May 11, 1965 J. T. PURDY 3,183,136

METHOD OF MAKING PLASTIC CARD HOLDER MEANS

Filed June 14, 1961 2 Sheets-Sheet 1

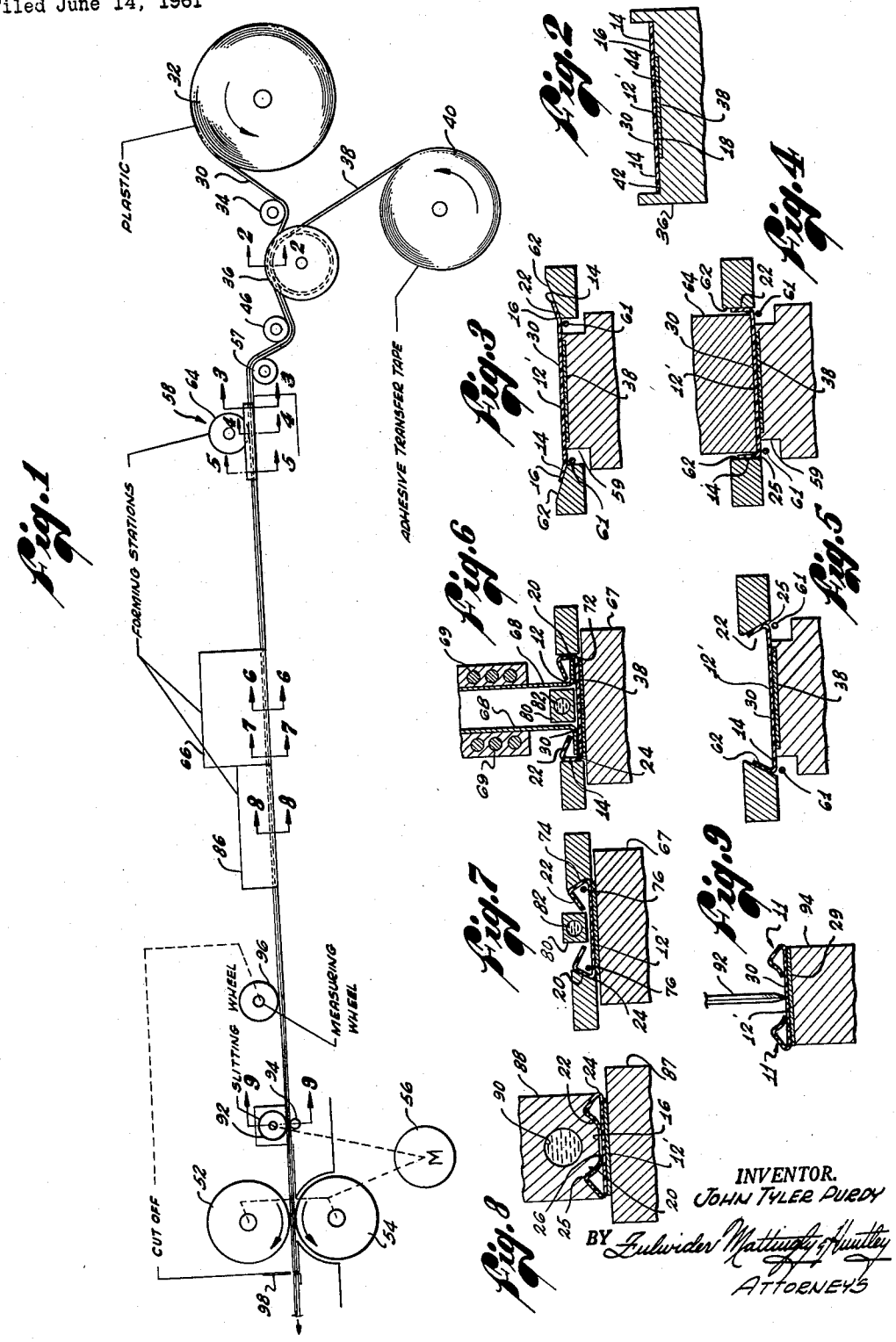


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

INVENTOR.
JOHN TYLER PURDY
BY Fulwider Mattingly & Huntley
ATTORNEYS

May 11, 1965 J. T. PURDY 3,183,136

METHOD OF MAKING PLASTIC CARD HOLDER MEANS

Filed June 14, 1961 2 Sheets-Sheet 2

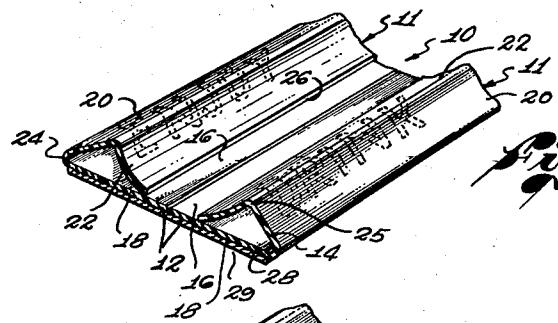


Fig. 10

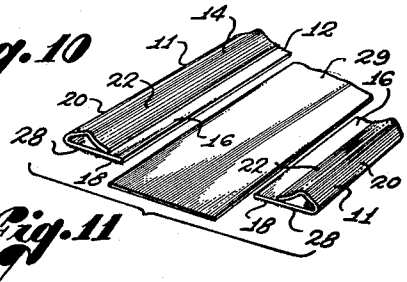


Fig. 11

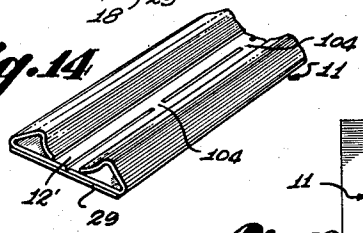


Fig. 14

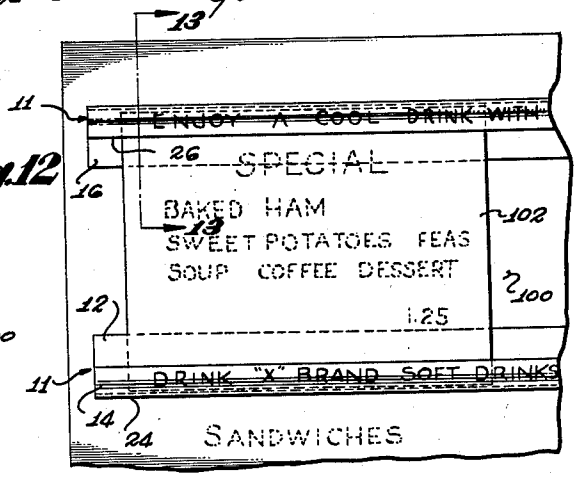


Fig. 12

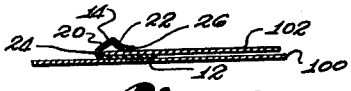


Fig. 13

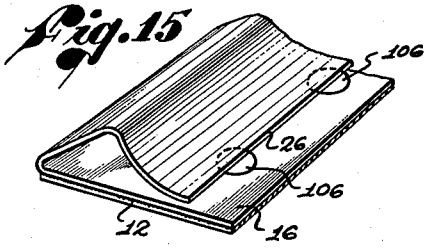


Fig. 15

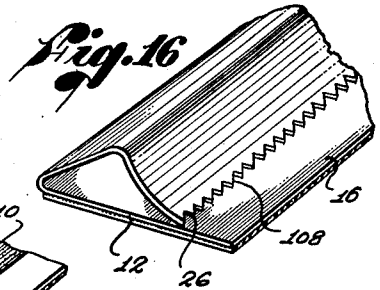


Fig. 16

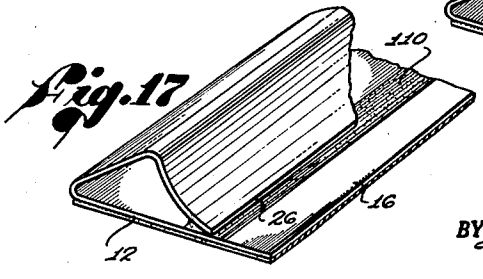


Fig. 17

INVENTOR.
JOHN TYLER PURDY
BY Fulwider Mattingly & Huntley
ATTORNEYS

United States Patent Office 3,183,136 Patented May 11, 1965

3,183,136

METHOD OF MAKING PLASTIC CARD HOLDER MEANS

John Tyler Purdy, Whittier, Calif., assignor to Modern Toy, Inc., Studio City, Calif., a corporation of California

Filed June 14, 1961, Ser. No. 117,115
8 Claims. (Cl. 156—202)

This invention relates generally to card holder means of the type which are adapted to be attached to a mounting surface for supporting a card, photograph, or the like, thereon and to a method of economically making the same.

It is desirable in the case of holder means of this general type that they be provided in matched or cooperating pairs. This is true for the reason that normally they are most often used in that manner, one opposite the other to support a card or the like between them.

