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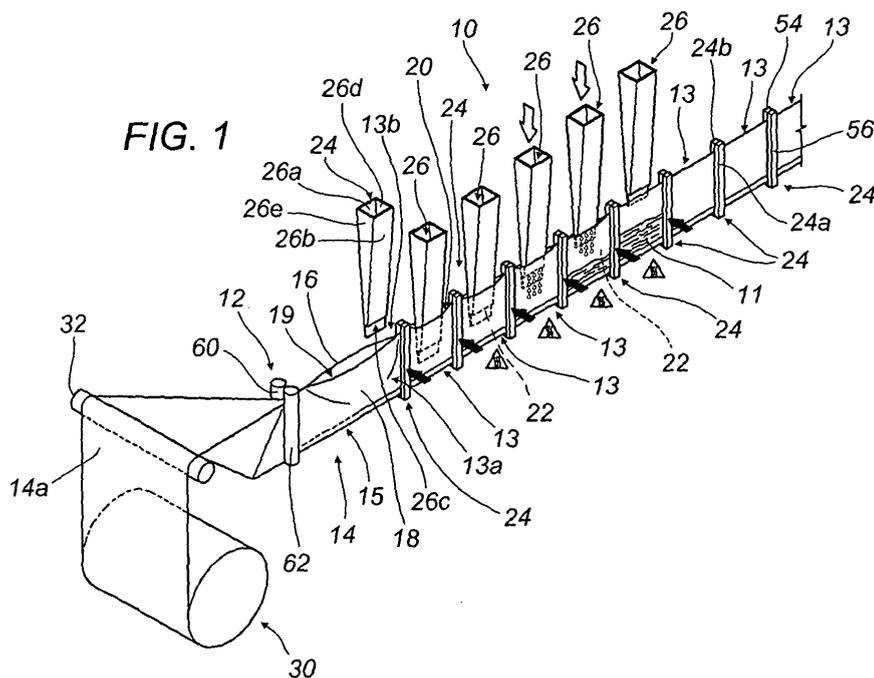
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(54) Process and apparatus for packaging a product in sachets

(57) A process and apparatus for packaging sachets or pouches and the like comprising the steps of: providing a web (14) which is closed at the bottom, with a first (16) and a second (18) flap which are paired up and substantially fit together, the top of this two-layered web being open; providing longitudinal portions (13) of the two-layered web, forming a sachet with an opening (20) at the top for filling and an internal space between the paired

up flaps for holding the product; inserting the product in the internal space of the portions forming the sachet; and closing the longitudinal portions forming the sachet, with the product held in its internal space. The step of inserting the product in the portion forming the sachet is carried out during the step of preparing the longitudinal portions forming the corresponding sachets in the two-layered web.



Description

[0001] The present invention relates to a process and apparatus for packaging material in sachets.

[0002] Apparatuses for packaging material in sachets are known, in which the sachets are made of a heat-sealable plastic material, which is unwound from a supporting reel and suitably sealed on two or three sides so as to form a sachet which is cut from the web being fed then filled through the opening in the only side which remains free, after which said side is closed.

[0003] In these known apparatuses, first the individual sachet to be filled is formed, then it is filled by allowing the product to fall from above into the suitably open sachet, the filling product dispensing means remaining outside the sachet.

[0004] Therefore, a process was provided for packaging a product in sachets or the like, in particular in the form of packs of the type with sealed edges, the sachet comprising a first and a second flap, positioned opposite one another, forming an internal space for holding a product; the process involving: providing a web with a first and a second flap which are paired up; providing longitudinal portions of the two-layered web, designed to form a sachet, and forming an internal space between the flaps for holding the product; inserting the product in the internal space corresponding to the internal space of the portions forming a sachet, characterised in that the step of inserting the product in the internal space corresponding to the internal space of the portions forming a sachet is performed during the step of preparing the longitudinal portions forming corresponding sachets in the web.

[0005] An apparatus was also provided for packaging a product in sachets or the like, in particular in the form of packs of the type with sealed edges, the sachet comprising a first and a second flap, positioned opposite one another, forming an internal space for holding a product; the apparatus comprising: means for preparing a web with a first and a second flap which are paired up; means for forming longitudinal portions of the two-layered web, forming a sachet having an internal space between the flaps for holding the product; means for inserting the product in the internal space corresponding to the internal space of the portions forming the sachet, comprising product dispensing means; characterised in that the means for dispensing the product in the internal space corresponding to the internal space of the portions forming a sachet operate during the step of preparing the longitudinal portions forming sachets in the web.

[0006] In this way, performance can be improved compared with the systems used until now. The product can be inserted in the sachet in the time usually taken to perform another packaging operation.

