Abstract Title: A condiment sachet and means for its manufacture

A flexible container or sachet (1) comprises a body defining a condiment cavity, the body being formed by at least one flexible sheet (3,4) and a support frame element (5), which includes at one end a frangible portion (7) able to be folded over a score line (6) to open a dispensing outlet (9) thereby allowing the contents of the cavity to be discharged under manual pressure on the major surfaces of said at least one flexible sheet (3,4). An apparatus and method for forming and filling condiment sachets and the like is described. Sachet blanks and a web of frame insert elements for presenting to the apparatus of the invention are also disclosed. Fracture of the frangible portion is accompanied by tearing of the flexible sheet material at the score line (6). The frame elements and flexible sheets may be formed of an identical recyclable plastics.
A CONDIMENT SACHET, AN APPARATUS FOR AND METHOD OF MANUFACTURE AND A BLANK THEREFOR

Field of the Invention

The present invention relates to a sachet of the type normally used for storing and dispensing individual servings of a condiment such as mustard, vinegar or ketchup. The invention further relates to a method of and apparatus for the manufacture and production of filled sachets.

It will be appreciated by the skilled addressee that the invention, although directed towards condiments and other foodstuffs, may be applied to any liquid and paste, powder or other pourable substance and to items requiring discrete packaging.

The sachet of the invention is described with respect to a “condiment”, however, no limitation should be taken or inferred to any specific material or foodstuff or to any specific use of the invention from the context in which this convenient name is used.

Background to the Invention

Condiment sachets are very well known amongst the general populace and are used freely particularly in fast-food restaurants. Most popular is sachets comprising a pair of flexible plastics material sheets, which are sealed about their peripheral edges to define a pouch within which the condiment is entrained. To access the contents, a cover or one end of the sachet is torn off and the contents expelled by applying finger pressure to the front and rear faces of the plastics material sheets.
There are a number of well-appreciated disadvantages associated with prior art sachets. The first is that they provide little control over the rate at which the contents are dispensed. As the contents are being squeezed out, the position of the dispensing outlet with respect to the rest of the sachet can vary greatly and the directional control or positioning of the condiment is not always as desired. Consequently, handling of traditional sachets is often messy. Secondly, there is appreciable manual dexterity required to open many of the known sachets, most of which are beyond the capabilities of young children. The difficulty encountered is often compounded when the user’s hands are greasy or have condiment on them from an earlier attempt to extract condiment from a sachet.

When opening the sachet, it must be held between the forefinger and thumb of both the right and left hand, one of which is used to effect a tearing motion across the top or down the side of the sachet. Where an initial tear is already provided the user will not have to resort to using teeth (which can be a less-than-pleasurable experience should the contents be shampoo or a washing liquid concentrate, for example). Even where such a start tear has been provided, the sachet often tears in an uneven manner and at high risk of the contents being uncontrollably forced from within the sachet.

When the sachet is opened, the dispensing outlet or aperture does not allow for a discrete amount of the condiment to be expelled. It is often a case of all or nothing.

There are many examples of the above types of condiment sachet or container in the prior art.

It will be appreciated that the prior art sachets, while useful, tend to be loathed by many users. It will also be appreciated that opening such containers may provide insurmountable obstacles to those having limited manual dexterity, insufficient grip or are handicapped physically.

In an attempt to obviate some of the disadvantages highlighted above, a solution suggested in the prior art is to use cup-shaped containers, usually extruded from a
plastics material and the open mouth thereof is sealed using a foil sheet or a foil-
backed plastics sheet or membrane. Often there is provided a tab to allow the foil
to be gripped for peeling the foil back to reveal the open mouth of the container.
It remains a problem that the tabs are generally too small to grip adequately and
often tear without allowing access to the contents.

Many of the prior art sachets are formed of two or more different types of material
and this can provide recycling challenges. As recycling legislation is becoming
more a part of the packaging industry, it is essential to attempt to minimise the
potential for waste and to maximise the recyclability of packaging.

It is an object of the present invention to provide a condiment sachet which seeks
to alleviate the disadvantages associated with the prior art devices, which is easy
to open and facilitates the controlled dispensing of the contents thereof.

It is also an object of the invention to provide a sachet blank which is readily
formable into a filled sachet.

It is a yet further object of the present invention to provide a method and
apparatus for the manufacture and production of filled sachets in accordance with
the invention.