Further, it is desirable that the individual holder means or strips be provided with attaching means, such as pressure-sensitive adhesive, in order that they readily may be attached to an appropriate mounting surface.

Another desirable feature of card holder means of the present type is that printing, such as an advertisement, identification symbols, or designs, be applied to the exposed marginal holding portions of the individual holder means.

Various attempts have been made in the past to provide card holder means having all of the aforementioned features. These attempts have been largely unsuccessful for several reasons. To begin with, no satisfactory method was developed prior to the present invention for economically supplying the holder means in matched pairs. It will be appreciated that supplying them in this manner becomes especially important when printing is applied to the exposed marginal holding portions. This is true as continuity is often required between the symbols on the individual holder means of a given matched pair.

Another problem with previous attempts to provide a suitable holder means involved the application of pressure-sensitive adhesive to a surface of the holder means and the protection of that adhesive once it was applied.

Problems were also encountered in the past in connection with applying printing to the exposed marginal holding portion of the holder means. Attempts were made to apply the printing both before and after formation of the holder means and both were unsuccessful. When the printing was applied prior to formation, it was so marred or scratched during the formation process that the end result was unsatisfactory. On the other hand, when the printing was applied after formation, the process was so costly as not to be economically feasible.

Still another problem encountered in the prior art was that cracks developed at the sharp bends in the holder means.

With the foregoing in mind, it is a primary object of the present invention to provide a holder means of the type described and a method of making the same, which holder means and method obviate the above-discussed problems of the prior art.

Another object of the invention is to provide holder means in matched or cooperating pairs, the individual holder means or strips of a given pair being readily separable from one another for use at any desired spacing or orientation relative to one another.

A further object of the invention is to provide a method of economically making matched or cooperating pairs of holder means of the type described from elongated thermoplastic strip material.

Still another object is to provide holder means which

has a positive gripping action, yet which has no tendency to break or crack either during or after the forming operations.

Still another object is to provide a method of making holder means of the type described from an elongated and flat strip of transparent plastic material in which printing is applied to the exposed marginal holding portion of the strip prior to forming of the holder means, yet in which the quality of the printing is in no way impaired during forming.

A somewhat related object is to provide holder means having printing on its exposed marginal holding portion, the printing being clearly visible yet effectively protected against scratching and marring during use of the holder means.

Another object is to provide a method of making holder means of the type described, in which the adhesive and protective backing are applied both uniformly and smoothly to an appropriate surface of the holder means.

A still further object is to provide a method of forming matched pairs of individual holder means from an elongated and flat strip of thermoplastic material in which the lateral forces applied to the material during forming are balanced at all times.

These and other objects and advantages of the invention will be better understood by referring to the following detailed description taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a semi-schematic view of a system for carrying out the method of the invention;

FIGURES 2 through 9 are partial sections of the apparatus of FIGURE 1, taken at successive stages as indicated by the respective section lines in FIGURE 1.

FIGURE 10 is a perspective view of the holder means of the invention;

FIGURE 11 is a perspective view, similar to FIGURE 9, except that the individual holder means or strips of a matched or cooperating pair are separated for use;

FIGURE 12 is a front elevational view of one application of the holder means of the invention;

FIGURE 13 is a partial section taken on the line 13—13 of FIGURE 12; and

FIGURES 14 through 17 are perspective views of modified forms of the holder means.

Referring to FIGURE 10, numeral 10 indicates generally the holder means of the invention. Preferably, it is constructed primarily of thermoplastic material which is transparent, resilient and relatively stiff. Thermoplastics readily lend themselves to forming or shaping by the method of the invention. One of their characteristics is that they may be softened by heat and then shaped or formed; and, when cooled, they retain their new shape. Moreover, such heating and forming in no way affects the desirable physical properties of the material.

One thermoplastic which is particularly well suited for the present use is cellulose triacetate, which softens at approximately 300 to 400° F.

The holder means of the invention, illustrated in FIGURE 10, includes a matched or cooperating pair of individual holder means or strips 11. Each strip 11 comprises a planar mounting portion 12 and a marginal holding portion 14. The mounting portions 12 of the cooperating strips 11 are arranged in coplanar relation with one pair of edges contiguous. For convenience of reference, the mounting portions 12 will be understood to have upper and lower surfaces 16 and 18, respectively.

