(54) Title: METHOD FOR PRODUCING PACKAGING MEANS MADE OF PLASTIC FOIL OR SIMILAR HEAT-SEALABLE MATERIAL

(57) Abstract:
A method for producing a side-pleated bag from heat-sealable material in which the front, back and side panels are joined by heat-sealed seams. The front and back walls are formed by mutually overlapping first and second flat webs. A third web is folded to form
(57) Abrégé(suite)/Abstract(continued):
a side-pleated web having side-pleated sections. The bottom of the bag is formed by a fourth flat web which is heat-sealed with the side-pleated sections and with the first and second flat webs along their adjoining side edges.
ABSTRACT

A method for producing a side-pleated bag from heat-sealable material in which the front, back and side panels are joined by heat-sealed seams. The front and back walls are formed by mutually overlapping first and second flat webs. A third web is folded to form a side-pleated web having side-pleated sections. The bottom of the bag is formed by a fourth flat web which is heat-sealed with the side-pleated sections and with the first and second flat webs along their adjoining side edges.
Method For Producing Packaging Means
Made Of Plastic Foil Or Similar Heat-Sealable Material

The invention concerns a method for producing packaging means made of plastic foil or similar heat-sealable material in the form of a bag or sack with side pleats, having a front and a back wall that are joined together on their two sides by side pleats forming side walls and with a bag bottom that is in turn joined with the front and back wall as well as with the side pleats, whereby the front wall and the back wall as well as the side walls are each formed by a separate material section which are joined together by heat-sealed seams.

Packaging means of the aforementioned type made of plastic foil or similar heat-sealable material are known in numerous forms, depending on their intended use, e.g. as a bag for beverages, refill packages for liquid or pasty material or generally as a storage bag for pourable bulk goods of any type. In comparison to such packaging means in the form of bags or sacks with side pleats that are formed from a one-piece material section, packaging means in the form of bags or sacks with side pleats in which front and back wall as well as the side walls are each made from a separate material section,
offer greater freedom with respect to the design possibilities of individual material sections, in particular with respect to printing the packaging means with sales promoting particulars, product information and the like as well as the length of the side pleats forming the side walls which do not necessarily have to be the same length or height as the packaging means but, depending on the design of the packaging head corresponding to the intended purpose of the packaging means, can also be shorter than the height of the packaging means or even different on the two sides of the packaging means.

An object of the invention is to create a method for producing packaging means made of plastic foil or similar heat-sealable material in the form of a bag or sack with side pleats of the aforementioned type that can be easily produced in a continuous process.

According to the invention, this object is solved thereby that the material sections for the front and back wall are formed by a first and a second flat main material web that, after being provided with a mutual overlap, are conveyed in a first, common direction of conveyance, a third flat material web is folded to form a web for side pleats, separated from the side-pleated sections at a given length and, in a second direction of conveyance, is conveyed diagonally to the first direction of conveyance while overlaying one of the two main material webs and that the bottom of the bag, for its part, is formed by a separate material section of a fourth flat material web which is joined to at least one of the two main material webs, then conveyed parallel to the first direction of conveyance and heat-sealed with the side-pleated sections as well as the two main material webs along their adjacent side edges. This makes it possible to print all of the material webs used in
the method of the invention in a continuous printing process prior to processing them into packaging means and to meet the requirements with respect to length of the side-pleated sections forming the side wall dependent on the intended use of the packaging means, as the use of the material webs continuously conveyed in the method according to the invention forms the prerequisite for a continuous process in which the individual steps can be carried out on the continuous material webs until individual packaging means are finally separated at the end of the process from the finished material webs.