Summary of the Invention

Accordingly, the present invention provides a flexible container for storing a
fluid, paste or flowable powder, the container comprising:

a container body defining a cavity, the body being formed by at least one
flexible sheet and a support frame element,

the support frame element including at one end a frangible portion which
is frangible about a fold line and is adapted to tear the at least one flexible sheet to
define a dispensing opening/outlet thereby allowing the contents of the cavity to
be discharged under manual pressure on the major surfaces of said at least one
flexible sheet.
This arrangement allows for a relatively large gripping area to be defined so that the sachet can be easily opened. Thus, the sachet of the present invention addresses the major disadvantages of the prior art sachets while retaining a familiar form and dispensing action.

Advantageously, said end portion of the support frame element includes a discharge outlet which is opened when the frangible portion thereof is folded over said fold line.

The opening action creates a relatively narrow dispensing outlet through which a condiment (or other pourable/flowable substance) may be controllably expressed/expelled.

Ideally, the discharge outlet is a tube.

Preferably, the frangible portion is removable.

Conveniently, the flexible sheets and support frame element are formed of a plastics material. Most conveniently, the flexible sheets and support frame element are formed of the same plastics material.

The support frame element forms a semi-rigid peripheral edge to the container.

In one arrangement, the body is formed by interleaving the support frame elements between a pair of flexible sheets.

The body is formed by adhering the two flexible sheets to either side of the frame element along their respective peripheries.

The present invention further provides an apparatus for forming a sachet, the apparatus comprising:

means for dispensing a continuous web of frame insert elements and a plastic sheet material, one or both elements and sheet material having cold-seal (pressure sensitive) adhesive selectively applied prior to dispensing;
means for presenting the insert elements and sheet material in a form capable of receiving a predetermined quantity of a condiment or like material;

pressure applying means for bonding the sheet material to the frame elements to form completed sachets; and

means for forming a fold or score line to define a frangible portion,

whereby, in use, folding or removing the frangible portion opens a dispensing outlet through which the contents of the sachet may be expelled/expressed.

The present invention yet further provides a method of forming a sachet of the type normally used for storing and dispensing individual servings of a condiment; the method comprising:

dispensing a continuous web of frame insert elements and a plastic sheet material, one or both elements and sheet material having cold-seal (pressure sensitive) adhesive selectively applied prior to dispensing;

presenting the insert elements and sheet material in a form capable of receiving a predetermined quantity of a condiment or like material;

bonding the sheet material to the frame elements to form completed sachets; and

forming a fold or score line to define a frangible portion,

whereby, in use, folding or removing the frangible portion opens a dispensing outlet through which the contents of the sachet may be expelled/expressed.

In one arrangement, a first web of sheet material is bonded to a web of frame inserts in a manner forming a reservoir for receiving a condiment. When the condiment is placed into the reservoir, a second web of sheet material overlies the frame insert and condiment and is bonded to the frame insert to entrain the condiment and form the sachet.
In an alternative arrangement, a web of sachet blanks is presented in an open mode to receive a predetermined quantity of condiment. The sachet blanks are then manipulated as they are conveyed so that the blanks are disposed in a closed mode, pressure subsequently being selectively applied to seal the condiment within the sachets thus formed.

In a yet further aspect of the invention there is provided a sachet blank comprising a frame insert element bonded on one side to a first face of sheet material, a second face of said sheet material being attached to the first along one edge and being adapted for folding to overlie the frame insert element, thereby forming a sachet.

In a further construction, the sachet blank comprises a first portion of a frame insert element bonded on one side to a first face of sheet material, a second face of said sheet material being attached to the first along one edge and being bonded to a second portion of the frame element insert. The portions of the insert element are adapted for folding to overlie one another, thereby forming a sachet.

In another aspect of the invention, there is provided a web of frame insert blanks comprising successive frame insert elements having a pre-formed dispensing outlet. In one arrangement, the outlet comprises a detent formed in the top portion of the insert element and, in another arrangement, the outlet comprises a tube section. The tube section may be cut from a continuous tube disposed along the central longitudinal axis formed during a moulding or extrusion process.

The dispensing outlet may also be used as a registration mark for the apparatus of the invention during, for example, the filling stage.

Brief Description of the Drawings

The invention will now be described more particularly with reference to the accompanying drawings which show, by way of example only, embodiments of sachet in accordance with the invention and packaging apparatus for forming and filling sachets of the invention. In the drawings:
Figures 1a and 1b are a plan view and a side elevation of the sachet, respectfully;

Figures 2a and 2b are a plan view and a perspective elevation of two constructions of a web or ribbon of insert frames of the sachet;

Figures 3a and 3b are perspective views of two constructions of sachet blanks provided as a web or ribbon of blanks for feeding into a sachet forming and filling apparatus;

Figure 4 is a schematic diagram of a sachet forming and filling apparatus having at least one inlet station where sachet packaging material is introduced and a filing station where the condiment is introduced into the sachet; and

Figures 5a and 5b illustrate schematically different arrangements of sachet forming and filling apparatus.

