United States Patent

[11] 3,610,412

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[73] Assignee **Phillips Petroleum Company**

[54] **SINGLE-SERVICE DELIVERY PACKAGES**
5 Claims, 7 Drawing Figs.

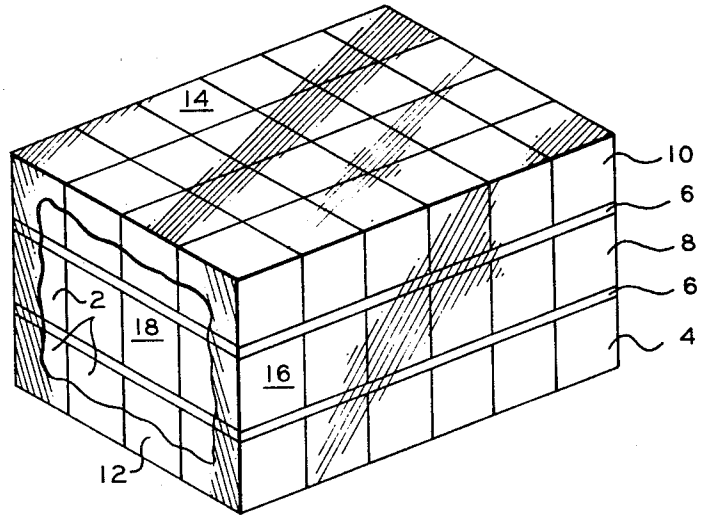
[52] **U.S. Cl.** ..... **206/65 S,** 220/97 B
[51] **Int. Cl.** **B65d 71/00,** B65d 85/62
[50] **Field of Search** ..... 206/65, 65 C, 65 S, 654, 45.33, 60 A; 220/97 B

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ABSTRACT: A plurality of stacked articles maintained from separation one from another by means within the article stack and heat shrunk film encompassing a portion of the external surfaces of the article stack.



