United States Patent

[11] 3,613,956

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[54] **DISPENSING PACKAGE AND CONTAINER THEREFOR**
7 Claims, 13 Drawing Figs.

[52] **U.S. Cl.** ..... **222/136,** 222/145, 222/181, 222/470, 229/39, 229/52 A
[51] **Int. Cl.** **B67d 5/56**
[50] **Field of Search** ..... 229/39 B, 52 A, 52 B, 25, 43, 7, 17, 16, 23, 41; 222/136, 470, 510, 145, 173, 183, 175, 325

[56] **References Cited**

UNITED STATES PATENTS

2,537,151	1/1951	Mires	229/39
2,682,949	7/1954	Whitehead	229/39
3,236,418	2/1966	Dalle et al.	222/145
3,455,498	7/1969	Gadiel	229/41

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Assistant Examiner—Francis J. Bartuska
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ABSTRACT: Carton means adapted for use in connection with dispensing apparatus including a plurality of container means for simultaneously discharging separate pressure fluids, respectively, characterized by the provision of support means for supporting the containers in vertical side-by-side relation within and spaced from the ends of said carton, and carrying handle means adjacent the top of said carton for the manual transport thereof in a vertical orientation. In accordance with one feature of the invention, valve-operating means are provided adjacent the handle means for operating the discharge valves of all the containers to permit a user with one hand to both carry the apparatus and to simultaneously operate all the discharge valves associated therewith. According to a second feature, the carton includes improved container support means comprising additional bottom panel means and handle panel means arranged at the lower and upper ends of the carton, respectively, for achieving a greatly strengthened rugged carton construction.

