July 23, 1963 B. J. FRYE 3,098,272

SELF ADHESIVE CLIP AND METHOD

Filed Nov. 17, 1961 3 Sheets-Sheet 1

FIG. 2

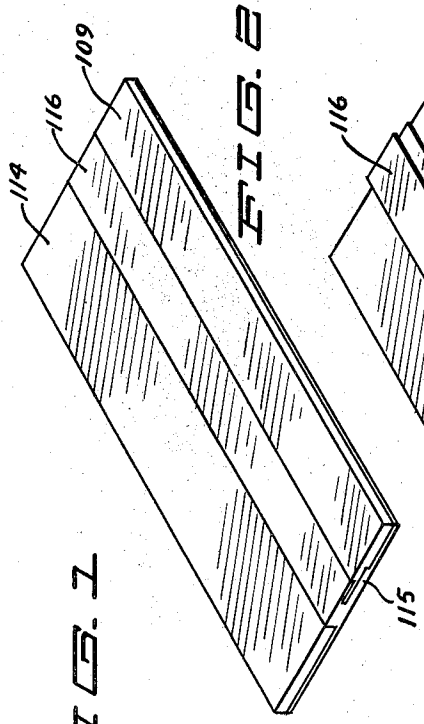


FIG. 3

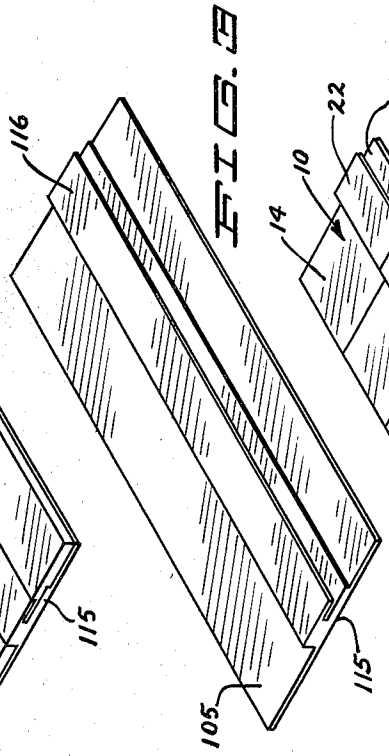


FIG. 4

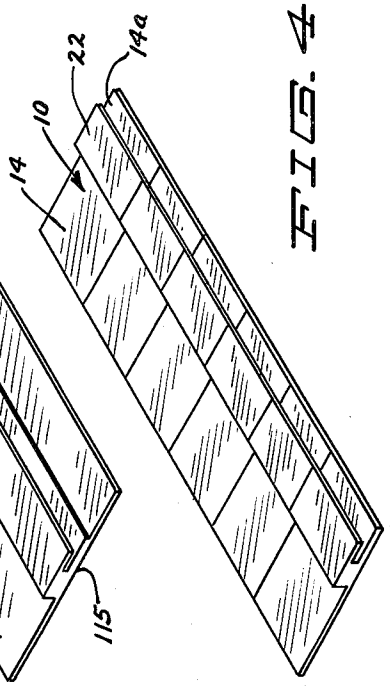
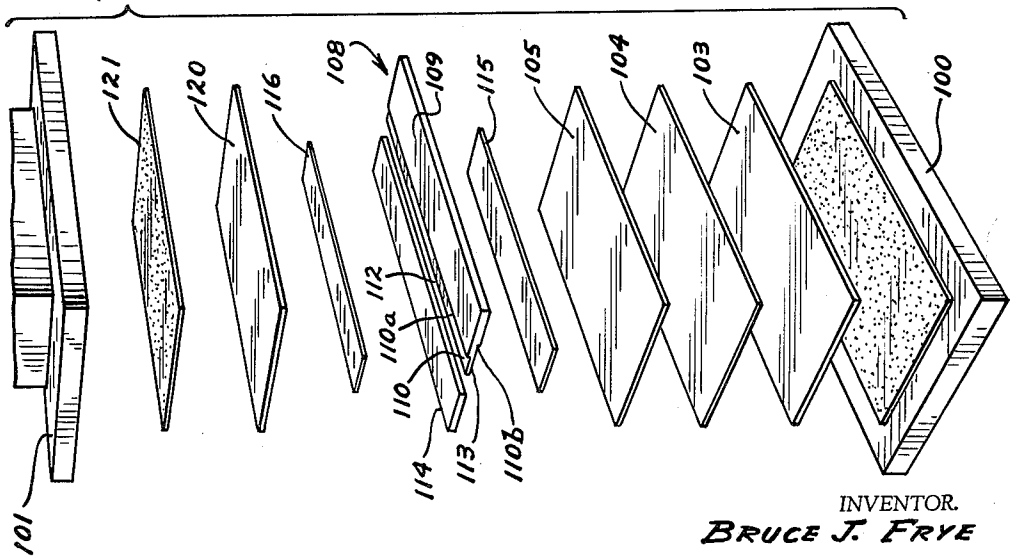