The holding portion 14 of each individual holder means or strip 11 includes, in series, a first flange or inner section 20 and a second flange or outer section 22. The terms outer and inner are used with reference to the flat plastic strip material prior to formation of the holding

portion 14, and not with reference to the final product.

The first flange 20 is bent upwardly and inwardly from the mounting portion 12 at an acute angle thereto. In order to prevent cracking or splitting at the bend 24, the radius of curvature is preferably at least several times greater than the thickness of the plastic material. The method of making such a bend will be described in detail below.

The second flange 22 of the holding portion 14 is bent downwardly and inwardly at approximately a right angle bend 25 from the first flange 20. The terminal edge or lip 26 of the second flange 22 normally rests contiguous the upper surface 16 of the mounting portion 12. In order that the desired gripping action will be provided, the edge 26 is preferably maintained in pressural engagement with the surface 16. Such pressural engagement is maintained by the spring action at the bend 24. It has been found that even more positive gripping may be effected by making the second flange 22 just slightly longer than the first flange 20, and, in addition, slightly concave toward the upper surface 16 of the mounting portion 12.

It is desirable, as discussed above, that means be provided on the holder means adapted to adhere to a suitable mounting surface. To this end, adhesive 28 is applied to the lower surface 18 of the mounting portion 12 of each strip. In order to protect the adhesive prior to use of the holder means, backing 29 (FIGURE 11) is applied. The backing 29 not only serves to protect the adhesive, but also to maintain the cooperating strips 11 in their relative positions shown in FIGURE 10 and described above.

It is often desirable that printing be applied to the exposed, marginal holding portions 14 of the strips. As suggested previously, such printing may be in the form of an advertisement, as illustrated in FIGURE 12. In the case of the holder means of the invention, the printing is applied in reverse to the inside surface of the holding portion 14, i.e., the surface of the holding portion adjacent the upper surface of the mounting portion 12. In such a position, the printing is clearly visible through the transparent plastic and protected against scratching or marring during use of the holder means. The method of providing holder means with printing at this location is explained below.

An illustrative system for carrying out the method of the invention to produce the holder means 10 described above is shown semi-schematically in FIGURE 1. Thermoplastic strip or sheet material 30, preferably cellulose triacetate, is fed from a supply roller 32. From the supply roller 32, the material passes around an idler drum 34 to a tape-applying roller 36.

Composite adhesive transfer tape 38 comprising pressure-sensitive adhesive 28 and protective backing 29 is fed from a roller 40 to the tape-applying roller 36. Referring to FIGURE 2, the roller 36 has a first annular groove 42 in its periphery of a width just equal to that of the plastic strip material 30 and is adapted to receive that material. Sunk in the bottom wall of the first groove 42 at a central location, is a second annular groove 44 of a width just equal to that of the transfer tape 38 of a depth substantially equal to the thickness of the transfer tape 38. The second groove 44 receives the tape 38.

Both the transfer tape 38 and the plastic strip material 30 are maintained in pressural engagement with the tape-applying roller 36 by means of idler drums 34 and 46. By virtue of this pressural engagement, the adhesive on the transfer tape 38 is caused to adhere to the lower surface 18 of the plastic material 30 at the desired location. The adhesive 28 and the protective backing 30 could, of course, be applied in separate operations. However, from an economical standpoint, it is advantageous to apply them in a single operation, as set forth.

The central portion 12' of the plastic material 30 congruent with the transfer tape 38 corresponds to an adjacent pair of mounting portions 12 in the final product.

Similarly, marginal edge portions outwardly of the opposite edges of the tape 38 correspond to the marginal holding portions 14. To simplify the description, these marginal edge portions are referred to as marginal holding portions 14, though they are still to be formed into the shapes previously described in the remaining steps of the method.

The plastic strip material 30 supplied has reverse printing applied to the upper surfaces 16 of the marginal edge portions 14. The printing is applied to that surface in reverse so that it may be read through the transparent plastic when the marginal holding portions are folded over. Moreover, it must be applied in a manner such that the printing on both portions 14 is right side up, i.e., is readable from one side, when the individual strips are arranged in their relative positions for use, as illustrated in FIGURE 12.

The plastic strip material 30 mounting the transfer tape 38 is pulled off the respective rollers 32 and 40 and through the various forming stations by a cooperating pair of drive rollers 52 and 54, which, in turn, are powered by a suitable motor 56. As illustrated, the cooperating rollers 52 and 54 are vertically spaced apart and arranged for rotation about horizontal axes. Their peripheral surfaces frictionally engage the opposite faces of the materials and move them in the directions indicated by the arrows in FIGURE 1.

