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 [45] Patented **May 25, 1971**

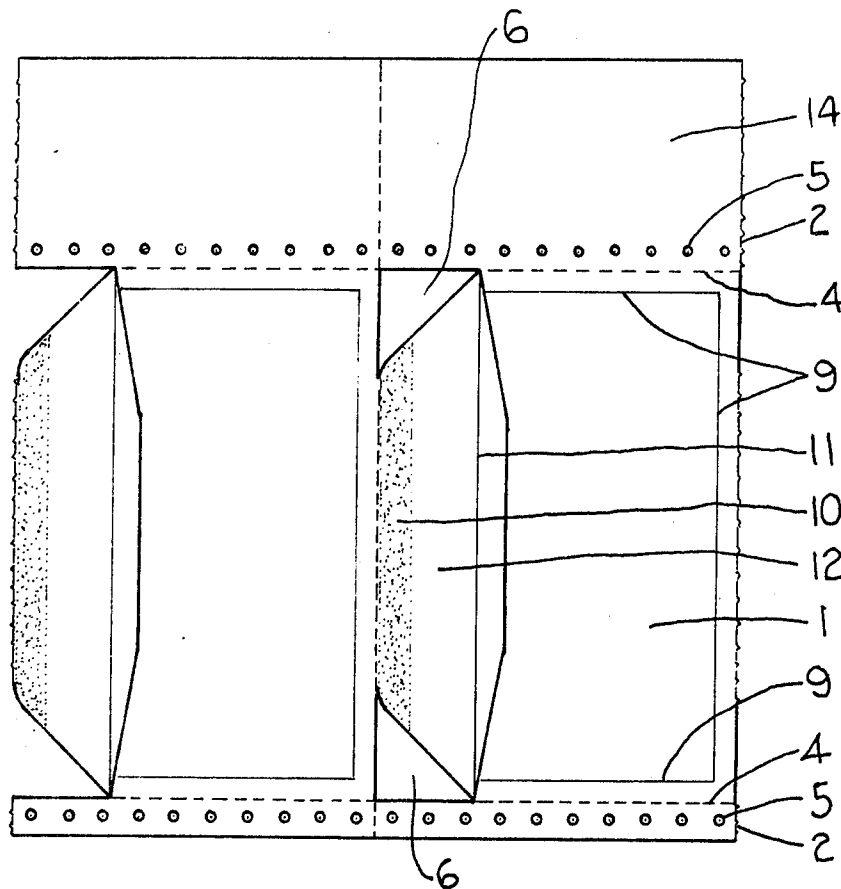
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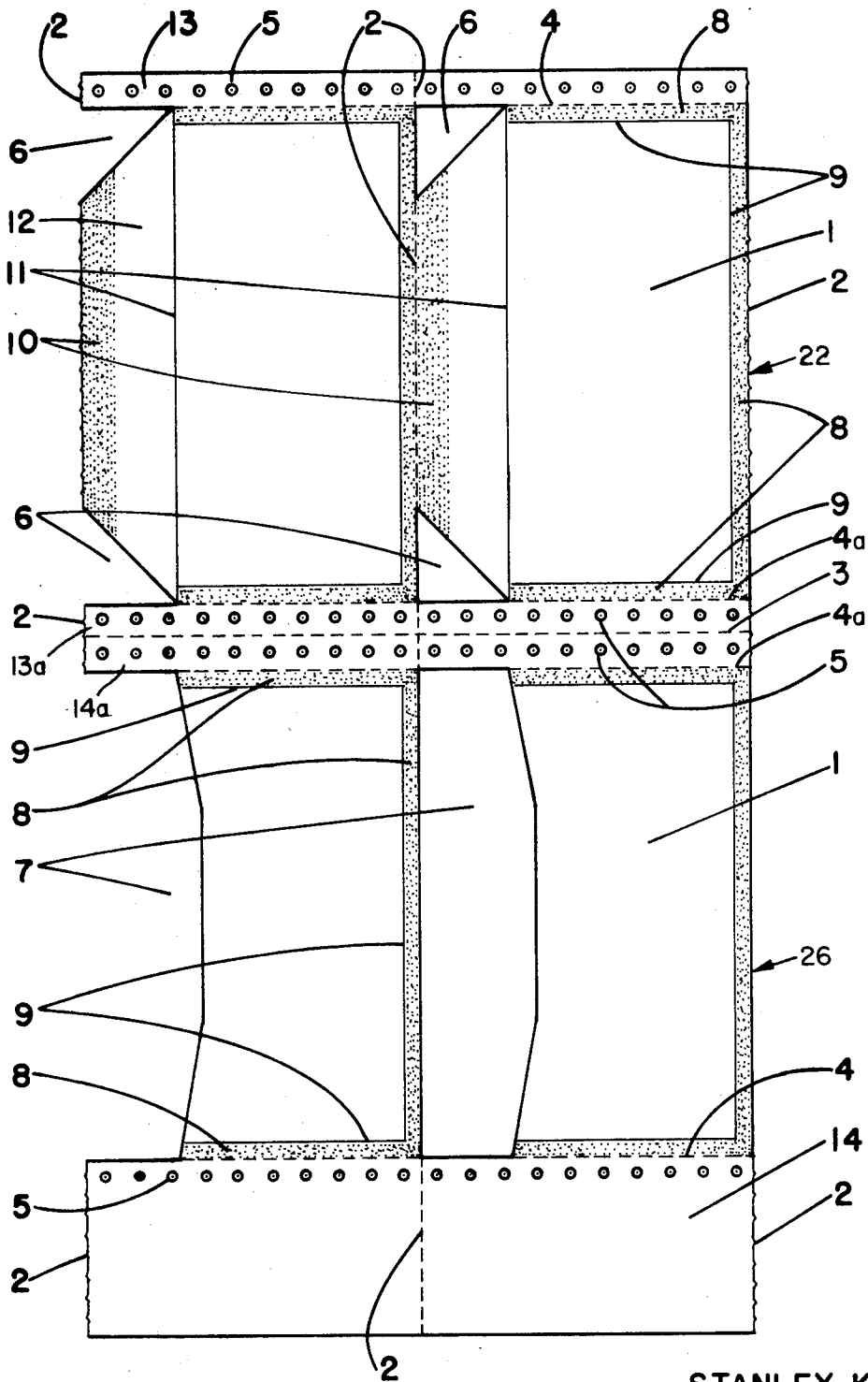
Primary Examiner—David M. Bockenek
Attorney—Francis T. Drumm

[54] **CONTINUOUS ENVELOPE**
 6 Claims, 15 Drawing Figs.

[52] U.S. Cl..... 229/69
 [51] Int. Cl..... B65d 27/10
 [50] Field of Search..... 229/69;
 93/63

ABSTRACT: A continuous envelope system in which a plurality of joined envelopes are made from a single web of sheet material, each of the envelopes has hinged joints at the three closed sides thereof so that full opening of the envelope is attained upon spreading of the front and back panels.





