July 10, 1973 P. HOLLINGER 3,745,025

COMBINED SHIPPING, DISPLAY AND DISPENSING PACKAGE FOR A PLURALITY OF NESTED FRAGILE ARTICLES

Filed May 13, 1971 2 Sheets-Sheet 1

Fig. 1

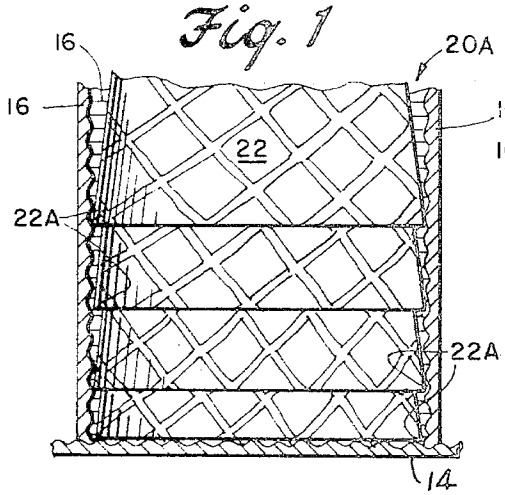
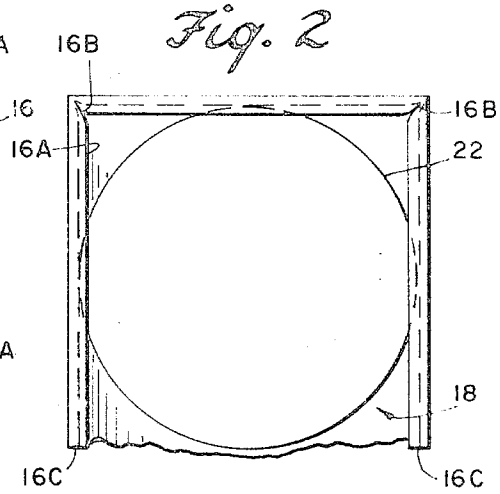