In the forming process the plastic strip material 30, mounting the transfer tape 38, passes from the tape-applying roller 36 over idler drums 46 and 57 to a first forming station 58. At this station 58, as illustrated in FIGURES 3, 4 and 5, a platen 59 supports the combined material 30 and tape 38. Prior to forming the marginal holding portions 14 are heated locally at their central regions. These regions are heated by bar type heaters 61, positioned on opposite sides of the platen, to a temperature at which the particular thermoplastic softens (300 to 400° F. for cellulose triacetate).

Outer sections 22 of the heated, marginal holding portions 14 are then bent upwardly at approximately right angles to the central portion 12' at the forming station 58. Bending is accomplished by passing the outer sections 22, each of which makes up approximately one-half the width of its holding portion 14, over forming ramps 62. The ramps 62 slope gradually upwardly from a generally horizontal orientation, as in FIGURE 3, to a generally vertical orientation, as in FIGURE 4. A guide roller 64 is provided opposite the platen 59 to maintain the holding portions 14 in pressural engagement with the forming ramp 62.

Preferably, these first bends 25 are slightly over-formed for reasons that will later be explained. That is, the outer sections 22 are bent inwardly at acute angles to the central portion 12', even though bends 25 are approximately right angles in the final product. Referring to FIGURE 5, the over-forming is performed by extending forming ramps 62 sloping them inwardly. It will be noted that heating continues during this final phase of forming at the station 58. This is to insure that the holding portions 14 retain their new shape and do not resiliently spring back to their original flat configuration, or crack or split at the bend 25 during forming.

The partially formed material moves from the station 58 to the station 66, where further forming takes place. During such movement, the marginal holding portions 14 cool somewhat so that they retain their new shapes. At this latter station 66, a platen 67 supports the material. Heat is first applied to the thermoplastic material 30 adjacent the junctions of the marginal holding portions 14 and the central portion 12'. Heating is here achieved by conduction through a pair of L-shaped members 68, having lower legs which contact the central portion 12' of the plastic strip material. The members 68 are in turn heated by conventional bar type heaters 69.

After locally heating the thermoplastic material to a temperature at which it softens, inner sections 20 of the marginal holding portions 14 are bent upwardly at approximately right angles to the central portion 12'. A pair of forming ramps 72, illustrated in FIGURE 6 and similar to those of FIGURES 3 and 4, are incorporated to make this bend. In this case, the lower legs of the heater member 68 serve to maintain the strip material 30 in pressural engagement with the forming ramps 72.

As discussed above, the outer section or second flange 22 of each holding portion 14 is preferably slightly longer than the inner section or first flange 22, so as to afford more positive gripping.

Further forming takes place at station 66 as inner sections 20 of the holding portion 14 are bent inwardly at acute angles to the central portion 12'. Apparatus for so forming the bend 24 between the inner sections 20 of the marginal holding portions 14 and the central portion 12', is illustrated in FIGURE 7. Referring to that figure, the apparatus includes forming ramps 74, shaped in accordance with the desired contour of the bend.

Heat is continually applied during this phase of forming by the cylindrical rods 76, which comprise extensions of the heater members 68 of FIGURE 6. It has been found that by positioning the heater rods 76 inside the bend 24, i.e., between the upper surface of the central portion 12' and the inside or lower surface of the holding portions 14, and by providing a relatively large radius of curvature at the lower corners of the forming ramps 74, it is possible to provide the bend 24 with the relatively large radius of curvature desired.

During forming at the stations 66, the central portion 12' is cooled as heat is being applied in the outer regions where forming is taking place. Cooling serves to insure that the portion 12' is in no way deformed and also to prevent the adhesive transfer tape on the lower surface of the central portion 12' from being damaged. Referrring to FIGURES 6 and 7, cooling blocks 80 are provided above the platen 67, so as to engage the central portion 12' as it passes therebetween. Water or any other suitable coolant is circulated through a conducting channel 82 of the block 80 to effect cooling.

Final formation of the marginal holding portions 14 takes place at the forming station 86, which, in essence, is a continuation of station 66. At this last station, the material passes between a platen 87 and a forming block 88, shaped in accordance with the desired shape of the final product. During final formation, the terminal edge 26 of each of the marginal holding portions 14, is urged into pressural engagement with the upper surface 16 of the central portion 12'. This results in reducing the extent of the acute angle at the bend 24 and further opening the angle at the bend 25 to approximately a right angle. Further, it is at this station 86 that the outer section or second flange 22 is shaped slightly concave toward the upper surface 16 of the central portion 12', the advantage of such a shape having been set forth above. The concave shape results by virtue of the edges 26 being forced against the surface 16 by block 88 which has corresponding convex forming portions.

