July 19, 1960 W. O. NORMANDIN 2,945,617

GUSSET TYPE ENVELOPES

Filed June 3, 1957

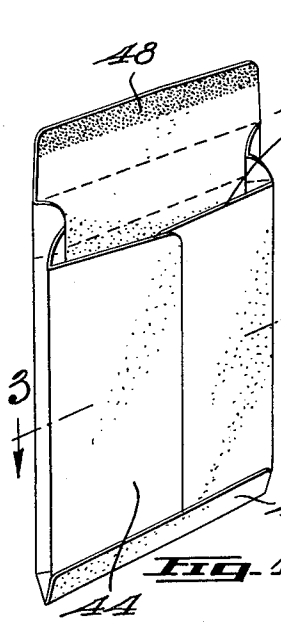


Fig. 1

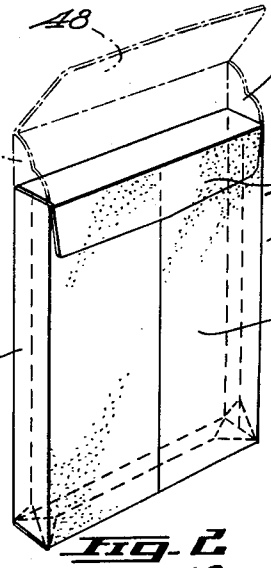


Fig. 2

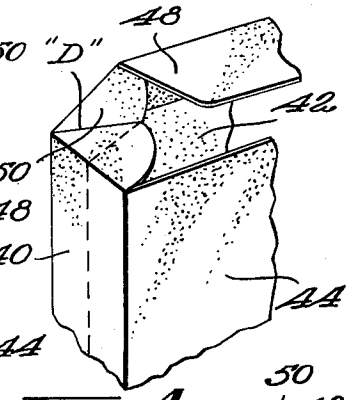


Fig. 4

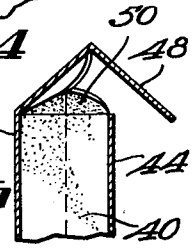


Fig. 5

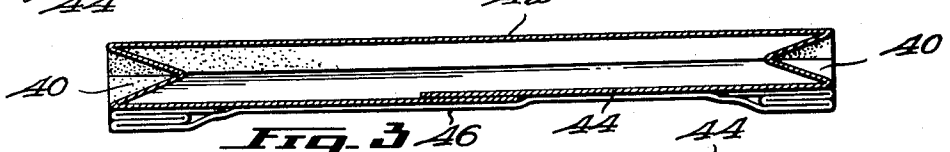


Fig. 3

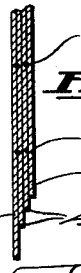


Fig. 7

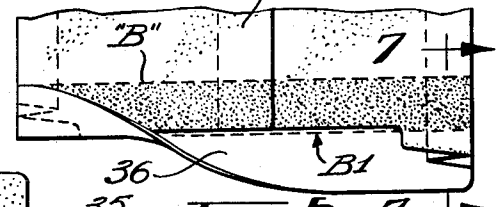


Fig. 6

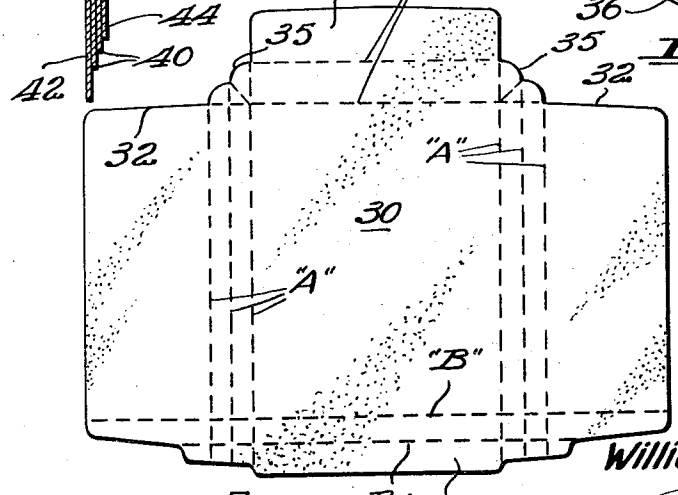


Fig. 8

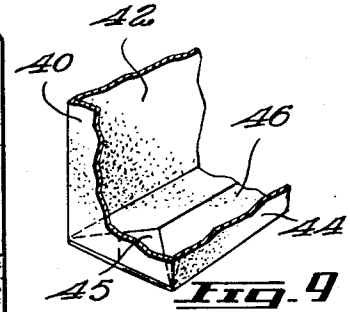


Fig. 9

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GUSSET TYPE ENVELOPES

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2 Claims. (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 of 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. The envelope of the invention can be made from ordinary envelope paper of varying grades and the one-piece blank is designed so as to have receding radiused corners at all corners, points and sharp changes of form. This eliminates the possibilities of tearing or splits of the blank at changes of form and makes it possible to stamp out the blanks in production quantities on standard blanking presses at the same speed and in the same manner as regular open and end envelope blanks.

Accordingly, the invention is a one-piece envelope blank which is shaped and scored so that when folded and adhesively secured forms a complete gusset type envelope having co-extensive front and back panels interconnected by centrally folded expansible side and bottom panels of equal width and including a top closure flap extending from the front panel which is of sufficient length to span the extended width of the side panels and overlap the back panel for securing purposes. The side panels include centrally folded extensions which extend from the juncture of the top marginal edge of the back panel to terminate on the top closure flap above the top marginal edge of the front panels at a distance equal to the expanded width of the side panels. These side panel extensions fold inwardly of the top of the side panels and lower side portions of the top closure flap to form a complete closure for the top ends of the envelope when fully expanded and the closure flap secured.

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 graduated width which extends from the combined side and central portions of the blank to form the side panel

extensions and top 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 top portion varies from the maximum width at the point of juncture with the side panels to an intermediate width corresponding to the central fold line of the side panels, and lastly to a minimum width corresponding to the width of the front panel. 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.

The application is a continuation-in-part of United States application, Serial No. 624,062 filed November 23, 1956.

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 top, side and bottom portions as made from the blank of the invention;