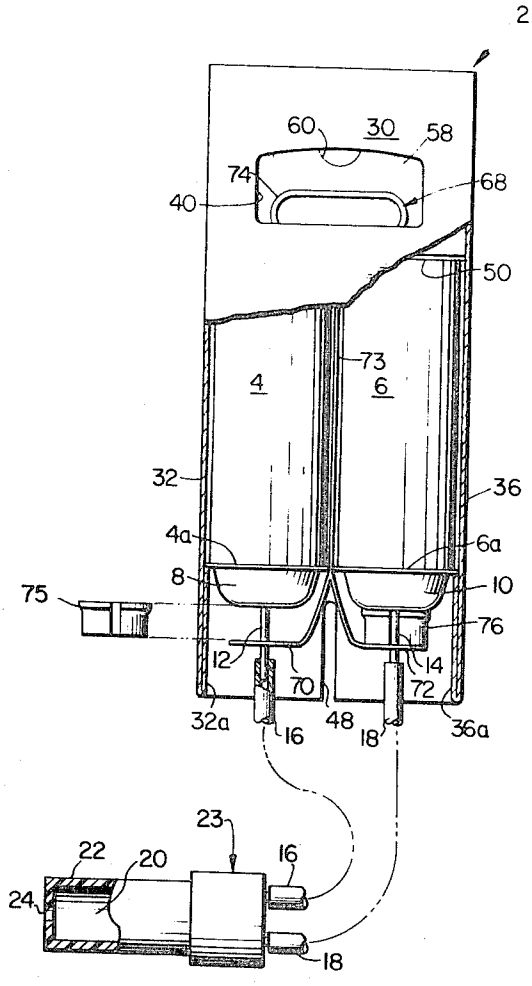


FIG. 3

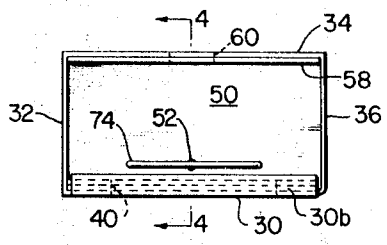


FIG. 1

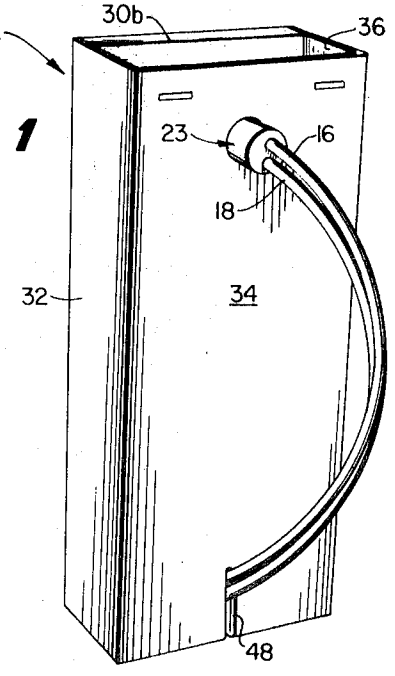


FIG. 2

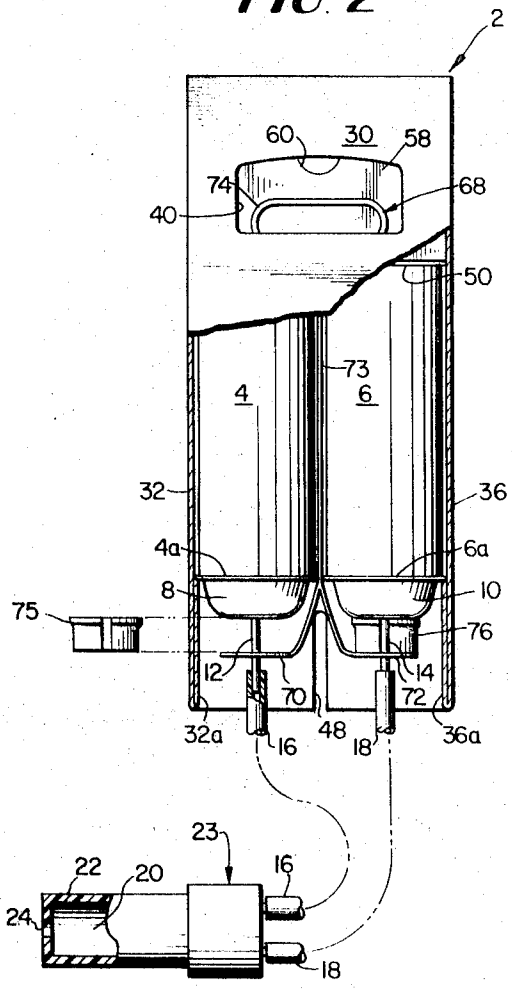
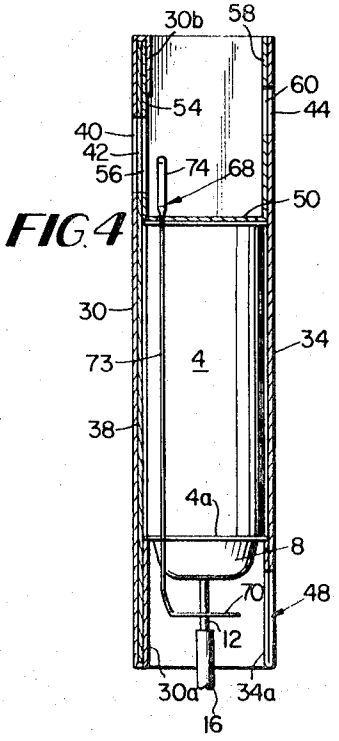


FIG. 4



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FIG. 5

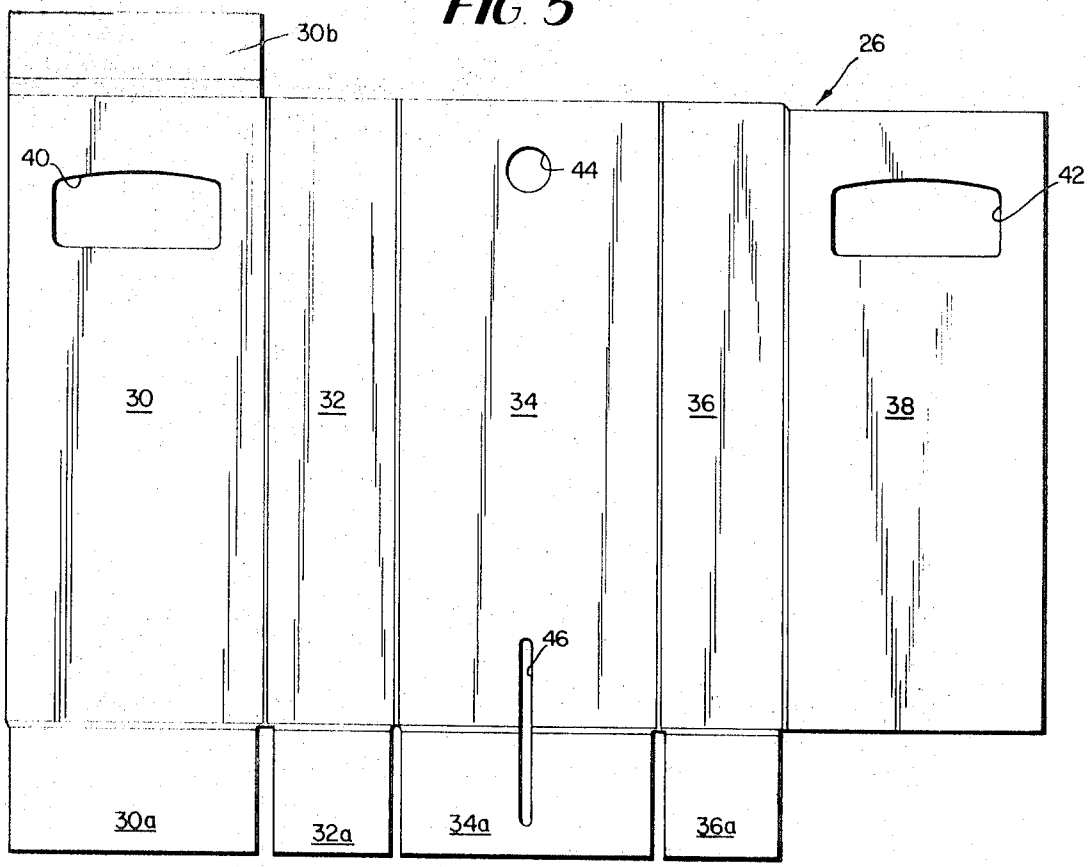
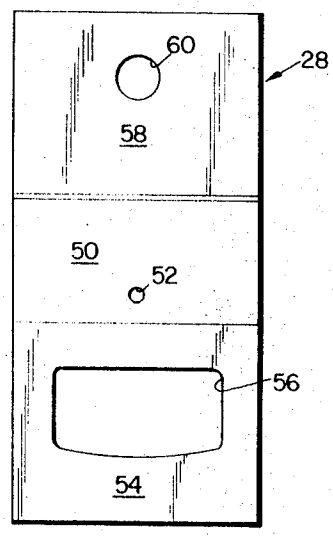