Fig. 2



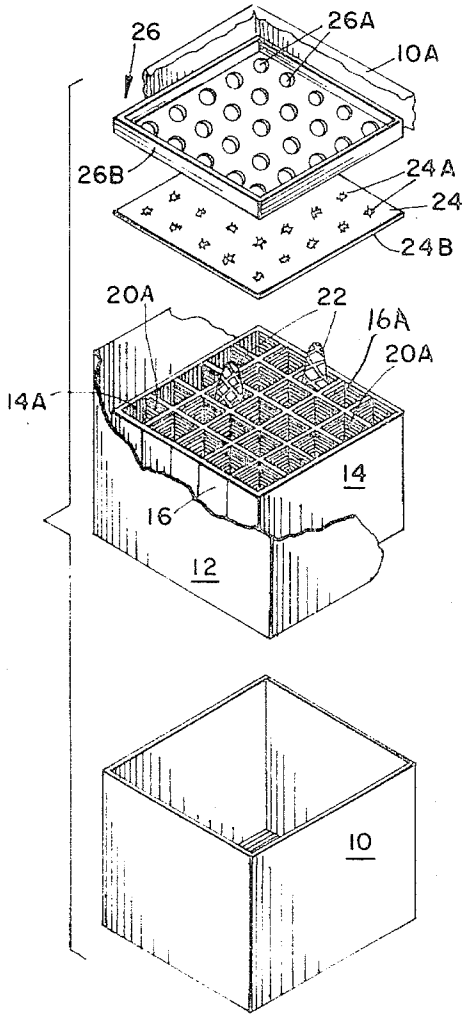


Fig. 3

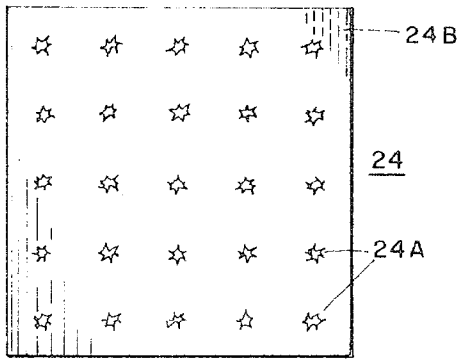


Fig. 4

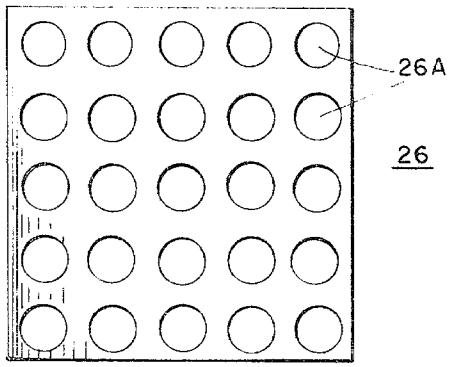


Fig. 5

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COMBINED SHIPPING, DISPLAY AND DISPENSING PACKAGE FOR A PLURALITY OF NESTED FRAGILE ARTICLES

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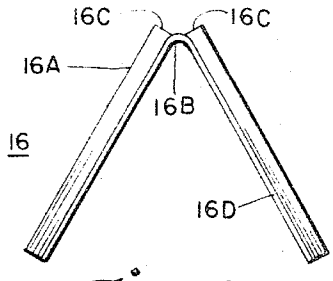


Fig. 6

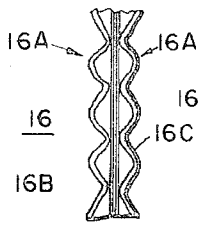


Fig. 7

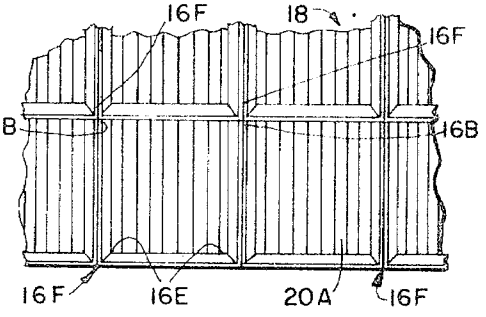


Fig. 8

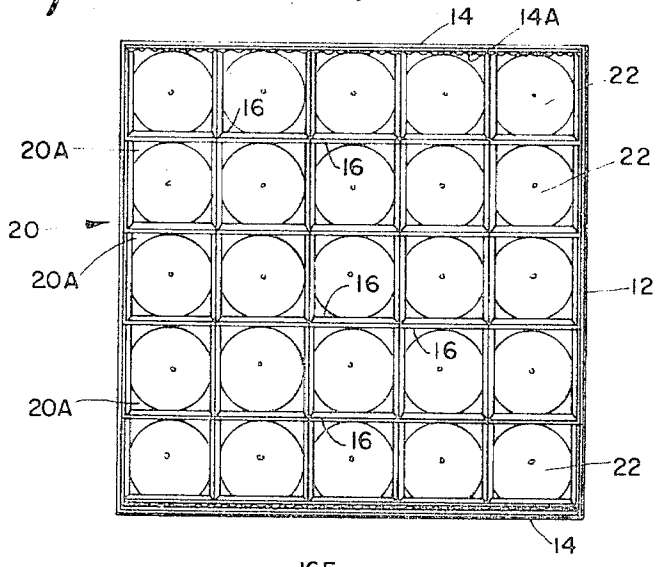
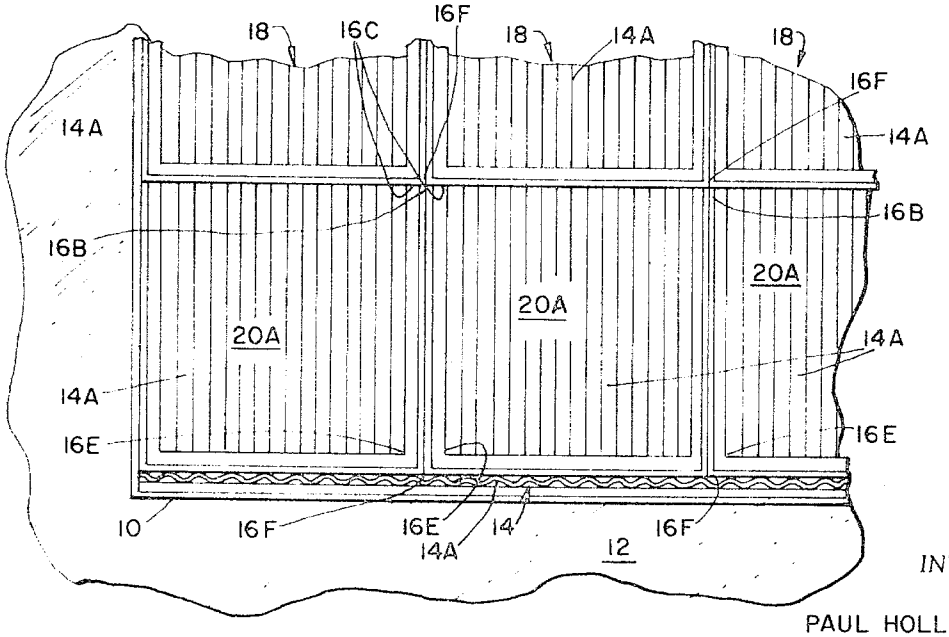