**Detailed Description of the Drawings**

Referring to the drawings and initially to Figures 1a and 1b, a condiment sachet 1 comprises a pair of plastic material sheets 3.4 forming the front and back face of the sachet 1. The sheets 3.4 are bonded around their peripheral edges, as will be familiar to those conversant with the prior art, thereby forming a cavity or reservoir for containing the condiment. The sachet also comprises an internal frame element 5, as illustrated in and as described in more detail with reference to Figures 2a, 2b, 3a and 3b. The sachet 1 includes a score line 6 which defines a frangible or snap-off end section 7 operably opening a dispensing outlet 9 for the contents of the sachet, which may be dispensed using finger pressure on the face sheets 3,4 of the sachet 1. The outlet 9 is so sized as to ensure the condiment is dispensed in a controlled manner and is easily directed by the user.

The internal frame element 5 of the sachet 1 is formed from a plastics material, ideally, the same plastics material from which the front and back face sheets 3.4 of the sachet are formed. By choosing an identical material, the sachet is inherently recyclable, provided the appropriate plastics material is chosen. The internal frame element 5 provides support to the sachet structure by virtue of its
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thickness. For a sachet having width and length dimensions of 45mm and 100mm, respectively, the thickness T of the frame element is in the order of 0.5mm. The frame element 5 comprises two side portions 11 and an end portion 12 having consistent width dimensions W and a top portion 14, which includes the frangible section 7 adapted to be snapped-off from the remainder of the frame 5. The score line 6 defines the frangible section from the top portion 14 and facilitates the removal of the frangible section 7. The dispensing outlet 9 is centrally disposed within the top portion and may be formed in a number of ways.

In one construction, the outlet comprises a detent 9a, having a semi-circular or ovoid cross-section, is formed in the top portion 14 but in use is discontinuous at the score line 6 or within the frangible section 7. When one of the front or back sheets 3,4 is adhered to the frame element 5, the dispensing outlet 9a is closed until the frangible section 7 is snapped-off to reveal the outlet 9a. This construction is illustrated in Figure 2a, which shows a first web or ribbon of frame inserts 5. Successive frame inserts are attached along their side portions 11 and a score line 16a is formed to separate the individual frame elements or completed sachets, as appropriate.

The frame insert blanks may be formed in a number of ways, for example, by punching out or die cutting a central aperture to define the frame shape. The detent 9a is conveniently formed concurrently with the formation of the central aperture.

The sheet material 3,4 has a cold-seal adhesive applied along the edges so that, upon contact with the side portions 11 and the end portion 12, a bond is formed. The bond is secured by means of pinch rollers which apply pressure to the outer periphery of the front and rear faces 3,4 of the sachet (thereby avoiding the cavity). At least one pinch roller includes a profile contact face to seal the sachet at the outlet detent 9a of the frangible portion 7 and to avoid applying sealing pressure along the discharge outlet at the top portion 14.

The pinch roller is synchronised with the roller forming the detent to ensure correct registration.
In another construction, the discharge outlet is formed by creating an aperture or tube 9b within the top portion 14 of the frame, the aperture being crimped or otherwise closed in the frangible section 7. Optionally, the aperture is closed when the score line 6 between the top portion 14 and the frangible section 7 of the frame element 5 is formed. The diameter of the outlet 9b will depend on the size of the sachet 1 and the nature of the contents thereof. For food sauces and condiments, a diameter of 3mm is normally adequate to allow flow but small enough so that the condiment may be directed onto a plate or a food item without spillage.

Referring specifically to Figure 2b, the frame inserts 5 are provided as a web or ribbon of successive frame elements connected along their respective end portions 12 and frangible portions 7. The frame elements 5 have a centrally disposed tube 9b therethrough, as described above. As the face sheets 3,4 are applied via a roller mechanism (not shown), the reservoir is gradually formed as the sheets are progressively bonded to the flat surfaces 11,12 of the insert frame from the “bottom” up. The roller is configured to flatten close the length of tube 9b at the end portion 12 of the insert, to form the score line 16b and to flatten close the tube length 9b in the frangible section 7 but leaving the dispensing outlet tube intact in the top portion 14.