FIG. 6



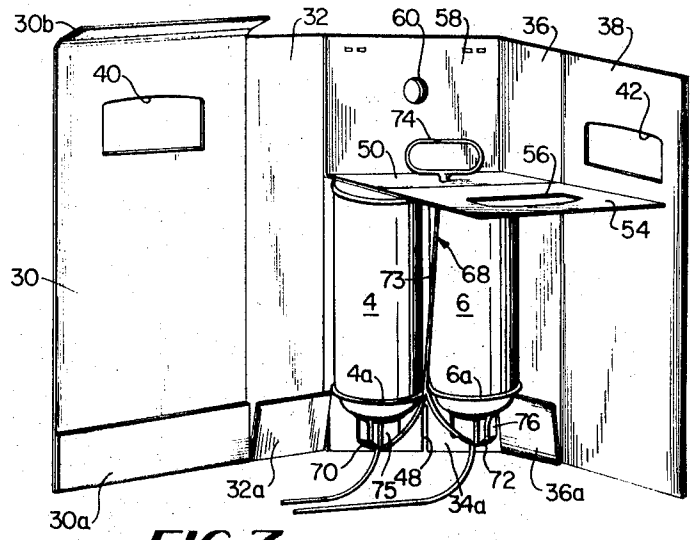


FIG. 7

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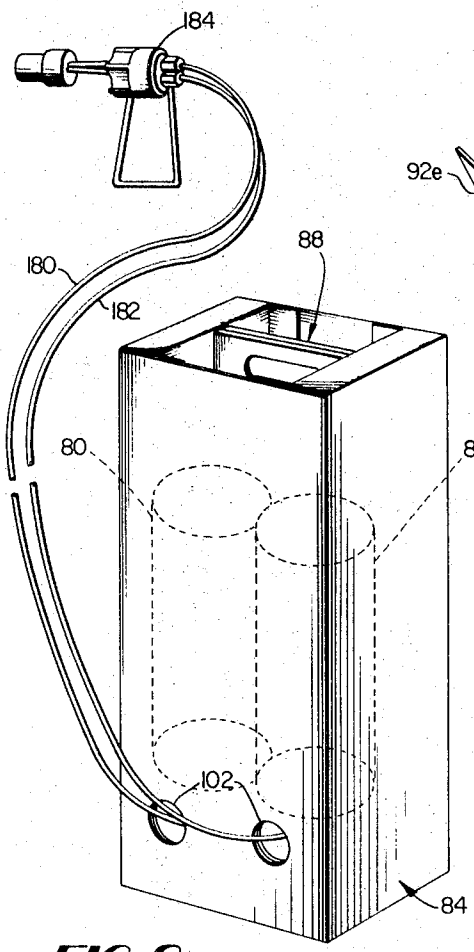