Fig. 9



INVENTOR

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Fig. 10

United States Patent Office 3,745,025 Patented July 10, 1973

3,745,025

COMBINED SHIPPING, DISPLAY AND DISPENSING PACKAGE FOR A PLURALITY OF NESTED FRAGILE ARTICLES

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Filed May 13, 1971, Ser. No. 143,106
Int. Cl. B65b 23/00
U.S. Cl. 99—180 15 Claims

ABSTRACT OF THE DISCLOSURE

An ice cream cone package with a matrix of cells or pockets formed from pluralities of foldable single-faced corrugated strips embraced on three sides by a single-faced corrugated liner and contained in a flexible envelope, such as polyethylene bag, all nested within a container. The envelope includes an extended portion adapted to be folded over at the top of the matrix after a protective cone pad with starburst cuts and a holder means with die cut openings for the tips of ice cream cones stacked within and projecting from the cells are inserted in the envelope. The holder extends from the matrix to the top rim of the container above the cone tips projecting from the cells, thereby retaining the stacks of cones in place in the cells during shipping and handling of the container. The cells in the matrix have at least three internal walls defined by corrugations disposed to engage the lips of the cones in each stack of cones, thereby immobilizing each cone in each stack. At the point of use, the removal of the protective cone pad and holder means permits dispensing of the cones, individually, from the package.

This invention relates to packages for plurality of nested fragile articles and more particularly to a package for a plurality of ice cream cones arranged in a plurality of stacks, each stack comprising a plurality of coaxially nested ice cream cones, said package being so constructed as to permit dispensing of the cones from the package one at a time.

Many prior packages have been developed for holding a multiplicity of stacked ice cream cones. For example, Patent 1,568,834 issued to Hauge et al. on Jan. 5, 1926 is a representation of prior art. These packages have been fraught with undesirable characteristics, not the least of which is the propensity to cause breakage of the fragile products contained therein, namely, ice cream cones. The problems of the prior art are compounded when strength and safety are attempted to be combined with convenient dispensing of the product directly from the package at a reasonable cost. In some instances where sufficient strength and protective ability are provided in the package the dispensing of a plurality of cones on an individual basis from the package becomes quite cumbersome or impractical. Further, other packages from which the cones are readily dispensable are expensive to make, of undue bulk or are substantially devoid of protective ability.

It is, therefore, an object of the present invention to provide a new and novel ice cream cone package for containing a plurality of ice cream cones arranged in a plurality of coaxially nested stacks of ice cream cones, each stack being in an individual stack containing cell within the package, whereby strength, rigidity and shock resistance are enhanced.

It is another object of the present invention to provide a new and novel ice cream cone package for containing a plurality of ice cream cones arranged in a plurality of coaxially nested stacks of ice cream cones, each stack being in an individual stack containing cell within the

package, wherein a plurality of identically formed cooperating single-faced corrugated sheets or other suitable fluted material are arranged in the package to provide a plurality of individual stack containing cells.

Still another object of the present invention is to provide a new and novel ice cream cone package for a plurality of ice cream cones, arranged in a plurality of coaxially nested ice cream cone stacks, which package is relatively inexpensive to manufacture and which is highly protective of the cones in each stack, each cone in each of said stacks being held relatively rigid and immobile with respect to adjacent cones in that stack by a novel arrangement of flutes on the inner faces of the stack containing cells.