It has been found that the marginal holding portions 14 are sufficiently heated at the previous forming station 66, so that no further heating is required at the present station 86. In fact, it is beneficial to cool the forming block 88 by providing a cooling passage 90 and circulating coolant therethrough. Cooling is desirous at this stage of the process in order that the edges 26 will stay in pressural engagement with the central portion 12' when the formed holder means emerges from the confines of the platen 87 and block 88. As previously discussed, it is the spring action developed at the bend 24 which affords positive gripping action.

In retrospect, the forming of holding portions 14 takes place without any of the forming apparatus slidably contacting the inside surface (upper surface 16 prior to forming) of the holding portions 14. This is particularly significant as that inside surface has printing thereon and must be protected. As the product emerges from forming station 86, the holding portions 14 are completely formed and the printing is readily visible through the transparent plastic material.

In order that the holder means may be used to mount any size card or the like, it is provided in separable strips, as illustrated in FIGURE 10 and explained above. The central portion 12' is slit centrally along its length by the wheel 92, shown in FIGURES 1 and 9. The slitting wheel 92 is adjusted relative to an opposed guide drum 94 so as to cut only the plastic material 30 and not the protective backing 29. Once the central portion 12' is slit the individual holder means 11 are completely formed and ready for use.

Rather than slitting clear through the plastic material, it may be advantageous in certain instances to merely produce a zone of weakness in the central portion 12'. This may be achieved by slitting just partially through the plastic at some stage of the method. When it is desired to separate the strips, they are simply flexed to complete the slit.

It is frequently desired that the holder means be cut in predetermined lengths. One method of accomplishing this cutting is to provide a measuring wheel 96 at some point in the system in cooperation with a cutoff mechanism 98, located at the end of the system. As the holder means or material being formed moves past the measuring wheel 96 in the forming process, the wheel is caused to rotate. After a predetermined angular movement, the measuring wheel activates the mechanism 98 which cuts off a length of the product.

The method of the invention is highly advantageous for several reasons. For instance, the lateral forces acting on the plastic strip material 30 are balanced at all times during formation. This is advantageous as it elimintes the problem of maintaining the material in position as it is being formed. Another advantage results from applying the composite transfer tape 38 to the plastic strip material at the beginning of the process. As heat and forming pressure are applied to the thermoplastic material at the various forming stations 58, 66 and 86, the adhesive is caused to adhere uniformly to the material 30. Still another advantage is that by the method of the invention, continuity may be maintained between the printing on the holding portions 14 of a given matched pair of individual holder means. This is true for the reason that the printing will occupy the same position in the final product as it did on the original flat plastic strip material. Thus, no matching of individual holder means is necessary.

The holder means are not put to use by separating the individual strips 11 from the backing 29, as illustrated in FIGURE 11. A feature of the invention is that the individual holder means or strips may be quickly and easily separated from the backing 29 by applying force to one of them to peel the backing off the other. It will be appreciated that this is a considerable advantage over prior holder means where backing is provided on a single piece and a tab or corner must be turned up with the fingernail in order to remove the backing.

Once the backing 29 is removed, the individual strips are pressed onto a mounting surface, such as the menu 100, illustrated in FIGURE 12, at the desired spacing from one another. A card 102, or the like, is then inserted between the terminal edge 26 of the holding portion 14 and the upper surface 16 of the mounting portion 12 of each strip 11. By virtue of the spring action at the bend 24, card 102 is resiliently gripped in its mounted position in the manner illustrated in FIGURE 13. Although this one application has been chosen by way of illustration, it will be apparent that there are

many ways in which the card holder means of the invention can be used to advantage.

In some applications it may be desirable to use the holder means in their unseparated condition, that is in the positions the individual holder means or strips **11** occupy in FIGURES 10 and 14. In order that this spacing may be maintained even when the backing **29** is removed, the central portion **12'** is slit only intermittently, rather than continuously, during the forming process. When the central portion **12'** is slit in this manner, tabs **104** extend between the mounting portions of the respective strips **11** in the manner illustrated in FIGURE 14. An advantageous feature of this embodiment of the holder means is that if it should be desired to separate the individual strips **11** to a wider spacing, they are simply bent relative to one another to break the tabs **104**, whereupon they are free to be arranged at any desired spacing or orientation to one another.