FIG. 1



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Filed Nov. 17, 1961 3 Sheets-Sheet 2

FIG. 5

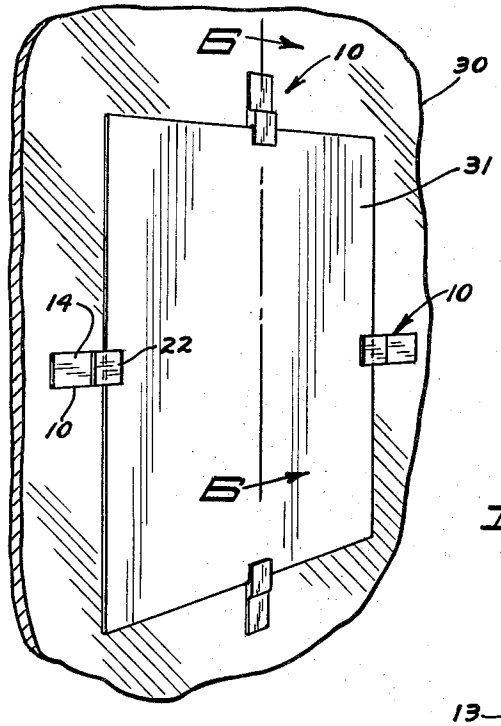


FIG. 6

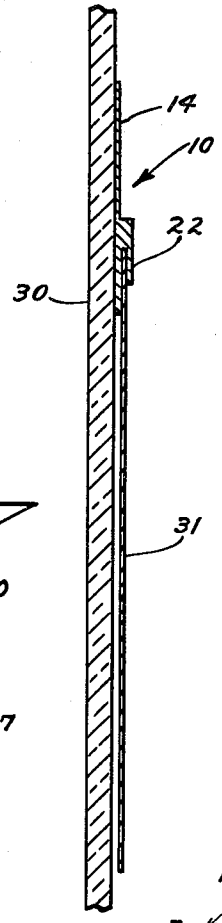
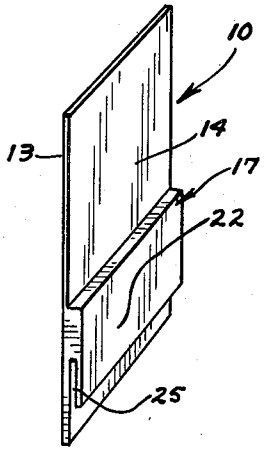


FIG. 7



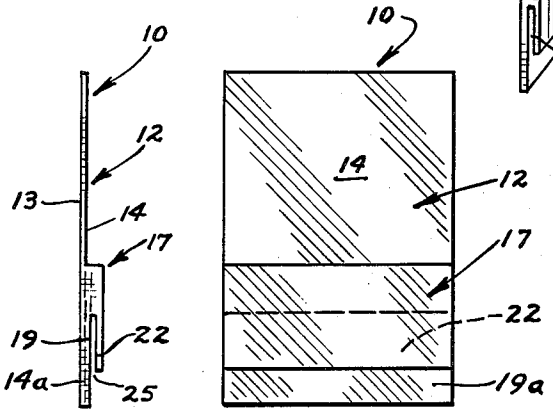


FIG. 8

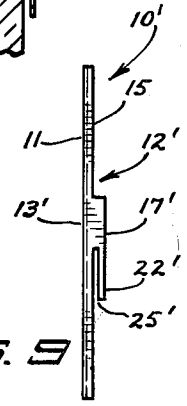


FIG. 9

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July 23, 1963 B. J. FRYE 3,098,272