According to an aspect of the present invention there is provided a method of producing a package having first and second side walls joined to side fold sections and a bottom section joined to the first and second side walls and to the side fold sections, the method comprising transporting in a first direction a continuum of first packaging material which is to form the first side wall of the package, transporting in the first direction a continuum of second packaging material which is to form the second side wall of the package, transporting in a second direction a plurality of individual lengths of third packaging material having overlapping folded parts which are to form the side fold sections of the package, transporting in the first direction a continuum of fourth packaging material having overlapping folded parts which are to form the bottom of the package, disposing the fourth packaging material in at least a partial superimposed relationship with the first packaging material, disposing the first and fourth packaging materials in at least a partial superimposed relationship with individual lengths of the third packaging material, transporting the at least partial superimposed first, third and fourth packaging materials in the first direction into at least a partially superimposed
relationship with the second packaging material, joining at least parts of the at least partially superimposed first, second, third and fourth packaging material, and severing the first, second, third and fourth packaging material along a severing line extending generally transversely of the first direction to thereby provide a plurality of packages each formed by severed lengths of first and second packaging materials which form the first and second side walls of the package, by severed lengths of third packaging material which form the side fold sections of the package, and by severed lengths of fourth packaging material which form the bottom of the package.

According to another aspect of the present invention there is provided a method of producing a package having first and second side walls joined to side fold sections and a bottom section joined to the first and second side walls and to the side fold sections, comprising transporting in a first direction a continuum of first packaging material which is to form the first side wall of the package, transporting in the first direction a continuum of second packaging material which is to form the second side wall of the package, transporting in a second direction a third packaging material having overlapping folded parts which is to form the side fold sections of the package, transporting in the first direction a continuum of fourth packaging material having overlapping folded parts which are to form the bottom of the package, disposing the third packaging material in at least a partial superimposed relationship with the first packaging material, disposing the first and third packaging material in at least a partial superimposed relationship with the second packaging material, transporting the at least partially superimposed first,
second, and third packaging materials in the first direction into at least a partially superimposed relationship with the fourth package material, joining at least parts of the at least partially superimposed first, second, third and fourth packaging material, and severing the first, second, third and fourth packaging material along a severing line extending generally transversely of the first direction to thereby provide a plurality of packages each formed by severed lengths of first and second packaging materials which form the first and second side walls of the package, by severed lengths of third packaging material which forms the side fold sections of the package, and by severed lengths of forth packaging material which form the bottom of the package.

According to a further aspect of the present invention there is provided a method of producing a package having first and second side walls joined to side fold sections and a bottom section joined to the first and second side walls and to the side fold sections, the method comprising transporting in a first direction a first packaging material which is to form the first side wall of the package, transporting in the first direction a second packaging material which is to form the second side wall of the package, transporting in a second direction a third packaging material having overlapping folded parts which is to form the side fold sections of the package, transporting in the first direction a fourth packaging material having overlapping folded parts which are to form the bottom of the package, disposing the first, second, third and fourth packaging material in at least a partial superimposed relationship, and severing the first, second, third and fourth packaging material along a severing line extending
generally transversely of the first direction to thereby provide a plurality of packages each formed by severed lengths of first and second packaging materials which form the first and second side walls of the package, by severed lengths of third packaging material which form the side fold sections of the package, and by severed lengths of fourth packaging material which form the bottom of the package.

Numerous further features and advantages of the invention can be found in the subclaims and the following description of two embodiments of the method according to the invention in association with the drawings, showing:

Figs. 1A and 1B a schematic perspective representation of a device for producing packaging means made of plastic foil or similar heat-sealable material in the form of a bag or sack with side pleats according to a first embodiment of the method of the invention, wherein Fig. 1B represents an extension of Fig. 1A,

Figs. 2 to 5 a schematic perspective representation each of a double side-pleated section used to produce the side walls of the packaging means in various processing phases,

Figs. 6 and 7 schematic perspective representations of the bottom of the bag of the packaging
means produced according to the method of the invention, in the empty or filled state respectively of the packaging means, and

Fig. 8

a schematic perspective representation of a device corresponding to the device of Fig. 1A in its size for producing packaging means according to a further embodiment of the method according to the invention.

In particular, foils made of suitable polyolefins, such as polyethylene or polypropylene or even composite foils are used as heat-sealable material in the method according to the invention for the manufacture of packaging means, wherein metal foils, especially aluminum foils e.g. to produce flavour-sealed packaging means, can be included. Such weldable or heat-sealable materials are common materials in the manufacture of packaging means.

