

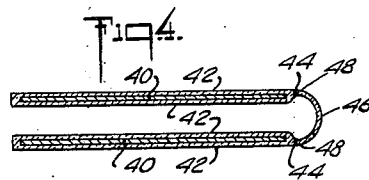
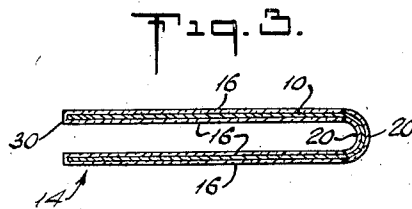
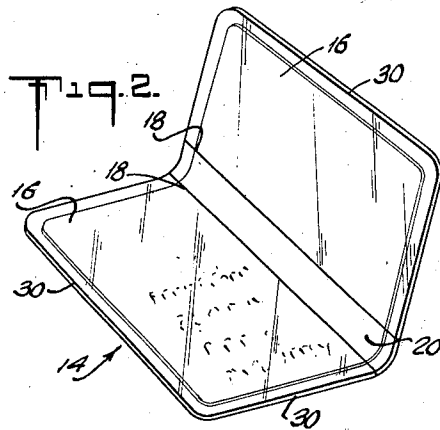
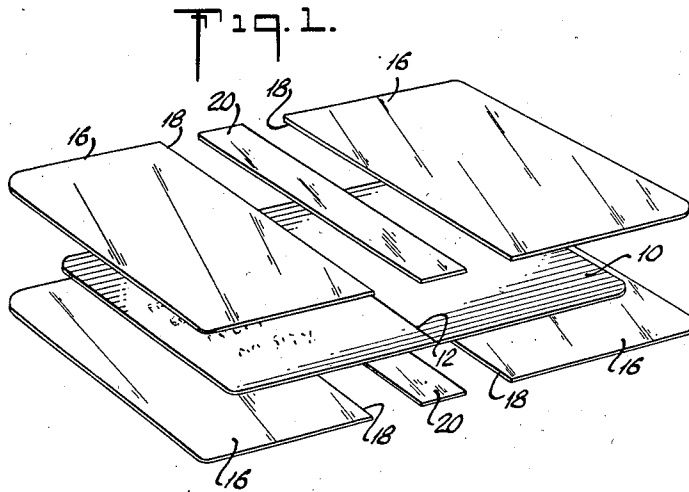
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CARD PROTECTING DEVICE AND METHOD OF MAKING SAME

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CARD PROTECTING DEVICE AND METHOD OF MAKING SAME

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6 Claims. (Cl. 150—39)

The present invention relates to an improved device for mounting and protecting documents, papers, cards and the like, and to an improved method of producing such device. More particularly, the present invention relates to an improved device providing a protective sealed transparent covering for papers, cards and the like which permits their folding along predetermined lines to afford easy handling, carrying and pocketing thereof.

Papers, cards and similar articles which must be carried on the person and often exhibited, such as identification cards and papers, drivers' licenses, permits, registration cards and the like, unless properly protected, are subjected to excessive wear particularly along fold lines, which reduces their legibility and necessitates their frequent replacement. It has been common practice to embed such articles in clear, rigid, transparent organic plastic by sandwiching the article between two sheets of the plastic and applying sufficient heat and pressure to fuse the abutting faces of the plastic sheets. While this ordinarily provides excellent protection to the article, this practice is not available when applied to large cards or papers, since the resulting device is likewise large, and may not be suitably folded to permit the convenient pocketing and carrying thereof.

It is thus a principal object of the present invention to provide an improved device for holding and protecting folded papers, cards and like articles.

Another object of the present invention is to provide an improved device for holding and protecting papers, cards and the like, permitting their folding for convenient handling and pocketing and carrying.

Still another object of the present invention is to provide an improved device for holding and protecting papers, cards and the like in a condition permitting their folding for convenient carrying while completely enclosing the same to minimize wear and deterioration and prevent tampering therewith.

A further object of the present invention is to provide an improved method of producing a protective sheath of papers, cards and like articles, said sheath being foldable along predetermined areas and relatively stiff elsewhere.

A still further object of the present invention is to provide an improved handy device for holding, protecting and preserving papers, cards and like articles in a condition permitting their convenient carrying and simple frequent exhibition without excess wear and deterioration of said articles.

The above and other objects of the present invention will become apparent from a reading of the following description taken in conjunction with the accompanying drawing wherein

Figure 1 is a perspective view of the component parts forming a preferred embodiment of the present invention prior to the fusion thereof;

Figure 2 is a perspective view of the component parts after assembly into the improved device hereof;

Figure 3 is a longitudinal sectional view through the device in folded condition; and

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Figure 4 is a view similar to Figure 3 of a modification of my invention.