These and other objects of the present invention will become more fully apparent with reference to the following specification and drawings which relate to a preferred embodiment of the present invention.

In the drawings:

FIG. 1 is a fragmentary cross section side view of a stack of cones with the beads of each cone engaging a flute of a cell and with the lower cone bead resting on the flutes of the bottom portions of the corrugated liner;

FIG. 2 is a top elevation view of a fragmentary portion of the cell forming strip, the cut and fold lines thereof to form the cell and illustration of the cone beads engagement with the flutes of the corrugations in a cone cell;

FIG. 3 is an exploded perspective view of the several parts which make up the complete package;

FIG. 4 is a plan view of a protective cone tip pad illustrating a plurality of starburst cuts to provide cone tip openings;

FIG. 5 is a plan view of a cone tip holder or tray as shown in perspective view in FIG. 3;

FIG. 6 is a partial detail of the cut and fold line of the cell forming material showing how it is folded to provide the cells;

FIG. 7 is a top view of the cell sheet sections in FIG. 6 to show the resulting positions of the flutes of the corrugated sheet after cutting to the fold line of the plain backing sheet when, folded upon its self to provide a division between cone cells;

FIG. 8 is a fragmentary top view of the cone cell sections set up in cell forming position with a view of the bottom portion of the liner before insertion in the nested envelope and container assembly;

FIG. 9 is a top plan view of the assembled package with the container top removed and before folding the extended portion of the envelope over the top and showing the flutes at one side of the liner serving as an index for the free ends of the cell strip; and

FIG. 10 is a detail of the bottom and one side of the liner with the cone pockets in position in the polythelene envelope and the container of the assembled package with the outer covered removed.

Basically the invention comprises an ice cream cone package with a matrix of cells or pockets formed from pluralities of foldable single-faced corrugated strips, or other suitable fluted material, embraced on three sides by a single-faced corrugated liner and contained in a flexible envelope, such as a polyethylene bag, all nested with a container. The envelope includes an extended portion adapted to be folded over at the top of the matrix after a protective cone pad with starburst cuts and a holder means with die cut openings for the tips of ice cream cones stacked within and projecting from the cells are inserted in the envelope. The holder extends from the matrix to the top rim of the container above the cone

tips projecting from the cells, thereby retaining the stacks of cones in place in the cells during shipping and handling of the outer container. The cells in the matrix have at least three internal walls defined by corrugations disposed to engage the lips of the cones in each stack of cones, thereby immobilizing each cone in each stack. At the point of use, the removal of the protective cone pad and holder means permits dispensing of the cones, individually, from the package.

Referring in detail to the drawings and more particularly to FIGS. 1–10, the invention is shown as including a container **10**, a flexible bag liner **12** of polyethylene film or the like and a U-shaped side and bottom liner **14** of single-faced corrugated sheet, or other suitable fluted material having its corrugations **14A** facing inward to form two opposed side liners and a bottom liner within the container **10** and bag liner **12**.

Referring to FIGS. 6–10, a plurality of sheets of single-faced corrugated board **16** or other suitable fluted material are folded upon themselves to provide a series of vertical channels **18** across one dimension of the container **10**. These channels **18** are U-shaped in cross section and the corrugations **16A** face inwardly of the channels **18** to form a series of such corrugations horizontally within the vertical channel **18** on three sides thereof. The vertical channels **18** are formed by a series of reverse bends **16B** made in the single-faced corrugated sheet **16**, these bends **16B** being facilitated by cut-scores **16C** extending completely through the flutes of the corrugations **16A**, transversely thereof, but not through the back liner **16D** of the single-faced corrugated board **16**. Thereafter, the board **16**, shown in FIG. 6, is bent back upon itself so that the cut score portions **16C** when so reversed come together in a suitable mitered connection as shown at the reverse bend **16B** of FIG. 2, and the channel **18** formed thereby have the horizontal corrugations **16A** facing inwardly with respect to the horizontal axis of the channel. A plurality of identical single-faced corrugated sheets **16** bent in this manner are provided across the other dimension of the box to provide a matrix or labyrinth **20** of vertical ice cream cone receiving pockets **20A** each of which, on three sides thereof, have a uniform series of the corrugations or flutes **16A** horizontally disposed and extending throughout the entire vertical dimension of the matrix cone pockets **20A**. A pair of right angle bends **16E** are effected inward upon similar cut scores intermediate each reverse bend **16B** as shown in FIG. 8.