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SHEET 1 OF 2

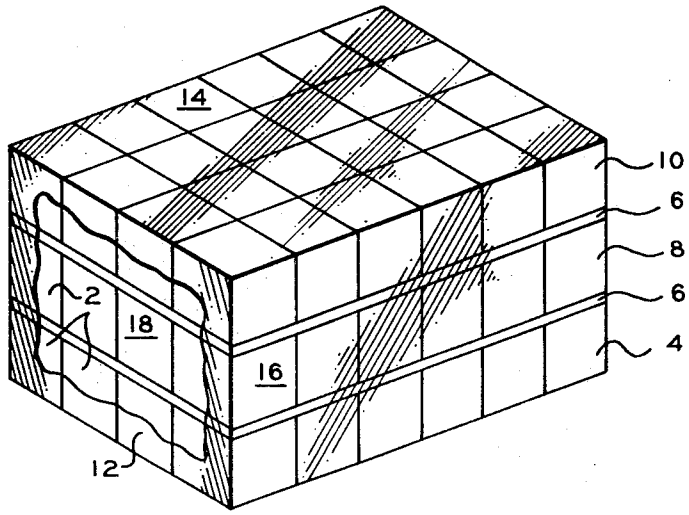


FIG. 1

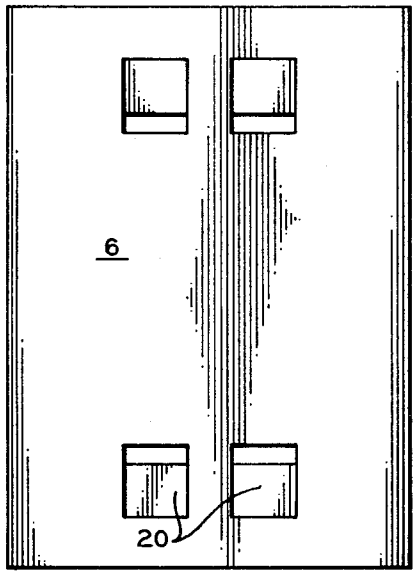


FIG. 2

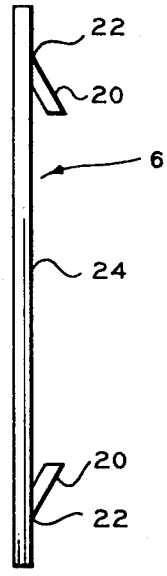


FIG. 3

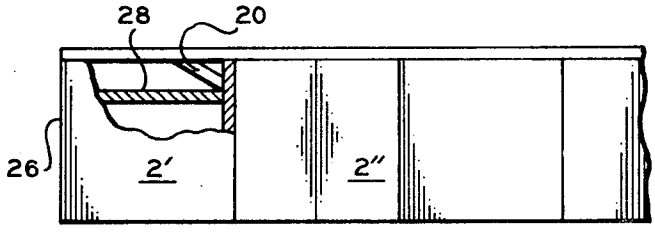


FIG. 4

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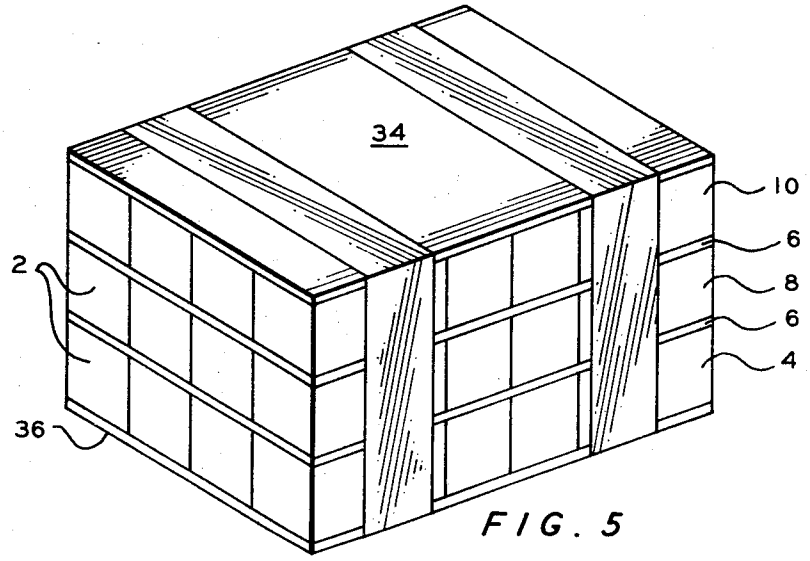


FIG. 5

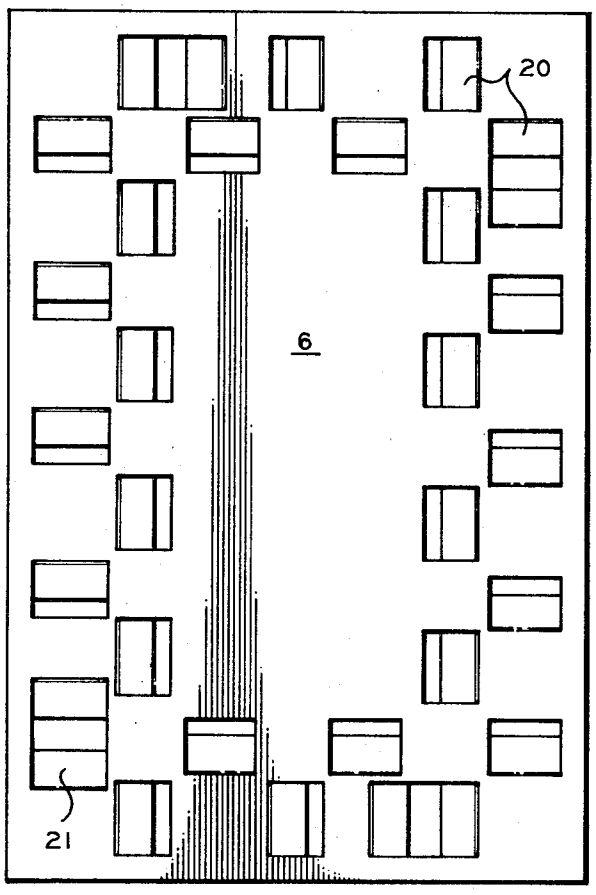


FIG. 6

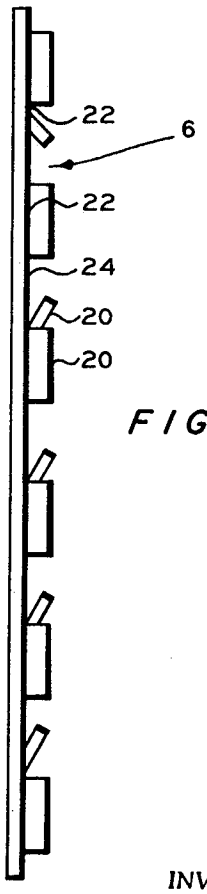


FIG. 7

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SINGLE-SERVICE DELIVERY PACKAGES

This invention relates to a single service delivery package. In another aspect, this invention relates to a delivery package having open end portions and comprising a plurality of individual articles each having recessed tops.

