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Shea et al.

[11] **3,784,088**

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[54] **CONVERTIBLE HOSIERY PACKAGE**

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[52] **U.S. Cl.** **229/68,** 229/37

[51] **Int. Cl.** **B65d 27/00**

[58] **Field of Search** ..... 206/7 F, 46 AP; 229/37, 68 R, 148 A, 38

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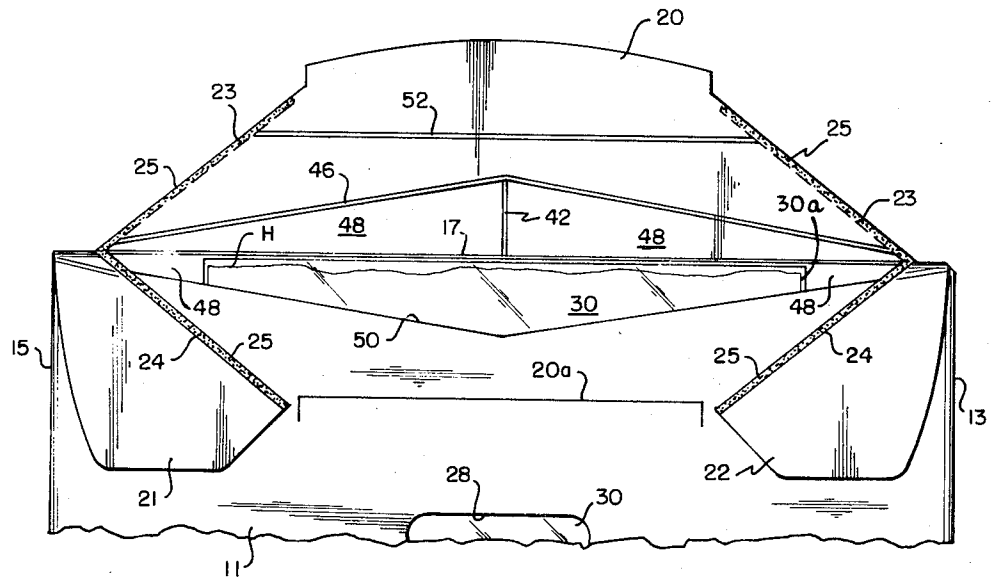
Assistant Examiner—John M. Caskie
Attorney—Hubert T. Mandeville et al.

[57] **ABSTRACT**

Disclosed herein is a new and improved reclosable convertible envelope for packaging hosiery or soft goods, having unique end constructions which accommodate the conversion of a normally flat, two-walled hosiery envelope into a bulging four-walled envelope, i.e., an envelope having front and rear walls and two end walls disposed there-between. Specifically, the unique end wall construction of the new envelope includes generally diamond-shaped panels which are derived in part from an envelope wall and in part from a closing flap. The diamond-shaped end panels are longitudinally bisected by the end scores of the flat two-walled envelope. For use with non-bulky contents, the envelope tends to remain flattened with its end flaps folded along the longitudinal end scores, however, for use with bulky goods, the envelope takes on "dimension" or is expanded by the separation of the front and rear walls. The expansion is accommodated by the formation of vaulted, generally diamond-shaped end walls by the infolding or collapsing of the end flap and wall portions along the opposite sides of the diamond-shaped panels. The new envelope may be lined, with a flexible liner or pre-formed plastic sleeve. It is provided with convenient tear opening and tab reclosing arrangements designed in such a manner as to eliminate rough edges that might snag or otherwise harm the hosiery.

