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(54) Titre : EMBALLAGE COMPRENANT PLUSIEURS ARTICLES EMBALLES INDIVIDUELLEMENT ET METHODE ET APPAREIL SERVANT A PRODUIRE CET EMBALLAGE
(54) Title: A MULTIPLE PACK OF INDIVIDUALLY PACKAGED ITEMS, METHOD AND APPARATUS FOR PRODUCING SAME

(57) **Abrégé/Abstract:**

A multiple pack of individually packaged items comprises an array of individual packages in a desired configuration which array is held in said configuration by a planar sheet material adhered to each package of the array. The planar sheet material is preferably a sheet of corrugated cardboard. The invention also comprises a method of forming the multiple pack and apparatus for use in the method.



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(21) International Application Number: PCT/GB93/02239 (22) International Filing Date: 1 November 1993 (01.11.93) (30) Priority data: 9222829.5 30 October 1992 (30.10.92) GB (71) Applicant (for all designated States except US): MARS G.B. LIMITED [GB/GB]; 3D Dundee Road, Slough, Berks SL1 4LG (GB). (72) Inventor; and (75) Inventor/Applicant (for US only) : COMPTON, Peter, Arnold [GB/GB]; The Three Horseshoes, 34 Main Street, Wymondham, Melton Mowbray, Leicestershire LE14 2AG (GB). (74) Agent: DAY, Jeremy, John; Reddie & Grose, 16 Theobalds Road, London WC1X 8PL (GB).			(81) Designated States: AT, AU, BB, BG, BR, BY, CA, CH, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SK, UA, US, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published With international search report.
(54) Title: A MULTIPLE PACK OF INDIVIDUALLY PACKAGED ITEMS, METHOD AND APPARATUS FOR PRODUCING SAME			
(57) Abstract A multiple pack of individually packaged items comprises an array of individual packages in a desired configuration which array is held in said configuration by a planar sheet material adhered to each package of the array. The planar sheet material is preferably a sheet of corrugated cardboard. The invention also comprises a method of forming the multiple pack and apparatus for use in the method.			

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A MULTIPLE PACK OF INDIVIDUALLY PACKAGED ITEMS
METHOD AND APPARATUS FOR PRODUCING SAME

This invention relates to packaging and more particularly to packaging of the type for producing a "carry-home" pack of a number of filled containers of for example, beverage or food.

In recent years for ease of carriage and/or for promotional purposes it has become the custom to package containers, for example of drink and/or food in multiples, frequently in fours or sixes, although the number is immaterial.

Numerous methods are known for assembling such packages.

Packages, have for example, been assembled by shrink wrapping in a sleeve of, for example, polyethylene.

The so called "Hi-Cone"^{*} system has also been used. This comprises an apertured sheet of polyethylene. The top parts of the cans are placed into circular apertures in the film which then grips the cans below their upper rim. More recently a further form of packaging, particular for cans of drink has been developed which completely covers the top of the can and comprises a sheet of polyester film which on application is moulded around the top of an assembly of cans to grip the individual cans around their top rim.

All round or partial wrap round cardboard packaging is also known, especially for drinks.

All of these forms of packaging are effective in their own way but most are expensive, particularly when the packaging is intended to convey promotional messages.

*Trade-mark

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According to an aspect of the present invention, there is provided a multiple pack of individually packaged items comprising an array of individual packages, the packages being held in the array by a planar sheet material
5 adhered by a foamed adhesive to each package of the array over one face only of the array.

According to another aspect of the present invention, there is provided a method for producing a multiple pack of individually packaged items comprising:
10 assembling an array of individual packages; applying to each package of the array a foamed adhesive material; and adhering to the packages over one face only of the array by means of the foamed adhesive material, a planar sheet material wherein the array is held together to allow
15 carriage but the individual packages can be removed from the planar sheet material for use.

According to yet another aspect of the present invention, there is provided apparatus for producing multipacks of individually packaged items comprising means
20 for collating an array of individual packages, means for applying to each of said individual packages a foamed adhesive material in an identical position or positions on each package, means for supplying planar sheet material to cover the entire adhesive area of the array of packages and
25 for bringing said planar material into contact with the adhesive on the individual packages.

According to the invention a multiple pack of individually packaged items is produced by assembling an array of individual packages in a desired orientation,
30 applying to each package of the said array an adhesive material and adhering to the packages by means of the

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adhesive a planar sheet material such that the assembly is sufficiently strongly held together to allow carriage but the individual packages can be readily pulled off the sheet for use.

The adhesive bond may be such as to allow rupture at the interface either with the package or with the sheet material but, in order to obtain adequate bond strength will normally be such that the act of removing a package from the sheet material will result in removal also of a portion of the sheet material.