The present invention broadly contemplates a device of the character above described including a pair of laterally spaced panels formed of a relatively rigid organic thermoplastic material, and having a pair of confronting edges and a strip of relatively flexible organic thermoplastic material having its opposite edges fused to said confronting edges to form a unitary integral device defined by the rigid panels hingedly joined by the flexible strip.

In accordance with a preferred form of the invention, the panels are of similar rectangular configuration having parallel confronting edges which are connected by a flexible, plastic strip in the manner described above. A card, paper or other article foldable along a predetermined line, or a pair of spaced cards, is embedded in the panels and connecting strip (as in the case of a single large card, paper, etc.), the fold line being located in the center of the flexible strip and extending parallel to its longitudinal axis. In fabricating the improved device, the pair of panels of rigid organic thermoplastic material are arranged coplanar and laterally spaced, with confronting parallel edges and a strip of flexible thermoplastic material is disposed between the panels with its side edges abutting the corresponding adjacent confronting edges of the panels. A card, paper or the like of less dimensions than the combined panels and flexible strip and having a foldable section, such as a fold line or area, is superimposed upon the panels and strips entirely within their periphery, the fold section coinciding with or falling upon the flexible strip. A second pair of panels and flexible strip is similarly arranged and superimposed upon the card or paper in vertical coincidence with the first pair of panels and flexible strip, and sufficient pressure and heat applied to the laminar assembly to fuse the plastic into a substantially unitary, integral mass, which is then cooled under pressure and thereafter removed.

The result is a card or paper embedded in a pair of rigid plastic panels connected by a strip of flexible plastic fused thereto to permit the folding of the resulting device only along a predetermined section.

An alternative and highly advantageous method of producing the improved final device includes the step of fusing the strip to and between corresponding pairs of panels to preform the upper and lower laminations previous to sandwiching the card or paper between these upper and lower laminations of panels and strips. Following the fabrication of the joined panels, the paper and card may be sandwiched between a pair of these, which are then fused as aforesaid.

Another method of producing the improved final device involves the embedment of a pair of cards each between a pair of panels, and the subsequent joining of the sandwiches by a single strip of flexible material.

Reference is now made to the drawing which illustrates a preferred embodiment of the present invention, and wherein reference numeral 10 generally designates a card or paper of rectangular configuration having a centrally located transverse fold line or section 12. The card 10 may be a license, permit, identification card, or a card or sheet carrying any desired intelligence, and is of a size which renders its pocketing and carrying inconvenient unless it is folded. The card 10 is fully embedded in and enclosed by a clear, transparent, organic thermoplastic folder 14 which includes a pair of rigid side panels 16 of similar rectangular shape joined along corresponding parallel edges 18 by a strip 20 of flexible, organic, thermoplastic material preferably of the same base as the material forming the panels 16, and edge-fused thereto

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to form a seamless joint. An example of a plastic which may be employed to great advantage is Vinylite, a vinyl acetate chloride copolymer. This plastic, as are many others, is commercially available in sheet form both in rigid and flexible types. The card 10 is so disposed in the folder 14 that the fold line 12 is located along the longitudinal axis of the flexible strip 20 and is of such size as to fit within a plastic border about the edge of the card 10.

In assembling the improved device in accordance with a preferred embodiment of the present invention, a conventional laminating press may be used such as is generally employed in plastic laminating of identification cards and the like. Two rectangular panels 16, 16 of a rigid organic thermoplastic material are laid flat upon suitable plates of conventional construction (not shown) so that their confronting edges 18, 18 are laterally spaced and parallel. A strip 20 of a flexible organic thermoplastic material of the same base as the panels 16, 16, or a thermoplastic material that will bind with or fuse to panels 16, 16, is placed upon the plate between the panels 16, 16 with side edges abutting the confronting edges 18, 18 of the panels 16, 16. The card 10 or other article to be embedded in the plastic folder is then superimposed upon the panels 16, 16 and strip 20 with fold line 12 extending along the longitudinal axis of the strip 20. A second pair of panels 16, 16 and a strip 20 of the same dimensions and properties as the panels and strip 16 and 20 are then laid over the card 10 in the same arrangement as and in verticle alignment with the panels and strip of the first pair.

Over the assembly of panels, strips and card is superimposed a second plate. Several layers of plates and assemblies of panels, strips and cards may be piled up and the resulting stack placed in the laminating press where adequate pressure and temperature are applied through heated platens for a sufficient time to fuse the cards and plastic assembly into a unitary integral folder as earlier described, with the card embedded therein and within the border 30. The stack is then cooled in the usual manner while under pressure. The pressure may then be released and the finished improved folders removed from between the plates, from which they are easily separated by virtue of the parting properties of the surfaces of said plates.