SELF ADHESIVE CLIP AND METHOD

Filed Nov. 17, 1961 3 Sheets-Sheet 3

FIG. 10

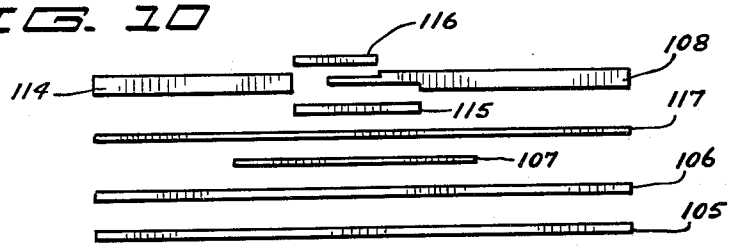


FIG. 11

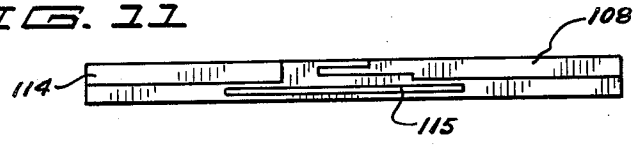


FIG. 12

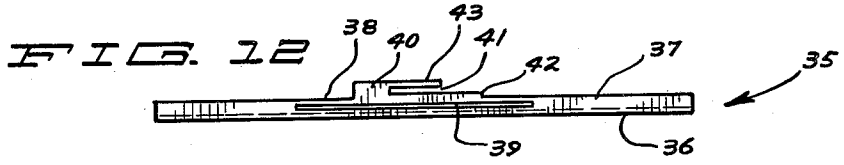


FIG. 13

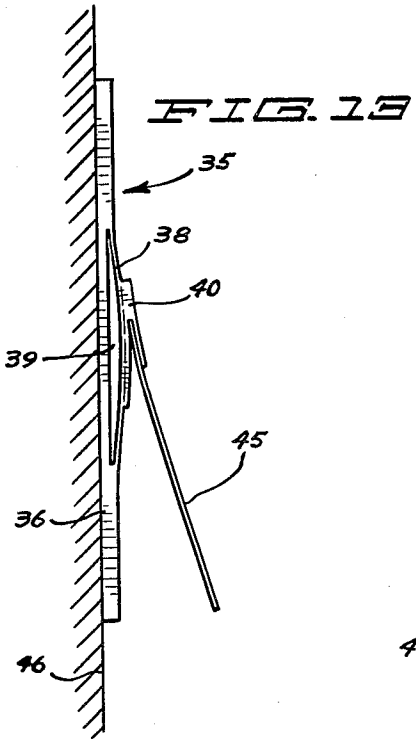
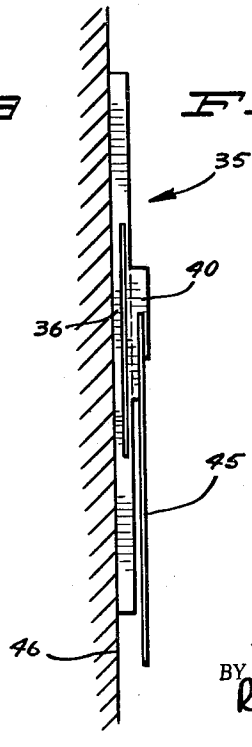


FIG. 14



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3,098,272
SELF ADHESIVE CLIP AND METHOD

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5 Claims. (Cl. 24—67)

This invention relates to a product forming a device to be used in connection with holding such display pieces as signs or posters in display position, such as in a window mounted position as on store windows. This invention also relates to a method for forming said device. More specifically this invention relates to a device for mounting signs or posters, as on windows, which in itself is reusable and which removably holds said signs or displays, and where upon the removal of said device no residue therefrom remains upon the supporting surface, such as upon the window surface.