Thus, each cone cell **20A** forms a vertical channel **18** with three wall portions, each having their respective interior surfaces transversely corrugated or fluted, the open portion of the cell cooperating with the closed end of an adjacent similar vertical channel **18** to provide a complete cone cell or matrix pocket **20**.

Adjacent two of the opposed side walls of the container **10** the corrugated sheets **16** which have been bent to form the vertical channels **18** have a single layer positioned against the sides of the box to provide cushioning and weight distribution during shipping, the containers **10** being disposed during shipping such that the cones **22** and cone cells **20A** are horizontal. The other two opposed sides of the container **10** carry the side liners **14** with the corrugations **14A** facing inward to define the fourth side of the cone pockets **20A** on one side of the container **10** and act as an additional backing for the cone pockets **20A** at the other side of the container **10**.

Because of the flat topped reverse bend **16B** effected by the cut type scoring **16C** in the single faced corrugated board **16** or other suitable fluted material, the single-faced corrugated sheets may all be of identical construction with the apex of the reverse bend of one being immediately juxtaposed with the open base end or crease **16F** of the reverse bend **16B** in the next adjacent single spaced corrugated sheet **16**, without danger of the weight of the cones **22** in the said adjacent sheet pressing down and causing the apex of one reverse bend **16B** to protrude or telescope into the crease **16F** of the adjacent reverse bend **16B** when the container **10** is horizontally disposed during shipping.

The entire above-described assembly, when embraced by the single-faced corrugated U-shaped liner **14** at each opposite side and across the bottom of the container **10** within the polyethylene film bag **12** effects a close and snug fit thereof in the container **10**.

Therefore, regardless of the position in which the container **10** is placed, i.e., regardless of which side wall that the container **10** is layed upon, the cones **22** at the bottom of a given row of stacks of cones **22** in the matrix or labyrinth **20** of the cone sockets will not be required to bear the weight of the other cones **22** vertically above them.

This feature is further provided in the direction transverse of the reverse bend portions **16B** by virtue of the fact that the container **10** is made to fit with the inner bag **12** and side liners **14** with sufficient tightness to preclude slippage in either direction. The corrugations **14A** of the side wall liners **14** in the container **10** being in a vertical disposition, that is to say, transverse of the corrugations **16A** within the cone cells **20A**, the free tips or apices of the reverse bend portions **16B** at one wall of the container adjacent one of the side liners are maintained in position by the vertical liner corrugations **14A**. Once this point of reference has been established, then those reverse bend portions **16B** which have apices immediately adjacent the base or crease **16E** of such maintained reverse bend portions are also indexed to maintain themselves in position with in the closely fitting container **10** to preclude slippage of the cells **20A** or change in dimension of the cells **20A** due to cone weight in any direction laterally of the container **10** and transversely of the axes of the cones **22** and cone stacks.

Referring jointly to FIGS. 3–5, the tips of the outermost cones **22** in each stack all protrude above the cells **20A** in the same direction and protrude vertically to an extent that they are below the uppermost point or top edge of the outer container **10**. Each such outermost cone tip is encompassed by a starburst cut port **24A** in a single faced corrugated cone tip receiving sheet **24** (starburst pad) with the corrugations **24B** thereof faced inward and pressed down about the cones immediately above the matrix of cone sockets. Immediately above the cone tip receiving sheet **24** is a keeper sheet **26** of suitable material such as a chip board shaped into a stand with a plurality of circular or die cut openings **26A** placed therein and having upstanding sidewalls **26B** extending from the sheet portion to the top edge of the outer container **10**. Thus, when the tips of the cones **22** are inserted through the circular openings **26A** in the keeper sheet **26**, the upstanding side walls **26B** of the keeper sheet **26** acts as a boss which engages the lid **10A** of the outer container **10** to preclude vertical movement of the cones **22** in the cone cells **20A**.

