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1,225,026 5/1917 Funk 93/61
 2,153,848 4/1939 Shea et al. 93/63
 2,276,282 3/1942 Bindzus 53/180 X
 3,339,827 9/1967 Steidinger 229/69

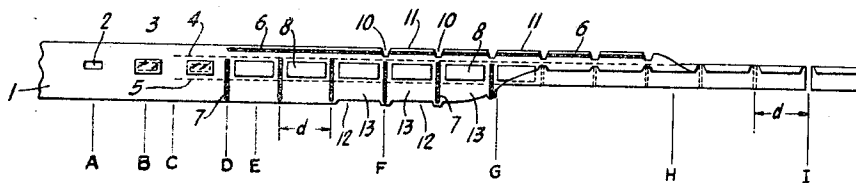
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[54] **METHOD OF FORMING ENVELOPES HAVING
 INSERTS THEREIN FROM A MOVING BLANK
 WEB**
6 Claims, 2 Drawing Figs.

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93/61 A
 [51] Int. Cl. **B65b 9/06**
 [50] Field of Search 53/28, 180,
 31, 29, 183; 93/36 MM, 61 A, 63, 63 M; 229/69

[56] **References Cited**
UNITED STATES PATENTS
 699,875 5/1902 Johnston 229/69

ABSTRACT: A method of forming envelopes having inserts therein from a continuously moving web of uniform width. The web is advanced along a line at selected forward speeds, continuously gummed along one edge to form an adhesive strip parallel to that edge, gummed at selected spaced intervals to form adhesive strips beginning at the web's opposite edge and extending in a direction normal to the continuous adhesive strip, inserts are placed on the gummed moving web, marginal cuts are made along both edges of the moving web to form bottom and closure flaps which are successively folded and sealed to form a moving web of discretely packed insert materials which is cut transversely of its direction of travel along the spaced adhesive strips to form envelopes having inserts sealed therein.



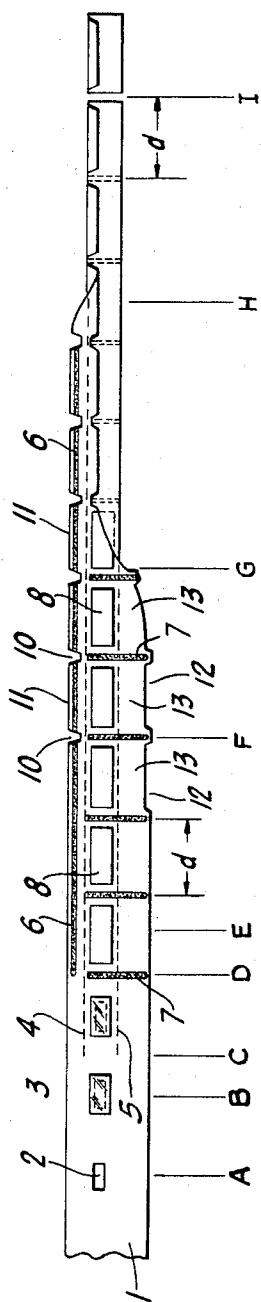


FIG. 1

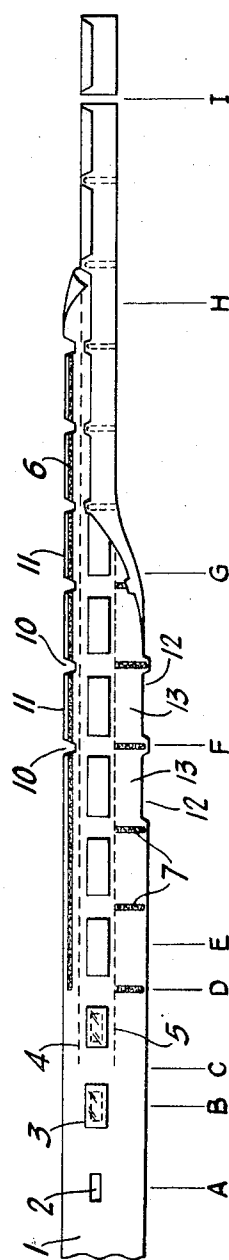


FIG. 2

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METHOD OF FORMING ENVELOPES HAVING INSERTS THEREIN FROM A MOVING BLANK WEB

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a method of forming envelopes having inserts therein from a continuously moving web of uniform width in a continuous manner more economically than the methods heretofore known for forming envelopes having inserts therein.