[0007] Other advantageous aspects of the present process and apparatus are described in the other claims.

[0008] The technical features of the invention are clearly described in the claims below and its advantages are more apparent from the detailed description which

follows, with reference to the accompanying drawings which illustrate preferred embodiments of the invention provided merely by way of example without restricting the scope of the inventive concept, and in which:

- 5 - Figure 1 is a schematic perspective view of a first preferred apparatus for implementing the process in accordance with the present invention;
- 10 - Figure 2 is a schematic side view of the first embodiment of the apparatus for implementing the process in accordance with the present invention;
- 15 - Figure 3 is a schematic top view of the zone of the web for producing sachets according to the first preferred embodiment of the apparatus for implementing the process in accordance with the present invention;
- 20 - Figure 4 is a schematic perspective view of a second preferred embodiment of an apparatus for implementing the process in accordance with the present invention;
- 25 - Figure 5 is a schematic side view of the second preferred embodiment of an apparatus for implementing the process in accordance with the present invention;
- 30 - Figure 6 is a schematic top view of only the web for producing sachets according to the second embodiment of the apparatus for implementing the process in accordance with the present invention;
- 35 - Figure 7 is a schematic perspective view of a third embodiment of an apparatus for implementing the process in accordance with the present invention;
- 40 - Figure 8 is a schematic side view of the third preferred embodiment of an apparatus for implementing the process in accordance with the present invention;
- 45 - Figure 9 is a top view of only the web for producing sachets according to the third preferred embodiment of the apparatus for implementing the process in accordance with the present invention.

[0009] With reference to Figures 1 to 3, it may be seen that the numeral 10 denotes as a whole a first preferred embodiment of a schematically illustrated apparatus for the production of sealed pouches or sachets containing a product.

[0010] In particular, the sachet is of the type with sealed edges and, in the customary way for the sector, comprises a first and a second flap which are positioned opposite one another, forming an internal space for holding a product and an external zone for adhesion between the first and the second flaps, so as to seal the internal space holding the product.

[0011] The first preferred embodiment of the apparatus 10 for packaging a product in sachets or pouches and similar packs comprises means 12 for preparing a web 14 which is closed at the bottom 15, having a first flap and a second flap 16, 18 which are paired up and substantially fit together; the top of the two-layered web 14

having an opening 20.

[0012] The first preferred embodiment of the apparatus 10 also comprises means designed to form longitudinal portions 13 of the two-layered web, forming a sachet with an opening 20 at the top for filling and an internal space 22 for holding the product between the flaps 16, 18.

[0013] The means for preparing the longitudinal portions 13 from the two-layered web 14 to form a sachet comprise means 24 acting in longitudinally distanced zones of the two-layered web 14, designed to join two opposite transversal and vertical strips 13a, 13b of the web flaps 16, 18.

[0014] As illustrated, the means 24 for joining two opposite strips of the opposite flaps 16, 18 of the two-layered web 14 tightly clamp said vertical strips of the opposite flaps 16, 18 together using opposite transversal elements or plates 24a, 24b.

[0015] In particular, said means 24 for joining two opposite zones of the opposite flaps of the two-layered web form means for sealing the opposite flaps 16, 18 of the two-layered web, sealing together the strips or parts of the web that they clamp against one another.

[0016] The present apparatus also comprises means for inserting the product in the internal space 22 of the portions forming the sachet, the insertion means comprising product dispensing means 26.

[0017] In the first embodiment illustrated, these dispensing means are in the form of a hopper or nozzle designed to dispense a predetermined amount of liquid.

[0018] As illustrated in Figure 1, the dispensing means 26, in particular the hopper type, have side or longitudinal walls 26a, 26b which converge towards the product dispensing end 26c, and transversal front and rear walls 26d, 26e.

[0019] The first preferred embodiment of the apparatus 10 also comprises means for closing the longitudinal portions forming the sachet, with the product held in its internal space. However, these closing means are not illustrated in detail in the accompanying drawings.

[0020] Advantageously, the means 26 for dispensing the product in the portion 13 forming the sachet operate during the step in which the longitudinal portions 13 which will form the corresponding sachets are being prepared in the two-layered web 14. In this way, this operating step, that is to say, preparation of the portions to be filled, can be performed simultaneously with filling of the same portions.

[0021] In greater detail, the means 26 for dispensing the product in the portion 13 forming the sachet operate, as illustrated, during the step of preparing transversal joins in the web 14, forming the longitudinal portions 13 of the web which form the corresponding sachets.

[0022] The apparatus also comprises means for cutting and separating the full sachet portions, which substantially cut the middle of the joins 13a, 13b between the web flaps which delimit the portions forming respective sachets, in order to obtain sachets which are completely separate from one another and contain a respec-

5 tive product. The cutting and separating means operate after the upper closing means for the portions forming the sachets. However, these cutting and upper closing means are not illustrated in detail in the accompanying drawings.

[0023] Advantageously, the product is inserted in the internal space 22 of the respective sachet portion 13 by the product dispensing means 26 in the inserted condition with their side faces in contact with the internal surfaces of the flaps 16, 18 of the corresponding sachet portion 13 that are fitted together. This limits the distance over which the product must fall, containing the risk of part of the product coming out of the pack being produced.

[0024] There are also means, not illustrated in detail in the accompanying drawings, designed to move the product dispensing means 26 downward into the portion 13 forming a sachet and upward and out of the portion 13 forming the sachet. The product is preferably dispensed during the dispensing means upward step.

[0025] In practice, the product dispensing means 26 are inserted in the portion 13 forming the sachet to supply the product to it.

[0026] These filling methods allow particularly precise and advantageous filling.

[0027] Advantageously, in accordance with the process disclosed, the product dispensing means 26 are inserted between the flaps 16, 18 of the two-layered web 14 before the step of joining the transversal strips of the web, which form the rear join or the join upstream of the portion to be filled 13.

[0028] Advantageously, the product dispensing means 26 operate on the sachet portion as the portion forming the sachet is fed forward. That is to say, the product dispensing means 26 insert the product in the sachet portion while the two-layered web is fed forward.

[0029] In turn, the means for joining suitable longitudinally equidistant zones of the opposite flaps of the web to form the sachet portions 13 operate with the two-layered web 14 as it is fed forward.

[0030] In particular, as illustrated, said apparatus comprises a plurality of dispensing elements 26 which are aligned in the direction of feed. The product dispensing means 26 are inserted between the opposite flaps of the two-layered web 14 before rear or upstream clamping of the web zone 15b which forms the sachet portion 13 filled using the dispensing means 16.

[0031] As shown in the accompanying drawings, as the two-layered web 14 is fed forward, the product dispensing means 26, located in the internal space of a sachet portion, are fed forward between first clamping means 24 positioned downstream of the dispensing means 26 according to the direction of feed, and second web clamping means 24 positioned upstream of the dispensing means according to the direction of feed.

[0032] Advantageously, the transversal clamping means 24, which form a separation strip with predetermined width between a portion forming one sachet and

a subsequent portion forming another sachet, engage with and move relative to the two-layered web 14 to form an upper spreading apart, or opening 19 of the web upper mouth, upstream of the clamping means 24.

[0033] The engaging and clamping means 24 operate, spreading apart the upper part of the opposite two-layered web flaps 16, 18, immediately downstream of the means 12 for forming or releasing the two-layered web 14, which, in particular, are in the form of corresponding opposite feed and connecting rollers 60, 62.

[0034] There are means, not illustrated in detail in the accompanying drawings, for the longitudinal feed of the web 14 with a continuous motion.

[0035] There are also means, not illustrated in detail in the accompanying drawings, for the longitudinal feed of the product dispensing means 26 with a continuous motion.

[0036] There are also means, not illustrated in detail in the accompanying drawings, for the longitudinal feed of the clamping and sealing means 24 with a continuous motion.

[0037] In particular, the web 14 for producing sachets, the product dispensing means 26 and the means 24 for clamping the portions 13 forming the sachets, move forward, at least over a predetermined stretch, at the same speed.

[0038] As indicated in the first preferred embodiment, the product dispensed is a liquid 11, which is inserted in and held in the sachet in an optimum way.

[0039] As illustrated, the web 14, designed to form the sachet portions 13, is unwound as a single flat layer 14a from a material supporting reel 30, forming web feed means.

[0040] There are also return means, in the form of a roller 32, for the single-layered web 14a, to guide it towards the means 12 which fold the web and arrange it in two layers to form the sachets.

[0041] As is schematically illustrated, the clamping and sealing means 24 comprise a plurality of plates 54 extending transversally, in particular vertically, and operating in conjunction with a corresponding transversal plate belonging to a plurality of opposite plates 56 located on the other or opposite side of the web 14.

[0042] As already indicated, the means 12 for connecting the web flaps in two layers, in turn, take the form of a first and a second roller 60, 62, extending with a vertical axis.

[0043] The clamping and sealing plates 54, 56 are moved according to an endless path with a linear stretch interfering with the two-layered web 14 feed trajectory so as to form the sachets.

[0044] The two-layered web feed means feed the web 14 along a linear path extending in a horizontal plane.

[0045] In particular, as shown in Figures 1 and 3, it may advantageously be seen how, during web 14 feed the mouth 19 of the portion 13 forming the sachet is gradually narrowed as the portion moves longitudinally. In this way the product is held inside the portion 13 being fed

forward.

