July 10, 1962 H. ENGELSTEIN 3,043,737

TRANSPARENT SHEET PROTECTOR

Filed May 6, 1957 2 Sheets-Sheet 1

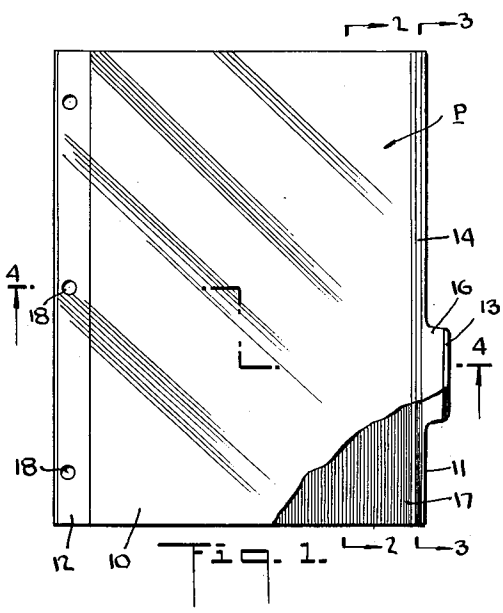


Fig. 1.

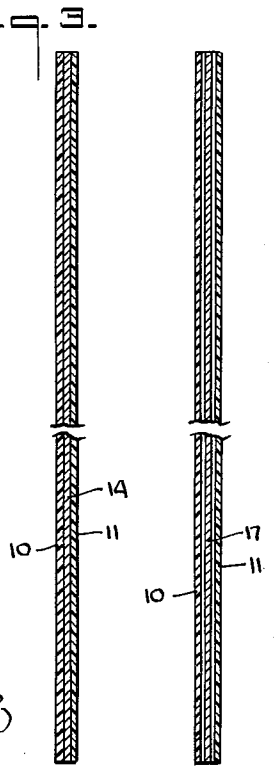


Fig. 2.

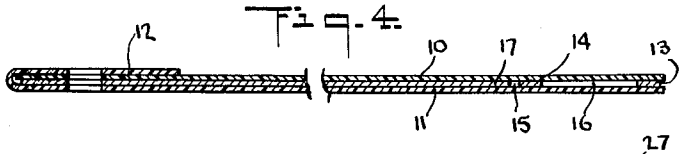


Fig. 4.

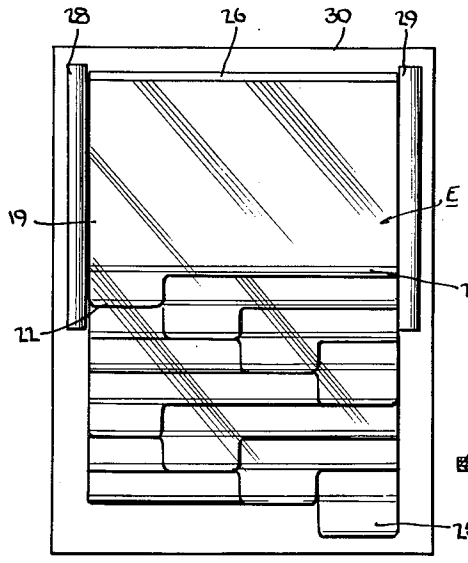


Fig. 5.

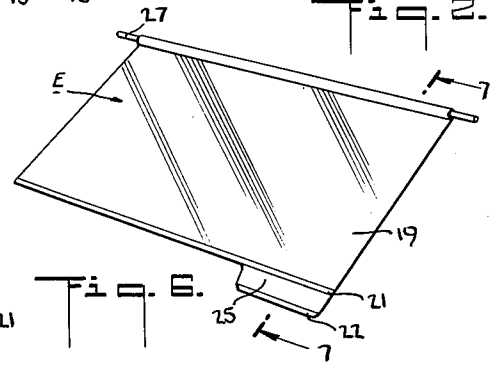


Fig. 6.

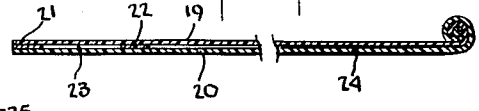


Fig. 7.