The polyethylene film bag **12** is of such dimension that it contains all of the foregoing cooperating elements in the cone package except the container **10** and is adapted to be completely closed over the top of the keeper sheet **26** to preclude damage to the cones by ambient humidity or pollutants. When the cone tip protector sheet **24** and the keeper sheet **26** are removed at the ultimate point of use of the ice cream cones **22**, and the container **10** tilted to one side, the bottom of said container being the normal down side at point of use, the cones are all held with substantially uniform pressure in each of the cone cells **20A** such that one may reach into the container **10** and individually dispense the cones **22** without disturbing the other cones **22** in the box. Also, the keeper sheet **26** may be removed and inverted to serve as a stand for display of the ice cream cones **22** when some of the same are inserted in the openings **26A** in the keeper sheet.

The depth of the matrix **20** is such that every cone **22** in a given stack may be grasped by its tip for the purpose of dispensing it from the container **10** even though the innermost cones in the stack are wholly contained within said matrix. The keeper sheet **26** takes up the additional room in the container **10** to further preclude movement of the matrix **20** and cones **22** during shipping and handling since the container is shipped with the cone stacks horizontal.

Referring to FIGS. 1 and 2, the rim or bead **22A** of each cone **22** is indexed into the internal horizontal corrugations **16A** in the cone cells **20A** (vertical channels **18**) whereby each cone **22** in a stack is immobilized to preclude tight nesting and resulting breakage within a given stack.

In final assembly of the package the extra material of the plastic bag **12** may be folded over the top of the keeper **26** and the cover **10A** is applied over the top of the container **10**. Thereafter a number of such completely assembled packages may be packed in a relatively large shipping container or the like, not shown, with all of the cones **22** therein substantially free from exposure to breakage.

Thus there are proved novel improvements in bulk packaging of fragile edible products, such as ice cream cones and the like, whereby, without objectional addition of weight and bulk, a shipping container of increased rigidity, resistance to shock and having point of purchase display capabilities is provided.

What is claimed is:

1. Shipping, display and dispensing container means for packaging stocks of ice cream cones and the like, comprising an outer container, a cover for the container, a U-shaped liner strip located within the container with corrugations on one face thereof extending from opposite sides across the bottom of said container with the flutes of the corrugations of said opposite sides of said liner facing inwardly a matrix of adjacent three sided structures located wiehin the U-shaped liner, to form cells in combination with a wall of aligned rows of similar three sided structures whereby each cell forms a vertical channel, cones located in said vertical channels, said structures located within the U-shaped liner, to form cells one face thereof, said strips being incised through the the flutes on said one face of the strip to facilitate folding the same in a series of reverse and forward bends to form said three sides of each of said structures with the said flutes internally transverse of each cell forming structures; said sides of said liner extending vertically at substantially right angles to the flutes of said three sided structures engaging said reverse bends of each one of said structure strips at one side of said container to form a first row of cells, the remainder of said cell forming corrugated strips being arranged with respect to each other such that the apices of the reverse bends of said strips, inboard of said liner strip engaged with adjacent strips at the respective bases of said reverse bends to form similar additional rows of cells.

2. The invention defined in claim **1**, wherein said reverse bends are provided with flat apices defined by the exposed cross-sections of salt incised flutes in said corrugated strips to preclude telescoping into the respective bases of the reverse bends in an adjacent cell strip.

3. The invention defined in claim **1**, wherein said outer container is lined with a flexible bag enclosing said matrix, said liner strip and said cones.

4. The invention defined in claim **1**, wherein said reverse bends are provided with flat apices defined by the exposed cross-sections of said incised flutes in said corrugated strips; and wherein said outer container is lined with a flexible bag enclosing said matrix, said liner and said cones.

5. The invention defined in claim **1**, wherein said container means further includes a compressible cone tip protector sheet overlying said matrix and ported over each cell therein to receive the outermost tip in a stack of cones therein; and keeper means retaining said matrix, said protector sheet and said cones in substantially fixed position in said container.

6. The invention defined in claim **5**, wherein said outer container is lined with a flexible bag enclosing said matrix, said cones and said protector sheet.

7. The invention defined in claim **5**, wherein said protector sheet is corrugated on one side with flutes facing said matrix and is ported in a starburst pattern of protective fingers over each said cell in said matrix to partially envelope said cone tips.

