July 19, 1960 W. O. NORMANDIN 2,945,616

GUSSET TYPE ENVELOPES

Filed Nov. 23, 1956

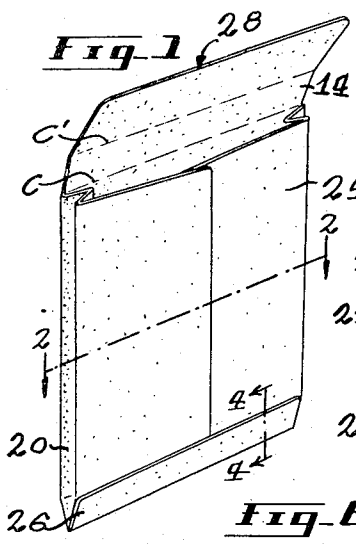

Fig. 1

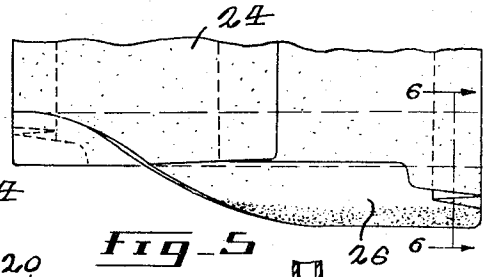

Fig. 5

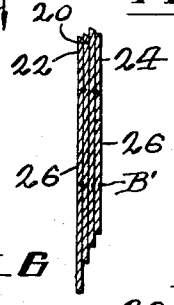

Fig. 6

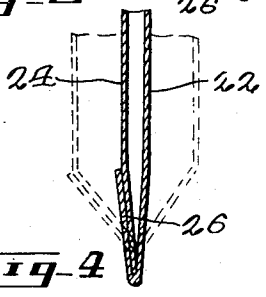

Fig. 4

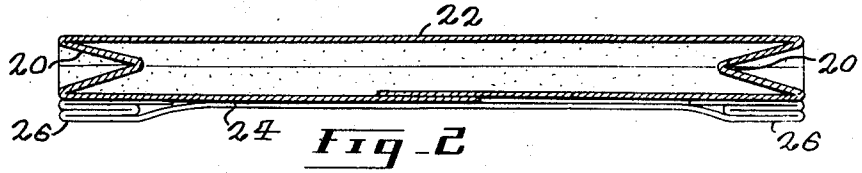

Fig. 2

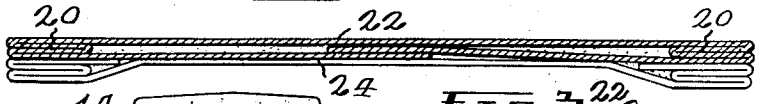

Fig. 3

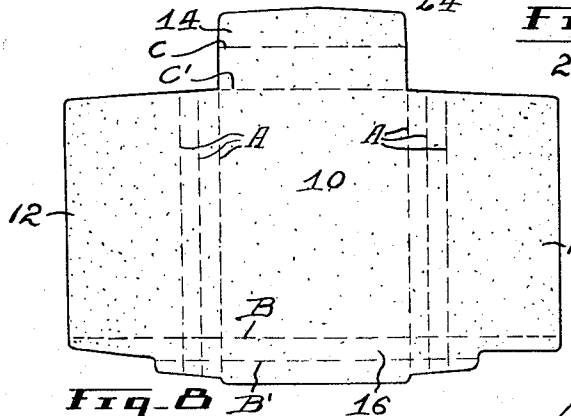

Fig. 8

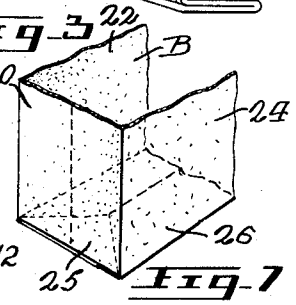

Fig. 7

Inventor
WILLIAM O. NORMANDIN

By Alan Swabey

Attorney

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GUSSET TYPE ENVELOPES

William O. Normandin, Montreal, Quebec, Canada, assignor to Canada Envelope Company, Montreal, Quebec, Canada

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1 Claim. (Cl. 229—68)

The present invention relates to the manufacture of gusset type envelopes and more particularly to an improved form of gusset type envelope particularly suited for manufacture by automatic envelope-making machines.

Gusset type or envelopes having expansible sides are generally well known and are presently available in many varieties and sizes. However, due to their construction, they are not suited for automatic machine folding and assembly and therefore are mainly made by hand which, of course, makes the production cost and labour involved a considerable item.