Another manner of providing individual holder means which are temporarily joined together after removal of the protective backing, is to slit the central portion **12'** only partially through as explained above.

In a situation where a relatively thin and flexible card is to be supported by the holder means, or where that card is to be inserted and removed frequently it is desirable to provide means for facilitating the insertion of the card. As is evident, the terminal edge **26** of each holding portion **14** necessarily pressurally engages the upper surface **16** of the mounting portion **12** if the required gripping action is provided. Because of the pressural engagement with the flat surface **16** of the mounting portion **12**, it is somewhat difficult to get a relatively thin and flexible card started between the edge **26** and the opposed surface **16**. The modified forms of the invention illustrated in FIGURES 15 and 16, are intended to facilitate this operation.

The embodiment of the holder means illustrated in FIGURE 15 incorporates a plurality of upwardly projecting dimples **106** at longitudinally spaced positions on the mounting portion **12**. These dimples **106** are in registry with the edge **26** of the holder portion **14** and are adapted to space that edge away from the surface **16**. A card to be supported in this case is entered between the gripping edge **26** and surface **16** by inserting its corner between them at a location intermediate adjacent dimples **106**. These dimples may be readily formed in the central portion **12** of the plastic strip material **30** prior to application of the transfer tape **38**.

Another embodiment of the holder means for accomplishing the same result is illustrated in FIGURE 16. In this latter case, the terminal edge **26** is serrated as at **108**. The card is inserted into the space provided by one of the cutaway sections of the serrations **108** so as to start it between the cooperating edge and surface.

In some instances even more positive gripping than is afforded by the preferred embodiment of the holder means is desired. This may be achieved by roughening the surface **16**, as at **110** in FIGURE 17, in the region opposite the terminal edge **26** of the holding portion **14**. Such roughening serves to increase the coefficient of friction of the surface **16** and, hence, to reduce the tendency of a card or other object being gripped from inadvertently slipping from its held position. Roughening of the surface **16** may be accomplished prior to forming the holder means.

Although certain embodiments of the invention are described in detail, as is one system for carrying out the method of the invention, it will be understood that this is by way of example and various changes in the construction and arrangement of the holder means and in the system for carrying out the method, may be made without departing from the spirit and scope of the invention.

I claim:

1. A method of making card holder means from an elongated strip of resilient and stiff, thermoplastic material including the steps of: applying composite transfer tape comprising pressure-sensitive adhesive material with protective backing thereon to one surface of a central portion of said strip; thereafter heating marginal holding portions of said strip; bending outer sections of said heated, marginal holding portions upwardly and inwardly at acute angles to the central portion; thereafter bending inner sections of said heated, marginal holding portions upwardly and inwardly at acute angles to the central portion at locations adjacent the outer edges of said adhesive material, the terminal edges of said outer sections engaging the upper surface of said central portion during said last-mentioned bending; opening the angles between the associated outer and inner sections during said last-mentioned bending; and finally slitting in said central portion at least partially through approximately at its mid point along its length.

2. A method of making card holder means from an elongated strip of resilient and stiff, thermoplastic material having upper and lower surfaces, including the steps of: applying pressure-sensitive adhesive material to the lower surface of a central portion of said strip; applying protective backing to the adhesive material on the lower surface of said central portion; heating marginal holding portions of said strip to a temperature at which the material softens but does not fuse; bending outer sections of the heated, marginal holding portions of a predetermined width upwardly and inwardly at acute angles to the central portion; bending inner sections of the heated, marginal holding portions of a width less than said predetermined width upwardly and inwardly at acute angles to said central portion, the terminal edges of said outer sections pressurally engaging the upper surface of said central portion during said last-mentioned bending; opening the acute angles between the associated outer and inner sections to at least a right angle during said last-mentioned bending; forming said outer sections slightly concave toward said central portion during said last-mentioned bending; and slitting through said central portion, centrally along its length.

3. A method of making card holder means of the type described from an elongated strip of resilient and stiff formable plastic material having upper and lower surfaces, including the sequential steps of: rolling composite transfer tape comprising pressure-sensitive adhesive material with protective backing thereon onto the lower surface of a central portion of said strip; bending marginal holding portions of said strip upwardly and inwardly and then downwardly toward said central portion to pressurally engage the outer edges of said marginal holding portions with the upper surface of said central portion; and slitting said central portion substantially at its mid point intermittently along its length.