12 Claims, 7 Drawing Figures



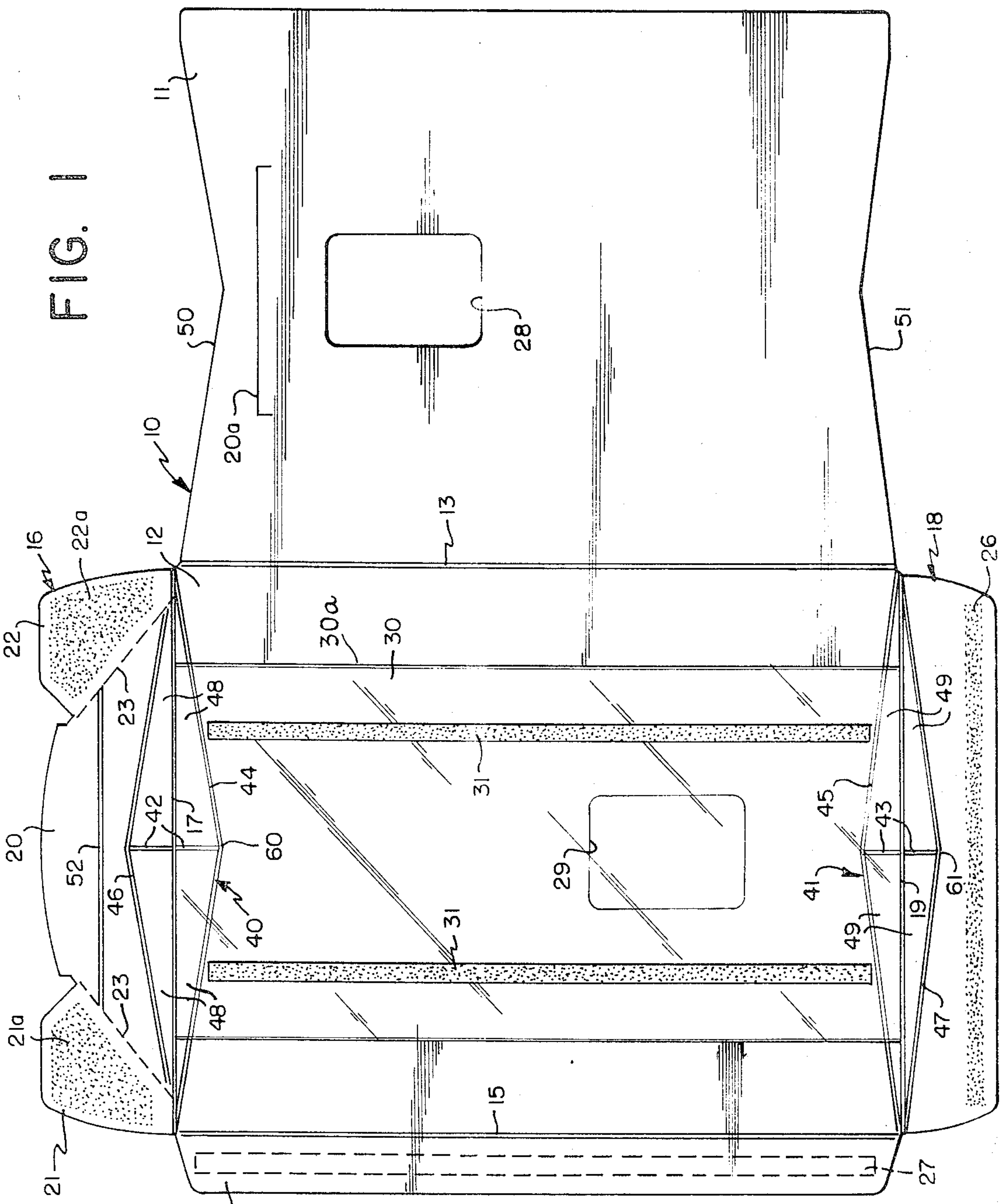

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FIG. 1

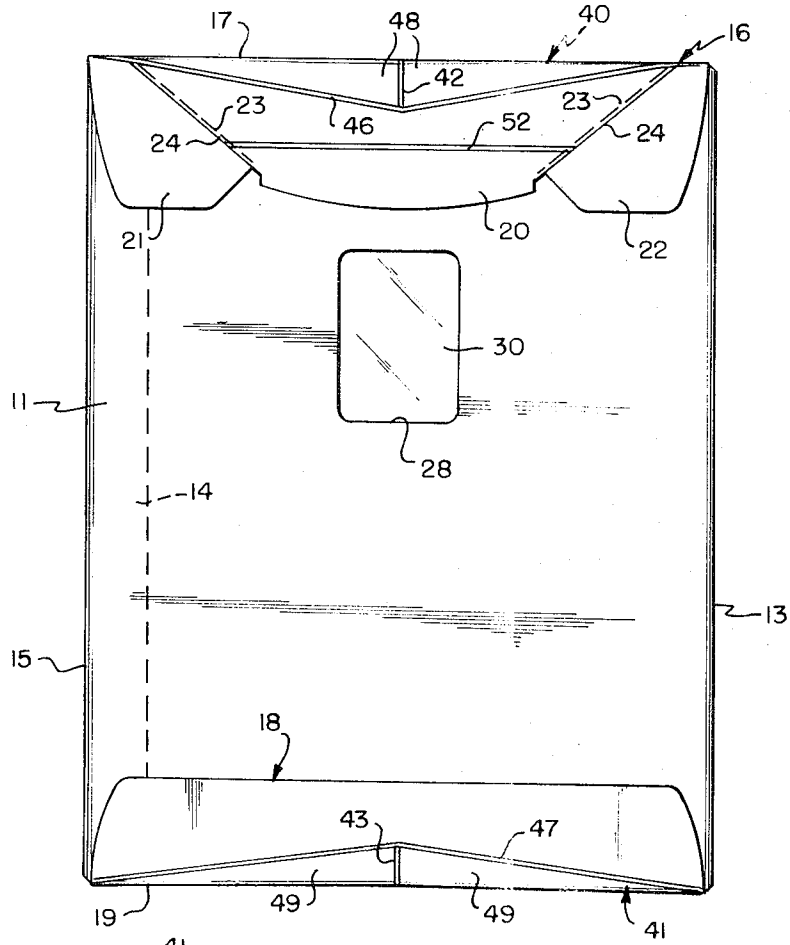