Pressure sensitive adhesive tape, such as transparent tape, is commonly used for removably holding signs or displays, as in window mounted positions. There are many objections to the use of such tape. The removal of the tape leaves a residue upon the supporting surface and this residue must be removed as by washing. The tape itself is difficult to handle as it has a definite tendency to curl. It is difficult to hold a sign with one hand and to remove a piece of adhesive tape from a holder with the other hand and apply it to the sign to mount it in position. If strips of tape are partially attached to a display or sign, the tape with its tendency to curl itself is rather difficult to handle. Further, pressure sensitive tape tends to lose its adhesive quality when moisture is present, such as results from the sweating of a window. Also when a display or sign is formed of paper, the surface thereon becomes damaged at the areas from which the holding strips of tape are removed.

It is desirable therefore and an object of this invention to provide a holding member for window mounted displays and signs, which member may be conveniently applied in operating position, may be removed from the mounting surface without leaving any residue, and which may be reused indefinitely with no lessening in the holding quality of the member.

It is another object of this invention to provide a holding member constructed and arranged to have an adhesive surface on one side for adhesion to a mounting surface, such as a window, and to have said adhesive surface relatively unaffected by the presence of moisture on said window, such as may result from sweating.

It is a further object of this invention to provide a holding member having a slot formed at one side thereof between portions thereof for having a non-adhesive frictional engagement of the display or sign within said slot and having the other side adapted for adhesive engagement with a mounting surface, such as a window.

It is also an object of this invention to provide a novel method for forming applicant's device.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which:

FIG. 1 is an exploded view of the apparatus and material on a reduced scale for forming applicant's device;

FIGS. 2–4 are views in perspective showing specific steps in the method of forming applicant's device;

FIG. 5 is a broken view as of a window showing applicant's device in perspective in operating position;

FIG. 6 is a view in vertical section on an enlarged scale taken on line 6—6 of FIG. 5 as indicated by the arrows;

FIG. 7 is a perspective view showing applicant's device on an enlarged scale;

FIG. 8 is a composite view on an enlarged scale showing applicant's device in side and front elevation;

FIG. 9 is a view in side elevation of a modified form of applicant's device;

FIG. 10 is an exploded view indicating additional steps embodied in the modification of applicant's device;

FIG. 11 is a view similar to FIG. 10 with the portions thereof in operating position;

FIG. 12 is a view in side elevation of applicant's modified device; and

FIGS. 13 and 14 are views in side elevation of applicant's device in operating position.

With reference to FIGS. 5–8, applicant's device **10** forming a holding member or clip is shown.

Said clip **10** comprises a main body portion **12** formed of a flexible relatively soft sheet plastic material, such as polyvinyl chloride, having a polished back surface **13**. A chief characteristic of this material is that with a polished surface it will adhere to another polished surface, and more particularly it has particularly good adherence to a surface such as glass. Thus relative to a polished surface, and particularly to a glass surface, said back surface **13** forms a pressure sensitive adhesive surface. This adhesion is on the order of molecular adhesion. The plastic material used in practice has been found to be very satisfactory when on the order of .010 to .020 inch in thickness. Adhesion appears to be better at the lower range of thickness.

The upper front surface of the body portion **12** is indicated by the reference character **14**. As viewed in FIGS. 7 and 8, formed at the lower portion of said body portion **12** and integral with the lower front surface portion **14***a* thereof is the sign or display holding portion of applicant's device indicated generally by the reference character **17**.