FIG. 8

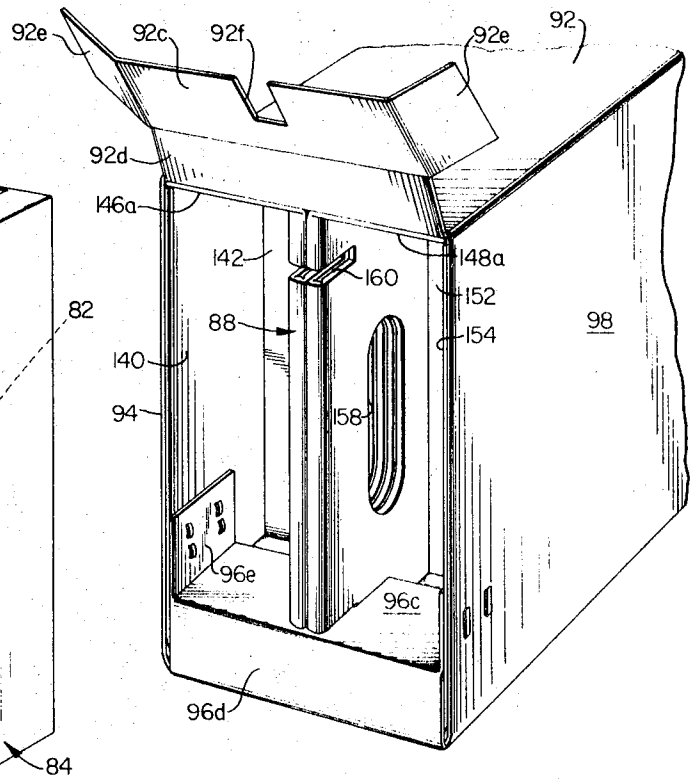


FIG. 10

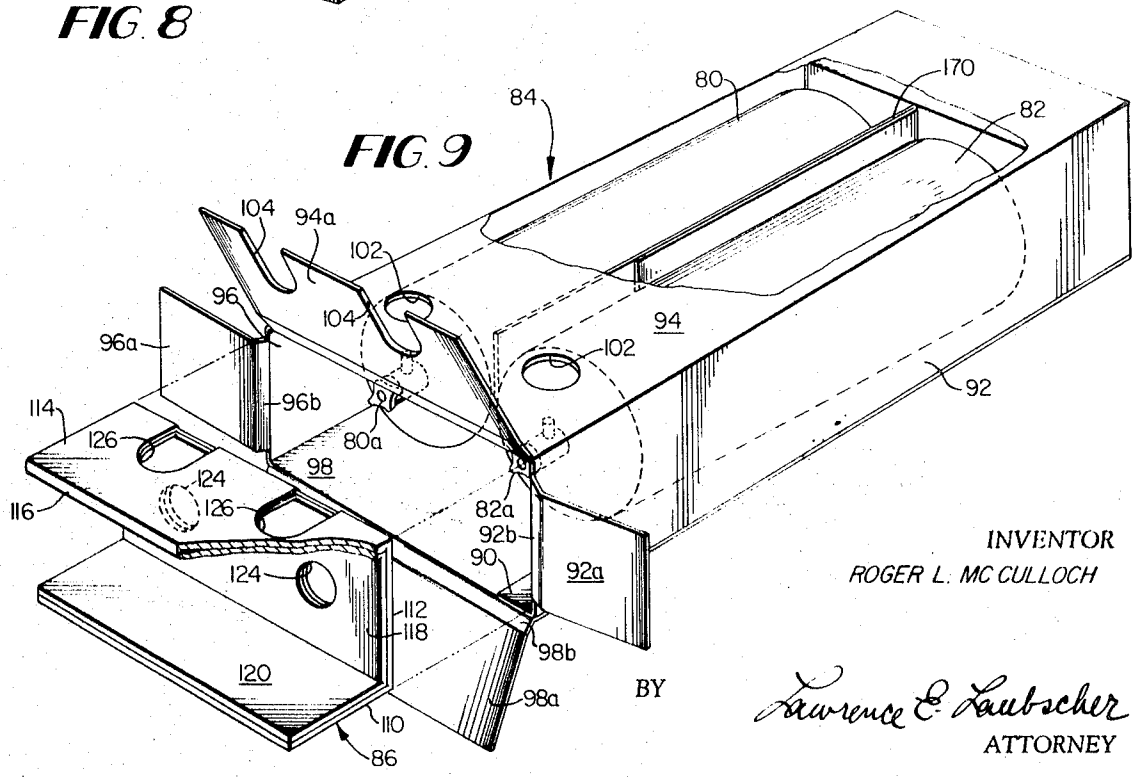


FIG. 9

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FIG. 11

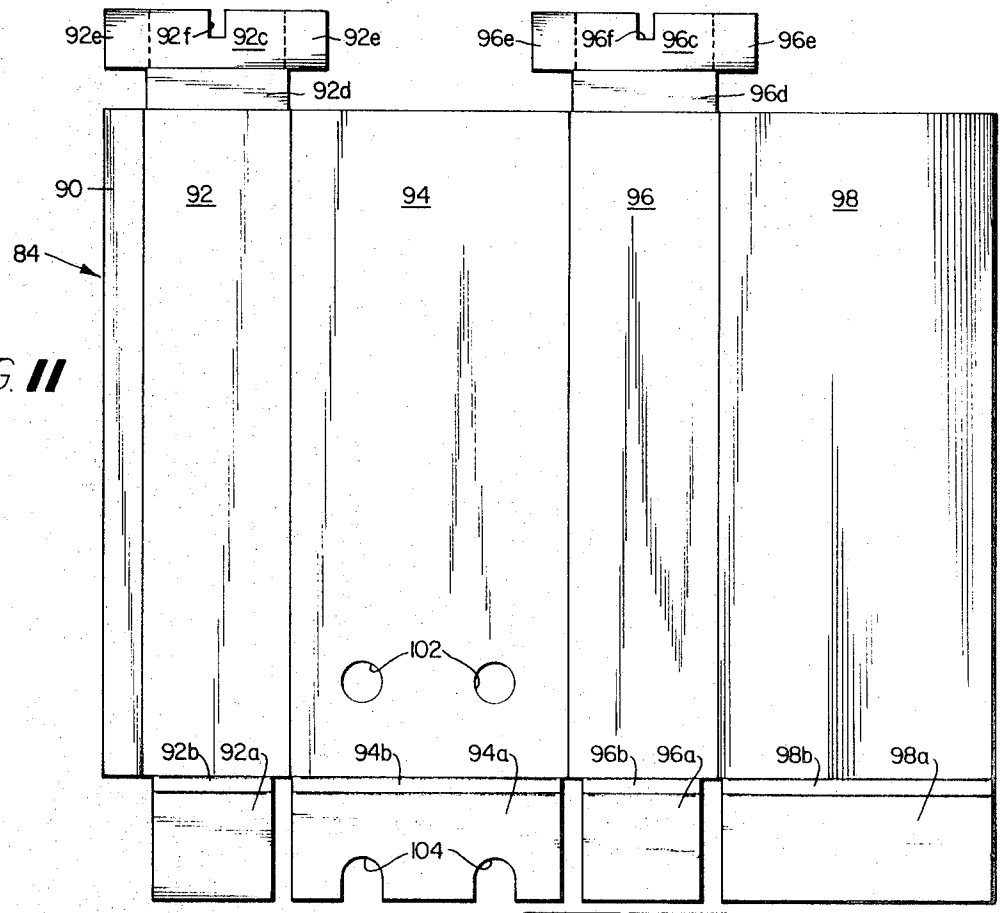


FIG. 12

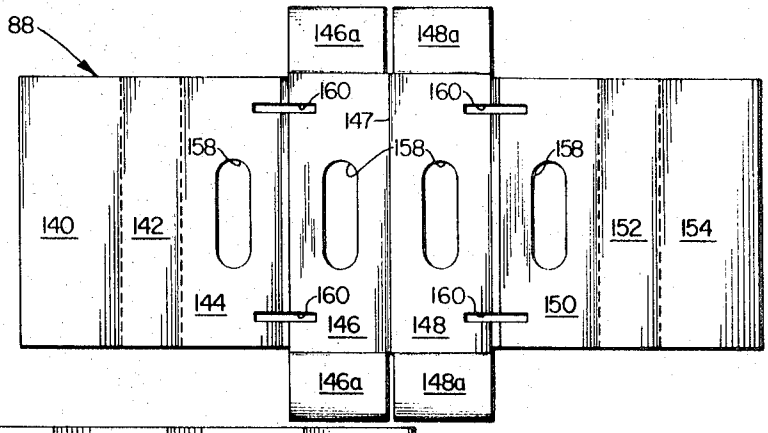
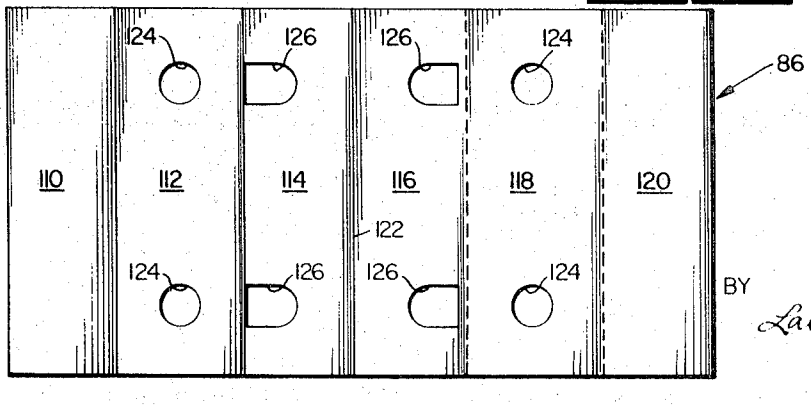


FIG. 13



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DISPENSING PACKAGE AND CONTAINER THEREFOR

As evidenced by the prior U.S. Pats. to Rabby et al. No. 3,123,254, Block No. 3,130,875, Zastrow No. 3,246,825 and Carlson No. 3,338,403, it is well known in the prior art to provide various types of receptacles for the packaging, storage or transport of liquid containers. In Carlson, for example, the package includes a pair of containers arranged end to end to permit transfer of the contents of one container to the other. It is also known in the prior art to provide packages in which fluids from two compartments or containers are mixed prior to discharge, as evidenced, for example, by the U.S. Pat to Flynn No. 3,079,044.

In recent years, a demand has been made for a relatively inexpensive disposable package for dispensing products from a nonrefillable container, such as an aerosol can or similar pressurized container. Furthermore, the need has arisen for a lightweight carton that may be readily carried by one hand, the other hand of the user being free to direct spray means for the fluid dispensed from the container. In order to actuate the discharge valve means associated with the container, discharge operator means are required that are operable by one hand of the user, preferably the one by which the package is being carried. Moreover, in accordance with another recent development in the art, fluids dispensed from a plurality of containers are designed to chemically or physically react with each other to produce a desired end product or reaction. For example, in apparatus developed to produce a rigid urethane foam for use in caulking openings, for sealing cracks and the like, measured quantities of different pressure fluids are dispensed simultaneously from a pair of containers and are mixed to produce a high quality froth foam the ingredients of which react to form a rigid product. The present invention was developed to meet the above and similar additional packaging requirements.

The primary object of the present invention is to provide a lightweight portable carton adapted for use in the housing, transporting and simultaneous dispensing of pressure fluids from a plurality of containers. The carton is of a rectangular configuration formed from a blank of cardboard, paperboard, foil laminate, or the like, said carton including support means for supporting the receptacles in side-by-side relation within, and spaced from the ends of, the carton.