4. A method of making card holder means of the type described from resilient and stiff, thermoplastic sheet material having upper and lower surfaces, including the steps of: rolling composite transfer tape comprising pressure-sensitive adhesive material with protective backing thereon onto the lower surface of a central portion of said sheet material; heating marginal holding portions of said sheet material to a predetermined temperature; bending outer sections of the heated, marginal holding portions upwardly and inwardly relative to said central portion; bending inner sections of the heated, marginal holding portions upwardly and inwardly at acute angles to said central portion, the terminal edges of said outer sections engaging said central portion during said last-mentioned bending; cooling said central portion during said last-mentioned bending; forming said inner sections slightly concave toward said central portion during said last-mentioned bending; and slitting said central portion at least partially through approximately at its mid point along its length.

5. A method of making card holder means of the type described from an elongated strip of transparent, resilient

and relatively stiff thermoplastic material having upper and lower surfaces, including the steps of: applying reverse printing to the upper surface of marginal holding portions of said strips; applying composite transfer tape comprising pressure-sensitive adhesive material with protective backing thereon to the lower surface of a central portion of said strip; heating said marginal holding portions; bending the outer sections of the heated, marginal holding portions upwardly; thereafter bending the inner sections of the heated, marginal holding portions upwardly and inwardly to pressurally engage the terminal edges of said outer sections with the upper surface of said central portion; and slitting said central portion centrally along its length by applying a cutting edge downwardly from said upper surface to cut through the thermoplastic material.

6. A method of making card holder means of the type described from an elongated strip of transparent, resilient and relatively stiff thermoplastic material having upper and lower surfaces, and a central portion bounded on its opposite sides by marginal holding portions, the method including the steps of: applying reverse printing to the upper surface of at least one of the marginal holding portions of said strips; rolling composite transfer tape comprising pressure-sensitive adhesive material with protective backing thereon onto the lower surface of the central portion of said strip; thereafter heating said marginal holding portions; bending the heated, marginal holding portions upwardly and inwardly and then downwardly to position the terminal edges of said holding portions contiguous at an upper surface of said central portion; and finally slitting said central portion centrally along its length.

7. A method of making card holder means of the type described from a flat and elongated strip of transparent, resilient and relatively stiff thermoplastic material of a substantially uniform thickness, the strip having upper and lower surfaces and a central portion and marginal holding portions, the method including the steps of: applying reverse printing to the upper surface of the marginal holding portions of said strip; applying pressure-sensitive adhesive material to the lower surface of the central portion of said strip; applying protective backing to the adhesive material on the lower surface of said central portion; thereafter heating said marginal holding portions; bending outer sections of the heated, marginal holding portions upwardly and inwardly at acute angles to the central portion; bending inner sections of the heated marginal holding portions upwardly and inwardly at acute angles to said central portion at a location substantially coincident with the junctions of the central portion and the respective marginal holding portions, the radii of curvature at said junctions being several times greater than the thickness of the material; opening the acute between the associated inner and outer sections to approximately right angles during said last-mentioned bending; and slitting said central portion centrally along its length by applying a cutting edge downwardly from said upper surface a distance substantially equal to, the thickness of the thermoplastic material.

8. A method of making card holder means from an elongated strip of resilient and relatively stiff plastic material having upper and lower surfaces, including the steps of: applying pressure-sensitive adhesive material to the lower surface of a central portion of said strip; applying protective backing to the adhesive material on the lower surface of said central portion; heating marginal holding portions of said strip; bending the heated, marginal holding portions upwardly and inwardly and then downwardly to position the terminal edges of said holding portions contiguous the upper surface of said central portion; forming a plurality of upwardly projecting dimples in said central portion at longitudinally spaced positions in registry with the terminal edges of said marginal holding portions so as to space said edges away from the upper surface of said central portion; and slitting said central portion centrally along its length.

References Cited by the Examiner

UNITED STATES PATENTS

1,931,333	10/33	Taylor	156—201
2,652,647	9/53	Suciu	40—10
2,935,804	5/60	Duckro	40—10
3,001,906	9/61	Capella et al.	156—201

FOREIGN PATENTS

491,464	3/53	Canada.

EARL M. BERGERT, *Primary Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,183,136 May 11, 1965

John Tyler Purdy

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 9, line 24, for "strips" read -- strip --; column 10, line 9, after "acute" insert -- angles --; line 14, strike out the comma.

Signed and sealed this 28th day of September 1965.

(SEAL)
Attest:

ERNEST W. SWIDER
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents