United States Patent

[11] 3,593,447

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[54] **FACE RETAINER FOR ILLUMINATED SIGNS**
4 Claims, 9 Drawing Figs.

[52] **U.S. Cl.** ..... **40/130 R**
[51] **Int. Cl.** **G09f 13/00**
[50] **Field of Search** ..... 40/125 K, 130 R, 130 A, 130 B, 130 C, 132 R, 133 B, 136, 154

[56] **References Cited**
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Primary Examiner—Harland S. Skogquist
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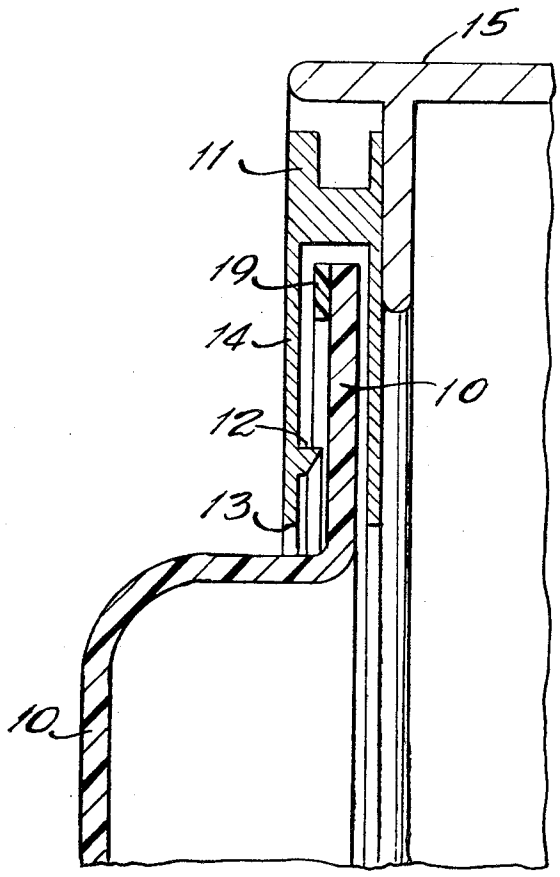
ABSTRACT: A retainer device for translucent plastic panels or faces for illuminated signs whereby to secure the panels against displacement from the sign housings or frames by wind pressures thereon. The plastic panels, being flexible and subject to lateral expansion and contraction under varying temperature conditions, are customarily installed in their frames with liberal marginal tolerances thus, when flexed by wind pressures at relatively low temperatures, the face panels can escape their mountings resulting in damage thereto.



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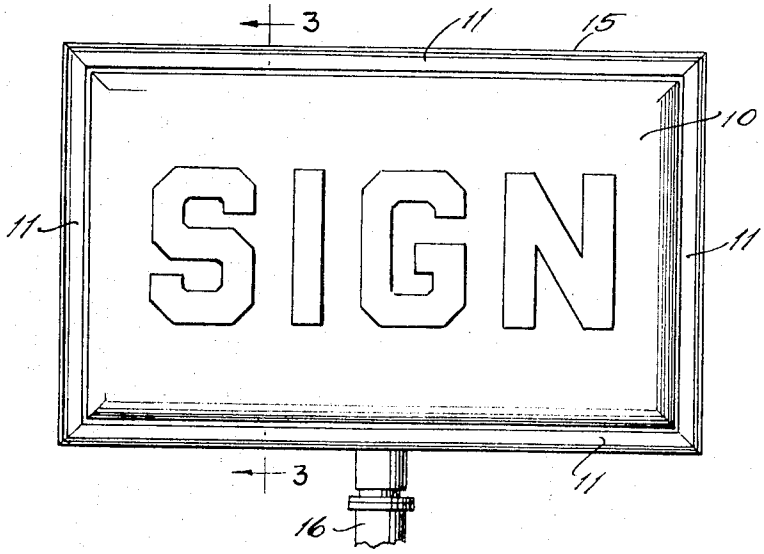