A more specific object of the invention is to provide a light weight carton of the type described above, characterized by the provision of improved handle means adjacent the top of the carton that serve not only for the manual transport of the dispenser package when in a vertical orientation, but also as part of the support means for preventing upward movement of the containers relative to the carton. In one embodiment of the invention, valve operator means are provided including an actuator member arranged adjacent the handle means for operating the valve means of a plurality of containers to simultaneously discharge a plurality of pressure fluids therefrom, whereby a user with one hand may both transport the package and dispense a mixed fluid therefrom. The handle means may either be formed as an opening in the upper portion of one sidewall of the carton, or as an opening in a central divider flap that extends transversely across the upper portion of the carton.

A further object of the invention is to provide a dispensing carton having improved support means for supporting the containers in side-by-side relation intermediate the ends of the carton. In one embodiment, the receptacles have annular flanges adjacent their lower ends that rest on vertical support flaps which extend upwardly within the carton from the lower edges thereof. In a second embodiment, the receptacles are further supported at their lower ends by an additional horizontal support panel that in turn is supported by the upper edges of the aforementioned support flaps.

Other objects and advantages of the invention will become apparent from a study of the following specification when considered in the light of the accompanying drawing, in which:

FIG. 1 is a perspective view of the apparatus in its nondispensing condition;

FIG. 2 is a side elevation view of the apparatus of FIG. 1 with certain parts broken away;

FIG. 3 is a top view of the apparatus of FIG. 2;

FIG. 4 is a sectional view taken along line 4—4 of FIG. 3;

FIGS. 5 and 6 illustrate the main and secondary cardboard blanks utilized in the formation of the container carton of FIGS. 1–4;

FIG. 7 is a perspective view of the apparatus view of FIGS. 1–4 in a partially disassembled condition;

FIG. 8 is a perspective view of a second embodiment of the invention;

FIG. 9 is an exploded bottom perspective view, with certain parts broken away, of the apparatus of FIG. 8;

FIG. 10 is a top perspective view of the apparatus of FIG. 8; and

FIGS. 11–13 are views of the body, bottom and top handle blanks used in forming the carton of FIG. 8.