The present invention recognizes this problem and aims to provide a gusset type envelope adapted to be made from a one-piece blank that is particularly suited for machine folding and assembly, for example by the improved envelope-making machine illustrated and described in the applicant's U.S. Patent 2,899,874, issued April 28, 1958.

Accordingly, the invention is a one-piece envelope blank which is shaped and scored so that when folded and adhesively secured forms a gusset type envelope having coextensive front and back panels interconnected by centrally folded expansible side and bottom panels of equal width and a top closure flap of substantially equal width to and extending from said front panel. The closure flap is of considerably greater length than the expanded width of the side and bottom panels so that it will span the expanded width of the envelope and overlap the back panel for securing purposes.

More specifically, the blank from which this envelope is made is shaped from a flat piece of flexible material, usually paper or light cardboard, to provide a main central portion of substantially rectangular outline which, when the envelope is folded, constitutes the front panel; side portions extending from each side of the central portion which constitute the expansible side panels and the back panel of the envelope when secured in overlapped register with the front panel; a top portion, of equal width to and extending from one end of the central portion to constitute the closure flap; and a bottom portion of graduated width which extends from the combined side and central portions and when folded forms the expansible bottom portion of the envelope. The width of the blank bottom portion varies from the maximum width at the point of juncture with the side and central portions to a minimum width at the terminal edge which is equal to the width of the blank central portion and at an intermediate point has a width greater than the blank central portion but less than the combined side and central portions.

Having thus generally described the nature of the invention, particular reference will be made to the accompanying drawing, illustrating the blank and envelope of the invention, and in which:

Figure 1 is a view in perspective elevation of a gusset type envelope having expansible side and bottom portions as made from the blank of the invention;

Figure 2 is a cross-sectional view of the envelope shown in Figure 1 along the line 2—2 and partially opened to illustrate the location of the various folds in more detail;

Figure 3 is a further cross-sectional view corresponding to Figure 2 with the envelope in flat condition;

Figure 4 is a partial cross-sectional view of the envelope construction of Figure 1 along the line 4—4 to illustrate the folds of the expansible bottom portion, the broken outline showing the bottom portion partially expanded;

Figure 5 is an enlarged front view of the bottom portion of the envelope shown in Figure 1 with the outer flap partially opened to show the arrangement of the side portion folds prior to the final folding in;

Figure 6 is a cross-sectional view of Figure 5 along the line 6—6 to illustrate the disposition of the side portion folds and bottom portion flap;

Figure 7 is an enlarged fragmentary detail view in perspective elevation of one corner of the envelope construction shown in Figure 1 as it would appear in full open condition;

Figure 8 is a view in plan of the one-piece blank from which the envelope construction of Figure 1 is made with the various fold lines indicated in broken lines.

With particular reference to Figures 1 and 8, the preferred form of envelope with which the present invention is concerned is shown in blank form in Figure 8 and in made-up form in Figure 1.

The one-piece blank, made of suitable flexible sheet material, for example paper or the like, is shaped so as to have a main central portion **10** which will constitute the front panel of the envelope. Side portions **12** extend from each side of the main blank portion **10** and these when scored and folded will constitute the expansible side panels and the back panel of the envelope. A top portion **14** extends from one end of the main portion **10** and this forms the envelope top closure flap. A bottom portion **16** extends from the combined side **12** and central portions **10** and when scored and folded forms the expansible bottom portion of the envelope.

The necessary scoring lines for the various folds are indicated in dotted lines and for the purpose of the present description certain of these can be considered lines of demarcation between the various blank portions. The triple score lines indicated at "A" on each side of the blank central portion show the fold lines for the double gusset fold of the side panels of the envelope indicated at **20**. These fold lines "A" extend the full length of the blank at each side of the central portion **10** to permit the later folding of the expansible bottom panel of the envelope as will be described later. The double score lines "B," "B'," indicate the line of demarcation and the fold lines for the bottom portion **16**. The fold line "B" extends completely across the combined blank side portions **12** and the central portion **10** and when the envelope is made up this fold line defines the line of demarcation between the front panel **22**, the back panel **24**, the side panels **20**, and the extensible bottom panel **26** made up from the blank bottom portion **16**. The distance between the fold lines "B" and "B'" is half the full extended width of the expansible side panels **20** so that when the envelope is in full open condition, as shown in Figure 7, the bottom panel **26** is equal to the open width of the side panels. The bottom blank portion **16** is shaped from the maximum width at the fold line "B" to a reduced width at the fold line "B'" and finally to a width corresponding to the width of the blank central portion **10** at the lower terminal edge.