Fig. 1

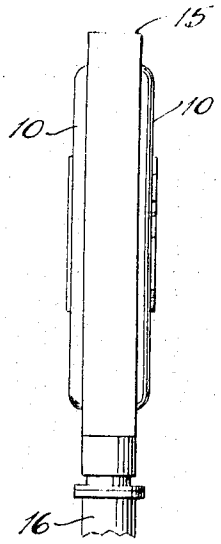

Fig. 2

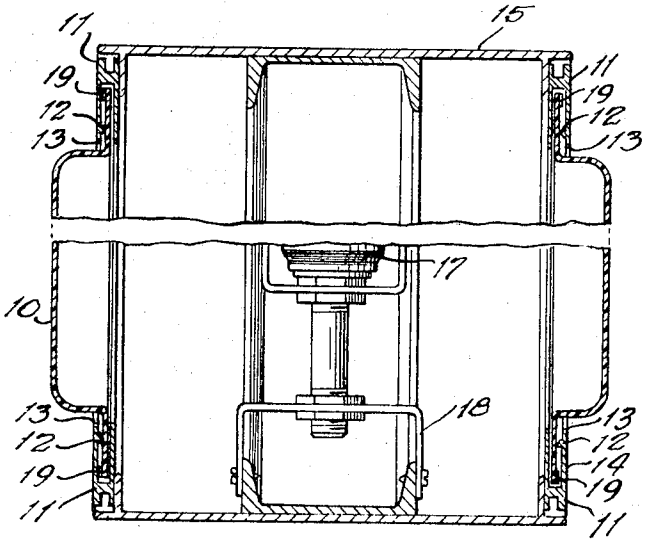

Fig. 3

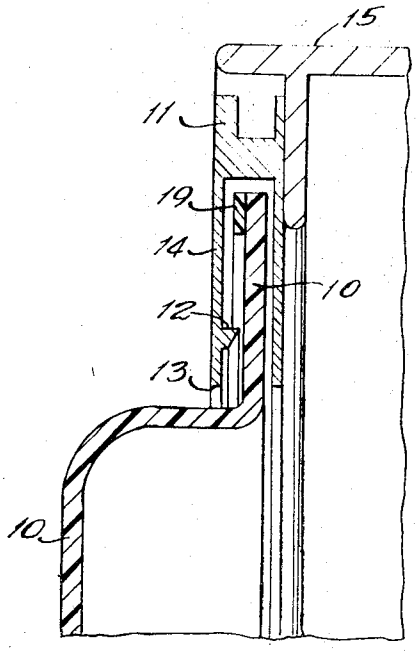

Fig. 4

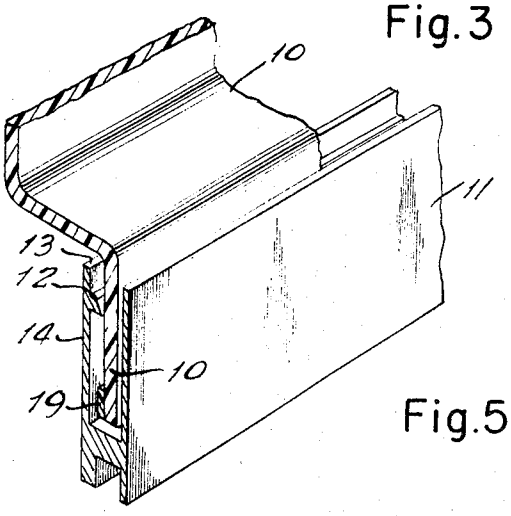

Fig. 5

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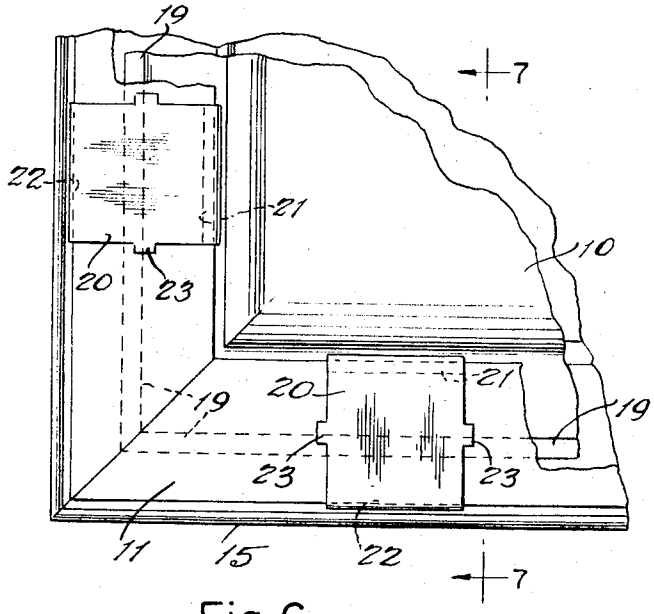