As can first of all be seen in Fig. 1A, a first flat main material web 1 is conveyed in direction of arrow 2 through a device (not shown in greater detail) for manufacturing packaging means made of plastic foil or similar heat-sealable material which, in the course of the method according to the invention, receives the shape of a bag or sack with side pleats. A second flat main material web 3 is conveyed downward from an upper plane about guide rollers 4 and 5 overlaying the main material web 1, whereupon both material webs 2 and 3 are conveyed further together in direction of conveyance 2 so as to lie flat on top of one another.
A third flat material web 6 is conveyed in direction of arrow 7 diagonally to the main material web 1, preferably at right angles to the direction of conveyance 2. The material web 6 is thereby conveyed from a lower conveyance plane about guide rollers 8 and 9 into an upper conveyance plane, which occupies the same plane as the main material web 1. In this upper conveyance plane, the material web 6 is folded into a web of side pleats, in the example shown, into a double side-pleated web 10 in the form of a flat tubing 6' having side fold edges 11 opposite one another. The side parts 12 of the material web 6 folded along the two fold edges 11 against one another to form the flat tubing 6' adjoin one another in the area of the vertical longitudinal median plane of the flat tubing 6', preferably without overlapping and without being joined.

Double side-pleated sections 14 are separated from the double side-pleated web 10 as flat tubing sections by means of a cross-cutting device 13 consisting of an upper and lower tool and are conveyed to and through a pleating device 16 by means of suitable conveying means that comprise at least one set of rolls through which the section 14 passes while fixing its fold edges 11. In the pleating device 16, every section 14 is unfolded at its leading end in the conveying device 7 by means of a pleating tool (not shown in greater detail) in the form of double corner tuck triangles 17 in which the hypotenuses 21 of the right-angled isosceles triangles face one another in parallel mutual alignment.

Figs. 2 to 5 show the sections 14 on an enlarged scale. Their direction of conveyance is, in turn, shown by the arrow 7. Fig. 2 shows the section 14 immediately after being separated from the flat tubing 6'. At 18, the overlapping-free and connection-free area between the side parts 12 can be seen in
the form of a longitudinal gap 18.

In the pleating device 16, the leading end 19 is unfolded at the upper side 19a and the lower side 19b of the section 14, as can be seen in Fig. 3, and folded inward on the side, as Fig. 4 shows, as well as folded back on the top 19a about a diagonal fold line 20. The distance of the diagonal fold line 20 from the leading end 19 of the section 14 is equal to the depth \( t \) of a side pleat or half the width of the flat tubing 6' and the two corner tucks 17 are produced in the form of right-angled isosceles triangles whose hypotenuses 21 extend parallel to one another and to the longitudinal fold edges 11 of the section 14 when the unfolding step is completed.

During the continued conveyance of the section 14 in which the at least one further pair of rolls 15 is passed through, the corner tuck triangles 17 are folded back on themselves along the diagonal fold line 20 defining the height of the respective corner tuck triangle 17, so that a triangular pocket 17', open in direction of conveyance 7, is formed by each corner tuck triangle 17, as can be seen especially in Fig. 5.

In this state, the section 14 is placed on the material web 1 as lower web and, if necessary, fastened to it with its underside 19b along its vertical longitudinal median plane containing the longitudinal gap 18, in order to fix its position at right angles to the longitudinal edges of the lower web 1 during further conveyance.

A fourth flat material web 22, used to form the bottom of the packaging means, is brought from an upper plane about guide rollers 23 from an upper plane to rest on the lower web 1
directly before the feed point of the sections 14 in order to be conveyed further together with the lower web 1 in direction of arrow 2. While being transferred from its upper conveyance plane to the support plane of the lower web 1, in the example shown in Fig. 1A, onto a vertical part, the flat web 22 is folded into a half tubing 22' wtubing longitudinal side is formed by a folded edge 24 and whose other longitudinal side by the longitudinal edges 25 of the half tubing 22' folded toward one another and not joined. The half tubing 22' placed on the lower web 1 is taken up by the triangular pockets 17' of the sections 14 thereby that the leading open triangular pockets 17' pick up the half tubing 22' when the sections 14 are placed on the lower web 1, so that the folded edge 24 adjoins the inner boundary fold line 20 (Fig. 5) of the triangular pockets 17'.