FIG. 2

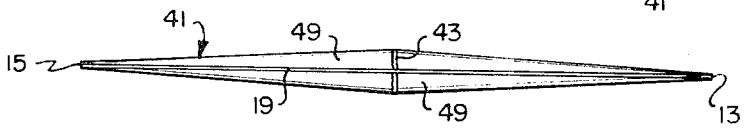


FIG. 3

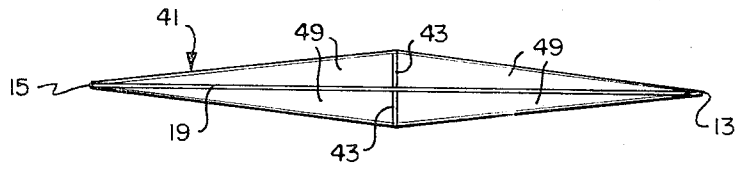
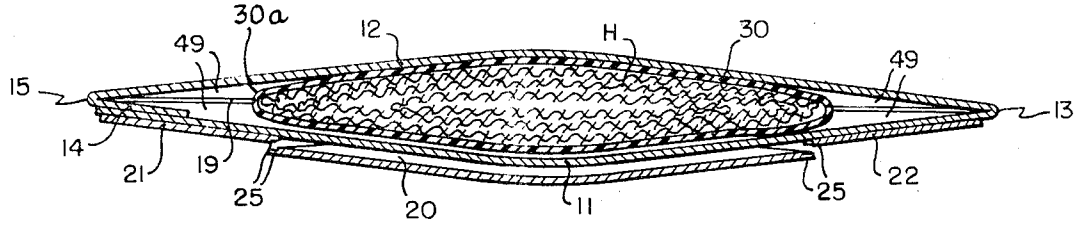