Referring first more particularly to FIGS. 1–4 the portable dispensing apparatus includes a lightweight cardboard container 2 in which are mounted a pair of receptacles 4,6 provided at their lower ends with dispensing valves 8 and 10, respectively. In the illustrated embodiment, both of the receptacles comprise aerosol cans the dispensing valves of which include hollow stem members 12 and 14 that are displaceable angularly to discharge fluid under pressure from the cans. Connected at one end with the valve stems 12 and 14 are a pair of flexible conduits 16 and 18, respectively, said conduits being in communication at their other ends with a mixing chamber 20 contained in the cylindrical body 22 of mixing and spray valve means 23, said body having a discharge opening 24.

Referring now to FIGS. 5 and 6, the container is formed from a first blank 26 and a separate panel or blank 28 each formed of cardboard, paperboard, a foil laminate, or the like, the first blank including a series of rectangular sections connected along vertical hinge lines to define, in succession, a first sidewall section 30, a first end wall section 32, a second sidewall section 34, a second end wall section 36, and a third sidewall section 38. Hingedly connected with the lower edges of walls 30, 32, 34 and 36 are support flaps 30*a*, 32*a*, 34*a* and 36*a*, respectively, said support flaps having the same vertical dimension and being foldable upwardly into engagement with the inner surfaces of the corresponding wall sections toward the vertical receptacle-supporting positions shown in FIG. 7. Hingedly connected with the upper end of first sidewall 30 is a handle flap 30*b*, said first sidewall 30 and said third sidewall 38 containing adjacent their upper edges identical handle openings 40, 42, and said second sidewall 34 containing adjacent its upper edge a circular nozzle storage aperture 44. The second sidewall 34 also contains adjacent its lower edge an opening 46 that extends partially into flap 34*a* to define a retainer slot 48 when the support flap 34*a* is folded upwardly toward the vertical receptacle-supporting position shown in FIG. 7.

The second cardboard blank 28 has a width substantially equal to that of the sidewalls 30, 34 and 38, said second blank including a central section 50 containing an aperture 52, a handle section 54 containing a handle opening 56, and a third section 58 containing a circular nozzle-receiving aperture 60. The width of the central section 50 is generally equal to that of the end wall sections 32 and 36.

Referring again to FIGS. 2 and 4, in accordance with an important feature of the present invention, operator means 68 are provided for simultaneously operating the valve stems 12 and 14 to dispense fluids under pressure from aerosol cans 4 and 6 into mixing chamber 20 via conduits 16 and 18, respectively. The operator means 68 includes at its lower end a pair of annular member 70, 72 mounted on the stems 12 and 14, respectively, and connected at its upper end by means of an intermediate portion 73 with a trigger ring 74 adjacent the handle opening. To prevent inadvertent operation, the valve stems are normally provided with removable semicircular lock members 75 and 76, respectively, as shown in FIGS. 2.

Referring now to FIG. 7, to assemble the apparatus of FIGS. 1–4, the blank 26 is folded into a rectangular configuration with the sidewall 38 adjacent the inner surface of sidewall 30, and the lower support flaps are folded upwardly to the vertical positions. The valve operator means 68 are connected with the handle blank 28, whereupon the containers 4 and 6, the valve operating means 68 and the handle blank 28 are inserted within the carton, the containers being supported at their lower ends by the cooperation between annular flanges 4*a* and 6*a* and the upper extremities of the support flaps 30*a*, 32*a*, 34*a*, and 36*a*. The vertical flaps of the handle blank are then secured to the corresponding carton sidewalls, and the tab 30*b* is folded downwardly upon and is secured to the section 54 as shown in FIG. 4. Consequently, owing to the support of the containers afforded by the horizontal panel 50 and the support flaps 30*a*, 32*a*, 34*a*and 36*a*, the containers are restrained against vertical movement relative to the carton.

Referring again to FIG. 2, it will be seen that with one hand, the user of the dispensing apparatus may engage both the carrying handle and the trigger ring 74 of the dispenser operator means 68, and with the other hand may direct the mixing and spray nozzle means 23 in any desired direction relative to the carton. Following removal of the valve lock means 74 and 76 (shown in FIG. 4), the dispenser operator means 68 may be actuated to dispense fluids from receptacles 4 and 6 into mixing chamber 20, whereupon the resultant mixture is discharged through discharge opening 24.

Upon release of the operator means 68, valve means 8 and 10 are closed to interrupt discharge of fluid from receptacles 4 and 6, whereupon flexible conduits 16 and 18 are inserted into retainer slot 48, and nozzle 23 is inserted into the storage aperture 44 as shown in FIG. 1. If desired, lock means 75 and 76 may be replaced upon valve stems 12 and 14, respectively, to prevent inadvertent operation of the dispenser means.

Although the handle and upper support sections 50, 54 and 58 have been illustrated as being formed as sections of a separate blank 28, it is apparent that, if desired, these sections could be hingedly connected with the upper edges of either of the sidewalls 34 or 38.