Fig.6

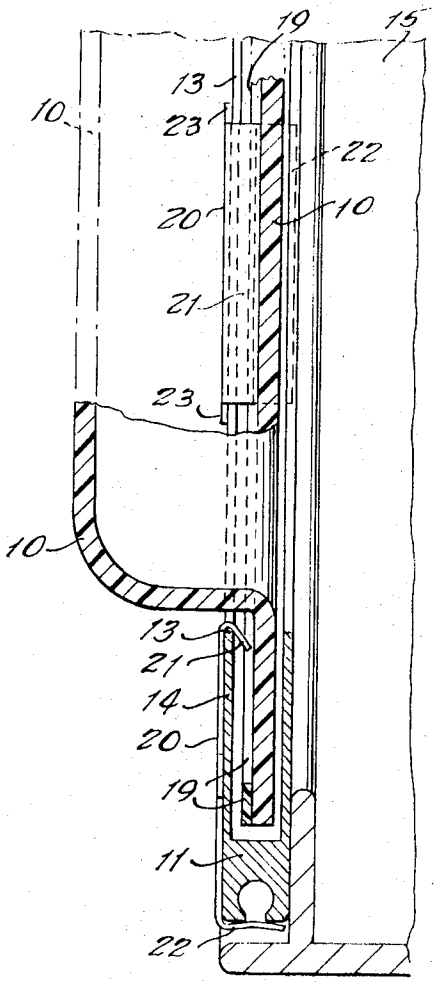

Fig.7

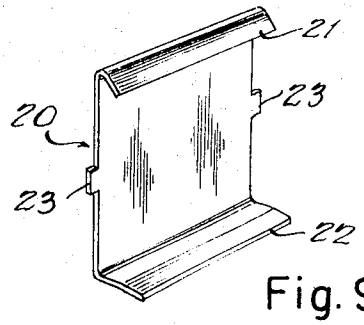

Fig.9

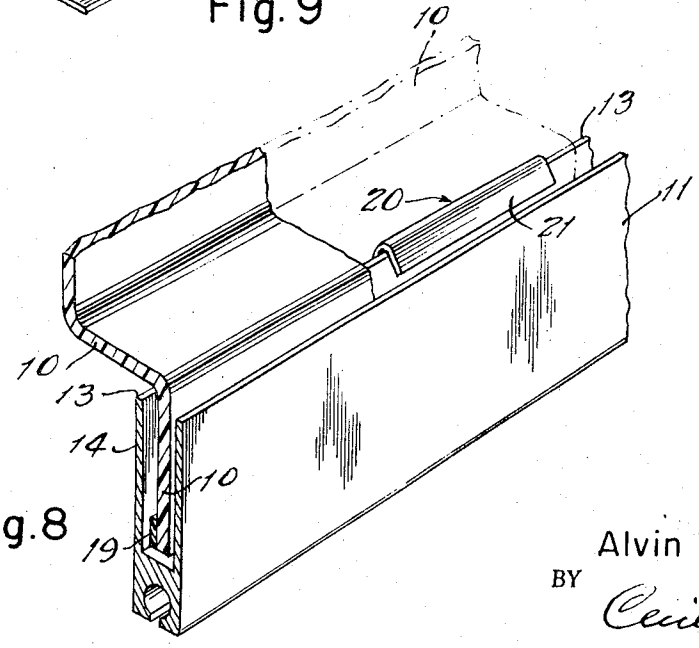

Fig.8

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FACE RETAINER FOR ILLUMINATED SIGNS

BACKGROUND OF THE INVENTION

In the manufacture of electrically illuminated signs for outdoor installation it is common practice to provide such signs with face panels formed of relatively thin acrylic plastic materials which serve both economic and aesthetic requirements. Such practice is especially applicable to signs which present opposing face panels and are generally mounted on relatively high standards, such as those commonly used in connection with the retail outlets of the oil and gas industry and by many commercial establishments in other fields.

The plastic face panels have an inherent flexibility which becomes more acute under relatively high temperatures, although some marginal expansion also results, and decreases under cooling temperatures with a corresponding degree of contraction so that when the face panels are subjected to wind pressures of relatively high velocity they are flexed inwardly causing them to pull away from their mountings with the result that the face panels and the sign fixtures are both damaged.

A variety of devices have been conceived and applied to prevent this so-called "blowout" of the face panels but few, if any, have proved to be satisfactory. It is therefore a prime object of the instant invention to provide an economical and effective means for retaining the face panels in their mountings without detracting from the aesthetic appearance or the effectiveness of the sign message.

SUMMARY

This invention relates to illuminated signs having translucent face panels, and especially those formed of acrylic plastic materials.

A prime object of the invention resides in the provision of a retaining device for the face panels of illuminated signs which are customarily formed of translucent plastic materials which possess certain economic advantages over glass panels due to the ease by which they can be produced with varying surface contours for aesthetic appearance and because of their flexibility and resistance to breakage under severe weather conditions, such as high winds, hail, and the like, but by reason of their flexibility such panels, under relatively high velocity wind pressures, tend to pull out of their frames resulting in damage thereto.

A further object of the invention is that of providing a retention device which is simple and economical yet capable of securing the face panels against displacement from their mountings while affording ample means for lateral expansion and corresponding contraction resulting from variations in temperatures.

While the foregoing objects are paramount, other and lesser objects will become apparent as the description proceeds when considered in connection with the appended drawings wherein:

FIG. 1 is an elevational view of a typical sign having a plastic face panel and embodying the invention.