FIG. 5

FIG. 7



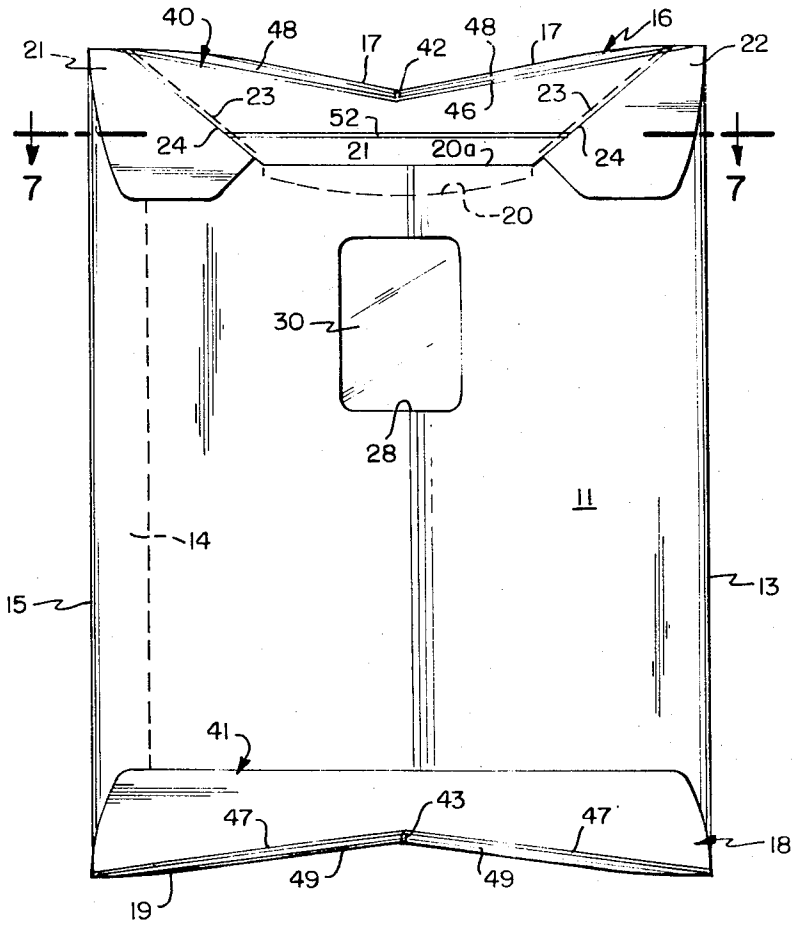

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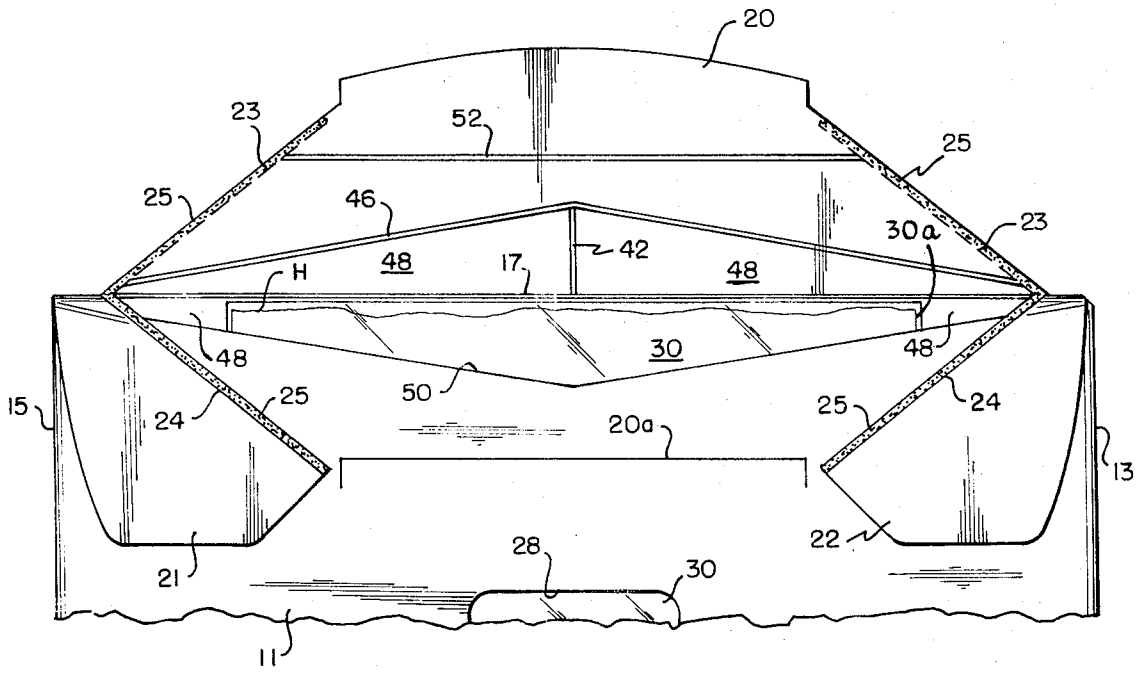
FIG. 4