When conveying further in direction of arrow 2, the lower web 1 together with the sections 14 and half tubing 22' reaches beneath the main material web 3 as upper web and the main material webs 1 and 2 [sic] are conveyed further together, including the sections 14 and half tubing 22' in direction of conveyance 2 to a heat-sealing device 26 having two heat-sealing dies above one another between which the material web 22 forming the bottom or the half tubing 22' formed by it is heat-sealed at its longitudinal edges 25 with the adjacent longitudinal edge 27 or 28, respectively, of the main material webs 1 and 3 in the form of a seam.

When the web composite is conveyed further in direction of conveyance 2 by means of suitable conveying devices, of which a pair of rolls 15 is again shown in Fig. 1B, a further heat-sealing device 29 with upper and lower tool is reached which extends diagonally over the web composite. The side-pleated
sections 14a and 14b, still joined to the double side-pleated section 14, are heat-sealed along their longitudinal edges at the upper side 19a and the lower side 19b of the section 14 with each of the adjoining areas of the two main material webs 1 and 3 while forming parallel heat-sealed seams 31 as well as, furthermore, the half tubing 22' is heat-sealed so as to form a seam along the hypotenuses 21 of the corner tuck triangles 17 in the triangular pockets 17' of the sections 14.

The double side-pleated sections 14 are separated after being heat-sealed with the two main material webs 1 and 3 and the half hose 21' in the area of their vertical longitudinal median plane containing the longitudinal gap 18, i.e. also on the lower wall or lower side 19b opposite the gap 18 and thereby allocated to the adjacent side edges of two adjacent packaging means 32. This separation takes place when the web composite is conveyed further in direction of conveyance 2 by means of a cross-cutting device 33 which also separates the half tubing 22' between the hypotenuse edges 21 in the vertical longitudinal median plane containing the gap 18. Moreover, during this separating process, the peripheral heat-sealed seams 31 are longitudinally divided in parallel peripheral heat-sealed seams 34 on adjacent packaging means 32.

When the material web 22 forming the bottom is heat-sealed, i.e. when the half tubing 22' is heat-sealed with the two main material webs 1, 3 and the side-pleated sections 14a and 14b, and after the individual packaging means 32 have been separated from the web composite, a pattern of four bottom heat-sealed seams 34, 35 that are at right angles to one another and merge into one another without interruption are produced which limit the material section 36 separated from
the half tubing 22' as bag bottom of the packaging means 32 whose main walls 37 opposite one another form the front and back wall are formed by the corresponding sections of the main material web 1 and 3.

In the modified method illustrated with reference to Fig. 8, the double side-pleated sections 14 are again separated from the double side-pleated web 10 and conveyed as lower web to the main material web 1 in the form shown in Fig. 2, i.e. without folding of corner tuck triangles 17 at the leading end which is again forwarded in direction of arrow 2. On the lower web 1, the sections 14, which are in turn conveyed in direction of arrow 7 diagonally or at right angles to the direction of conveyance 2, just as the sections 14 of the first embodiment, are placed on the lower web 1 at a distance corresponding to the desired width of the packaging means 32 and fastened to it. The main material web 3 is brought as upper web from an upper plane via the guide rollers 4 and 5 together with the lower web 1 and fastened for its part to the sections 14 already lying on the lower web 2.

When conveyed further together in direction of conveyance 2, the longitudinal edge 27 of the upper web 3 opposite the longitudinal edge 28 of the lower web 2 is unfolded with the end areas of the fastened sections 14 while forming the double corner tuck triangles 17 of the first embodiment which form automatically in this case along a fold line corresponding to the diagonal fold line 20.