The invention is primarily applicable to canned products but it can also be applied to any other packaged products. It may be, for example, used for the production of multiple packs of product in disposable bottles or jars or even for products in cardboard packaging.

The planar sheet material is preferably a cellulose based material, especially cardboard and, more preferably, corrugated cardboard, primarily because this material is cheap and easy to dispose of and when used in the method of the invention does not require any special coating or strengthening treatment. Moreover, a far smaller amount of material is used compared with wrap round packs.

The surface of the sheet material may carry bar coded information, promotional material or any other message, if desired and the invention provides an extremely cost effective way of providing the dual functions of collation of a multiple pack and delivery of promotional messages.

The planar material may be provided with cut-outs, apertures or other features to facilitate carrying.

The adhesive used is preferably a hot melt type adhesive, preferably a moisture curing polyurethane based hot melt adhesive, such as the adhesives marketed by Natural Starch & Chemical Limited under the trademark Pur-fect.

Depending on the shape of the individual packages, the adhesive may be applied in any desired orientation or position. For some packages it may be desirable to have a single large area of adhesive on each package while for others it may be necessary or desirable to have a plurality of smaller areas of adhesive.

Adhesives that have been foamed, e.g. by gaseous injection, may be used, especially when the adhesive is to be applied on an irregular surface, e.g. a recessed surface, since the expansion of the adhesive will fill any voids in a cost effective manner with minimum use of adhesive. A unique advantage of foamed adhesive in the invention is that when in the foamed state the set is delayed because of the insulating nature of the foam but when the foam has been collapsed by application of the sheet material setting is substantially instantaneous.

Although, as mentioned above multiple packs of, for example, canned foods and/or drinks are normally fours or sixes it is possible according to the invention, even when wishing to assemble multiple packs of this size, to apply a large sheet over a very much larger array of packages with subsequent splitting up of the larger array into individually multipack units. This is not generally possible with other methods of producing multipacks.

Such a method of operation makes it possible to operate in a continuous manner by feeding continuous sheet material to a continuously advancing array of packages to which adhesive has been applied, with consequent splitting into smaller units of desired size. Continuous operation is again not generally possible with other methods of producing multipacks.

The invention also provides a multipack of individually packaged items comprising an array of individual packages, said array being held together by a planar sheet material adhered to each package of the array.

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The invention further provides apparatus for producing multiple packs of individually packaged items comprising means for collating an array of individual packages in a desired configuration, means for applying to each of said individual packages an adhesive material in an identical position or positions on each package means for supplying planar sheet material of such area as to cover the entire adhesive area of the array of packages and for bringing said planar material into contact with the adhesive on the individual packages.

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CLAIMS

1. A multiple pack of individually packaged items comprising an array of individual packages, the packages being held in the array by a planar sheet material adhered by a foamed adhesive to each package of the array over one face only of the array.

2. A multiple pack according to claim 1 wherein the adhesive bond between the packages and the planar sheet material is such that removal of a package also removes a portion of the planar sheet material.

3. A multiple pack according to claim 1 or 2 wherein the planar sheet material is a cellulose based material.

4. A multiple pack according to claim 3 wherein the planar sheet material is corrugated cardboard.

5. A method for producing a multiple pack of individually packaged items comprising:

assembling an array of individual packages;

applying to each package of the array a foamed adhesive material; and

adhering to the packages over one face only of the array by means of the foamed adhesive material, a planar sheet material

wherein the array is held together to allow carriage but the individual packages can be removed from the planar sheet material for use.

6. A method according to claim 5 comprising:

forming an array of individual packages:

applying planar sheet material over the whole of the array;

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and subsequently cutting the planar sheet material to provide multiple packs of individually packaged items.

7. A method according to claim 6 which is carried out continuously by applying large sheets of planar material to a continuously advancing array of packages.

8. A method according to claim 6 which is carried out continuously by applying continuous planar material to a continuously advancing array of packages.

9. Apparatus for producing multipacks of individually packaged items comprising means for collating an array of individual packages, means for applying to each of said individual packages a foamed adhesive material in an identical position or positions on each package, means for supplying planar sheet material to cover the entire adhesive area of the array of packages and for bringing said planar material into contact with the adhesive on the individual packages.

10. Apparatus according to claim 9 further comprising means for continuously advancing an array of packages past means for applying planar sheet material as large sheets to the packages and means for separating the sheet material to divide the assembly into multiple packages.

11. Apparatus according to claim 9 further comprising means for continuously advancing an array of packages past means for applying planar sheet material as continuous sheets to the packages and means for separating the sheet material to divide the assembly into multiple packages.