FIG. 6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CONVERTIBLE HOSIERY PACKAGE

BACKGROUND OF THE INVENTION

Hosiery and other soft goods are often packaged in envelopes of various sizes and shapes and materials, all of which are intended to protect the packaged contents and to inform the consumer as to the nature of the goods. A plethora of envelope constructions have been developed in an effort to provide the requisite packaging properties for hosiery and the like. It is to a substantial improvement in paperboard hosiery envelopes that the present invention is directed.

SUMMARY OF THE PRESENT INVENTION

Heretofore, it has been common practice to use one type of envelope for sheer, non-bulky hosiery and soft goods, i.e., an envelope having no "dimension" or no substantial thickness, an essentially two-dimensional envelope, and to use a different envelope or carton construction when bulky hosiery or soft goods are to be packaged, i.e., envelopes, bags or boxes having "dimension" or substantial thickness, a three-dimensional package or a flexible transparent bag or envelope. The present invention provides a new and improved paperboard envelope construction which may be used either two-dimensionally or three-dimensionally to package both non-bulky and bulky goods.

In accordance with the principles of the present invention, a convertible, two-walled envelope is provided, which envelope has two closing end flaps articulated to the opposite end wall edges. The end flaps and the adjacent end wall portions are appropriately scored to define laterally and longitudinally bisected oblong panels which are generally diamond shaped and which may be collapsed into a vaulted end wall forming configuration to give a normally two-dimensional envelope a third or depth dimension for the packaging of bulky goods. The new envelope construction readily lends itself to use with or without a plastic protective lining for the hosiery to be packaged and also lends itself to a variety of tear opening and tab reclosing configurations, should the same be necessary or desirable.

For a thorough understanding of the present invention and a more complete appreciation of its attendant advantages, reference should be made to the following detailed description of a preferred embodiment taken in conjunction with the accompanying drawings.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view of a paperboard blank from which the new convertible envelope may be fabricated;

FIG. 2 is a plan view of a folded and sealed envelope in an essentially "two-dimensional" embodiment in which the envelope has no substantial depth;

FIG. 3 is an end elevational view of a slightly expanded envelope of the type shown in FIG. 2;

FIG. 4 is a side elevational view of the envelope of the invention, with bulky goods therein after the envelope has been opened and reclosed;

FIG. 5 is an end elevational view of the carton of FIG. 4;

FIG. 6 is an enlarged, fragmentary, plan view of the carton of the invention with the top closing flap torn open to provide access to the packaged goods; and

FIG. 7 is a cross-sectional view of the envelope of the invention taken along line 7—7 of FIG. 4, showing details of construction of the new envelope.

DETAILED DESCRIPTION OF A PREFERRED EMBODIMENT

Referring now to FIG. 1, a blank 10 die cut from a sheet of flexible sheet material such as paperboard or the like, from which the new convertible envelope of the invention may be fabricated, includes a rear wall 11 articulated to a front wall 12 along a longitudinal, vertical score line 13 and a glue flap 14 articulated to the front wall 12 along a longitudinal, vertical score line 15 parallel with the score line 13. The score lines 13, 15 are definitive of the two side edges of the new envelope. An upper closing flap 16 is articulated to the upper edge of the front wall 12 along horizontal transverse score line 17 extending perpendicularly between the score lines 13, 15, while a lower closing flap 18 is articulated to the lower edge of the front wall 12 along a horizontal score line 19, extending perpendicularly between the score lines 13, 15.