2. Description of the Prior Art

It is often necessary to form several thousand or more substantially identical pieces of mail-comprising envelopes having identical insert materials enclosed therein. In the past, it has been the practice to either form the inserts and envelopes at separate locations and thereafter, assemble the completed package of envelope and insert at a place remote from the manufacture of either component. It has also been proposed to first form the insert material and then fold an envelope blank thereover in a continuous process operated, more or less, along a line. For example, U.S. Pat. No. 3,457,696 discloses a method for enclosing material in a mailing piece wherein insert materials are placed upon a preformed, precut envelope blank which is then folded in a predetermined manner and glued along certain lines to form a mailing package comprising an envelope having an insert therein. That method, however, has certain disadvantages in that it requires the use of carefully precut envelope blanks which must be partially gummed and dried before contact with the insert material. Moreover, the blanks employed in that process must be first prepared and stacked in an overlapping stepped position from which they are drawn in a sequential manner to singularly pass to the insert-receiving and folding stages. This step, of course, requires complicated attendant or auxiliary equipment.

U.S. Pat. Re. No. 25,961 teaches a similar process in which an envelope is formed over insert materials by folding the flaps of an envelope blank downwardly, rather than upwardly, over the insert material. While both of the latter processes represent a great improvement over inserting material in a completed envelope, neither represents a truly continuous process for forming an envelope having an insert therein, as each requires the use of a precut and pregummed envelope blank.

I provide a continuous process for forming envelopes having inserts sealed therein from a moving blank web of paper or the like which may be located more or less along a line with no requirement for transferring envelope material or inserts to any place other than the process line itself. Moreover, my process has no need for preformed envelope blanks and is capable of producing envelopes of any desired length and width. Moreover, my process is free from complicated folding procedures and may be employed to produce envelopes having any number of packeted inserts sealed therein.

SUMMARY OF THE INVENTION

Generally, my method of forming envelopes having inserts sealed therein comprises advancing a web of uniform width at a selected forward speed, forming a continuous adhesive strip along one edge of the advancing web and parallel thereto, forming at selected spaced intervals along the web, adhesive strips extending generally normal to the continuous adhesive strip beginning at the web's edge opposite the continuous strip and proceeding across the width of the web to a point removed or remote from the continuous adhesive strip, placing insert materials on the web and maintaining those materials in overlying contacting relationship therewith, cutting marginal portions from the continuous adhesive strip to form closure flaps on the web, cutting marginal portions from the moving web between the spaced adhesive strips to form bottom flaps on the web, and successively folding and sealing the bottom and closure flaps to form a continuous moving web of dis-

cretely sealed insert materials, and thereafter, cutting the web along the spaced adhesive strips to form envelopes having inserts sealed therein.

Other details and advantages of my invention will become apparent as the following more detailed description of certain preferred embodiments thereof proceeds.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic flowsheet illustrating the several steps of the method of the invention.

FIG. 2 is a modification of the method illustrated in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

It should be understood that the tools and apparatus required for cutting, applying adhesive, folding, etc. of the moving web do not constitute a part of the invention. All these tools and apparatus may be more or less conventional and are hence not illustrated or described in detail.

Referring now to FIG. 1, a continuous web 1 of uniform width, such as a paper web, supplied from a supply reel (not shown) is advanced along a path at a preselected uniform speed to the station designated generally A. At station A, a panel or window 2 is cut into the moving web by means of a conventional rotary cutting tool. Web 1 is next advanced to station or position B, where windows or panels 2 are covered by a suitable transparent foil or film 3 which may be glued to the web in a conventional manner. If no panel or window is desired in the finished envelope, both stations A and B may, of course, be omitted. On the other hand, if several windows are desired, they may all be formed in web 1 at stations A and B with conventional methods and apparatus.