Said portion **17** is substantially rigid and somewhat resilient in character and having non-adhesive surface portions. Said portion **17** has an offset relation with respect to said member **10** and comprises a forwardly extending bifurcated portion comprising an underlying portion **19** and spaced therefrom a partially overlying portion **22**. Formed between the facing surfaces of portions **19** and **22** is a slot **25**. Said portion **22** is shown to be somewhat shorter than said portion **19** whereby a lip portion is provided for an easy insertion of material into the slot **25**. Said space **25** may be of any desirable width with reference to the thickness of the material to be inserted in said slot. Generally material used for signs, as in stores, is on the order of .005 inch thick. Thus in practice it has been found very satisfactory to space said portions **19** and **22** apart on the order of .003 inch. Thus there is present adequate pressure on the material held to form the basis for good gripping or frictional engagement. It is desirable for the opposing faces of portions **19** and **22** to be unpolished to form the basis of a more secure gripping engagement. The resilience of the portions **19** and **22** will provide a tendency for said portions to maintain the normal interval of space therebetween and thus there is a constant urge of said portions against material therebetween having a thickness somewhat greater than said width of spacing. There is also the tendency to compress the material thus being held.

With reference to applicant's holding member or clip **10**, the applicant provides a unique and novel method for forming his device. Combined within the clip are portions having substantially different characteristics. The body portion **12** when its surface is polished has a characteristic of adhering to a polished surface. The applicant uses a relatively inexpensive plastic material having an unpolished surface. The facing surfaces of portions **19** and **22** have a non-adhesive characteristic whether pol-

ished or unpolished, and these portions are substantially rigid with a spring-like quality to grippingly or frictionally grip and hold a sign or display therebetween. Thus the clip which is integral in form has an adhesive portion for adherence to a mounting surface, such as a store window **30**, and has non-adhesive portions for frictional engagement with a sign or display **31** to be mounted. It is desirable to have a frictional or gripping engagement with the thing held rather than an adhesive engagement for easy insertion or removal of the material held.

The applicant forms the product by means of the following method. Reference is had to FIGS. 1–4. FIG. 1 is an exploded view showing the physical steps involved in carrying out the applicant's method. The platens **100** and **101** represent opposing members of a conventional design of a press indicated merely by a broken portion relative to the platen **101** with the platens being used to apply heat under pressure on the plastic material loaded therebetween. The press with the platens being indicated is of conventional design and provides no novelty of itself.

Referring to the platen **100** or the lower of the platens, there is mounted thereon a pad **103** forming a cushion. This pad is formed on the order of a blotter. Overlying said cushion is a polished plate **104**. This is a thin plate with a highly polished surface which under pressure causes an engaged plastic surface to become polished. Overlying said polished plate is a sheet of flexible plastic material **105** on the order of polyvinyl chloride which has the characteristics of adhering to a polished surface with its polished surface. Polished polyvinyl chloride may be initially used, but the unpolished material is less expensive and becomes polished in the method carried out, as will be indicated.

As is apparent, the size of the sheet **105** is limited only by the size of the platen **100** used. As to the thickness of said sheet a thickness in the range of .010 to .020 inch has been found to provide very satisfactory results. The adhesive quality of the material is in direct relation to the degree that its surface is polished. Overlying said sheet **105** and in engagement therewith is a forming member **108**. Said forming member is of unitary construction comprising a body portion **109** substantially rectangular in cross section having a longitudinal tongue portion **110** extending substantially centrally outwardly of one side thereof. Said tongue portion is substantially thinner than said body portion and forms the spacing member to form the slot **25**. In the present embodiment of this invention a thickness on the order of .003 inch has been found to be satisfactory for said spacing member. Said tongue portion **110** is offset therefore from the upper and lower surfaces of said body portion **109** forming right-angled shoulders **110***a* and **110***b* therewith and forming an upper offset portion **112** and a lower offset portion **113**. Said offset portion **113** is shown as having a greater width than said offset portion **112**.

Positioned within said offset portion **113** is a strip of rigid yet somewhat resilient plastic material **115**, such as vinyl, having a somewhat greater width than that of said offset portion to extend outwardly thereof. Said strip **115** lies directly in contact with said sheet **105**. Disposed in said offset portion **112** is a similar vinyl strip **116** of somewhat greater width than that of said offset portion **112** and having its outer longitudinal edge portion overlying the outer longitudinal edge portion of said strip **115**. Now with reference to FIG. 2, it is seen that said overlying rigid strips **115** and **116**, although shown here as integral, form a raised portion overlying said sheet **105**.