Moulding techniques familiar to those skilled in the art are employed to form this arrangement of frame insert so that a tube is formed at one or both ends of the frame insert. Optionally, an intermediate blank is formed by extrusion, the blank comprising a sheet having a hollow tube along its central longitudinal axis. The frame insert is then formed by punching out or otherwise cutting the central aperture. Before cutting a sacrificial rod may be inserted in the tube to prevent the tube 9b from closing during the aperture cutting stage.

Where the frame insert includes a dispensing tube, the face sheets are again bonded using a cold-seal adhesive and are secured by pressure applied either by a profiled stamp or pinch roller. Registration of the stamp or roller is taken either mechanically or electronically from a leading edge of a preceding frame insert or the trailing edge of the frame insert to be bonded. Registration ensures that the
stamp or roller is correctly positioned to apply pressure to the required parts of the sachet and avoid those where no pressure or reduced pressure is required.

In an alternative arrangement, sachet blanks are provided in a sequential ribbon, to simplify the method and apparatus required to form and fill the sachets. The frame inserts 5 are adhered on one side to a sheet forming a first face 3 of the sachet. The sheet defines a trough or reservoir R into which the condiment is placed before the second face sheet 4 is applied and bonded to the "upper" side of the insert 5. Optionally, the second sheet 4 may be contiguous with the first 3 (as shown in Figure 3a) so that a folding action brings the inner side of the second sheet 4 into contact with the "upper" side of the frame insert.

Referring now to Figure 3b, a pair of opposed frame insert elements 5 are adhered to a single sheet of plastics material, defining the front and rear faces 3,4, as before. The assembly is foldable about a median line 20 to form a completed sachet. The discharge outlet is formed by the combination of detents 9 disposed in the top and frangible portions of the respective opposed frame elements 5, to provide an outlet tube. Pressure sensitive (cold-seal) adhesive is provided on the inner sides of the frame elements so that, when the elements overlie one another, a pair of pinch rollers effect bonding.

A sachet forming and filling apparatus is illustrated schematically in Figure 4 and comprises a first feeding station 30 where sachet packaging elements, such as the frame insert 5 and sheet material 3,4, is introduced to the apparatus. The packaging material is then manipulated at a forming station 40 to form, at least partially, a reservoir R into which the condiment is injected or otherwise added. Optionally, additional sheet material is introduced at a second feeding station 50 to enclose the condiment reservoir R. The sachet is then sealed and cut at a sealing and cutting station 60 before being conveyed to a bulk packing or storage area A.

Figure 5a is a diagrammatical representation of a sachet forming and filling apparatus 100 in accordance with the invention, as will be described with reference to the frame inserts of Figures 2a and 2b. A first reel 101 mounted on
an axial spindle 102 feeds a ribbon of frame inserts 5 towards a bonding station 105. The ribbon of frame inserts is unwound from the reel 101, as indicated by the arrows, and is fed via a series of tensioning rollers 107 into an accumulator and splicer 110. The accumulator and splicer 110 together act to maintain a continuous flow of frame inserts 5 into the apparatus 100, particularly when the ribbon on the reel 101 runs out. A sensor, mounted either adjacent the reel or operably connected to one of the tensioning rollers, detects when the ribbon is at or near its end. The splicer takes up a ribbon feed from a supplementary reel 101a and splices the new ribbon to the end of the ribbon of the exhausted reel. A new reel is mounted on the spindle 102 and a leading end of the ribbon fed into the accumulator for take up by the splicer when the supplementary reel 101a is exhausted.

A similar arrangement is provided for the sachet front 3 and rear 4 sheet material which is dispensed from second 112 and third 113 reels, mounted for rotation on their respective spindles 115, 116 and having back-up or supplemental reels 112a, 113a feeding material into accumulators and splicers 110 as described above.

Accordingly, the period during which the apparatus is non-productive (down-time) is minimised.

As the ribbon of inserts and the sheet material is introduced to the bonding station, a pair of rollers brings the inserts 5 and sheet material 3 into contact with one another. In the bonding station, pinch rollers apply sufficient pressure to ensure cold-seal adhesive, which is pre-applied to the sheet material 3, makes a bond with the insert 5. The sheet material which is slightly wider than the insert is scalloped as it is brought into contact with the insert ribbon so as to define a well or reservoir R for receiving the condiment.

