct current between the clips and the lamp. The clips are supported by a conductor **35** (FIG. 2) in the form of a strip of metal extending alongside the base plate **31** and formed with an outwardly bent lower leg **36** underlying the clips. Sandwiched between the upper side of the leg **36** and the lower side of the clips is a pad **37** of non-conductive material serving to insulate the clips from the conductor **35**. A similar insulating pad **39** is formed with holes registering with the clips and is telescoped over the clips to hold the latter in upright positions and in spaced apart relation, the two pads and the leg **36** of the conductor **35** being fastened together by a pair of rivets **40** (FIG. 3).

To conduct current between the rails **14** and the lamp **16**, the upper prong **19** projects outwardly of the body unit **24** through a hole **41** (FIG. 4) near the upper end of the base plate **31** and is formed at its inner end with a vertical tab **43** (FIG. 2) which is fastened to the plate and the upper end of the conductor **35** by a rivet **44**. The lower end or leg **36** of the conductor **35** is connected electrically to the clip **34** by a small metal tab (not shown), and thus one side of a circuit is established through one rail **14**, the upper prong **19**, the conductor **35**, and the clip **34**. The other side of the circuit is established through an adjacent rail **14**, the lower prong **19**, a rivet **46** (FIG. 2) fastening the lower prong to the base plate **31**, and a lead **47** connecting the rivet **46** to a conducting tab **49** connected to the clip **33**.

In this instance, the cover **25** also is formed in the shape of a rectangular dish and includes a peripheral rim **50** extending around the display face **26**. The cover is sized to telescope over the outer side of the body unit **24** and is held detachably on the latter by a pair of lugs **51** (FIGS. 3 and 4) formed on the side walls **30**. When the cover is attached, the side walls first flex inwardly to allow the

edges of the rim **50** to pass by the lugs. Thereafter, the lugs snap into and interlock with a groove **53** (FIG. 4) formed along the inner side of the rim and cooperating with the lugs to hold the cover in place. Because the body unit **24** is sufficiently deep to enclose the lamp **16**, the cover may be made relatively shallow, herein about 3/16 of an inch deep, so that less material is required to form the cover than the body unit. Since a typical display package includes considerably more interchangeable covers than body units, the formation of the covers with a smaller amount of material helps reduce the cost of the package.

Advantageously, the cover **25** is molded from translucent plastic which may be either white or lightly tinted to diffuse the light from the lamp **16** with a selected color effect. After the cover has been molded, the contrasting lighter and darker areas are formed on the display face **26** to define the intelligible character **27** which herein is shown in FIG. 5 as being the letter A. In this specific instance, the letter **27** is formed by masking off or otherwise protecting a centrally located area of the display face with a shield in the shape of the letter and then by coating the remainder of the display face with a relatively dark opaque paint or other suitable opaque material. This leaves the cover with a translucent wall portion shaped as the letter **27** and outlined by the darker opaque areas. A silk screening process is especially suitable for forming the letter on the display face.

Since light from the lamp **16** passes only through the translucent portion of the display face **26**, the letter **27** is illuminated and is highlighted against the opaque background presented by the remainder of the display face. A particularly attractive and distinctive arrangement may be produced by forming the cover **25** from translucent white plastic (so that the resulting letter **27** will be white) and by coating the rest of the display face **26** and the rim **50** with a black shade identical in color to that of the plastic of body unit **24**. Preferably, the salts **21** of the display board **10** are colored the same as the darker areas of the characters **15** in order to highlight the letters **27** and to cause the opaque portions of the characters to blend in with the board.

While the display characters **15** could all be of the same width, it is preferable to use somewhat wider characters for the wide letters M and W and to use narrower characters for the narrow letter I and for certain numbers and symbols. This results in all letters and numbers being spaced evenly from adjacent letters and numbers when the characters are attached side-by-side on the sign board **10**.

From the foregoing, it will be apparent that the display characters **15** of the present invention can be manufactured at relatively low costs since, at the most, only three different sizes and shapes of body units **24** and covers **25** are needed to provide the entire alphabet and all of the numerals. Thus, tooling costs are kept relatively low. Because covers of similar widths are detachable from the body units and are interchangeable with one another, a purchaser need only buy a small number of body units and a somewhat larger number of covers with different intelligible characters **27** to display any desired message. By using only a relatively small amount of material to make the covers, the latter can be manufactured and sold at low costs thus reducing the overall cost of a display package which includes several extra covers. Finally, the characters **27** defined by the contrasting opaque and translucent areas of the covers are highly distinctive and present an extremely attractive display.

I claim as my invention:

1. In an illuminated display unit adapted to be attached removably to a display board, the combination of, an opaque body molded of plastic and shaped as a relatively deep rectangular dish having one open side, an opposite closed side, and walls extending around and projecting from said closed side, a pair of electrical conductors on said body and insulated electrically from one another, at

least one lamp housed within said body and electrically connected across said conductors for energization through the conductors, two conducting fasteners projecting outwardly from the closed side of said body for attachment to the display board and connected electrically to said conductors, a generally rectangular cover made of translucent plastic and of substantially lesser depth than said body, said overlying said lamp to protect the latter and to diffuse light emitted from the lamp when the lamp is energized, said cover having an outer display face darkened by opaque material coated only over selected areas of the cover and outlining an intelligible character to leave the face with a generally centrally located translucent wall portion in the shape of such character, and means holding said cover telescoped with said body with a snap-fit and releasable to enable removal and replacement of the cover with another rectangular cover of similar size but having a centrally located translucent wall portion in the shape of a different intelligible character.

2. A display unit as defined in claim 1 in which said closed side of said body supports said conductors and said lamp, said closed side and said walls being molded integrally with one another.

3. A display unit as defined in claim 1 in which said cover also is shaped as a rectangular dish of substantially lesser depth than said body and is telescoped removably over said body.

4. In an illuminated display sign, the combination of, a sign board having a frame, at least two substantially horizontal and generally parallel rails fastened to said frame in vertically spaced relation and composed of electrical conducting material, an upright display face fastened to said frame in overlying relation with said rails and defining at least two horizontal slots alined with the rails, said display face having a selected color, an illuminated display unit having a generally rectangular body molded of plastic and shaped as a relatively deep rectangular dish

having an open side, an opposite closed side and walls extending around and projecting outwardly from said closed side, a pair of electrical conductors fastened to said body and insulated electrically from one another, two vertically spaced conducting fasteners projecting from said closed side of said body toward said board, said fasteners being connected electrically to said conductors and projecting through said slots into detachable engagement with said rails to hold said display unit on the rails in front of the exposed side of said display face and to conduct electrical current between the rails and said conductors, at least one lamp housed within said body and electrically connected across said conductors for energization through the conductors, a generally rectangular cover made of translucent material and of substantially lesser depth than said body overlying said lamp to protect the latter and to diffuse light emitted from the lamp when the lamp is energized, said cover having a surface darkened with opaque material of the same general color as said display face and located only over selected areas of the surface to define an intelligible character, and means holding said cover on said body and releasable to enable removal and replacement of the cover with another rectangular cover of similar size but having a display face defining a different intelligible character.

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