Abutting the overlying extended end portion of strips **115** and **116** and overlying said sheet **105** in engagement therewith is a second forming member **114**. The strip **115** in overlying sheet **105** is in engagement therewith. The strip **116** overlying the spacer **110** has its free edge portion aligned with and in contact with the free edge portion of the strip **115**.

Placed over the form **114** and the strip **116** is a second polished plate **120**. Overlying said polished plate **120** is a second cushion **121**. Thus there has been described the assembly of one complete set of portions for forming an elongated strip of applicant's device as indicated in FIGS. 3 and 4. A plurality of such sets of parts may be stacked one upon the other. For the purpose of explanation here only what is indicated in FIG. 1 will be referred to. The platen **101** will be lowered to exert a pressure of approximately 9,000 or 10,000 pounds per square inch. The platens which are of conventional design and equipped with heating coils will be caused to develop a temperature of approximately 365° to 375° F. The material used will have a heating point within this range. The heat and pressure indicated will be sustained for a period from nine to ten minutes. The heat is then cut off and the platens are chilled to permit the plastic material to set and this dwell time is approximately ten minutes.

The forming members **108** and **114** used have a substantially higher heating point than the temperature developed and is thus unaffected by the temperature developed. The pressure developed bears directly against the sheet **105** from below and upon the strip **116** from above, and the heat developed bonds the overlying edge portion of the strip **116** to the underlying edge portion of the strip **115** sealing said edge portions together with a space therebetween being formed by the spacer portion **110**. The rigid strip **115** directly overlying the flexible sheet **105** is bonded to said sheet by said heat and pressure. The adjacent form **114** abutting the edge portions of the strips **115** and **116** directly overlies the sheet **105** to press directly upon the portion of said sheet which will form the body portion **12** of said clip, and said pressure in connection with the polished plate **104** provides a polished outer or lower surface **13** of said clip **10**. The character of the spacer **110** may be varied as may be desired to form on the facing surfaces of said strips **115** and **116** either a polished or an unpolished surface of some kind.

Referring to FIG. 2, applicant's device is shown as a continuous strip as removed from the press but with the forming members **109** and **114** in position, and as indicated in FIG. 3, said forming members are shown removed. Referring to FIG. 4, said strip is shown with portion **14***a* trimmed and transverse cutting lines are indicated. The strip will be cut transversely by suitable means to form the individual clips **10**. If it is not desired to provide the upper surface of the strip **116** with a polished finished, a plate of another character may be substituted for the plate **120** to form whatever surface character may be desired.

Thus by bonding the rigid strip **115** with the flexible portion **105**, applicant's clip has a polished outer surface over the entire back portion of the clip forming an adhesive surface, and a non-adhesive surface is present on the facing portions of the rigid strips. Applicant's device as formed is of integral or unitary construction.

Thus applicant provides in his clip a portion forming an entire side thereof having a pressure sensitive adhesive surface, with the gripping portion of the clip formed of a material of an entirely different character being non-adhesive yet having a rigid resilient character to grippingly engage material between the adjacent faces of the spaced portions of the strips **115** and **116**, but which as a result of applicant's method, become an integral portion of the clip. Hence there results an integral clip as if formed of a single piece of material yet having an adhesive characteristic at one side and a non-adhesive gripping portion at its other side.

The clipping portion **17** may be variously positioned relative to the clip. It has been found to be practical to have it face outwardly adjacent one end portion of said clip.

With reference to FIG. 9, a modified form of appli-

cant's device 10 is shown indicated generally by the reference character 10' and in which portions identical to those of the device 10 are indicated by like characters with a prime added. Hence the device 10' comprises a main body portion 12' having a backing portion 11 formed of a flexible relatively soft sheet of plastic material on the order of polyvinyl chloride and having a polished back surface 13'. Said body portion 12' has a facing portion 15 of a substantially rigid yet somewhat resilient plastic material having a spring-like characteristic. Said facing portion overlies completely said backing portion. The outer surface of said facing portion has a non-adhesive characteristic. The addition of this rigid sheet represents the modification of applicant's device, as set forth in the method steps of FIGS. 1–4.