The fourth material web 22 is then placed on the unfolded longitudinal edges 27, 28 with the corner tuck triangles 27 as a flat web with the unfolded longitudinal edges 27, 28 having a corresponding width. The material web 22 is thereby
conveyed from an upper feed plane via the guide rollers 23 into the plane of the lower and upper web 1, 3. The unfolded longitudinal edge 28 of the upper web 3 is then folded back, including the corner tuck triangles 17 and enclosing the material web 22 on the edge 27 of the lower web 1 for a subsequent heat-sealing, as already described for the first embodiment with reference to Fig. 1B.

The sections 14 are fastened to the two main material webs 2, 3 in the area of the vertical longitudinal median plane of the sections 14 containing the longitudinal gap 18 by heat-sealing or preferably by hotmelt or similar adhesive coatings.

For the rest, the further procedural steps correspond to those of the embodiment of the method described with reference to Figs. 1A and 1B, as made clear by use of the same reference numbers for the same or corresponding parts in the description of the method.
The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A method of producing a package having first and second side walls joined to side fold sections and a bottom section joined to said first and second side walls and to said side fold sections, the method comprising transporting in a first direction a continuum of first packaging material which is to form said first side wall of said package, transporting in said first direction a continuum of second packaging material which is to form said second side wall of said package, transporting in a second direction a plurality of individual lengths of third packaging material having overlapping folded parts which are to form the side fold sections of said package, transporting in said first direction a continuum of fourth packaging material having overlapping folded parts which are to form the bottom of said package, disposing said fourth packaging material in at least a partial superimposed relationship with said first packaging material, disposing said first and fourth packaging materials in at least a partial superimposed relationship with individual lengths of said third packaging material, transporting said at least partial superimposed first, third and fourth packaging materials in said first direction into at least a partially superimposed relationship with said second packaging material, joining at least parts of said at least partially superimposed first, second, third and fourth packaging material, and severing said first, second, third and fourth packaging material along a severing line extending generally transversely of said first direction to thereby provide a plurality of packages each formed by severed lengths of
first and second packaging materials which form the first and second side walls of the package, by severed lengths of third packaging material which form said side fold sections of the package, and by severed lengths of fourth packaging material which form the bottom of said package.

2. The method of producing a package according to claim 1 comprising forming said third packaging material by folding a flat unfolded continuum of packaging material along two spaced fold lines.

3. The method of producing a package according to claim 1 further comprising forming said third packaging material by transporting a flat unfolded continuum of packaging material and folding said flat unfolded continuum along two parallel fold lines to provide two folded side part each of which overlap an intermediate part.

4. The method of producing a package according to claim 3 wherein the last said folding step includes disposing longitudinal edges of said two folded side parts juxtaposed to one another.

5. The method of producing a package according to claim 4 wherein the last said disposing step comprises providing a longitudinally extending gap between said longitudinal edges of said two folded side parts.

6. The method of producing a package according to any one of claims 1 to 5 further comprising forming double tucked-in corners at a leading longitudinal end portion of the individual lengths of third packaging material.
7. The method of producing a package according to claim 6 wherein the last said forming step comprises forming four tucked-in triangular portions each having superimposed triangular sections joined at a fold line.

8. The method of producing a package according to any one of claims 1 to 7 wherein said overlapping folded parts of said lengths of third packaging material have substantially equal widths measured perpendicular to said second direction, further comprising a pocket folding step of folding a leading end portion of said individual lengths of third packaging material along transverse fold lines extending perpendicular to said second direction and disposed at a distance from a leading longitudinal end of each individual length of third packaging material a distance substantially equal to said width of said overlapping folded side parts.

9. The method of producing a package according to claim 8 wherein said pocket folding step comprises forming four right angle folded portions on said third packaging material, said pocket folding step further comprising providing each of said right angle folded portions with two equal sides joined to a third hypotenuse side with the lengths of said two equal sides being equal to the width of said two overlapping folded parts of said lengths of third packaging material, said pocket folding step further comprising disposing the third hypotenuse side of each right angle folded portion at the leading longitudinal end of said lengths of third packaging material.