8. The invention defined in claim **1**, wherein said container means further includes a compressionable cone tip protector sheet overlying said matrix and ported over each cell therein formed from said three sided structures to receive the outermost tip in a stack of cones therein; keeper means retaining said matrix and said protector sheet together over the outermost tip of adjacent stacks of cones, said keeper means being ported to receive said cone tips projecting from said projector sheet and including sidewalls extending substantially froms aid matrix to the top extremity of said container adjacent the container walls for retaining said matrix, said protector sheet and said cones in substantially fixed position in said container, said sidewalls of the keeper means providing boss means, to thereby constrain said keeper means from movement in said container.

9. The invention defined in claim **8**, wherein said protector sheet is corrugated on one side with flutes facing said matrix and is ported in a starburst pattern of protive fingers over each said cell in said matrix to partially envelope said cone tips; said fingers extending upward through said ports in said keeper frame.

10. The invention defined in claim **8** wherein said protector sheet is corrugated on one side with flutes facing said matrix and is ported in a starburst pattern of protective fingers over each said cell in said matrix to partially envelope said cone tips; said fingers extending upward through said ports in said keeper means; and wherein said outer counter is lined with a flexible bag enclosing said matrix, said cones, said protector sheet, and said keeper means.

11. The invention defined in claim **8**, wherein said boss means formed by said side walls of the said keeper means coacts with said cover for said container to hold the matrix and protector sheet in place for shipping.

12. The invention defined in claim **8**, wherein said keeper means and said protective sheet are removable from said container when said cover is removed in the provision of a dispensing package for said cones; said matrix being of such height, in said container relative to said cones, such that all said cones in said matrix are manually dispensable therefrom.

13. The invention defined in claim **8**, wherein said outer container is lined with a flexible bag enclosing said matrix, said cones, said protector sheet, and said keeper frame.

14. The invention defined in claim **8**, wherein said protector sheet is corrugated on one side with flutes facing said matrix and is ported in a starburst pattern of protective fingers over each said cell in said matrix to partially envelope said cone tips; said fingers extending upward through said ports in said keeper means; and wherein said keeper means and said protective sheet are removable from said container in the provision of a dispensing package for said cones; said matrix being of such height, in said outer container, relative to said cones, such that all said cones in said matrix are manually dispensable therefrom when said cover is removed.

15. The invention defined in claim **14**, wherein said container is lined with a flexible bag enclosing said matrix, said cones, said protector sheet, and said keeper frame.

(References on following page)

References Cited

UNITED STATES PATENTS

3,146,112	8/1964	Weinstein	206—65 K X
1,305,908	6/1919	Lanier	206—65 K UX
3,619,216	11/1971	Weinstein	99—180 R
2,255,492	9/1941	Peters	99—178 UX
1,568,834	1/1926	Nauge et al.	206—65 K
1,791,422	2/1931	McVay et al.	99—180 R UX
3,240,331	3/1966	Weinstein	206—65 K
3,343,671	9/1967	Weinstein	206—65 K

3,162,303	12/1964	Greene	217—29 X
3,656,614	4/1972	Jacobson	206—65 S
1,135,564	4/1915	Wetsel	229—15

FRANK W. LUTTER, Primary Examiner

S. L. WEINSTEIN, Assistant Examiner

U.S. Cl. X.R.

99—171 R, 171 PP; 206—65 R, 65 K; 217—18, 23; 229—15

CERTIFICATE OF CORRECTION

Patent No. 3,745,025 Dated July 10, 1973

Inventor(s) Paul Hollinger

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Column 4, Line 32, change "with in" to --within--.

IN THE CLAIMS:

Claim 1:

Line 2, change "stocks" to --stacks--;
Line 8, after "inwardly" insert a comma --,--;
Line 9, change "wiehin" to --within--;
Line 9, after "liner" delete the comma ",";
Line 13, change "located within the U-shaped liner, to form cells" to --being made of corrugated strips with flutes on--;
Line 18, after "each" insert --of said--;
Line 26, before "engaged" insert --are--.

Claim 2:

Line 3, change "salt" to --said--;
Line 5, change "in" to --on--.

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,745,025 Dated July 10, 1973

Inventor(s) Paul Hollinger

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

Claim 8:

Line 10, change "froms aid" to --from said--.

Signed and Sealed this

Tenth Day of October 1978

[SEAL]

Attest:

RUTH C. MASON
Attesting Officer

DONALD W. BANNER
Commissioner of Patents and Trademarks