A strip portion 17' of material like that of said facing portion 15 and of the same width overlies a portion thereof being integral therewith and having a portion 22' spaced from said portion 15 to form therebetween an open-ended slot 25'.

Thus said clip 10' in use forms a substantially rigid member in being placed in operating position as on the surface of a window and with a sheet of material being frictionally engaged within said slot 25' there is a lesser tendency for this clip to be pulled away from the mounting surface or from the window than has been found to be true in the case of the device 10. It is obvious that the portion 22' which forms an open-ended slot in connection with the rigid facing portion 15 may be positioned at any desirable point in overlying said portion 15. In practice it has been found to be satisfactory to have the portion 22' somewhat centrally located longitudinally of the clip 10'.

The method used for forming this clip is substantially the same as the method set forth in connection with forming the holding member 10. The changes necessary to be made in the forming member in connection with the method above set forth are obvious changes and it is not believed necessary to set forth the specific steps in forming the holding member 10'.

With reference to FIGS. 10–14, a further modification of applicant's device is shown. Although the holding effect of applicant's device in the embodiments above presented have been satisfactory in use, yet the applicant has found that with a somewhat more expensive type of construction a superior holding device may be formed. The embodiments above presented provide unusually good holding effect with reference to a straight pull or strain in the same direction as the plane of the holding surface of the device, but the holding effect could be improved as against strain at an angle away from the plane of the holding surface, such as in a pulling effect, as pulling the device away from the surface upon which it is mounted. Such a strain could be caused by the movement of the sign or display being held by the device, such as might be caused by a draft of air. The applicant presents a modification therefore which provides an unusually good holding effect as against any tendency for drawing the device in a direction away from the holding surface.

In the description of the method in connection with this modification of applicant's device, the same reference characters will be used for identical parts, as indicated in FIGS. 1–3. Applicant's modified method embodies the use of the press indicated in FIG. 1 with the cushions 103 and 121 and the polished plates 104 and 120. Overlying the plate 104 is the sheet of flexible plastic material 105 and overlying the same is a rigid sheet 106 of plastic material. This step is in accordance with the device indicated in FIG. 9.

Next, overlying a central longitudinal portion of the sheet 106 is a spacer strip 107 preferably of a thickness of .001 inch and having a substantially higher heating point than the adjacent material forming the device. Overlying said spacer strip 107 and extending the full length of the sheet 106 is a sheet of plastic material 117. Said sheet 117 may be formed of a flexible or rigid sheet material as may be desired, although a rigid sheet has been found to give a somewhat more satisfactory result. Overlying a central longitudinal portion of said sheet 117 are the rigid strips 115 and 116. As indicated, the strip 115 is somewhat wider than the strip 116, but it will be at its maximum length somewhat shorter in length than said spacer strip 107. The forming member 108 separates said strips 115 and 116 except for an overlying edge portion, and the remainder of said forming member 108 overlies the exposed portion of the strip 117 at the right-hand side thereof, as indicated in FIG. 10. The spacer strip 114 is positioned to overlie the exposed portion of the strip 117 at the left-hand side thereof and to abut the overlying edge portions of said strips 115 and 116. Thus the members 108, 116 and 114 form a coplanar upper surface.

The same treatment of heat and pressure is applied here as described in connection with the first embodiment of applicant's device presented. Applicant's device is initially in the form of an elongated strip similar to what is shown in FIGS. 2–4 and the end view of said strip is shown in FIG. 11 with the forming members in position. FIG. 12 is intended to indicate the end view of an individual of applicant's device after having been severed from a strip such as the one shown in FIG. 4. Said individual device is indicated generally by the reference character 35. With a method for forming applicant's device having been indicated, the characterisitcs of applicant's device as a unitary product are here set forth. The device 35 therefore comprises a flexible pressure sensitive adhesive surface portion 36, and overlying the same is an upper portion of a substantially rigid non-adhesive yet somewhat flexible portion 37. This is a unitary solid piece of material having one characteristic at one side thereof and a substantially different characteristic at the other side thereof. The rigid material is used to provide body for the device.