In heretofore packaging of a plurality of articles having recessed tops, such as milk cartons, metal objects, and the like, the prestacked articles were either completely wrapped with material covering all surfaces of the stack or enclosed in a large sealed box. Covering all sides of the stacked articles in order to prevent loss of articles therefrom, utilized a great deal of material, equipment, and power. Later, plastic quick-sealable films were utilized to decrease the time and equipment needed to satisfactorily seal the ends of the wrapping material. In these heretofore used plastic sealed packages, a great deal of material was utilized to form the sealed ends. The packaging material was also often damaged during wrapping operations.

It is therefore an object of this invention to provide an improved single service delivery package. Another object of this invention is to provide a package, of the above-described type, having open end portions comprising a plurality of individual articles each having recessed tops. Yet, another object of this invention is to provide a package of the above-described type having means internal of the article stack for maintaining the plurality of articles in a stacked relationship. Other aspects, objects, and advantages of the present invention will become apparent from a study of the disclosure, the appended claims, and the drawing.

The drawing consists of seven figures:

FIG. 1 is an isometric view of the package of this invention.

FIG. 2 is a plan view of the tray means used in the package of FIG. 1.

FIG. 3 is a front view of the tray means of FIG. 2.

FIG. 4 is an enlarged view partially in cross section of a portion of the article and the tray means attached to the articles of the package of FIG. 1.

FIG. 5 is another embodiment of the package of this invention.

FIG. 6 is a plan view of the tray means used in the package of FIG. 5.

FIG. 7 is a front view of the tray means of FIG. 6.

Referring to FIG. 1, a plurality of articles 2 are arranged in rows adjacent one another to form a first article layer 4. A tray 6 is positioned above the first article layer 4 and rests upon said first layer. A second article layer 8 is positioned on the tray 6 above the first article layer 4. A tray 6 is positioned above the second article layer 8 and rests upon said second layer. A third article layer 10 is positioned on the tray 6 above the first and second article layers 4, 8 and their associated tray means 6. A heat shrunk tubular plastic film 12 covers the bottom and first side (not shown) of the article stack and associated tray means and the top 14 and second side 16. The first end 18 and the second end (not shown) of the article stack are only partially covered with the film 12, thereby forming a compact package construction with the film overlapping opposed ends of said stack with portions of said package being open. Portions of the open ends of the tubular member are spaced from the ends of the layered article stack, thereby providing a space between the tubular member and the article stack for receiving the fingers of a person while said person is carrying the composite package of this invention. The heat shrunk film utilized in the package of this invention can be polyvinyl chloride, polypropylene, polyethylene, or the like.

It should be understood that the number of stacked articles of FIG. 1 are for example purposes only. The package of this invention can comprise layers containing more or less rows than the six rows and more or less articles per row than the four articles per row shown for example purposes in FIG. 1.

FIG. 2 shows a tray 6 utilized with the package shown in FIG. 1. The tray 6 is rectangular in shape having a length and width substantially the same as the length and width of the article layer upon which it rests. The tray means 6 has at least

one holding means or flap 20 on opposed ends of the tray. The flap is preferably rectangular in shape but may be of other shapes (to be more fully described later). The number of flap means 20 formed on the ends of the tray 6 is dependent upon the number of articles per row upon which the tray is resting. The package of this invention requires a tray 6 having a holding means or flap 20 in contact with articles forming portions of the outside surfaces of the package that are not in contact with the film. The flap 20 is preferably carved from its respective tray means 6 in order to hingedly connect one edge of said flap 20 to said tray and to conserve materials, labor, and machinery required to manufacture said flap. The flap may, however, be hingedly connected to the surface of the tray means 6 by stapling, bonding, riveting, or other like means. The flap means of FIG. 2 is hinged at a side of the flap adjacent its respective tray end. Referring to FIG. 3, which shows a front view of the tray of FIG. 2, flap 20 has a hinged edged 22 adjacent a respective first and second tray end corresponding to the first and second end of the stack. The flap 20 extends downwardly from a lower surface 24 of the tray 6 at an angle in the range of 30° to 90° relative to said lower surface.