The center and free edge portions of the upper closing flap 16 define a reclosure tongue 20 which is engageable in a corresponding slot 20*a* formed on the rear panel 11 for reclosing of the envelope after it has been opened. The upper flap also includes two sealing ears 21, 22 through which the upper flap 16 is sealed to the rear wall during initial envelope formation. Included in the flap 16 are convergent pairs of lines of weakness 23, 24 extending between the reclosure tongue 20 and the horizontal score line 17 along which lines the flap 16 may be torn open to gain access to the packaged goods. Advantageously, the lines of weakness 23 are formed by a line of closely spaced cuts or perforations, and the lines of weakness 24 are formed by cut scores in order to provide "soft," flexible edges 25 comprising a fractional thickness of the original paperboard (FIG. 6) when the envelope is torn open. In this manner, rigid torn edges, which represent snagging or tearing edges during hosiery removal from the package, are avoided. Nevertheless, in certain cases, where more durable goods are packaged, the tear opening lines of weakness 23 24 may be omitted. In either case, the tear lines provide for the separation of the reclosing tongue 20 from the remainder of the original flap 16 for the opening of the envelope of the invention, as will be understood.

The bottom flap 18 is sealed to the rear wall 11 by a straight line of adhesive 26. Likewise, the rear wall 11 is connected to the front wall 12 by a straight line of adhesive 27 disposed on the glue flap 14. The front and rear walls 11, 12 of the envelope include cutout window portions 28, 29, which are provided when viewing of the packaged goods is desired. Moreover, should additional protection for the packaged goods be desired, a polyethylene or other plastic lining tube 30 may be included as part of the envelope structure. In such cases after the blank is cut and creased a flattened tube or a sheet liner 30 may be secured to the front and rear walls 11, 12 by lines of adhesive 31. It will be understood, of course, that the above-described envelope construction lends itself to fast and economical production on conventional envelope gluing equipment.

In accordance with a critical aspect of the invention, latent oblong, e.g. diamond-shaped, end walls 40, 41 are formed at the ends of the envelope. Each of the diamond-shaped end walls is formed by four identical triangular portions 48, 49, two of which are disposed in each of the end flaps and two of which are disposed in-

wardly of the end edges of the front wall **12.** More specifically, the triangular portions of the end walls are formed by vertical score lines **42, 43** which bisect the end edge score lines **17, 19** and by diverging score lines **44–47** which extend from the bisecting vertical score lines **42, 43** toward the corners of the front wall to form latent hinge lines in the upper and lower flaps **16, 18** for the diamond-shaped end walls. Thus, and as clearly shown in FIG. **1,** the upper diamond-shaped end panel **40** includes four right triangular portions **48,** while the lower diamond-shaped end panel **41** also includes four right triangular portions **49.**

As a further aspect of the invention, the upper edge **50** is V-shaped, and the lower edge **51** of the rear panel **11** is inverted V-shaped to coincide with the shape of the score lines **44, 45** and to accommodate bulging of the diamond-shaped end panels to give the normally flat or two-dimensional envelope "depth" or "dimension," if desired. More specifically and in accordance with the invention, if the envelope is to be essentially two-dimensional and require no depth, the end flaps **16, 18** will be conventionally folded only along the parallel score lines **17, 19.** However, if depth or substantial bulging of the envelope is required, as for example in the packaging of bulky hosiery, the latent end panels **40, 41** may be expanded, by the packaged goods, into end forming relationship very much in the nature of a geodesic structure in which the four triangular panels at each end of the carton are folded along each of the score lines definitive thereof to form the diamond-shaped, dome-like end walls shown in FIGS. **3** and **5.** Of course, when no bulging is required, the envelope assumes the shape shown in FIG. **2.** For expansion before insertion of goods, the erection of the end walls may be effected by collapsing the latent diamond shaped walls toward one another by applying pressure at pressure points **60, 61,** the intersections of lines **42, 43** with lines **44, 47,** thereby separating, by bowing, the central portions of the walls **11, 12** and shortening slightly the spacing of the opposite edges **13, 15,** as shown in FIGS. **3** and **5.**

Assembling, filling and eventual opening of the envelope of the invention may be carried out quickly and expediently as follows: A flattened envelope tube construction is formed from the blank **10,** shown in FIG. **1,** by infolding the glue flap **14** and then folding the rear wall along score line **13** over the front wall and the liner sheet or liner tube **30.** (If a liner is required, it is adhered to both the front and rear walls along the adhesive strips **31**). Thereafter, either the flap **16** or the flap **18** may be folded along the score line **17** or **19,** respectively, and adhered by conventional glue or adhesive, hot melt, pressure-sensitive adhesives or the like to the rear wall of the carton to form a two-dimensional envelope closed on three sides. The goods to be packaged may thereafter be inserted through the end and into the liner tube **30,** if present, before the envelope is completed by folding the remaining flap and sealing the same. The flaps **16, 18** are, of course, sealed to the rear wall **11** by the adhesive line **26** on the lower flap **18** and by the adhesive fields **21***a*, **22***a* on the ears **21, 22,** respectively, of the upper flap **16.** Alternatively, the envelope (and liner, if present) may be filled before either end is closed.