Centrally longitudinally of said portion 37 and extending transversely therethrough is a slot 39 which in effect forms a flap portion 38 which is connected at either end. Aligned somewhat centrally above said slot 39 and unitary with said flap portion 38 is a substantially rigid yet somewhat flexible non-adhesive gripping or holding portion 40 having an open-ended slot 41 extending transversely therethrough and having an underlying portion 42 extending forwardly of the upper portion 43. Said portions 42 and 43 in effect form the jaws or the gripping portion of applicant's device. Said portion 42 will be of a length which may extend just short of the length of said slot 39. Said slot 41 will have a spacing preferably on the order of .003 inch. The dotted lines in FIG. 12 indicate generally the various portions described, which in applicant's product have become bonded to form a unitary device so that to all appearances there is no line of demarkation between the various portions of applicant's device having different characteristics.

Referring to FIGS. 12 and 13, applicant's device 35 is shown in operating position. Said device may be first mounted on a surface, such as a window 46, and is secured merely by the use of finger pressure. The portion 40 in overlying the flap portion 38 is subject to some degree of movement without disturbing the surface 36 adhering to said window. Further any tension or strain placed on said device as a result of inserting a work piece 45 between the jaws 42 and 43 is at the central longitudinal portion of the device which is the most securely held portion of said device so far as being drawn in a direction away from the mounting surface is concerned. This is compared to the device 10 having the open end of the slot 25 adjacent the end of the device. Here a prying effect on the portion 22 in inserting a work piece tends to lift up the adjacent end portion of the device away from the mounting surface. Once a small degree of separation is present, the holding effect of the device as a whole is substantially weakened. To this extent the structure of

the device 35 is substantially superior to the structures of both the devices 10 and 10'.

Although said flap portion has been indicated as being formed of substantially rigid material, it may well be formed of a flexible material whereby a somewhat greater degree of free movement or play is present in the flap portion 39 without disturbing the holding effect of said surface 36. To accomplish this, the layer of material 117 as indicated in the suggested method in connection with FIG. 10 would be formed of flexible material instead of with rigid material.

It will of course be understood that various changes may be made in the form, details, arrangement and proportions of the device and in the steps and sequence of steps of the method without departing from the scope of applicant's invention, which, generally stated, consists in a method and device capable of carrying out the objects above set forth, such as disclosed and defined in the appended claims.

What is claimed is:

1. The method for forming a clip of the type described consisting of the steps of providing a strip of flexible material having a pressure sensitive adhesive surface, overlying said strip with a strip of rigid somewhat resilient material, spacing an upper longitudinal portion of said second mentioned strip from an underlying portion thereof by a removable spacer extending thereacross, overlying said longitudinal portion of said second strip with a pair of superposed substantially rigid plate members with the lower of said plate members extending forwardly of the upper plate member thereof, spacing an end portion of the upper of said plate members from said underlying plate member, heating said overlying portions under pressure to bond the same together to form a unitary member and removing said removable spacer to form an open-ended slot beneath said plate member.

2. A device forming a clip of the type described comprising a body portion formed as an elongated strip of material having one side thereof adhesive to a polished surface, there being a slot substantially centrally longitudinally of said body portion extending transversely therethrough, and a substantially rigid somewhat resilient transversely bifurcated portion overlying the other side of said body portion and overlying a vertical extension of said slot forming an open ended slot.

3. A device forming a clip of the type described comprising a body portion formed as an elongated strip of material having one side thereof adhesive to a polished surface, there being a slot extending transversely through said body portion, and a substantially rigid somewhat resilient transversely bifurcated portion overlying the other side of said body portion and overlying a vertical extension of said slot and forming an open-ended slot.

4. A device forming a clip of the type described comprising a body portion formed as an elongated strip of material having one side thereof adhesive to a polished surface, there being a slot partially across said body portion extending therethrough and a substantially rigid member aligned with said slot having jaws and being carried by said body portion.

5. A device forming a clip of the type described comprising a body portion formed as an elongated strip of material having one side thereof adhesive to a polished surface, there being a slot partially across said body portion extending therethrough, and means carried by said body portion aligned with said slot and comprising a jaw portion.

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