Referring now to FIGS. 8–13, a second carton embodiment is disclosed that is adapted to house and transport a pair of pressure fluid containers 80 and 82 that are appreciably larger and heavier than the aerosol can type containers 4 and 6 of FIG. 2. To this end, the means for supporting the containers at their upper and lower ends are greatly strengthened to provide a more rugged and durable carton construction. As shown, more particularly in FIG. 9, at the lower end of the carton 84, auxiliary lower support means 86 are provided that are mounted upon the vertical support flaps hingedly connected with the lower edges of the carton walls. At the upper end of the carton, improved and strengthened handle and upper support means 88 are provided as shown in FIG. 10.

Referring now more particularly to FIG. 11, the carton blank includes, in succession, a locking wall 90, a first end wall 92, a first sidewall 94, a second end wall 96 and a second sidewall 98, said walls being vertical and hingedly connected for folding to the vertical rectangular carton configuration of FIGS. 8–10. Support flaps 92*a*, 94*a*, 96*a* and 98*a* are hingedly connected with the lower extremities of the walls by the intermediate panels 92*b*, 94*b*, 96*b* and 98*b*. Connected with the upper edges of sidewalls 92 and 96 by the intermediate horizontal panels 92*d* and 96*d* are locking flaps 92*c* and 96*c* having at each vertical edge locking tabs 92*e* and 96*e*, respectively. The sidewall 94 contains a pair of access openings 102, and the support flap 94*a* contains corresponding access slots 104, whereby access is provided to the discharge valve means 80*a* and 82*a* at the lower ends of the containers 80 and 82 as will be described below.

The lower support blank 86 includes successive hingedly connected section 110, 112, 114, 116, 118 and 120, said blank being foldable in half about hinge line 122, and then into the U-shaped configuration of FIG. 9, whereupon sections 110 and 120, 112 and 118, and 114 and 116 are contiguous, respectively, sections 112 and 118 containing aligned openings 124 for receiving the valve means 80*a* and 82*a* when the containers are supported thereon, and sections 114 and 116 containing aligned openings 126 for arrangement opposite the wall openings 102 and the flap access slots 104.

The upper handle blank 88 includes, as shown in FIG. 12, successive hingedly connected sections 140, 142, 144, 146, 148, 150, 152 and 154, securing flaps 146*a* and 148*a* being hingedly connected with the lateral edges of sections 146 and 148, respectively. Sections 144, 146, 148 and 150 containing handle openings 158 so arranged that when the blank is folded about center edge 147 and then sections 142 and 152 are folded to the horizontal container supporting positions of FIG. 10, the handle openings are in alignment. Furthermore, openings 160 contained in the handle sections 144, 146, 148 and 150 define slots in the upper edges of the handle means 88 when in the folded condition of FIG. 10.

To assemble the carton of FIGS. 8–10, the sections 90, 92, 94, 96 and 98 are folded to the illustrated rectangular configuration, and containers 80 and 82 (with the corrugated cardboard spacer means 170 therebetween) are inserted in parallel side-by-side relation within the carton. The bottom support blank 86 is folded to the generally U-shaped configuration of FIG. 9, and is inserted within the lower portion of the carton with the container valve means 80*a* and 82*a* being received by the aligned openings 124. The support flaps 92*a*, 94*a*, 96*a* and 98*a* are then foldable upwardly to the vertical support positions with the horizontal support panels 112 and 118 of blank 86 being supported by the upper edges of the vertical support flaps, and the vertical sections 110 and 120 and 114 and 116 being contained between the support flaps 98*a* and 94*a* and the corresponding carton sidewalls. At the upper end, the handle blank 88 is folded and inserted within the carton as shown in FIG. 10, the handle flaps 146*a* and 148*a* being folded outwardly against the inner surfaces of the end walls 92 and 96. The locking flaps are then folded downwardly with the sections 92*d* and 96*d*arranged in horizontal engagement with the upper surfaces of the central handle sections, the vertical flaps 92*c* being inserted downwardly with the slots 92*f* and 96*f* in locking cooperation with the handle slots 160. Locking tabs 92*e* and 96*e* are secured (by stapling, adhesive means, or the like) to the corresponding carton sidewalls to complete the carton assembly.

To use the apparatus of FIGS. 8–13, the flexible conduits 180, 182 of the mixing nozzle means 184 are inserted through the openings 102, 126 and 124 for connection with the manually operable valve means 80*a*and 82*a*. Following openings of the valve means, the user may transport the apparatus with one hand by the handle means 86, and with the other hand may dispense the pressure fluid mixture via the mixing and and dispensing nozzle means 184.

In the illustrated invention, the containers contain pressure fluids that, when mixed, react to produce a foamed product. For example, in the case of polyurethane foam, one container may contain pressurized polymeric isocyanate adapted for reaction with an amine and fluorocarbon-containing polyol pressure fluid in the other container.

While in accordance with the provisions of the Patent Statutes, the preferred form and embodiment of the invention has been illustrated and described, it will be apparent to those skilled in the art that various changes and modifications may be made in the apparatus described without deviating from the inventive concept.