In accordance with the invention, if the goods packaged are flat and require no substantial "dimension" in the envelope, the latent diamond-shaped end panels will remain latent; that is, the end flaps **16** and **18** will merely be folded along the median score lines **17** and **19** to provide a substantially flat, non-bulging envelope, as shown in FIG. **2.** However, if the goods packaged have some small bulk requiring a minor amount of "depth" or bowing of the walls **11, 12,** the latent diamond panels **40, 41** will be slightly collapsed and the triangular portions **48, 49** will give the envelope a slight depth dimension, as shown in FIG. **3.** Should a major amount of "depth" and bulging be required, the diamond-shaped panels **48, 49** will be folded into full depth end walls forming portions shown in FIG. **5.** In accordance with the invention, the maximum depth of the envelope at the central portions is determined by the spacing of the adhesive lines **31** from the edges **30***a* of the tube **30.**

Thus, it will be appreciated that, in accordance with the teachings of the present invention, a simple, flat envelope construction is made "convertible" to accept many types of hosiery and soft goods. That is to say, the envelope blank shown in FIG. **1** may be used to package a wide variety of goods ranging from non-bulky to bulky. Moreover, the new envelope construction lends itself to fabrication by conventional techniques on conventional machinery and lends itself to use with or without protective linings. Opening of the new envelope by the ultimate consumer is a simple matter. The tongue **20** is lifted up and away from the front wall **12,** which action is facilitated by the inclusion of a horizontal score line **52** in the flap **16** and is separated from the ears **21, 22** by severance of the tear lines **23, 24** which expose safe, soft, smooth, "non-snagging" flexible edges **25** (FIG. **6**) designed to avoid rough spots that might damage the contents. Once the envelope has been opened, the hosiery, soft goods, or other packaged goods may be simply removed by the consumer. If desired or necessary, the package may be easily reclosed by inserting the tongue **20** into the reclosing slot **20**a, as will be understood.

The convertible envelope of the invention facilitates the packaging and removal of goods by virtue of the unique end flap construction including latent diamond end flaps extending across the full envelope width, which diamond-shaped flaps are comprised of four individual triangular elements which may be selectively collapsed into a geodesic type end wall to accommodate varying degress of bulge in the envelope. Moreover, the opening of the envelope provides soft torn edges which are not harmful of delicate hosiery as it is removed.

The package of the invention herein illustrated and described is intended to be representative only, as certain changes may be made therein without departing from the teachings of the disclosure. For example, the score lines **44–47** may be shortened (e.g., 1 inch lengths for envelopes 7¼ inches wide), or the lines **44–47,** whether abbreviated or not, may be arcuate. In all cases, the envelope end structures are expanded or vaulted by the collapse of the four contiguous, generally triangular portions, which collapse may be effected by pressure applied at the intersections of the score lines **42, 17** and **43, 19.** Accordingly, reference should be made to the following appended claims in determining the full scope of the invention.

We claim:

1. A convertible hosiery envelope comprising

a. a rectangular front wall having a top closing flap articulated thereto along an upper horizontal score line definitive of the normal upper edge of said envelope and a bottom closing flap articulated along a lower horizontal score line definitive of the normal lower edge of said front wall;
b. a rear wall articulated along a side edge of said front wall and folded in face-to-face relation with said front wall;
c. glue flap means for connecting the other edge of said rear wall to the other edge of said front wall to form a flat, two-walled tube;
d. vertical score lines bisecting said upper and lower horizontal score lines;
e. oblique score lines disposed above and below said horizontal upper and lower score lines and extending from the ends of said vertical score lines toward each of the four corners of said front wall and with said vertical and horizontal score lines generally defining four identical contiguous right triangular panels, two of which are disposed in each of said closing flaps and two of which are disposed inwardly of the upper and lower edges of said front wall;
f. adhesive means disposed beyond said triangular portions of said closing flaps for sealing said closing flaps to said rear wall; and
g. the upper and lower edges of said rear wall having V and inverted V-shapes, respectively, whereby the upper and lower edges of said rear wall are in registry with the innermost edges of said triangular portions which are disposed in said front wall;
h. whereby the four contiguous triangular portions at each end of said envelope are definitive of generally diamond-shaped panels which are adapted to be infolded into envelope end walls to accommodate the bulging separation of said normally face-to-face front and rear walls to provide alternate upper and lower edges for said envelope.

2. The envelope of claim **1**, in which
a. a window portion is formed in at least one of said front and rear walls.

3. The envelope of claim **1**, which further includes
a. a plastic liner means adhered to both of said front and rear walls.

4. The envelope of claim **1**, in which
a. said top flap includes sealing ear portions at the opposite edges thereof adapted to seal said flap to said rear wall;
b. tear lines separate the remainder of said flap from said sealing ears.

5. The envelope of claim **4**, in which
a. the free edge of said top closing flap is definitive of a reclosure tab means;
b. whereby the severance of central portions of said flap along said tear lines forms a reclosure tongue carrying said tab means at the free edge thereof;
c. a horizontal slot means is formed in said rear wall and is adapted to receive said tab means therein for the reclosure of said envelope.

6. A convertible, reclosable, four cornered hosiery envelope comprising
a. a first wall;
b. a second wall articulated to said first wall and folded in face-to-face, generally registered relation therewith;
c. a top closing flap articulated to the upper edge of one of said walls along an upper horizontal score line;
d. a bottom closing flap articulated to the lower edge of one of said walls along a lower horizontal score line;
e. vertical score lines bisecting said upper and lower horizontal score lines;
f. oblique score lines disposed above and below said horizontal upper and lower score lines and extending from the ends of said vertical score lines toward each of the four corners of said envelope and with said vertical and horizontal score lines generally defining four identical contiguous right triangular panels, two of which are disposed in each of said closing flaps and two of which are disposed inwardly of the upper and lower edges of said walls to which said flaps are articulated;
g. adhesive means disposed beyond said triangular portions of said closing flaps for sealing said closing flaps to said walls;
h. whereby the four contiguous triangular portions at each end of said envelope are definitive of generally diamond-shaped panels which are adapted to be infolded into envelope end walls to accommodate the bulging separation of said normally face-to-face front and rear walls.

7. The envelope of claim **6**, in which
a. said flaps are articulated to said first wall;
b. generally V-shaped and inverted V-shaped edges are formed in said second wall.

8. The envelope of claim **6**, which further includes
a. longitudinal plastic liner means adhered to both of said walls.

9. The envelope of claim **8**, in which
a. said liner means is a plastic tube.

10. The envelope of claim **8**, in which
a. at least one window is defined in a wall.

11. A convertible, reclosable, four cornered hosiery envelope comprising
a. a first wall;
b. a second wall articulated to said first wall and folded in face-to-face,
c. a top closing flap articulated to the upper edge of one of said walls along an upper horizontal score line;
d. a bottom closing flap articulated to the lower edge of one of said walls along a lower horizontal score line; and
e. vertical score lines bisecting a selected one of said upper and lower horizontal score lines;
f. oblique score lines disposed above and below the selected one of said horizontal upper or lower score lines and extending from the ends of said vertical score lines toward each of the four corners of said envelope and with said vertical and horizontal score lines generally defining four identical contiguous right triangular panels, two of which are disposed in one of said closing flaps adjacent said selected upper or lower horizontal score line and two of which are disposed inwardly of the edge of said wall to which said flap is articulated;
g. adhesive means disposed on said closing flaps for sealing said closing flaps to said walls;
h. whereby said four contiguous triangular portions at one end of said envelope are definitive of generally diamond-shaped panels which are adapted to be infolded into envelope end walls to accommodate the bulging separation of said normally face-to-face front and rear walls.

12. The envelope of claim **11**, in which
a. at least one window is defined in a wall.

* * * * *