Web 1 is then advanced to station C where preliminary fold lines 4 and 5 are formed. Fold lines 4 and 5 may be formed by conventional scoring devices, such as a rotary scoring tool and an elastic counterroller. Preliminary fold lines 4 and 5 mark and define on moving web 1, marginal portions which, as will be seen later, shall constitute closure and bottom flaps respectively for the envelopes being formed. Fold lines 4 and 5 follow a path generally spaced from and parallel to the edges of moving web 1. If it is desired, the preliminary fold lines may be omitted but they are preferred in that they facilitate later folding and processing of the moving web into final envelope form.

Web 1, having been preliminarily scored with fold lines 4 and 5, advances to station D where adhesive application is initiated. As is seen in FIGS. 1 and 2, a continuous strip of adhesive 6 is formed along the upper margin of moving web 1 between preliminary fold lines 4 and the web's edge. Adhesive strip 6 may be applied by conventional equipment and its method of application forms no part of the present invention.

Likewise, as shown at station D, there are formed at selected spaced intervals along moving web 1, adhesive strips 7 which extend generally normal to continuous adhesive strip 6 beginning at the lower edge (as shown) of web 1 and proceeding across the width of the web to a point below or spaced from adhesive strip 6. For a reason which will become apparent hereafter, the distance d between spaced adhesive strips 7 approximates the length of the envelopes being produced in the process. That distance d may be varied depending upon the length of envelope sought in the process. In the same manner, the width of web 1 may be varied depending upon the width of envelope desired. Conjointly, both the width of web 1 and the distance between spaced adhesive strips may be varied as desired to produce nearly any size of envelope having an insert sealed therein by my methods.

Web 1 thus having been scored and gummed, proceeds to the station designated generally E where inserts 8 are placed upon the moving web 1. Inserts 8 are maintained in overlying contacting relationship with web 1 and are positioned generally between adhesive strips 7 and preliminary fold lines 4 and 5. It will now be apparent that as the dimensions of insert material 8 change, the spacing between adhesive strips 7,

i.e., the distance d , and the width of web 1 may be varied accordingly to accommodate the change in insert dimension.

Web 1 having inserts 8 thereon is advanced then to the station designated generally F. There, marginal portions 10 are cut from moving web 1 at spaced intervals to form a series of closure flap portions 11 on moving web 1. Marginal portions 10 are located generally in line with spaced adhesive strips 7 along the upper side of web 1, (as shown) i.e., the edge of web 1 nearest preliminary fold line 4. Additionally, at station F, marginal portions 12 are cut from moving web 1 to form a series of bottom flap portions 13 on the moving web. Marginal portions 12 are cut between spaced adhesive strips 7.

Moving web 1 having closure flap 11, and bottom flap portions 13 formed thereon advances then to the station or area designated generally G. While advancing to this station, insert material 8 is maintained in overlying contacting relationship with moving web 1. At station G, bottom flap portions 13 of moving web 1 are folded upwardly and inwardly into overlying contacting relationship with insert materials 8. The folding takes place along preliminary fold line 5 previously scored into the moving web. In this manner, adhesive strips 7 are, of course, folded over upon themselves and thereby seal insert material 8 in position on moving web 1.

Moving web 1 having bottom flap portions 13 sealed thereon proceeds or advances to station H where closure flap portions 11 of moving web 1 are folded upwardly and inwardly into overlying contacting relationship with bottom flap portions 13 to thereby form a continuous web of discretely packed insert materials.

The thus formed continuous web of discretely packaged insert materials 8 is advanced then to station I where it is cut or scored through transversely of its direction of travel along adhesive strips 7 to form envelopes having insert materials sealed therein in a condition ready for printing (if required), mailing, packaging, etc.