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FIG. 1

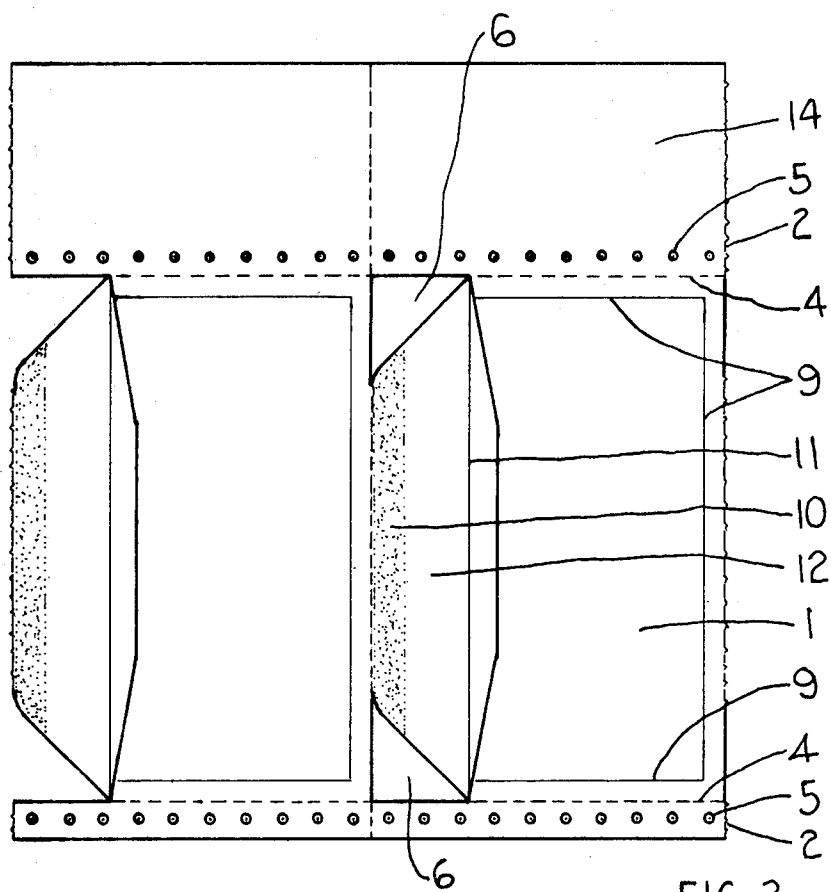


FIG. 2

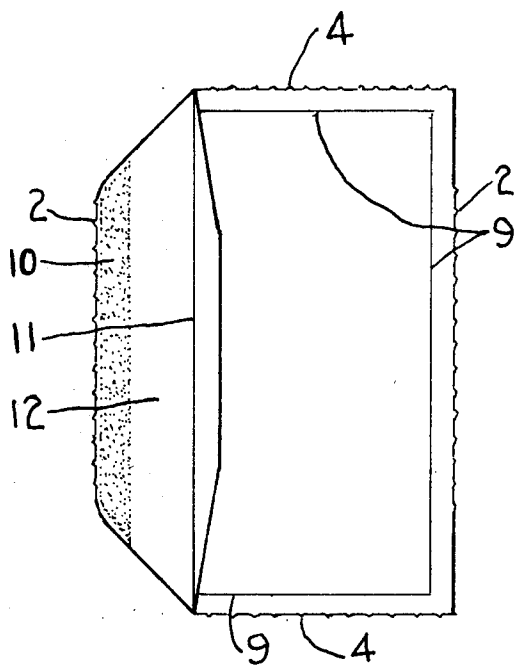


FIG. 3

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ATTORNEY

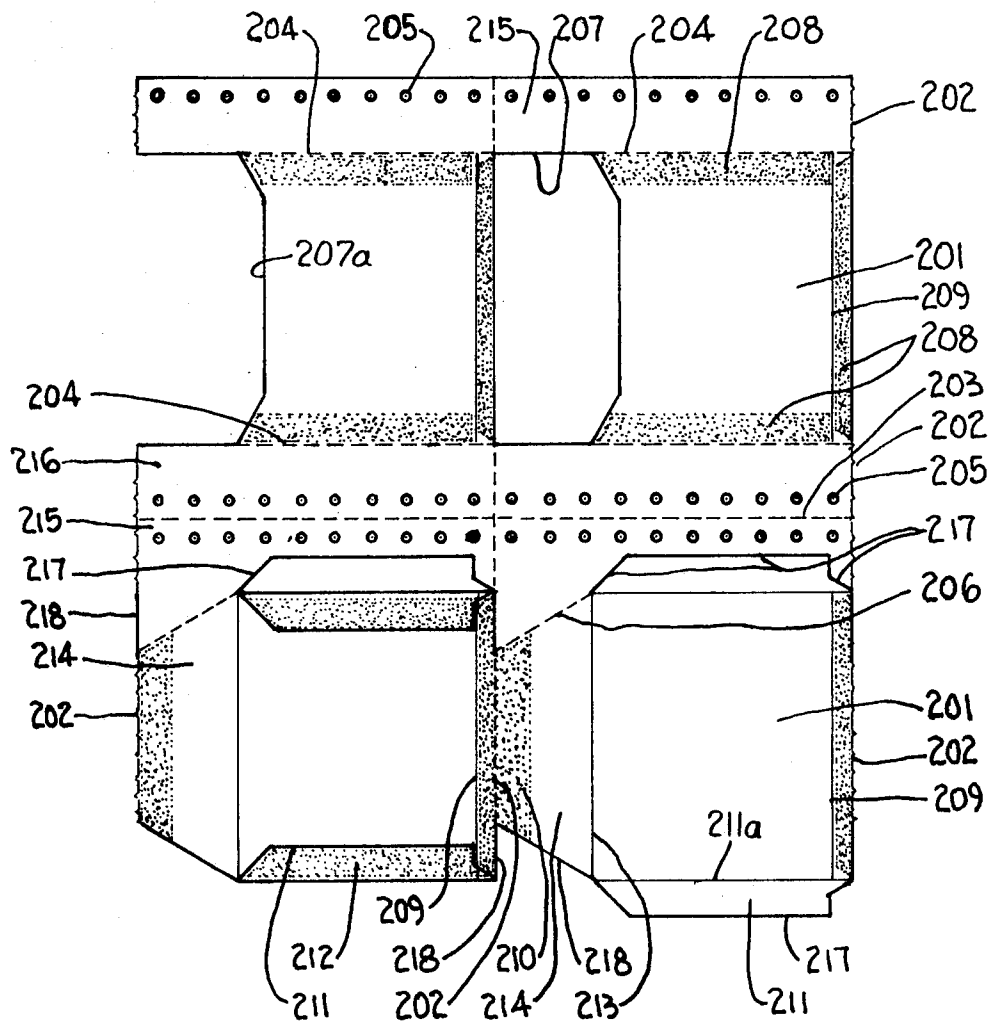