A sensor arrangement 120 is provided for confirming the position of the leading or trailing edge of the insert aperture, for example. The data output from the sensor arrangement is used to register the pinch rollers to bond the sheet material to the top and end portions of individual frame inserts and optionally to print
batch or date information on the sheet material.

The data output may optionally be used to drive an indexing or stepper motor associated with the pinch rollers in the bonding station 105.

The same data output is used to position a series of half-formed sachets in a filling station 125 where a predetermined quantity of condiment is placed into the open well or reservoir R formed by the sheet material as supported by the frame inserts.

A “top sheet” is then introduced from the third reel 113 and is brought to bear against the exposed side of the half-formed sachet, again with a scalloped profile, and prior to a final sealing and cutting station 130, pinch rollers 135 ensure the “top sheet” is bonded to the frame insert. The sheet material dispensed from the third reel has an identical amount and distribution of cold-seal adhesive as the sheet material dispensed from the second reel.

As the pinch rollers 135 seal the top sheet to the top and end portions of the frame insert, a profile on one roller ensures that bonding occurs in the detent 9a or tube 9b extending into the yet-to-be-formed frangible portion 7.

A cutting blade or cutting assembly is used to define tear lines 16a,16b between each completed sachet and to form the frangible portion 7. In forming the frangible portion, a score line 6 must be sufficiently deep to allow a user to bend or fold the frangible portion 7 over and to tear the sheet material 3,4 along the score line 6. In a preferred arrangement, the score line is formed on both the front and rear faces of the sachet and the frangible portion 7 may be torn off after folding.

Figure 5b is a diagrammatical representation of a sachet forming apparatus 200 similar to that of Figure 5a, and is described with reference to the sachet blanks of Figures 3a and 3b. As with Figure 5a, a reel 201 mounted on a spindle 202 feeds a ribbon of sachet blanks towards a first station of the apparatus. As before, an accumulator and splicer arrangement 210 is provided to ensure continuous feed of blanks using a supplementary reel 201a.
The apparatus 200 is set up to fill and form a predetermined number of sachets incrementally, that is, driven pinch rollers 205 take up six, twelve or twenty-four sachet blanks at a time from the accumulator 210. Using the data output from a sensor arrangement 220, condiment injectors 225 are placed into the detents from one side and, with particular reference to the sachet blanks of Figure 3a, the flap of sheet material (on which cold-seal adhesive is pre-applied) is gradually folded through 180 to overlie the frame insert in a forming station 227.

When the sachet is substantially completely sealed around at least three of its four peripheral sealing areas, leaving the regions about the detent unsealed, the condiment is injected into the reservoirs R. The injectors are then withdrawn from the sachets and pressure is applied to the remaining sealing areas of the top portion of the sachet. At the detent 9, pressure is applied thereto at the frangible portion 7 to close the dispensing outlet 9 and the sheet material covering the detent at the remainder of the top portion 14 is left unaffected, thereby ensuring the dispensing outlet is open when the frangible portion is folded back or torn off.

It will be appreciated that substantially the same apparatus can be used with the sachet blanks of Figure 3b. With these blanks, however, the side folded through 180° might not flex sufficiently to allow for the gradual folding of the combined frame element and sheet material. If this is the case, a knife is provided to cut the six, twelve or twenty-four sachet blank lengths and this length is folded to overlie the first half of the frame insert.

As before, the condiment injectors lie within the frame insert detents and the two halves of the insert frames are bonded either by pre-applied cold-seal adhesive or by thermowelding the halves together. The detent is closed in the area of the frangible portion by pinch rollers 235 and the remaining length of the detent is left unaffected.

In use, the full sachet is picked up in one hand and the frangible portion bent over the fold line with the other. The sheet material tears at the same time and the dispensing outlet is exposed so that the condiment is expellable under finger pressure in a controllable manner. The frangible portion is optionally torn off.
For one-handed operation, the sachet may be retained in the palm of one hand with holding pressure being applied to the side lengths of the frame insert, leaving the reservoir area substantially unaffected. The frangible portion may then be bent over the fold line by thumb manipulation and the contents dispensed by squeezing the sachet into the palm.

It will of course be understood that the invention is not limited to the specific details described herein, which are given by way of example only, and that various modifications and alterations are possible within the scope of the present invention.
CLAIMS:

1. A flexible container for storing a fluid, paste or flowable powder, the container comprising:

   a container body defining a cavity, the body being formed by at least one flexible sheet and a support frame element,

   the support frame element including at one end a frangible portion which is frangible about a fold line and is adapted to tear the at least one flexible sheet to define a dispensing opening/outlet thereby allowing the contents of the cavity to be discharged under manual pressure on the major surfaces of said at least one flexible sheet.