As a specific example, the panels 16, 16 and the strips 20 may be formed of Vinylite sheet, rigid and flexible types respectively, 0.010" thick. The dimensions of the panels 16, 16 are $2\frac{3}{4}$ ", the strips 20, $\frac{1}{2}$ " x 5", and the card 10 approximately $4\frac{3}{4}$ " x $5\frac{3}{4}$ ". The assemblies, with intermediate plates are stacked as many as six high and placed in a laminating press, whose platens are heated to a temperature of about 310°-315° F., and a pressure of approximately 350 pounds per square inch is applied to the plastic assemblies for a period of between 4 to 6 minutes. During this period, the plastic is heated to its melting or softening point, and under the pressure the plastic assemblies are completely fused. The stacked assemblies are then cooled while under pressure. A similar procedure may be employed when other plastics are fused modifying the pressures, temperatures and times accordingly.

As an alternative method, the pair of rigid panels and flexible strips may be preassembled and fused by various means, and the cards may be sandwiched between a pair of these assemblies and laminated or fused as above recited. Thus, in preparing the preassemblies, a flexible strip 20 and a pair of panels 16, 16 arranged as above set forth are sandwiched between successive polished plates in a stack which is heated under pressure in a laminating press under similar conditions, to fuse each set of panels and strip to form a simple folder. A card is then sandwiched between a pair of these folders and the assemblies fused and laminated by following the earlier described procedure.

Another form of my invention, as shown in Figure 4,

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is achieved by sandwiching a pair of cards 40, 40 between and within the marginal edges or borders of a pair of rectangular, similarly sized and shaped sheets of rigid organic thermoplastic material 42, 42. The sandwiches thus formed are placed in a laminating press with their confronting edges 44, 44, 48 spaced apart. An elongated narrow strip of flexible organic thermoplastic material 46 is then disposed between the sandwiches, with the side edges 48, 48 abutting the confronting edges 44, 44 of the sandwiches.

Thereafter, adequate pressure and temperature are applied, as above described, and the edge 44, 44 of said sandwiches are fused to the edges 48, 48 of the flexible strip 46 to form the assembly illustrated in Fig. 4.

While there has been illustrated and described herein preferred embodiments of the present invention, it is apparent that numerous alterations and omissions may be made without departing from the spirit thereof. For example, the inner and outer panels forming the assembly of the folder may be of different colors and of different degrees of transparency.

Having described my invention, what I claim and desire to secure by Letters Patent is:

1. The method of producing an improved folding device comprising laying a first pair of laterally spaced, relatively rigid organic thermoplastic panels and an intermediate abutting strip of relatively flexible thermoplastic material upon the surface of a first plate, superimposing upon said panels and strip a sheet of material having a fold section coinciding with said strip, superimposing upon said sheet a second pair of panels and strip similarly dimensioned, superimposing upon said article, panels and strips a second plate having a surface abutting said second panels and strip and applying sufficient temperature and pressure thereto to fuse said panels and strips into an integral unitary folder completely encasing said sheet.

2. The method in accordance with claim 1, wherein each of said pairs of panels and strip are first fused together before disposing said sheet between them.

3. A card protecting device comprising two panels, each formed of at least two layers of relatively rigid plastic material sealed one to the other about the edges thereof, and a relatively flexible strip of plastic material secured to corresponding edges of said panels whereby said panels are coupled one to the other and movable from a co-planar position to a position wherein said panels overlie one another in aligned relationship.

4. A protective card device comprising a pair of panels of relatively rigid transparent plastic material, a relatively flexible strip of plastic material joined along corresponding edges of said panels to form a substantially unitary structure, a second set of spaced panels of relatively rigid transparent plastic material, a relatively flexible strip of plastic material joining said second set of panels to form a second substantially unitary structure and means sealing said structures one to the other in overlying relationship to form said device into the relatively rigid composite panel members being flexibly joined and movable from a co-planar position to a position wherein said composite panel members overlie one another in predetermined alignment.

5. A method of producing an improved folding device comprising the steps of disposing a pair of panels formed of relatively rigid organic thermoplastic material in laterally spaced parallel relationship in abutment with the opposite longitudinal edges of a strip of relatively flexible organic material, placing a flat article on said panels and strip, disposing a second set of panels and a second flexible strip in abutting relationship overlying said article and in alignment with the first said panels and strip and then applying sufficient temperature and pressure to fuse said panels and strips to fully encase said article.

6. A protective device for flat articles comprising two coplanar laterally spaced panels of relatively rigid or-

ganic thermoplastic material, a strip of relatively flexible organic thermoplastic material integrally fused to adjoining edges of said panels and a cover panel of transparent sheet material individual to each panel sealed thereto in overlying relationship, each of said cover panels co-operating with its associated panel to form individual means for the retention of said articles.

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