FIG. 4

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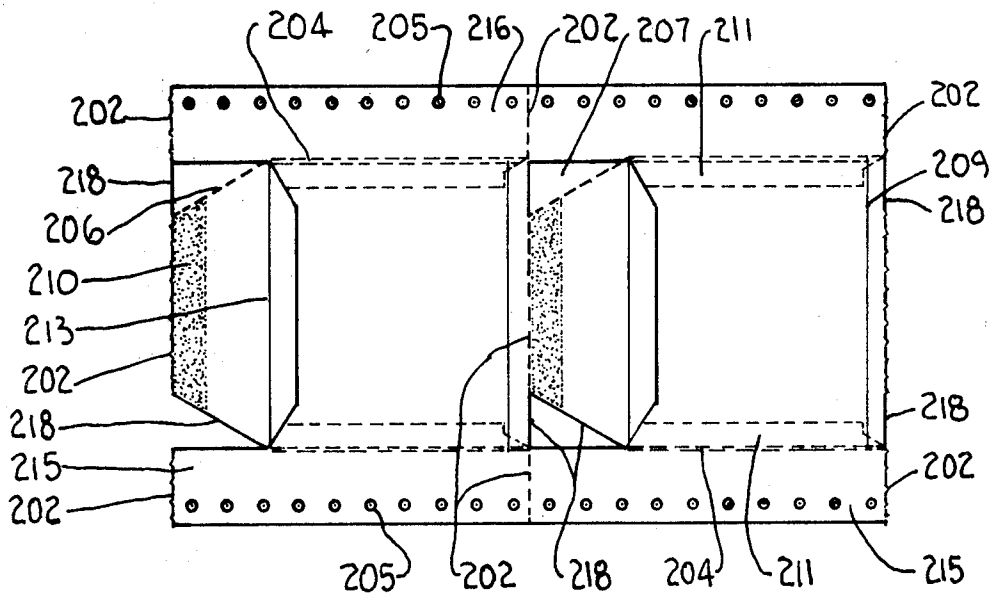


FIG. 5

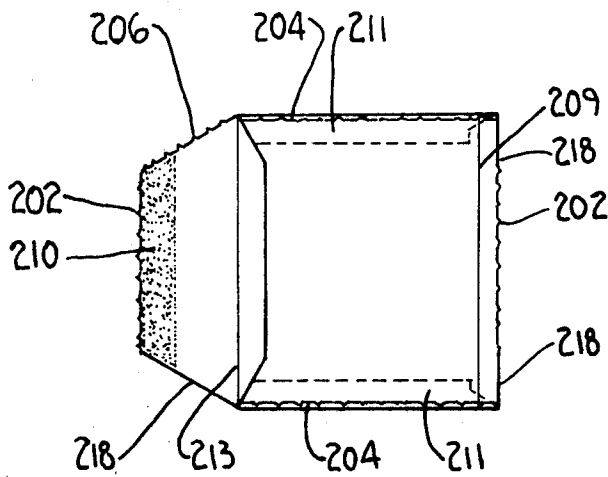


FIG. 6

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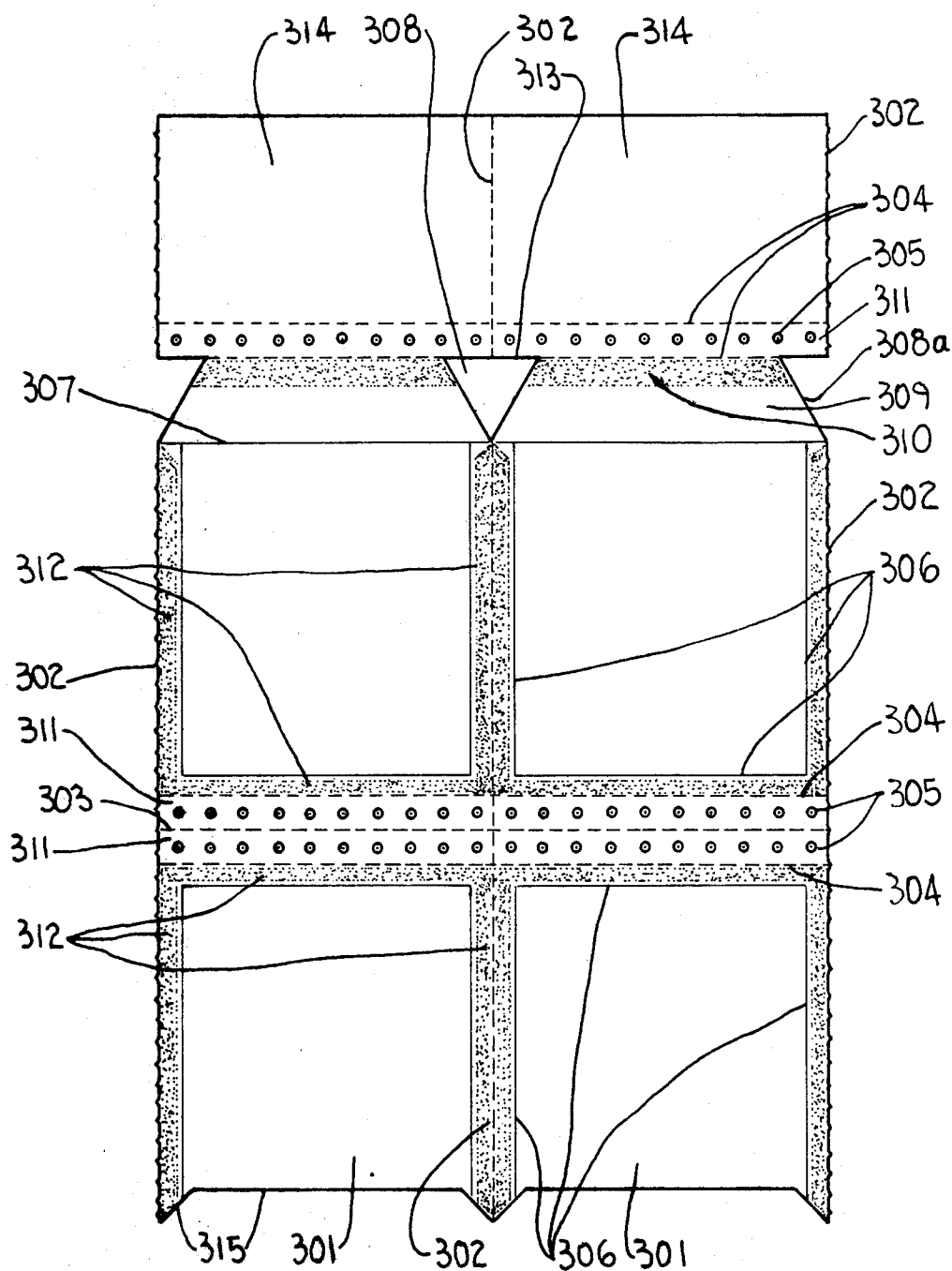