FIG. 4 shows the tray 6 of FIGS. 1, 2, and 3 resting on top of the articles which form a first or second layer, for example, of the package shown in FIG. 1. The article 2 has a body 26 and a recessed top 28. The tray 6 in place on the article 2 has a flap 20 extending into the recessed portion of the top of the article and in contact with a portion of the article body the adjacent surface of which is contacting an adjacent article positioned in the same layer. The particular article contacting the flap means 20, here generally indicated by the numeral 2', is being urged by said flap means toward the adjacent article 2'. Where articles forming the article package have recessed tops that are recessed in a wedge shape, rounded shape, or other form, the flap 20 of this invention can be similarly shaped in order to forcibly engage the article. In this construction, although the ends of the package of this invention are not covered with film, the flaps of the trays engage the articles and prevent said articles from moving through the film opening. Since the flap means are positioned internal of the stacked articles, the outer surfaces of the article stack are substantially the same dimensions as the wrapped package and the retaining flap means are not exposed to damage or destruction with resultant failure of said package.

FIG. 5 shows another embodiment of the package of this invention. Referring to FIG. 5, a plurality of rows and layers of separate articles having recessed tops are arranged with trays between adjacent layers as previously described. In this embodiment a top and bottom cover sheet 34 and 36 are placed in contact with the bottom and top of the article stack. The length and width of the top and bottom cover sheets 34, 36 and associated trays are substantially equal to the dimensions of the article stack. These cover sheets can be constructed of cardboard, plastic, or other like relatively inflexible materials.

At least one heat shrunk tubular film encompasses and compacts the article stack and associated cover sheets and trays with said tubular film covering a portion of the surfaces of the layered article stack in contact with said tubular film. For greater stability of the package, more than one tubular film can be utilized, as shown for example in FIG. 5.

Owing to the fact that a large number of separate individual articles are not covered by film in the embodiment shown in FIG. 5 of the package of this invention, a great number of flaps 20 as shown in FIGS. 6 and 7 are associated with each tray means 6. Flap means of this invention are in contact with at least two sides of the recessed top of each peripherally positioned article with each individual flap urging its respective article toward an adjacent article of the same layer. With some geometric configuration of rows, it is necessary to form a double flap 21 in order that flap means are in contact with at least two sides of each recessed top of each peripherally positioned article as described above. In other aspects, such as relative dimensions, construction, material, and the like, the tray

means 6 shown in FIGS. 6 and 7 are as previously described with reference to FIGS. 2 and 3. In this embodiment, the flap means are also positioned internally of the stacked articles, the outer surfaces of the stacked article is substantially the same dimensions as the wrapped package and the retaining flap means are not exposed to damage or destruction with resultant failure of said package. Further modifications and alterations of this invention will become apparent to those skilled in the art from the foregoing discussion and accompanying drawing, and it should be understood that this invention is not to be unduly limited thereto.

What is claimed is:

1. An article package having portions of said package open, comprising:

a plurality of articles each having a body with a recessed portion, one portion of said plurality of articles being arranged in at least three rows adjacent one another to form a first article layer, other portions of said plurality of articles being positioned above said first layer forming at least three subsequent article layers thereby forming a layered article stack;

a tray means having a plurality of substantially rectangular flaps with each flap having an edge hingedly connected to said tray means, one of said tray means and associated flaps being positioned between each adjacent article layers of the article stack with each article on the outer periphery of the article stack not in contact with a hereafter heat shrunk tubular member having only a single flap of the associated tray extending into contact with the recess of said article with the hinged edge of each flap being adjacent its respective tray end; and

a heat shrunk tubular member disposed around a portion of said layered article stack and associated tray means to compact said article stack and said tray means together to form a package construction.

2. An article package, as set forth in claim 1, wherein said tubular member has opposed ends covering only a portion of each opposed end of said layered article stack and tray means.

3. An article package, as set forth in claim 1, wherein the length and width of the tray means is substantially the same length and width as the article layers associated therewith.

4. An article package, as set forth in claim 1, wherein the tray has a lower surface and the flaps thereof extend from the lower surface of the tray means at an angle in the range between 30° to 90° relative to said surface.

5. An article package, as set forth in claim 1, including a cover sheet over the bottom and top of the layered article stack.