Figure 2 is a view in perspective elevation corresponding to Figure 1 showing the gusset envelope of the invention in fully expanded condition with the top flap shown in open position in broken lines;

Figure 3 is a cross-sectional view of the envelope construction shown in Figure 1;

Figure 4 is a partial view in perspective elevation of the top portion of the envelope construction of Figures 1 and 2 with the side panel extensions folded in and top flap partially folded over;

Figure 5 is a sectional view of the envelope top portion shown in Figure 4 to illustrate the folding in of the side panel top extension;

Figure 6 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 panel folds prior to the final folding in and gluing;

Figure 7 is a cross-sectional view of Figure 6 along the line 7—7 to illustrate the disposition of the side panel folds and bottom portion flap;

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;

Figure 9 is an enlarged fragmentary detail view in perspective elevation of one corner of the envelope construction shown in Figure 1 as it appears in full open condition.

With particular reference to the drawings, the preferred form of gusset type 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 which is designed for blanking out in production quantities by standard blanking presses, is made from any desired grade of envelope paper or the like and is shaped so as to have a main central portion **30** which will constitute the front panel of the envelope. Side portions **32** extend from each side of the main blank portion **30** and these when folded will constitute the expansible side panels and the back panel of the envelope. A top portion **34** extends from one end of the main portion **30** and this forms the envelope top closure flap and top extensions of the expansible side panels. A bottom portion **36** extends from the combined side **32** and central portions **30** 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 **40**. These fold lines "A" extend the full length of the blank at each side of the central portion **30** to permit the later folding of the expansible bottom panel of the envelope as will be described later. The double score lines "B,", "B1," indicate the line of demarcation and the fold lines for the bottom portion **36**. The fold line "B" extends completely across the combined blank side portions **32** and the central portion **30** and when the envelope is made up this fold line defines the line of demarcation between the front panel **42**, the back panel **44**, the side panels **40**, and the extensible bottom panel **46** made up from the blank bottom portion **36**. The distance between the fold lines "B" and "B1" is half the full extended width of the expansible side panels **40** so that when the envelope is in full open condition, as shown in Figures 2, 4, 9, the bottom panel **46** is equal to the open width of the side panels. The bottom blank portion **36** is shaped from the maximum width at the fold line "B" to a reduced width at the fold line "B1" and finally to a width corresponding to the width of the blank central portion **30** at the lower terminal edge.