FIG. 7

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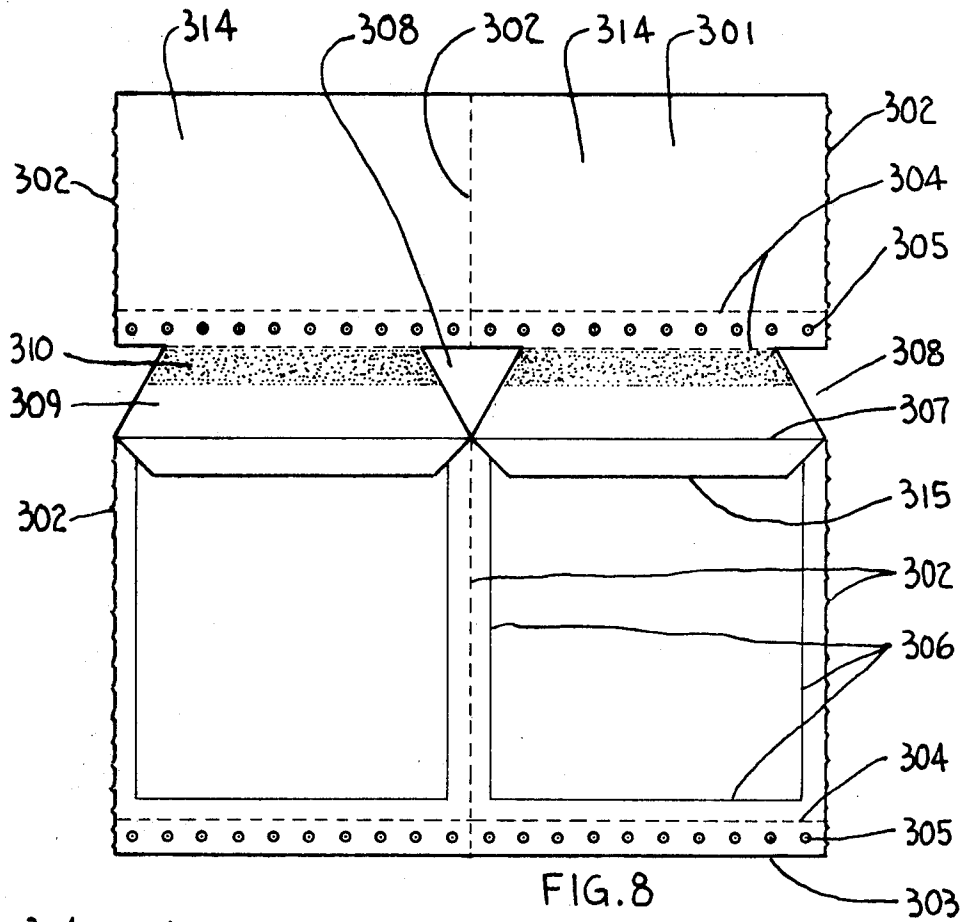


FIG. 8

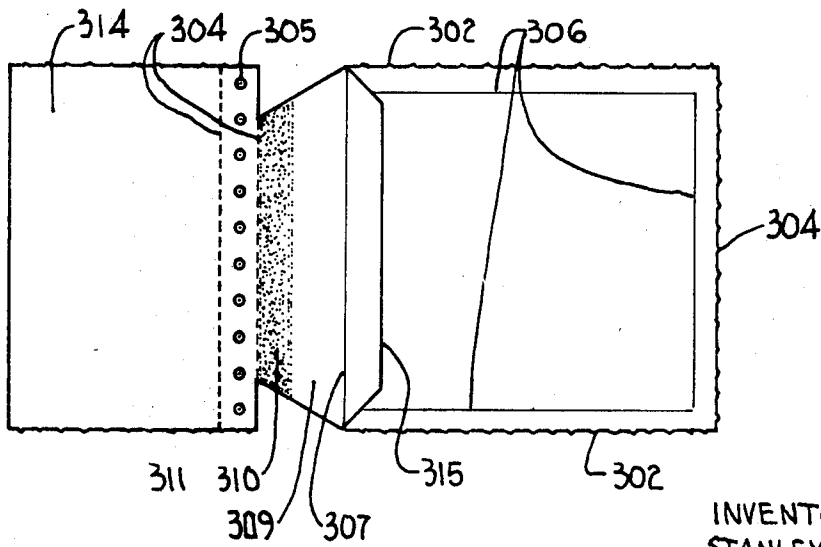


FIG. 9

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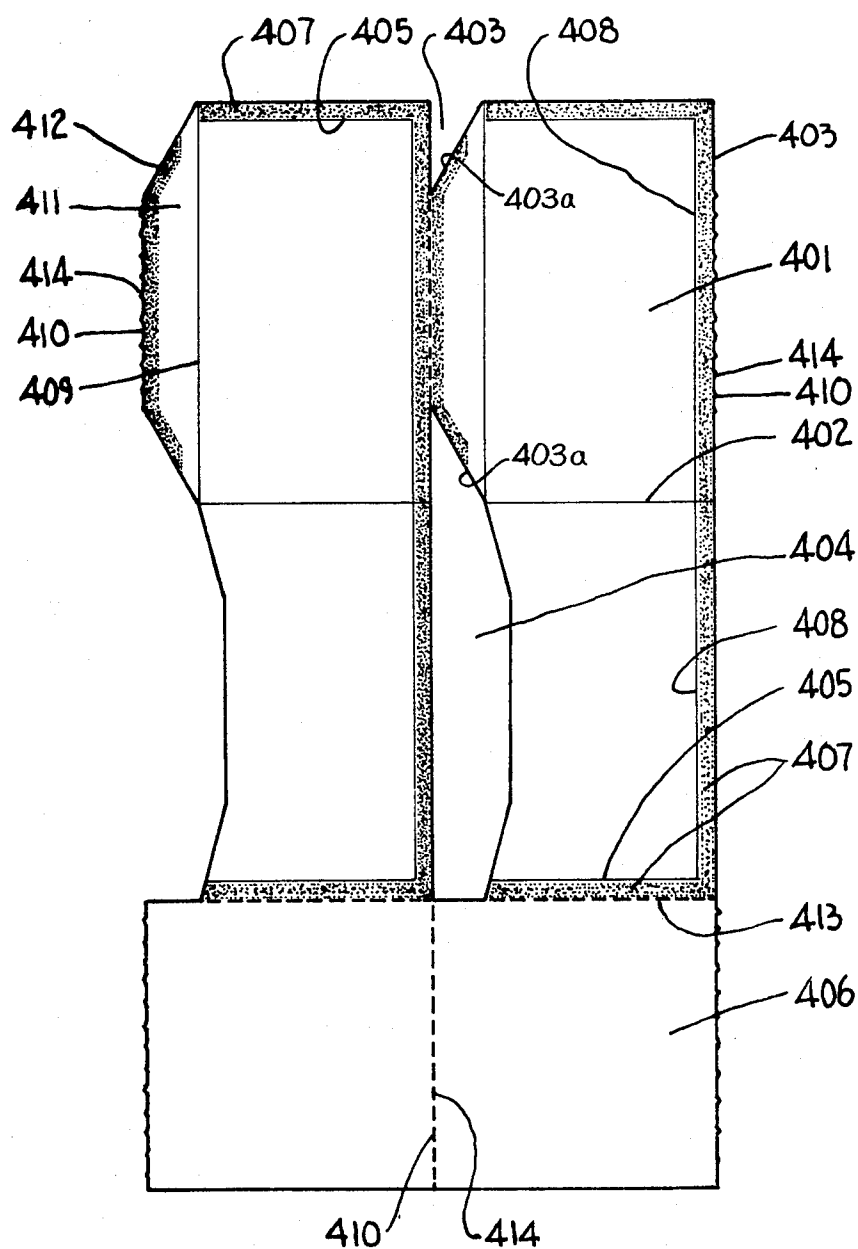