2. A flexible container as claimed in claim 1, in which the end portion of the support frame element includes a discharge outlet which is opened when the frangible portion thereof is folded over said fold line.

3. A flexible container as claimed in claim 2, in which the discharge outlet is a tube.

4. A flexible container as claimed in any one of claims 1 to 3, in which the frangible portion is removable.

5. A flexible container as claimed in any one of the preceding claims, in which the flexible sheets and support frame element are formed of an identical recyclable plastics material.

6. A flexible container as claimed in any one of the preceding claims, in which the support frame element forms a semi-rigid peripheral edge to the container.

7. A flexible container as claimed in any one of the preceding claims, in which the body is formed by interleaving the support frame elements between a pair of flexible sheets.
8. A flexible container as claimed in claim 7, in which the body is formed by adhering the two flexible sheets to either side of the frame element along their respective peripheries.

9. An apparatus for forming a sachet, the apparatus comprising:

means for dispensing a continuous web of frame insert elements and a plastic sheet material, one or both elements and sheet material having cold-seal (pressure sensitive) adhesive selectively applied prior to dispensing:

means for presenting the insert elements and sheet material in a form capable of receiving a predetermined quantity of a condiment or like material;

pressure applying means for bonding the sheet material to the frame elements to form completed sachets; and

means for forming a fold or score line to define a frangible portion,

whereby, in use, folding or removing the frangible portion opens a dispensing outlet through which the contents of the sachet may be expelled/expressed.

10. A method of forming a sachet of the type normally used for storing and dispensing individual servings of a condiment; the method comprising:

dispensing a continuous web of frame insert elements and a plastic sheet material, one or both elements and sheet material having cold-seal (pressure sensitive) adhesive selectively applied prior to dispensing:

presenting the insert elements and sheet material in a form capable of receiving a predetermined quantity of a condiment or like material;

bonding the sheet material to the frame elements to form completed sachets; and

forming a fold or score line to define a frangible portion,
whereby, in use, folding or removing the frangible portion opens a dispensing outlet through which the contents of the sachet may be expelled/expressed.

11. A method of forming a sachet as claimed in claim 10, in which a first web of sheet material is bonded to a web of frame inserts in a manner forming a reservoir for receiving a condiment and, when the condiment is placed into the reservoir, a second web of sheet material overlies the frame insert and condiment and is bonded to the frame insert to entrain the condiment and form the sachet.

12. A method of forming a sachet as claimed in claim 10, in which a web of sachet blanks is presented in an open mode to receive a predetermined quantity of condiment, the sachet blanks then being manipulated as they are conveyed so that the blanks are disposed in a closed mode, pressure subsequently being selectively applied to seal the condiment within the sachets thus formed.

13. A sachet blank comprising a frame insert element bonded on one side to a first face of sheet material, a second face of said sheet material being attached to the first along one edge and being adapted for folding to overlie the frame insert element, thereby forming a sachet.

14. A sachet blank as claimed in claim 13, in which the frame element comprises two portions, a first portion being bonded on one side to the first face of sheet material, a second face of said sheet material being attached to the first along one edge and being bonded to a second portion of the frame element insert, the portions of the insert element being adapted for folding to overlie one another, thereby forming a sachet.

15. A web of frame insert blanks comprises successive frame insert elements having a pre-formed dispensing outlet.

16. A web of frame inserts as claimed in claim 15, in which the outlet comprises a detent formed in the top portion of the insert element.

17. A web of frame inserts as claimed in claim 15, in which the outlet comprises a tube section.
18. A web of frame inserts as claimed in claim 17, in which the tube section is cut from a continuous tube disposed along the central longitudinal axis formed during a moulding or extrusion process.

19. A flexible container or sachet substantially as herein described, with reference to and as shown in the accompanying drawings.

21. An apparatus for forming a sachet substantially as herein described, with reference to Figures 4, 5a and 5b of the accompanying drawings.

22. A method of forming a sachet substantially as herein described, with reference to the accompanying drawings.

23. A sachet blank substantially as herein described, with reference to and as shown in Figures 3a and 3b of the accompanying drawings.

24. A web of frame inserts substantially as herein described, with reference to and as shown in Figures 2a and 2b of the accompanying drawings.
Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

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Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC

Worldwide search of patent documents classified in the following areas of the IPC

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The following online and other databases have been used in the preparation of this search report:

EPODOC, PAJ, WPI