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TRANSPARENT SHEET PROTECTOR

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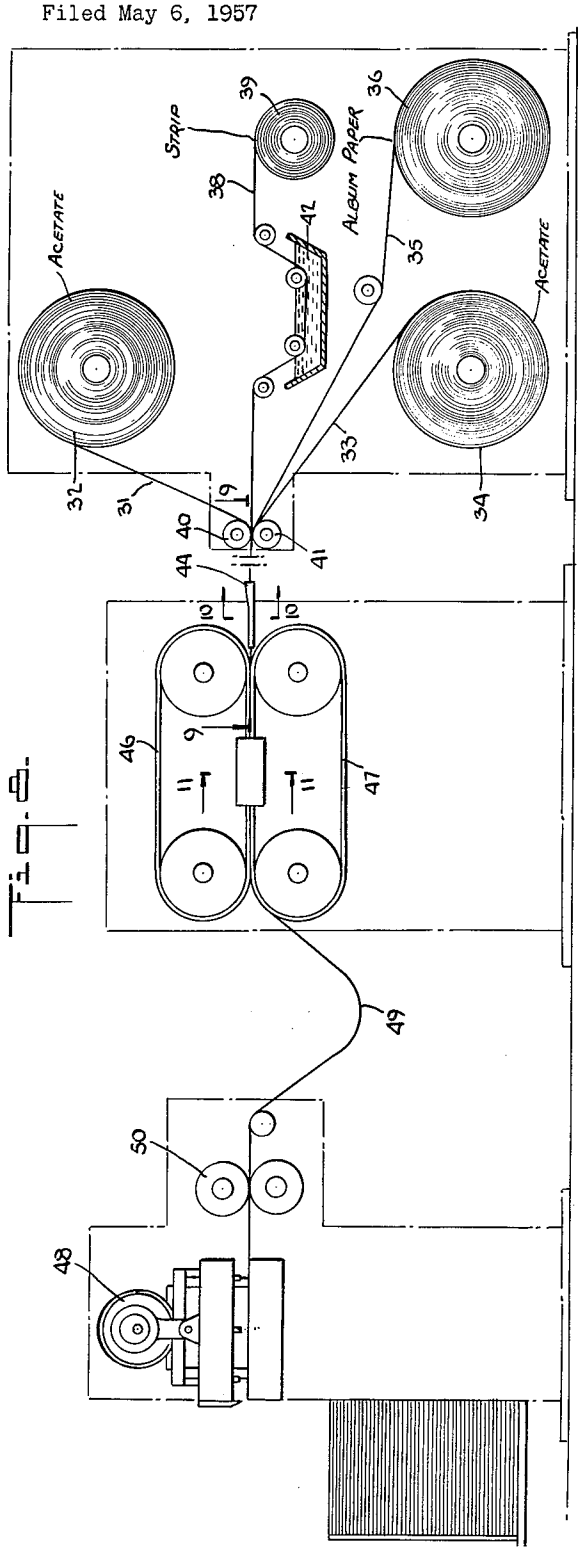


Fig. 8.

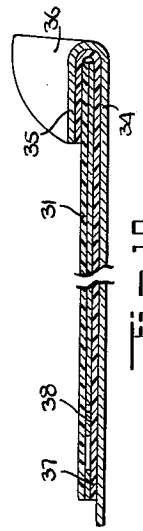


Fig. 10.

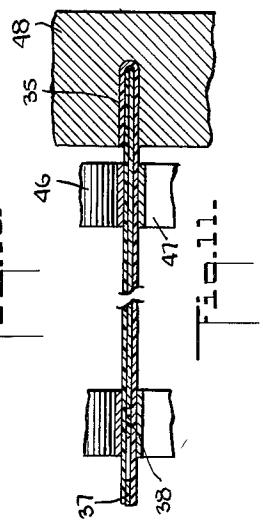


Fig. 11.

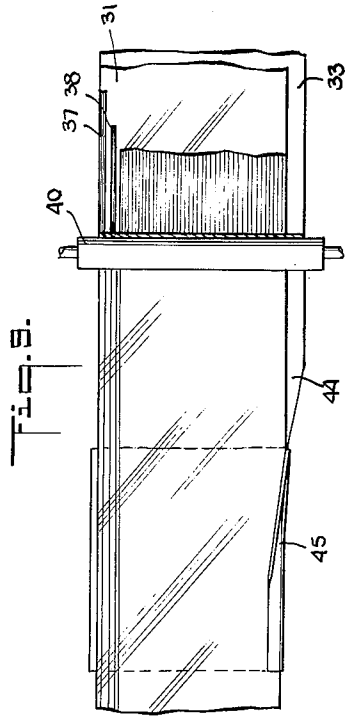


Fig. 9.