FIG. 10

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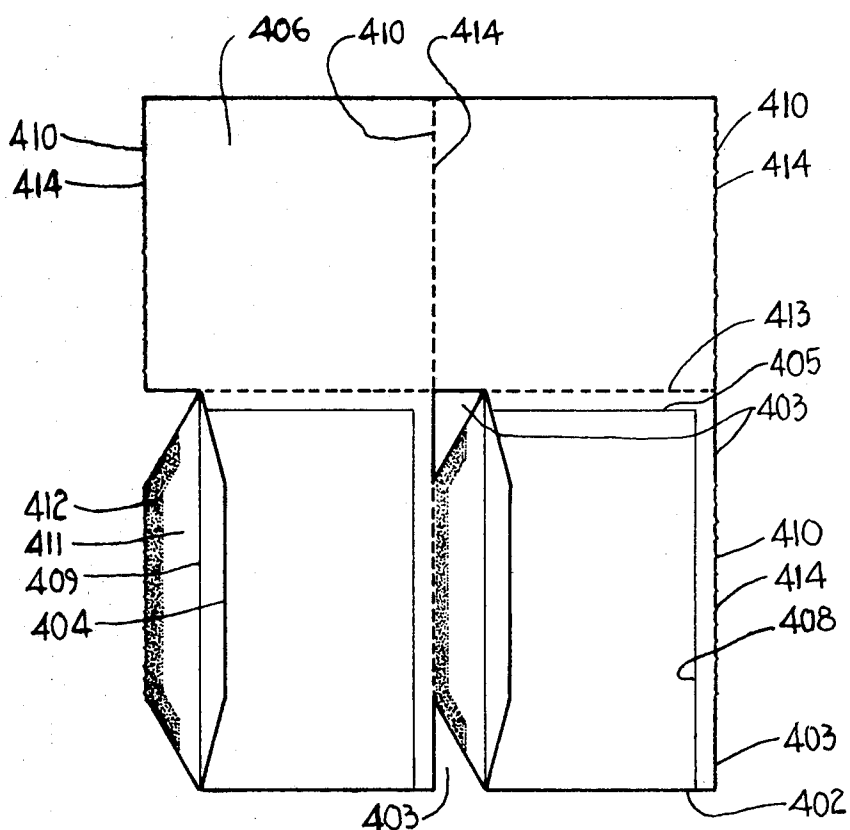


FIG. 11

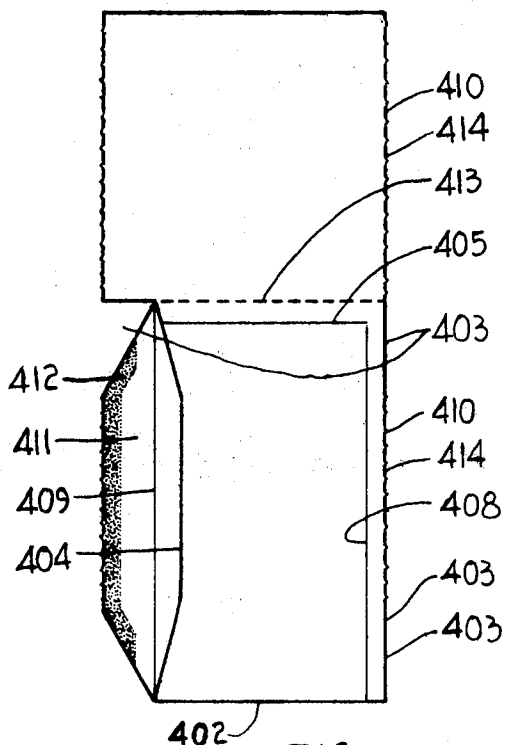


FIG. 12

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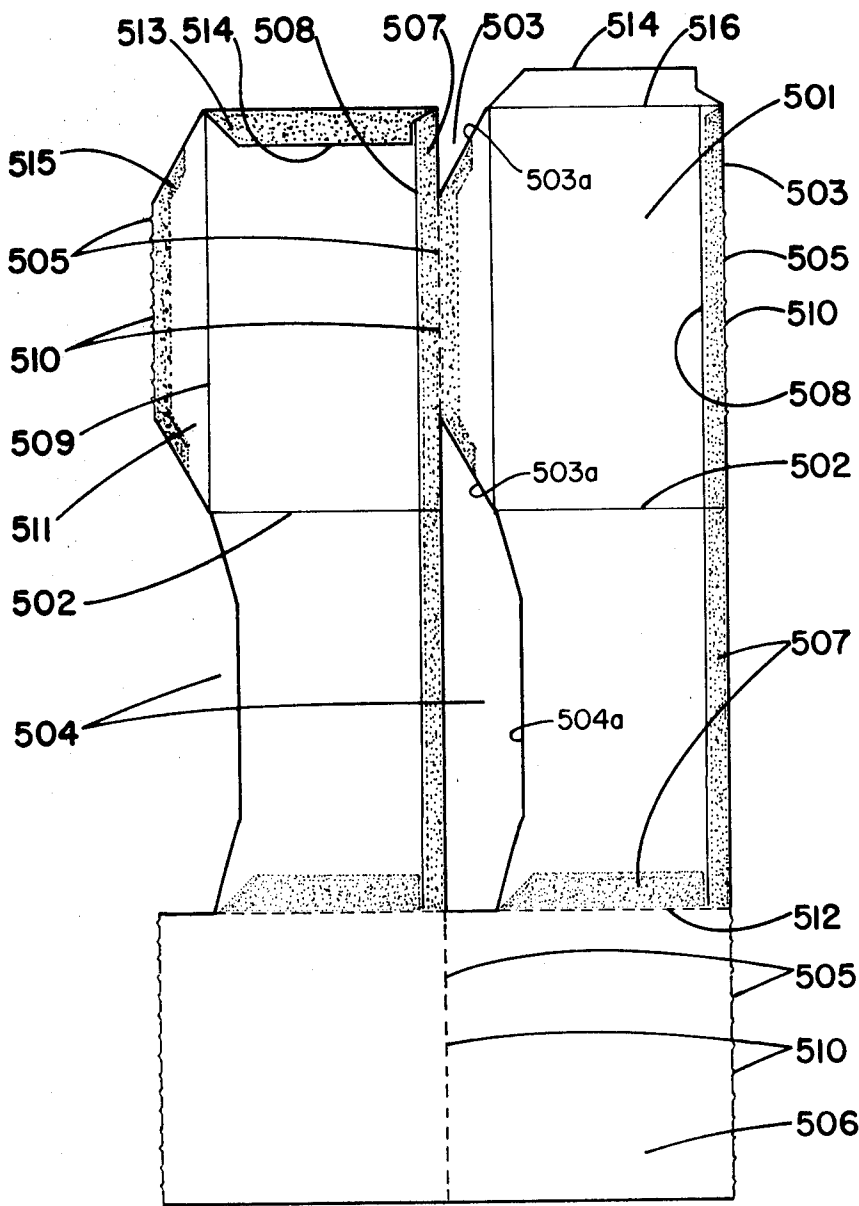