The fold lines "C," "C'" indicate the scores or folds made in the blank top portion **14** forming the envelope closure flap **28**. The distance between the fold lines "C," "C'" is substantially equal to the expanded width

of the envelope side panels 20 so that the envelope top closure flap 28 will fold flatly over into sealed position when the enevelope is in use.

The blank is made up into the gusset type envelope by first scoring the fold lines "C," "C'" along the top portion 14, the triple fold lines "A" along each side of the blank central portion 10 and the fold line "B" across the combined side and central portions of the blank. The side portions 12 of the blank are then folded inwardly, outwardly and inwardly along the fold lines "A" producing the double folded envelope side panels 20 and bringing the remaining free side portions 12 of the blank into overlapping register on the front portion 10 to form the back panel 24 of the envelope. Adhesive is previously applied along the overlapping marginal edge or edges of the blank side portions 12 so that when they are pressed flatly in overlapped register they are adhesively secured together. Adhesive is also applied to the lower marginal edge of the blank bottom portion 16, the score line "B'" is made and the terminal flap or minimum width portion of the blank bottom portion 16 is folded over the envelope back panel 24 and adhesively secured thereto, see Figure 4.

As the score lines "A" extended the full length of the blank the side sections of the blank bottom portion were also double folded, see Figures 5 and 6, and when the fold along the line "B'" is made these are folded upwardly against the lower marginal edges of the back panel 24 and the outer fold adhesively secured thereto. The envelope is now in the finished flat folded condition shown in Figure 1.

In use, when the envelope is expanded, the side panels 20 unfold, see Figure 2, and the blank bottom portion 16 becomes the envelope bottom panel 26. The double folded side portions of the blank bottom portion 16 between the fold lines "B," "B'," form triangular expansion gussets indicated at 25 allowing the envelope bottom panel 26 to expand flatly across the bottom of the envelope to correspond with the expanded side panels 20.

As previously mentioned, the envelope blank of the invention is particularly suited for use in automatic envelope-making machines modified for this purpose. Prior art envelope blanks from which known gusset type envelopes are made are not generally suitable for machine production since they are designed for manual folding and assembly.

I claim:

A preformed flat folded envelope of the fully expansible type made from a one-piece flat blank adapted to be scored, folded, gummed and assembled in continuous in-line sequence on an automatic envelope machine, said envelope comprising coextensive rectangular front and back panels, side panels interconnecting respective opposite side edges of the front and back panels by side folds and said side panels each having an intermediate fold parallel with and in reverse to the side folds to divide

the side panels into inwardly folded side sections lying substantially flatly between said front and back panels when the envelope is in flat condition, a bottom panel having a part joining with the bottom edge of the front panel on a transverse line of fold and having a width corresponding with the width of the side panels, said part of the bottom panel having an intermediate fold extending parallel with the transverse line of fold to provide bottom sections overlying each other and projecting outwardly from bottom portions of the front and back panels when the envelope is in said flat condition, said bottom panel also including parts comprising continuations of the sections of the side panels and parts depending from the back panel and engaged between the sections of said first named part of the bottom panel when the envelope is in said flat condition and having lines of fold forming continuations of the said transverse line of fold and having folds forming continuations of the intermediate fold of the first named part of the bottom panel, said extensions of the side sections of the side panels being of different lengths to provide sealing portions for contact with parts of the bottom panel that depend from the back panel, and an adhesive connecting the sealing portions of the extensions of the side sections and the overlying section of the first named panel to the part depending from the back panel to complete the bottom panel whereby when the envelope is fully expended a flat bottom is provided by the hinging of the bottom and side panels on said folds while the front, back and side panels break along said transverse lines of fold and the portions of the extensions of the side sections which are located between the transverse score and the transverse fold are breaking inwardly to provide triangular gussets to bring the bottom panel in a right-angular plane with respect to planes of the front, back and side panels, a top panel having a part joining with the top edge of the front panel on a transverse line of fold and being of equal width to said front panel, said top panel part having an intermediate fold extending parallel with said transverse line of fold spaced from said first fold a distance equal to the width of said side panels, and a flap portion extending beyond said intermediate fold and adapted to overlie the upper marginal edge of said back panel.

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