10. The method of producing a package according to claim 9 wherein said pocket folding step comprises disposing one
equal side of each right angle folded portion in a
direction perpendicular to said second direction and
disposing the other side of each right angle folded portion
in a direction parallel to said second direction.

11. The method of producing a package according to claim 9
wherein each of said right angle folded portions comprise
two superimposed right angle parts, one equal side of each
right angle part being formed by an inner fold line.

12. The method of producing a package according to claim 9
wherein said pocket folding step comprises disposing pairs
of said right angle folded portions in superimposed array
to form receiving pockets between the pairs of superimposed
pairs of right angle folded portions.

13. The method of producing a package according to claim
12 wherein said step of transporting said fourth packaging
material comprises transporting said fourth package
material into said receiving pockets.

14. The method of producing a package according to any one
of claims 1 to 13 wherein said separate lengths of third
packaging material each have a leading longitudinal end
portion, and further comprising a pocket folding step of
folding each leading end portion to form pockets having
overlapping sections joined at an inner fold.

15. The method of producing a package according to claim
14 further comprising inserting at least portions of said
fourth packaging material into said pockets at said lending
end portion of said separate lengths of third packing
material.
16. The method of producing a package according to claim 14 further comprising supplying said continuum of fourth packaging material with its overlapping folded parts having first juxtaposed longitudinal edges free of one another and second juxtaposed longitudinal edges joined to one another along a longitudinal fold line, inserting at least portions of said fourth packaging material into said pockets, said inserting step comprising disposing said longitudinal fold line of said fourth packaging material in a position juxtaposed to said inner fold of said pockets.

17. The method of producing a package according to any one of claims 1 to 16 further comprising initially supplying said forth packaging material as a continuum of supplied flat packaging material moving in a direction transverse to said first direction and folding said continuum of flat supplied flat packaging material along its longitudinal extent to form a continuum of overlapping sections of fourth packaging material moving in said first direction.

18. The method of producing a package according to claim 1 further comprising initially supplying said forth packaging material as a continuum of supplied flat packaging material, and folding said continuum of flat supplied package material along its longitudinal extent to form a continuum of overlapping sections of fourth packaging material.

19. The method of producing a package according to claim 18 wherein said initial supplying step comprises transporting said fourth packaging material as a continuum of supplied flat packaging material in a transverse direction relative to said first direction and changing the
direction of transport of said continuum of supplied flat packaging material from said transverse direction to said first direction during said folding step.

20. A method of producing a package having first and second side walls joined to side fold sections and a bottom section joined to said first and second side walls and to said side fold sections, comprising transporting in a first direction a continuum of first packaging material which is to form said first side wall of said package, transporting in said first direction a continuum of second packaging material which is to form said second side wall of said package, transporting in a second direction a third packaging material having overlapping folded parts which is to form the said side fold sections of said package, transporting in said first direction a continuum of fourth packaging material having overlapping folded parts which are to form the bottom of said package, disposing said third packaging material in at least a partial superimposed relationship with said first packaging material, disposing said first and third packaging material in at least a partial superimposed relationship with said second packaging material, transporting said at least partially superimposed first, second, and third packaging materials in said first direction into at least a partially superimposed relationship with said fourth package material, joining at least parts of said at least partially superimposed first, second, third and fourth packaging material, and severing said first, second, third and fourth packaging material along a severing line extending generally transversely of said first direction to thereby provide a plurality of packages each formed by severed lengths of first and second packaging materials which form
the first and second side walls of the package, by severed
lengths of third packaging material which forms said side
fold sections of the package, and by severed lengths of
forth packaging material which form the bottom of said
package.

21. The method of producing a package according to claim
20 further comprising providing said third packaging
material as a continuum of third package material and
severing said continuum of third packaging material into
said separate lengths of third package material.

22. The method of producing a package according to claim
20 or 21, further comprising disposing separate lengths of
said third packaging material at successive spaced
intervals on said continuum of first packaging material.