FIG. 13

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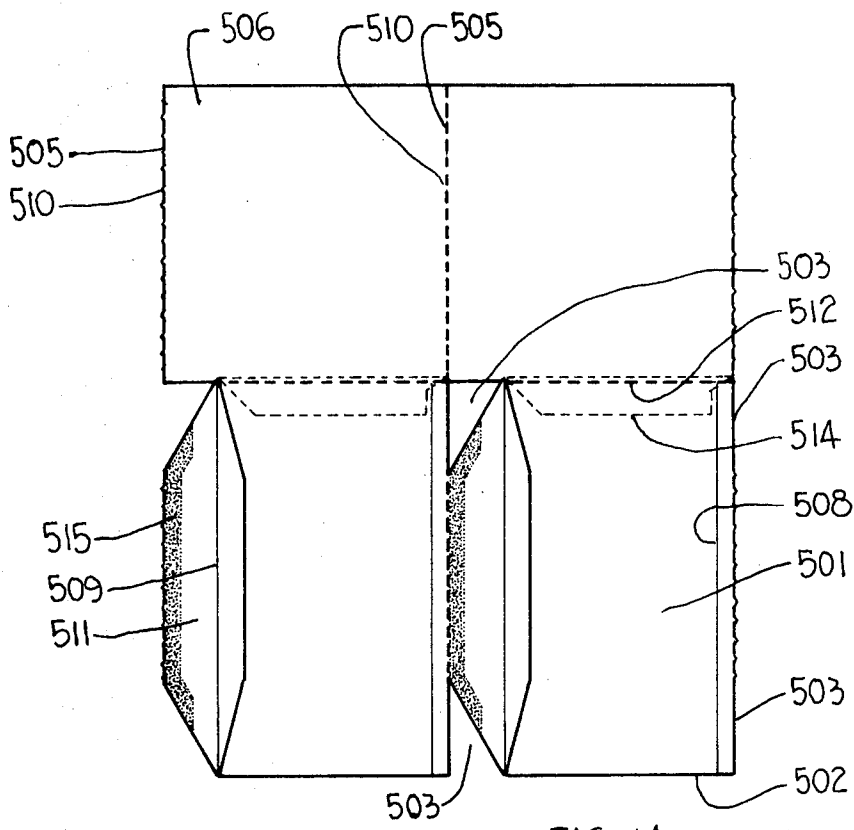


FIG. 14

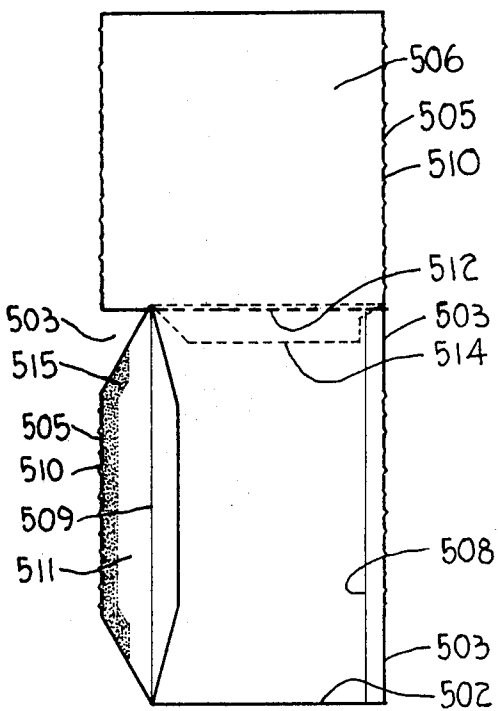


FIG. 15

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CONTINUOUS ENVELOPE

SUMMARY

A continuous envelope system of the type utilized for continuous processing in punched card accounting machines, addressing machines and typewriters with or without pin feed platens. The present envelope system and method is an improvement over prior art continuous envelopes in which the envelopes are formed of two separate webs of paper joined at the abutting marginal edges. Each web, in the prior art devices is separately diecut, punched, perforated, printed and treated with adhesive where required and superimposed over each other and joined by means of the adhesive. The resulting envelopes do not readily open to full width and depth because of the inherent stiffness of the front and back panels and the fact that the marginal edges of the several panels are firmly bound each to the other. As a result, the prior art continuous envelopes tend to buckle upon spreading of the front and back panels.

A principal object of the invention, therefore, is to provide a continuous envelope system in which a plurality of joined envelopes are made from a single web of sheet material.

Another object of the invention is to provide a continuous envelope system wherein each envelope has hinged joints at the three closed sides thereof so that full opening of the envelopes is attained upon spreading of the front and back panels.

A further object of the invention is to devise a method by means of which continuous envelopes of the above type may be made rapidly and efficiently.

Other objects of the invention will be apparent as the description proceeds with reference to the accompanying drawings wherein:

FIG. 1 is a fragmentary plan view of a continuous web illustrating present continuous form envelope system before folding over of the front and back panels;

FIG. 2 is a fragmentary plan view illustrating the continuous form envelope of FIG. 1 after folding;

FIG. 3 is a plan view of an envelope made in accordance with the method of the present invention;

FIG. 4 is a fragmentary plan view of a continuous web utilized for forming a continuous form envelope made in accordance with a modified form of the present invention;

FIG. 5 is a plan view of a continuous form envelope of FIG. 4 after folding;

FIG. 6 is a plan view of an envelope made in accordance with the method illustrated in FIGS. 4 and 5;

FIG. 7 is a plan view of a blank for a continuous form envelope made in accordance with a further modified form of the present invention;

FIG. 8 is a plan view of an envelope of FIG. 7 after folding has been effected;

FIG. 9 is a plan view of an envelope made in accordance with the method illustrated in FIGS. 7 and 8;

FIG. 10 is a plan view of a blank utilized to make a continuous form envelope made in accordance with a further modified form of the present invention;

FIG. 11 is a plan view of the blank of FIG. 10 in folded condition;

FIG. 12 is a plan view of an individual envelope made in accordance with the method set forth in FIGS. 10 and 11;

FIG. 13 is a plan view of an envelope blank embodying a side flap for printed or written indicia;

FIG. 14 illustrates an envelope made from the blank of FIG. 13;

FIG. 15 is plan view of an individual envelope made in accordance with the method illustrated in FIGS. 13 and 14.