FIG. 2 illustrates another preferred embodiment of the method of my invention wherein adhesive strip 7 extends only from the lower (as shown) edge of moving web 1 to preliminary fold line 5, rather than extending to a point beyond that fold line. The degree of extension of adhesive strip 7 across the width of web 1 is somewhat optional, it being necessary to extend that adhesive strip at least to fold line 5 to insure a completely sealed envelope upon folding bottom flap 13 onto moving web 1. Beyond that, however, is no upper limit with the exception that adhesive strip 7 should not extend to continuous adhesive strip 6 nor any distance which would leave an exposed adhesive strip after folding of bottom flap portions 13.

According to the provisions of the patent statutes, I have explained the principle, preferred construction and mode of operation of my invention and have illustrated and described what I now consider to represent its best embodiment. However, it should be understood that, within the scope of the appended claims, the invention may be practiced otherwise than as specifically illustrated and described.

I claim:

1. A method of forming envelopes having inserts sealed therein from a continuously moving web of uniform width having first and second outer edges comprising,
advancing said web at a selected forward speed,
forming a continuous adhesive strip along said first edge of said web,
forming a selected spaced intervals along said web adhesive strips extending generally normal to said continuous strip beginning at said second edge of said web and proceeding across said web to a point remote and removed from said continuous adhesive strip, said spaced intervals approximating the length of envelope desired,
placing insert materials on said moving web between said spaced adhesive strips,
maintaining said insert materials in overlying contacting relationship with said moving web,

cutting marginal portions from said moving web along said first edge at points in line with said spaced adhesive strips to thereby form closure flap portions on said moving web,
cutting marginal portions from said moving web along said second edge and between said spaced adhesive strips to form bottom flap portions along said moving web,
folding said bottom flap portions upwardly and inwardly into overlying relationship with said insert material whereby each said spaced adhesive strip is folded upon itself to thereby seal said inserts on said moving web,
folding said closure flap portions into overlying contacting relationship with said bottom flap, and
cutting said moving web transversely to its direction of travel along said spaced adhesive strips to thereby form individual envelopes having inserts sealed therein.

2. A method of forming envelopes having inserts sealed therein from a continuously moving web of uniform width as set forth in claim 1 including,

forming first and second preliminary fold lines in said moving web parallel to and spaced from said web's edges and folding said bottom and closure flap portions over said preliminary fold lines.

3. A method of forming envelopes having inserts sealed therein from a continuously moving web of uniform width as set forth in claim 1 including,

cutting a panel in said moving web and covering said panel with a transparent foil prior to placing said inserts on said moving web.

4. A method of forming envelopes having inserts therein from a continuously moving web of uniform width comprising,

advancing said web at a selected forward speed,
forming first and second preliminary fold lines on said moving web along lines inward of said web's outer edges and parallel thereto,

forming a continuous adhesive strip on said web between said first preliminary fold line and an edge of said web and parallel thereto,

forming at selected spaced intervals along said web adhesive strips extending generally normal to said continuous adhesive strip beginning at the edge of said web nearest said second preliminary fold line and proceeding across the width of said web at least to said second preliminary fold line,

said spacing between said strips approximating the length of envelope desired,

placing insert materials on said moving web between said spaced adhesive strips,

maintaining said insert materials in overlying contacting relationship with said moving web,

cutting marginal portions from said moving web along said edge thereof nearest said first preliminary fold line and in line with said spaced adhesive strips to form closure flap portions on said moving web,

folding said moving web along said second preliminary fold line upwardly and inwardly whereby said inserts are sealed on said moving web,

folding said closure flap portions along said first preliminary fold line into overlying contacting relationship with said moving web, and

cutting said moving web transversely of its direction of travel along said spaced adhesive strips to form envelopes having inserts sealed therein.

5. A method of forming envelopes having inserts therein from a continuously moving web of uniform width as set forth in claim 4 including,

cutting marginal portions from said moving web between said spaced adhesive strips to form bottom flap portions in said moving web.

6. A method of forming envelopes having inserts therein from a continuously moving web of uniform width as set forth in claim 4 including,

cutting a panel in said moving web and covering said panel with a transparent foil prior to placing said inserts on said moving web.