What is claimed is:

1. A carton adapted for use in connection with dispensing apparatus of the type including a plurality of containers containing different pressure fluids, respectively, and means for mixing and dispensing the fluids, comprising

a cardboard blank foldable to define a rectangular carton having vertical side and end walls;

support means for supporting the containers in vertical side-by-side inverted relation within, and spaced inwardly from the upper and lower ends of, said carton, said sup-

port means including a plurality of lower support flaps hingedly connected with the lower edges of at least some of said side and end walls, respectively, said lower support flaps being foldable upwardly to vertical container-supporting positions within the lower portion of said carton;

carrying handle means adjacent the top of said carton for effecting manual transport of the dispensing apparatus when in a vertical orientation;

said support means further including horizontal upper support panel means connected between the walls of and extending transversely across the carton at a lower elevation than said handle means for engaging the upper surfaces of the containers to prevent upward movement thereof relative to said carton; and

valve operator means for effecting simultaneous discharge of fluids from a plurality of the containers, said valve operator means including an actuating portion adjacent said handle means, an intermediate portion extending downwardly through said horizontal upper panel support means substantially the length of said carton, and a lower portion adapted for connection with the dispensing valve means of a plurality of said receptacles, whereby a user with one hand may carry the carton and operate said valve operator means to effect simultaneous discharge of of plurality of the pressure fluids.

2. A cardboard blank for forming a portable dispensing container, comprising

a series of rectangular sections hingedly connected at their vertical edges and defining, in succession, a first sidewall, a first end wall, a second sidewall, a second end wall, and a third sidewall, said sections being foldable to define a rectangular configuration in which said first and third sidewalls are contiguous;

a plurality of support flaps hingedly connected with the lower edges of said first and second sidewalls and said first and second end walls, respectively, each of said support flaps having the same vertical dimension and being foldable upwardly toward a support position in contiguous engagement with the section hingedly connected therewith;

said first and third sidewalls containing adjacent their upper edges aligned handle openings; and

a handle tab hingedly connected with the upper edge of said first sidewall and bendable downwardly into engagement with the adjacent surface of said third sidewall, the hingedly connected portions of said second sidewall the flap connected therewith containing an opening operable to define a slot when said flap is pivoted upward toward the support position.

3. A carton adapted for use in connection with dispensing apparatus of the type including a plurality of containers containing different pressure fluids, respectively, and means for mixing and dispensing the fluids, comprising

a cardboard blank foldable to define a rectangular carton having vertical side and end walls;

support means for supporting the containers in vertical side-by-side relation within, and spaced inwardly from the upper and lower ends of, said carton, said support means including an upper panel section spaced downwardly from the upper edges of, and extending horizontally across, the upper portion of said carton for engagement with the upper ends of said containers, and a pair of parallel vertical panel sections hingedly connected at their lower edges with corresponding opposite edges of said central panel section, respectively, said vertical panel sections being connected in contiguous surface-to-surface engagement with the corresponding inner wall surfaces of said carton, respectively; and

carrying handle means adjacent the top of said carton for effecting manual transport of the dispensing apparatus when in a vertical orientation, said handle means comprising aligned openings contained in one of said vertical support panel sections and the corresponding carton wall.

4. Apparatus as defined in claim 3, wherein said handle means further includes a handle tab hingedly connected with the upper edge of said corresponding carton wall, said tab being foldable downwardly toward a vertical position in engagement with the adjacent outer surface of said one vertical support panel section.

5. A carton adapted for use in connection with dispensing apparatus of the type including a plurality of containers containing different pressure fluids, respectively, and means for mixing and dispensing the fluids, comprising

a cardboard blank foldable to define a rectangular carton having vertical side and end walls;

carrying handle means adjacent the top of said carton for effecting manual transport of the dispensing apparatus when in a vertical orientation;

and support means for supporting the containers in inverted vertical side-by-side relation within, and spaced inwardly from the upper and lower ends of, said carton, said support means including a plurality of lower support flaps hingedly connected with the lower edges of at least some of said side and end walls, respectively, said lower support flaps being foldable upwardly within the lower portion of said carton, a horizontal bottom support panel supported by the upper extremity of said flap means and extending transversely across the carton, and a pair of vertical bottom panel sections hingedly connected with opposite edges of said bottom support panel and extending downwardly between the corresponding support flap means and the walls to which they are connected, respectively, said horizontal bottom support panel containing openings adapted to receive the container dispensing valve means, respectively, one of said vertical bottom panel sections and the corresponding support flap and carton wall containing aligned openings for receiving flexible discharge conduits connected at one end with said dispensing valve means, respectively.

6. A carton adapted for use in connection with dispensing apparatus of the type including a plurality of containers containing separate pressure fluids, respectively, and means for mixing and dispensing the fluids, comprising

1. a cardboard blank foldable to define a rectangular carton having vertical side and end walls;

2. support means for supporting the containers in vertical side-by-side relation with, and spaced inwardly from the upper and lower ends of, said carton;

3. carrying handle means adjacent the top of said carton permitting manual transport of the dispensing apparatus when in a vertical orientation, said carrying handle means comprising

a. central vertical panel means containing a handle opening and a pair of slots extending downwardly from the upper edge of said central panel means adjacent each end thereof, respectively; and

b. a pair of coplanar horizontal panel means connected at their adjacent edges with the lower edges of said central vertical panel means, respectively, said central panel means and said horizontal panel means extending transversely across the upper portion of said carton between said end walls, said horizontal panel means being connected with said end walls for engagement with the upper surfaces of the containers; and

4. handle locking means hingedly connected with the upper edge of each carton end wall comprising a horizontal first flap adapted to extend partially over one end portion of the upper edge of said central vertical panel means, and a vertical second flap extending downwardly in the adjacent slot contained in said central vertical panel means.

7. Apparatus as defined in claim 6, wherein said locking means further includes tab means hingedly connected with the free vertical edges of each of said second flaps, and means securing said tab means to the corresponding carton sidewalls.