Referring now to the drawings, and more particularly to FIG. 1, the continuous form envelope system of the invention comprises an elongate web of sheet material 1 that may be paper, film, or foil, delineated by longitudinally spaced perforation lines 2 into a series of successive blanks. The spacing between the several perforation lines 2 determines the width

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of the envelope and may be varied as required. A longitudinal fold line 3 runs the entire length of the web and establishes a line upon which the several sections 22 and 26 of the blank are folded to the position illustrated in FIG. 2. According to the invention, the front portion of the finished envelope is formed from section 22 while the back portion of the finished envelope is formed from section 26. A pair of laterally spaced longitudinally extending perforation lines 4, on each side of the fold line 3, delineate marginal strips 13 and 14 and form the outer limits of the front and back portions. Central strips 13a and 14a are delineated by perforation lines 4a in limited spaced parallel relation to fold line 3. The strips 13, 13a, 14 and 14a are formed with punched apertures 5 in which are received pinhole advance mechanisms of a type well known in the prior art.

The front portion is defined by die-cut openings 6, by the perforation lines 4, by the adjacent transverse perforation line 2, and by a score line 11 which also defines in part a flap 12, while diecut openings 7 define in part the back panel of the finished envelope. The front and back portions are also provided along three edges thereof, with zones 8 of nontacky adhesive which may be applied by conventional processes, and is inoperative at normal room temperature and atmospheric pressure. This adhesive is preferably selected from a class of adhesives which are fusible under heat and pressure but not otherwise. This may be effected after the web has been folded by fold line 3 so that the blanks assume the position illustrated in FIG. 2.

According to an important feature of the present invention means are provided for assuring full and effective opening of the envelopes for use. To this end, the blank sections are provided with score lines 9 in spaced relation to the bottom and side edges of the finished envelope and coincide with the inner limits of the adhesive zones.

The finished envelope includes a flap 12 defined in part by one of the perforation lines 2, the edges 6a defining the recesses 6, and a score line 11. The flap 12 has a conventional adhesive zone 10 of the water moistened type. After the continuous web of envelopes is processed in a business machine, the strips 13, 13a, 14 and 14a are removed by any suitable separation device to yield the envelope of FIG. 3.

In FIGS. 4, 5 and 6 is illustrated a modified form of the invention. In this form of the invention, as shown best in FIG. 4, scored and creased tabs 211 are provided and a score line 209, in spaced relation to the bottom of the finished envelope, is provided to assure full opening of the envelope. The right blank of FIG. 4 is illustrated with the tabs 211 in the position of formation while the left blank of this figure shows the tabs 211 after they have been folded about score lines 211a. Each blank is divided into sections by the line 203, the upper section forming the back portion of the envelope and the lower section defining the front portion. Also provided is a flap 214 similar in construction to the flap of the principal form of the invention. In this form of the invention the blanks are delineated by longitudinally spaced perforation lines 202 and folding of the web is facilitated by a fold line 203 so that the blanks assume the position illustrated in FIG. 5. Also provided are a marginal strip 215 delineated by longitudinally extending perforation line 204 and an irregularly shaped strip 216. The strips 215 and 216 are provided with punched openings 205 for a reception of the pins of conventional pin feed devices. The upper section of each blank is formed with a die-cut opening 207, defined by an edge 207a, to provide access to the completed envelope. One end of the flap 214 is defined by a perforation line 206 which defines in part marginal strip 216 and facilitates separation of marginal strip 216 from the continuous web after the envelope is completely processed in a business machine. The opposite side of flap 214 is defined by a die-cut edge 218, and folding of the flap 214 is facilitated by a score line 213.

The tabs 211 are formed with die-cut edges 217 and 218. These tabs are folded over prior to folding of the entire web about the fold line 203. An adhesive zone 212 is applied to the

lower side of the web in a manner that the tabs 211 are covered with adhesive except a narrow portion so that after the web is folded about the fold line 203, the tabs will be disposed inside the finished envelope, as illustrated in the left blank of FIG. 4. After folding of the web 201, the ends of the backside of the envelope will coincide with the edge of the adhesive zone 212 and thus form a sealed edge in limited spaced relation to the edge of the envelope. When the web 201 is folded, adhesive zones 208 and 212 meet and the folded web is then passed continuously through a series of heated rollers under pressure so that a series of joined envelopes is formed. The flap 214 is provided with an adhesive zone 210 of the conventional water moistened type.

Referring now to FIGS. 7, 8 and 9, there is disclosed therein a further modified form of the invention. In this form of the invention the continuous web is indicated by reference numeral 301 and is divided into equal increments or blanks by transversely extending longitudinally spaced perforation lines 302. Folding of the entire web longitudinally is facilitated by a longitudinal perforation line 303, which divides the blanks into sections. Marginal strips 311 are defined by longitudinally extending perforation lines 304 and have a plurality of punched holes 305 for reception of pins of conventional pin feed devices. Full opening of the resulting envelope is assured by the provision of score lines 306 in limited spaced relation to the sides and bottom edges of the finished envelope. By this arrangement flexible hinge joints are formed which permit bending of the envelope front and back panels without buckling. A score line 307 determines the axis of bending for the flap 309 of each envelope. The flap 309 is further defined by die-cut openings 308 defined in part by edges 308a which intersect perforation line 304. Adhesive zones 312 are accurately applied to both halves of the web 301 so that the edges thereof do not interfere with the bending action of the envelope sides provided by score lines 306. Flap 309 is provided with an adhesive zone 310 of the water moistened type.

The opening for the flap is defined by a die-cut edge 313 joining accurately die-cut edges 308a. The bottom edge of the blanks, as viewed in FIG. 7, are provided with die-cut recesses 315 to facilitate opening of the finished envelope. When the web 301 is folded about its longitudinal axis, the adhesive zones are brought into registration and then the entire folded web is passed between heated pressure rollers to effect fusing of the thermoplastic adhesive. In this form of the invention a stub 314 is provided for recording feasible indicia. This stub is selectively removable by means of the adjacent perforation line 304. In FIG. 9 is shown the manner in which individual side flap envelopes are removed from the continuous web.

In FIGS. 10, 11 and 12 is illustrated another modified form of the invention in which the use of marginal strips and pin feed holes is obviated. In this instance, the web 401 is provided with a deep score line 402 produced by repeated scorings. The web 401 is divided into blanks by longitudinally spaced transversely extending perforation lines 410. The fold line 402 divides each blank into separate sections, the front portion of the finished envelope being formed from the upper section, and the back portion of the envelope being formed from the lower section. A continued series of die-cut openings 403 defined in part by edges 403a form the ends of a flap 411. Access openings for the backside of the envelope are formed by openings 404. A continuous strip of rapid drying adhesive 407 of the nontacky type is applied to the marginal edges of the blank between the bottom and side edges thereof and a score line 408. Flap 411 is defined in part by a score line 409 and is provided with a contoured adhesive zone 412 of the water moistened type. A stub 406 is provided to hold the adjacent portion of web 401 together after openings 404 are die-cut. It will be appreciated that stub 406 is a part of web 401 and remains joined to each blank by means of perforation line 413. Stub 406 may be removed after the envelope is formed by tearing along line 413. The stub 406 is intended to receive printed or written indicia and may be removed, if desired. After the web 401 is folded over and sealing is effected in the

manner above described, the web then comprises a series of joined envelopes as illustrated in FIG. 11. These joined envelope are then separated as shown in FIG. 12. The perforation line 410 may be utilized to fold the web of envelopes into a continuous pack or, in the alternative, these lines may be used to separate the continuous web into individual envelopes. Stub 406 may be narrower when used for production of individual envelopes since its only function, in this regard, is to hold the blank during production after openings 404 are die-cut.