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TRANSPARENT SHEET PROTECTOR

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1 Claim. (Cl. 156—196)

The present invention relates generally to transparent sheet covers, and more particularly to protective folders and envelopes adapted to display sales material, catalog sheets and the like and including an integral pocket or tab for receiving indexing strips or other identifying inserts.

In order to protect sheets from wear and tear, it is known to make use of transparent, flexible folders or jackets. The sheet insert may be in the form of sales material, graphs, price lists, photographs and other documents requiring a protective casing. Such folders are generally made of clear plastic material and by virtue of electrostatic effects between the plastic and the paper, the inserted sheet is held within the folder without the need for pasting. The folders may be mounted as leaves in a ring binder or album, or a flip file construction may be employed to provide a convenient means for displaying the sheets.

Heretofore protective folders have been fabricated by folding a broad web of clear plastic material to form a jacket. The manufacture of such folders entails high precision machines designed not only to make the complete folder but also functioning to introduce black album paper therein as a background for the sheet to be inserted. To attach an index tab to the folder it is necessary in a separate operation to anneal or heat-weld a plastic tab to the outer edge of the folder at a predetermined position thereon.

The application of index tabs to the folders not only contributes materially to production costs but it has the further drawback of adding to the overall thickness of the folder, thus limiting the number of folders which may be carried in a given binder. Furthermore, since the folder is made by folding a relatively broad web of plastic material, the machinery involved is complex and expensive and the rate of production is relatively slow.

Accordingly, it is the main object of this invention to provide an improved method and apparatus for producing transparent sheet protectors and envelopes efficiently and at high speed.

Also an object of the invention is to provide a transparent sheet protector having an edge pocket integral therewith for receiving an indexing strip or other form of identification.

More particularly, it is an object of the invention to provide a sheet protector constituted by separate panels of plastic material in superposed relation which are interconnected by parallel ribs of strip material to define an inner jacket for insertion of a sheet to be displayed and an outer pocket for insertion of an index card.

Also an object of the invention is to provide a transparent protective envelope having an edge bead therein for accommodating a supporting rod, the envelopes being arranged in overlapping relation in a flip file and including an integral index pocket.

It is a further object of the invention to provide a low cost technique for producing strong and durable transparent protectors and envelopes.

For a better understanding of the invention as well as other objects and features thereof, reference is had to the following detailed description to be read in conjunction with the accompanying drawing wherein like components in the several views are represented by like reference numerals.

In the drawing:

FIG. 1 is an elevational view of a preferred embodiment of a transparent sheet protector in accordance with the invention.

FIG. 2 is a longitudinal sectional view taken along the plane indicated by lines 2—2 in FIG. 1.

FIG. 3 is a longitudinal sectional view taken along the plane indicated by lines 3—3 in FIG. 1.

FIG. 4 is a transverse sectional view taken along the planes indicated by lines 4—4 in FIG. 1.

FIG. 5 shows in elevation an envelope in accordance with the invention arranged in a flip file device.

FIG. 6 is a perspective view of one envelope and its supporting rod.

FIG. 7 is a transverse section taken in the plane indicated by line 7—7 in FIG. 6.

FIG. 8 is a schematic representation of a machine assembly for manufacturing a sheet protector of the type shown in FIG. 1.

FIG. 9 is a plan view taken in the plane of line 9—9 in FIG. 8.

FIG. 10 is a transverse section taken in the plane of line 10—10 in FIG. 8.

FIG. 11 is a transverse section taken in the plane of line 11—11 in FIG. 8.

Referring now to the drawings, and more particularly to FIGS. 1 to 4, the sheet protector P is constituted by two transparent rectangular panels 10 and 11 in superposed relation. The panel is formed of clear flexible plastic, such as cellulose acetate. The bottom panel 11 has a width greater than the top panel, the excess margin thereof being folded over the top panel to provide a flap 12 serving to lock in the left edge of the protector. Sandwiched between the top and bottom panels and adhesively secured thereto are ribs formed by strips 13 and 14, strip 13 being aligned with the right edge of the panels and strip 14 being positioned inwardly thereof in parallel relation to the outer strip.

Thus the panels are enclosed at the left edge by flaps 12 and at the right edge by strips 13 and 14 to define a major jacket space 15 and a minor pocket space 16. The pocket and jacket constitute parallel channels. Contained in the jacket 15 is a sheet 17 of black album paper to provide a background for display sheets later to be inserted.