23. The method of producing a package according to any one
of claims 20 to 22 wherein said joining step comprises
affixing separate lengths of third packaging material to
juxtaposed sections of said first packaging material and to
juxtaposed sections of second packaging material in which
said juxtaposed sections are spaced at intervals along said
first and second packaging materials, said severing step
comprising severing each separate length of third packaging
material along its longitudinal length and severing said
first and second packaging materials along said respective
joined juxtaposed sections.

24. The method of producing a package according to claim
23 wherein said joining step further comprises attaching
said fourth packaging material to sections of said first,
second and third packaging materials, said severing step further comprising severing said fourth packaging material.

25. The method of producing a package according to claim 23 wherein said severing step comprises severing said third packaging material along a substantially longitudinal extending bisecting line.

26. A method of producing a package having first and second side walls joined to side fold sections and a bottom section joined to said first and second side walls and to said side fold sections, the method comprising transporting in a first direction a first packaging material which is to form said first side wall of said package, transporting in said first direction a second packaging material which is to form said second side wall of said package, transporting in a second direction a third packaging material having overlapping folded parts which is to form said side fold sections of said package, transporting in said first direction a fourth packaging material having overlapping folded parts which are to form the bottom of said package, disposing said first, second, third and fourth packaging material in at a least a partial superimposed relationship, and severing said first, second, third and fourth packaging material along a severing line extending generally transversely of said first direction to thereby provide a plurality of packages each formed by severed lengths of first and second packaging materials which form the first and second side walls of the package, by severed lengths of third packaging material which form said side fold sections of the package, and by severed lengths of fourth packaging material which form the bottom of said package.
27. The method of producing a package according to claim 26 wherein said third packaging material has a leading end portion, further comprising forming at said leading end portion four double tucked in triangular portions each having superimposed triangular sections joined at a fold line.

28. The method of producing a package according to claim 26 wherein said third packaging material has a leading end portion, said overlapping folded parts of said third packaging material have substantially equal widths measured perpendicular to said second direction, further comprising a pocket folding step of folding the leading end portion of said third packaging material along transverse fold lines extending perpendicular to said second direction and disposed at a distance from the leading longitudinal end of said third packaging material a distance substantially equal to said width of said overlapping folded parts.

29. The method of producing a package according to claim 28 wherein said pocket folding step comprises forming four right angle folded portions on said third packaging material, said pocket folding step further comprising providing each of said right angle folded portions with two equal sides joined to a third hypotenuse side with the lengths of said two equal sides being substantially equal to the width of said two overlapping folded parts of said third packaging material, said pocket folding step further comprising folding the third hypotenuse side of each right angle folded portion at the leading longitudinal end of said lengths of third packaging material.
30. The method of producing a package according to claim 29 wherein said pocket folding step comprises disposing one equal side of each right angle folded portion in a direction perpendicular to said second direction and disposing the other side of each right angle folded portion in a direction which is parallel to said second direction.

31. The method of producing a package according to claim 29 wherein each of said right angle folded portions comprise two superimposed right angle parts, one side of each right angle part being formed by an inner fold line

32. The method of producing a package according to claim 29 wherein said pocket folding step comprises disposing pairs of said right angle folded portions in superimposed array to form receiving pockets between the pairs of superimposed pairs of right angle folded portions.

33. The method of producing a package according to claim 32 wherein said step of transporting said fourth packaging material comprises transporting said fourth package material into said receiving pockets.

34. The method of producing a package according to claim 26 wherein said third packaging material has a leading end portion, further comprising a pocket folding a step of forming pockets with overlapping sections at said leading end portion of said third packaging material, said pocket folding step being performed prior to the step of disposing said third packaging material in at least a partial superimposed relationship with said first, second and fourth packaging material.
35. The method of producing a package according to any one of claims 26 to 34 wherein said step of disposing said first, second, third and fourth packaging materials in at least a partial superimposed relationship includes initially disposing said third packaging material in at least a partial superimposed relationship with said first packaging material, said third packaging material having a leading end portion, further comprising a pocket forming step of forming pockets with overlapping sections at said leading end portion of said third packaging material, said pocket forming step being performed after said third packaging material has been disposed in at least a partial superimposed relationship with said first packaging material.