Referring now to FIGS. 13, 14 and 15 there is illustrated therein a further modified form of the invention. The envelope of this modified form of the invention is similar to that shown in FIGS. 10, 11 and 12. A continuous web 501 has a score line 502 for longitudinal folding and has a plurality of longitudinally spaced transversely extending perforation lines 505 defining a series of connected blanks. Each blank is divided into sections by fold line 502. Each blank includes a flap 511 defined by edges 503a of die-cut recesses 503 and 504. Recess 504 defined by edge 504a extends into the back panel to facilitate opening of the finished envelope. A score line 509 provides a bend line for folding the flap 511. A score line 508 is disposed in limited spaced relation to the right edge of the blank, as viewed in FIG. 13, and defines, in cooperation with the right edge, an adhesive zone 507. The flap 511 has a contoured adhesive zone 515. The adhesive used in zone 515 is preferably of the water moistened type.

A flap 514 is formed integrally with the top panel of the blank and is defined in part by score line 516. The flap 514 is coated with a thermoplastic rapid drying adhesive zone 513 extending into limited spaced relation to score line 516. By this arrangement perforation line 512, defining the bottom limit of the lower panel of the blank, as viewed in FIG. 13, is in register with score line 516 after longitudinal folding has been effected. The right blank of FIG. 13 is illustrated with tab 514 in the position of formation while the left blank of this figure shows the tabs 514 after they are folded about score line 516. The left blank of FIG. 13 illustrates the adhesive zone 513 on the obverse side so that after the blank is folded the flap 514 appears inside of the envelope. Stub 506 is provided to hold the adjacent portion of web 501 and remains joined to each blank by means of a perforation line 512. Stub 506 is intended to receive printed or written indicia and may be removed at any time after the envelope is completely formed or served its end use function by tearing along line 512. The continuous form envelope of this modified form of the invention is subject to heated pressure rolls as described with reference to the other forms of the invention previously described.

It will be appreciated that the webs in each of the several forms of the invention may be severed to form individual envelopes. In the alternative, the webs may be folded about the transverse perforation lines to form a continuous fold.

I claim:

1. A continuous form envelope blank system comprising a continuous web of flexible material, a plurality of longitudinally spaced transversely extending perforation lines defining a plurality of successive blanks, a longitudinally extending fold line in said web dividing each of said sections into a first panel and a second panel, said first panel having a score line delineating a front portion and a flap, said flap being further defined by angularly extending edges and by a perforation line, said second panel forming a back portion having an edge spaced from the adjacent transverse perforation line and defining an access opening, said web being adapted to be folded about said longitudinally extending fold line, adhesive zones on said panels adapted to cooperate each with the other to secure said first panel to said second panel to form a complete envelope, perforation lines disposed in limited spaced relation to said fold line to form marginal portions, and a plurality of longitudinally spaced pin feed holes in said marginal portions, marginal portions defined by perforation lines disposed at the outer side edges of said web, said outer marginal portions having pin feed holes to cooperate with said

first-named pin feed holes to advance the web as required, at least one of said second named marginal portions being enlarged for reception of indicia.

2. A continuous form envelope blank system comprising a continuous web of flexible material, a plurality of longitudinally spaced transversely extending perforation lines defining a plurality of successive blanks, a longitudinally extending fold line in said web dividing each of said sections into a first panel and a second panel, said first panel having a score line delineating a front portion and a flap, said flap being further defined by angularly extending edges and by a perforation line, said second panel forming a back portion having an edge spaced from the adjacent transverse perforation line and defining an access opening, said web being adapted to be folded about said longitudinally extending fold line, and adhesive zones on said panels adapted to cooperate each with the other to secure said first panel to said second panel to form a complete envelope, at least one of said panels being defined by a perforation line delineating in part an indicia-receiving tab.

3. A continuous form envelope blank system comprising a continuous web of flexible material, a plurality of longitudinally spaced transversely extending perforation lines defining a plurality of successive blanks, a longitudinally extending fold line in said web dividing each of said sections into a first panel and a second panel, said first panel having a score line delineating a front portion and a flap, said flap being further defined by angularly extending edges and by a perforation line, said second panel forming a back portion having an edge spaced from the adjacent transverse perforation line and defining an access opening, said web being adapted to be folded about said longitudinally extending fold line, and adhesive zones on said panels adapted to cooperate each with the other to secure said first panel to said second panel to form a complete envelope, said flap being further defined by a perforation line extending in spaced parallel relation to said fold line, said last-named perforation line defining an indicia-receiving tab.

4. An envelope system in accordance with claim 3 wherein a second perforation line is formed in limited spaced parallel relation to said first perforation line to form a marginal strip having a plurality of pin feed holes therein.

5. A system of continuous envelopes comprising a continuous web of flexible material, a longitudinally extending fold line, a plurality of longitudinally spaced transversely extending perforation lines defining a series of adjacent blanks con-

nected by said perforation lines, each of said blanks including a first panel and a second panel joined to said first panel by said fold line, said first panel having die-cut openings defined in part by edges extending angularly oppositely with respect to said fold line, a score line extending between said edges and cooperating with the adjacent transversely extending perforation line to delineate a flap, an adhesive zone on said flap, said score line further cooperating with the opposite transverse perforation line to delineate in part a front portion, adhesive zones at the side marginal edges of said first panel, said second panel embodying a back portion defined by an edge coincident with said adjacent transversely extending perforation line and by an edge defining a die-cut access opening, adhesive zones at the side marginal edges of said back portion and an adhesive zone at said edge coincident with said adjacent perforation line, the adhesive zones of said back portion being adapted to register with the adhesive zones of said front portion, each of said panels being provided with a perforation line delineating a marginal zone adjacent to said fold line, at least one of said last-named perforation lines defining an outer marginal strip.

6. A system of continuous envelopes comprising a continuous web of flexible material, a longitudinally extending fold line, a plurality of longitudinally spaced transversely extending perforation lines defining a series of adjacent blanks connected by said perforation lines, each of said blanks including a first panel and a second panel joined to said first panel by said fold line, said first panel having die-cut openings defined in part by edges extending angularly oppositely with respect to said fold line, a score line extending between said edges and cooperating with the adjacent transversely extending perforation line to delineate a flap, an adhesive zone on said flap, said score line further cooperating with the opposite transverse perforation line to delineate in part a front portion, adhesive zones at the side marginal edges of said first panel, said second panel embodying a back portion defined by an edge coincident with said adjacent transversely extending perforation line and by an edge defining a die-cut access opening, adhesive zones at the side marginal edges of said back portion and an adhesive zone at said edge coincident with said back portion being adapted to register with the adhesive zones of said front portion, an outwardly extending tab being formed at the outer side edge of said first panel, said tab being adapted to be folded onto said first panel and being adapted to receive an adhesive zone for cooperation with a corresponding adhesive zone at the marginal side edge of said second panel.

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