FIG. 2 is an elevational edge view of the sign shown in FIG. 1, the supporting standard being fragmentarily shown in both views.

FIG. 3 is a fragmentary sectional view, on line 3–3 of FIG. 1, illustrating the channel-shaped frame members and showing the preferred form of the invention applied to the frame members and the panels.

FIG. 4 is a fragmentary enlarged sectional view through the upper portion of one face of the sign showing the invention embodied therein.

FIG. 5 is a fragmentary perspective view showing the channel-shaped frame member having an internal rib or flange formed on the outer wall and a plastic strip attached to the lower marginal edge of the panel.

FIG. 6 is a fragmentary elevational view of the lower left-hand corner of a typical sign frame showing a modified retention device for the face panels.

FIG. 7 is an enlarged fragmentary sectional view, on line 7–7 of FIG. 6, showing a detachable clip for retaining the face panels in their frames.

FIG. 8 is a fragmentary perspective view, showing the panel partially in phantom outline, and showing the retaining clip applied to the lower frame member, and

FIG. 9 is a perspective illustration of the retainer clip, or modified retention device embodying the invention.

The invention, in its preferred form, is shown in FIGS. 1 to 5, inclusive, wherein the face panels 10 are mounted in a frame comprised of top, bottom and side members 11 which are channel shaped in transverse section and formed with an internal rib or flange 12 near the inner edge 13 of the outer wall 14 of each member 11 which may be formed of aluminum extrusions, or from other materials and by any desired means.

The mounting frames, while illustrated as rectangular in form, may be produced in any desired peripheral outline as required for aesthetic purposes or in accordance with any desired distinctive display, and are secured in one or both sides of a housing 15 supported by a standard 16, or other device, depending upon the use and location of the sign. The face panels 10 are translucent and are illuminated from within the housing 15 by one or more lamps 17 mounted on brackets 18, as fragmentarily shown in FIG. 3.

The face panels 10 are arranged in their frames in such manner as to provide liberal marginal tolerances, as indicated in FIGS. 4, 5, 7 and 8, to allow for expansion under high temperature conditions, and a relatively thin and narrow plastic strip 19 is cemented or molded about their marginal edges on their exterior surfaces, as best shown in FIGS. 4 and 7, and engage the internal ribs or flanges 12 when the panels 10 are shifted laterally within the frames, or flexed by wind pressures capable of dislodging them without the restraint provided by the elements 12 and 19.

The alternative retention device, illustrated in FIGS. 6 through 9, comprises a metal clip 20, shown in detail in FIG. 9, adapted to be fitted over the outer surface of the frame members 11, having a lip 21 extending at an obtuse angle along one of its edges to overreach and engage the inner edge 13 of the outer walls 14 of the members 11, as shown in FIGS. 7 and 8, and having a right-angular tensile flange 22 formed along an opposite edge, opposing the lip 21, which engages the outer edges of the frame members 11.

A plurality of the clips 20 can be spaced about the assembled frame, in the manner shown in FIG. 6, to insure adequate retention of the panels 10 which are restrained against displacement from their frames by the engagement of the strip 19 with the lips 21 of the clips 20. To expedite the removal of the clips 20 each is formed with brief extended portions or ears 23 beneath which a tool, such as a screwdriver, can be inserted to withdraw the tensile flange 22 from the frame members.

The invention, as shown and described, is capable of certain changes and modifications by persons skilled in the art without departing from the spirit and intent thereof.

What I claim is:

1. A retainer device for plastic face panels for illuminated signs having a housing and a frame in said housing defining a channel to receive the marginal edges of said panels and providing a mounting therefor, the improvements comprising: an integral rib formed longitudinally of one wall surface internally of said channel, the said panels having a marginal abutment facing said rib in said channel and engageable therewith in any lateral movement of said panels under stress of wind pressures thereon.

2. A retainer device for plastic face panels for illuminated signs, as described in claim 1, wherein the said marginal abutment on said panels comprises a plastic strip cemented to the surface thereof adjacent to said integral rib in said channel.

3. A retainer device as described in claim 1, wherein the integral rib in said channel is spaced from the inner periphery of said frame.

4. A retainer device for plastic face panels for illuminated signs having a housing and a frame in said housing defining a

channel to receive the marginal edges of said panels, and providing a mounting therefor, in combination, an abutment strip on each of said panels along and adjacent to the marginal edges thereof and enclosed within said channel when said panels are arranged in said frame, a clip detachably securable to said frame at spaced intervals therearound having means formed therewith engageable with said abutment strip when said panels are moved laterally in any direction in said frame, the said means comprising an angular lip formed along one edge of said clip for overreaching the inner peripheral edge of said frame and into said channel, and a tensile right-angular flange formed on said clip opposite said lip for engagement with the outer peripheral edge of said frame.