The fold lines "C," "C," indicate the scores or folds made in the blank top portion **34** forming the envelope closure flap **48**. The distance between the fold lines "C," "C," is substantially equal to the expanded width of the envelope side panels **40** so that the top closure flap **48** when folded over will span the width of the envelope and overlap the back panel for sealing purposes.

The portions **35** of the lower part of the top portion **34**, which form the side panel extensions or top closure end flaps **50**, are defined in the longitudinal direction by the score lines "A," "A," and in the transverse direction by the lower score line "C." The portions **35** are also scored diagonally as indicated at "D" for their inward folding with the top closure flap **48**.

The blank is made up into the gusset type envelope by first scoring the triple fold lines "A" along each side of the blank central portion **30**. Then the fold lines "CC" along the top portion **34**, the fold line "B" across the combined side and central portions of the blank, and the diagonal scoring of the flaps **35** and the bottom panel are made. The side portions **32** and the extensions **35** of the blank are then folded inwardly, outwardly and inwardly along the fold lines "A" producing the double folded envelope side panels **40** and bringing the remaining free side portions **32** of the blank into overlapping register on the front portion **30** to form the back panel **44** of the envelope. Adhesive is previously applied along the overlapping marginal edge or edges of the blank side portions **32** 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 now formed back panel **44**, the score line "B1" is made and the terminal flap or minimum width portion of the blank bottom portion **36** is folded over the envelope back panel **44** and adhesively secured thereto, see Figure 6.

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 Figure 6, and when the fold along the line "B1" is made these are folded upwardly against the lower marginal edges of the back panel **44** 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 **40** unfold, see Figure 2, and the blank bottom portion **36** becomes the envelope bottom panel **46**. The double folded side portions of the blank bottom portion **36** between the fold lines "B," "B1," form triangular expansion gussets indicated at **45** allowing the envelope bottom panel **46** to expand flatly across the bottom of the envelope to correspond with the expanded side panels **40**. The side panel extensions or top closure end flaps **50** are folded inwardly when the envelope is closed. As is shown most clearly in Figures 2, 4 and 5, one portion of each flap is folded inwardly against the lower portion of the top closure flap **48** while the other portion is folded over the top of the upper end of each of the side panels **40** to form a complete end closure similar to the bottom panel **46**.

As previously mentioned, the envelope blank of the invention is particularly designed for production blanking on standard blanking presses and for this purpose the blank is provided with receding radiused corners at all changes of form, for example, at the side panel extensions **35** and the graduated blank bottom portions **36** making up the bottom panel of the envelope. The blanks are particularly suited for production make-up on an automatic envelope machine as illustrated and described in the applicant's U.S. Patent 2,899,874, issued April 28, 1958.

I claim:

1. A one-piece blank adapted for machine scoring and folding in continuous in-line assembly on automatic envelope machines to form a fully expansible gusset type envelope, comprising a sheet of flexible material shaped to provide when scored and folded a main portion constituting an envelope front panel of substantially rectangular outline, side portions extending outwardly from said main portion at each side to constitute when longitudinally scored and folded double fold gusset side panels and an overlapped back panel for said envelope, a top portion of graduated width extending from one end of said main and side portions to constitute when transversely scored and folded a top closure flap and end closure flaps for said envelope, said blank top portion having a width at the juncture with said main and side portions equal to the combined width of said main and side portions, a minimum width at the upper marginal edge equal to the width of said main portion, and an intermediate width along a transverse fold line between said juncture and said marginal edge equal to the combined width of said main portion and a portion of said side portions at each side extending to a central longitudinal fold line of said gusset side panels, and a bottom portion of graduated width extending from the other end of said combined main and side portions to constitute when scored and folded a bottom panel for said envelope, said blank bottom portion at the point of juncture with said main and side portions having a width equal to said main and side portions, at its lower terminal edge a width equal to said main portion, and at a folding point intermediate said juncture with said main and side portions and said lower terminal edge a width greater than said blank main portion but lesser than the combined width of said main and side portions.

2. A blank, as claimed in claim 1, provided with receding radiused corners at the intersections of said portions of graduated width on said blank top and bottom portions.

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