The flap 12 serves not only to lock in the left edge of the protector but also as a reinforcement, the left edge portion having spaced holes 18 punched therein for use of the protector as a removable leaf in a ring binder. The pocket portion 16 of the protector is die-cut to form an index tab 18 into which may be placed an index card or other identifying matter. As a further aid to distinctive identification, the strips 13 and 14 may be pigmented.

Alternatively, in place of strips the two panels may be bonded together along parallel lines. This may be accomplished by electronic sealing mechanisms or other known means. Thus the protector is flexible, dirt and grease-proof and will resist wear and tear. The use of mounting sheets 17 is, of course, optional. The holes 18 may be eyeletted if desired.

In the flip file envelope shown in FIGS. 5 to 7, the construction is basically the same as the folder previously disclosed. The envelope E includes top and bottom panels 19 and 20 and parallel ribs formed by strips 21 and 22 adhesively secured to the panels and defining an index pocket 23 and a jacket 24 for receiving a sheet insert. The jacket 24 is die-cut to constitute an integral index tab 25. The bottom panel 20 is made wider than the top panel 19 and is curled thereover to form an edge bead 26 extending the full length of the envelope.

The bead is hollow and provides a channel for a spring-steel rod 27. The rods of the various envelopes, as shown

in FIG. 5, are mounted at parallel positions between two supports 28 and 29 affixed to a board 30 whereby the envelopes lie in overlapping relation to provide a flip file structure. The various tabs 25 are staggered in the usual manner so that they may separately be viewed and manipulated.

The preferred arrangement by which the protectors shown in FIG. 1 or the envelopes illustrated in FIG. 5 may be manufactured automatically is illustrated schematically in FIGS. 8 to 11. The web material 31 for the upper panel is drawn from a roll 32 and the web material 33 for the lower panel from a roll 34. Black album paper in web form 35 is drawn from a roll 36. The two strips 37 and 38 constituting the ribs are drawn as continuous ribbons from separate rolls, only one of which is indicated in FIG. 8 by roll 39.

The various webs and ribbons pass in superposed relation through pressure rollers 40 and 41, guides being used to maintain the proper relation of the ribbons. The ribbons 37 and 38 first are conducted over rollers through adhesive baths, such as bath 42, serving to coat both sides with liquid cement or other suitable bonding solutions. Thus when the webs and ribbons are conveyed through the pressure rollers, the various plies are bonded together.

As best seen in FIG. 9, the bottom web 34 is broader than the top web 31 to provide a marginal flap 43 which is folded over the top web in a folding die 44. The material then passes through a heat and pressure device including two pairs of continuous moving belts 46 and 47 in cooperative relation and a heating element 48 which acts upon the thermoplastic material to make a permanent fold by softening the material before pressure is applied thereto. In the event an envelope is being made rather than a folder, the folding die is replaced by an appropriate beading die.

The belts 46 and 47 are motor driven and act continuously to draw the webs and the ribbons from their rolls. The next stage of the machine is a reciprocating cut-off device, generally designated by numeral 48, and including a knife to slice the web material into folders of the desired lengths and at the same time to punch the holes at the flap edge. Since the cut-off device 48 acts intermittently, it is necessary to run the belts 46 and 47 at a speed causing the formation of a loop 49 in the laminated web and to make use of a reciprocating draw feed 50 or similar indexing means to carry the laminated web into the cut-off device. The cut folders are stacked at pile 51 and may later be die-cut to form the integral tabs.

In manufacturing the protective covers, it is also possible to precut the panels and to interconnect them by pre-cut ribs, the excess margin then being bent over and heat-pressed to form a bead or flap, as required. The continuous technique described hereinabove provides however a high rate of production which may be carried out with precision to produce covers of high quality.

While there has been shown what is considered to be preferred embodiments of the invention, it will be manifest that many changes and modifications may be made therein without departing from the essential spirit of the invention.

What is claimed is:

The method of producing protective covers comprising the steps of concurrently feeding two webs of transparent plastic material in superposed coplanar relation and two ribbons of plastic stripping interposed between said webs, adhesively combining said webs and ribbons to form a laminated band in which said webs are interconnected by said ribbons, one of said ribbons being adhesively secured to one edge of each of said webs, the other ribbon being parallel to said first ribbon and being spaced a relatively short distance therefrom to define a narrow channel therebetween, one of said webs being broader than the other to provide an excess margin, bending over said excess margin to lock-in the other edge of said laminated band, periodically cutting said band to provide individual covers of the desired length and die-cutting the channel on each cover to provide an integral tab for receiving an index card.

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