[0046] The feed means for the dispensing means feed the latter forward along a linear path extending in a horizontal plane, with vertical and downward movement components. During said linear path the dispensing means are kept above the web, with stretches interfering with the web trajectory, during insertion between the web flaps and product dispensing in the portions 13.

[0047] A second preferred embodiment 100 of an apparatus for packaging a product in pouches or sachets is illustrated in Figures 4 to 6. This second embodiment is entirely similar to the first embodiment, differing only because it has product dispensing means 51 in the form of a hopper which releases powdered material "P" rather than a liquid as is the case with the first embodiment. Obviously, in this case the product dispensed may not only be a powdered material, but also a granular material.

[0048] To keep this description simple, this second embodiment is not described in detail. Moreover, in Figures 4 to 6 the various parts of the second embodiment are labelled with the same number references as are used for the first preferred embodiment, indicating elements that are entirely similar.

[0049] A third preferred embodiment 150 of an apparatus for packaging a product in pouches or sachets is illustrated in Figures 7 to 9. This third embodiment is entirely similar to the above-mentioned first and second embodiments, differing only because it has product dispensing means 91 in the form of means, in particular a pair of jaws, for gripping an item 92, which release the product 92 after the gripping means have entered said web portion 13. Said product, in the form of a single item 92 may, for example, be a tablet, a biscuit or the like.

[0050] To keep this description simple, this second embodiment is not described in detail. Moreover, in Figures 7 to 9 the various parts of the third embodiment are labelled with the same number references as are used for the first and second preferred embodiments, indicating elements that are entirely similar.

[0051] The invention described is suitable for evident industrial applications and may be subject to modifications and variations without thereby departing from the scope of the inventive concept. Moreover, all of the details of the invention may be substituted by technically equivalent elements. In particular, a two-layered web could be obtained in any other way, for example by sealing the bottom of two opposite webs.

Claims

1. A process for packaging a product in sachets or the like, in particular in the form of packs of the type with sealed edges, the sachet comprising a first and a second flap, positioned opposite one another, forming an internal space for holding a product; the process involving:

- providing a web with a first and a second flap which are paired up;
 - providing longitudinal portions of the two-layered web, forming a sachet and forming an internal space between the flaps for holding the product;
 - inserting the product in the internal space corresponding to the internal space of the portions forming a sachet;
 - the process being **characterised in that** the step of inserting the product in the internal space corresponding to the internal space of the portions forming a sachet is carried out during the step of preparing the longitudinal portions forming corresponding sachets in the web.
2. The process according to claim 1, **characterised in that** providing the longitudinal portions forming a sachet from the two-layered web involves joining two opposite strips of the web flaps at zones of the two-layered web that are longitudinally distanced from one another.
 3. The process according to claim 2, **characterised in that** the step of inserting the product in the internal space corresponding to the internal space of the portions forming a sachet is performed during the step of preparing transversal joins in the web forming the longitudinal portions which form corresponding sachets.
 4. The process according to any of the foregoing claims, **characterised in that** the two-layered web is open at the top.
 5. The process according to any of the foregoing claims, **characterised in that** the two-layered web is closed at the bottom.
 6. The process according to any of the foregoing claims, **characterised in that** the two-layered web has flaps which substantially fit together.
 7. The process according to any of the foregoing claims, **characterised in that** the portions forming a sachet have an opening for filling.
 8. The process according to any of the foregoing claims, **characterised in that** the longitudinal portions forming the sachet are closed with the product held in its internal space.
 9. The process according to any of the foregoing claims, **characterised in that** there is a step of cutting and separating the sachet portions at the transversal joins between the flaps forming the portions, to obtain separate sachets containing a respective product.
 10. The process according to claim 9, **characterised in that** the cutting and separating step is performed after the step of closing the portions forming the sachets.
 11. The process according to any of the foregoing claims or the preamble to claim 1, **characterised in that** the step of inserting the product in the internal space corresponding to the internal space of the portions forming a sachet is performed with the product dispensing means inserted between the opposite flaps forming the sachet portion.
 12. The process according to claim 11, **characterised in that** the step of inserting the product in the internal space of the sachet portion is performed with the product dispensing means inserted in and in contact with the internal surfaces of the flaps of the sachet portion which are fitted together.
 13. The process according to any of the foregoing claims or the preamble to claim 1, **characterised in that** the product dispensing means are moved downward into the portion forming a sachet and upward out of the portion forming the sachet, the product dispensing step being performed as the dispensing means move upward.
 14. The process according to any of the foregoing claims or the preamble to claim 1, **characterised in that** the product dispensing means are inserted between the flaps of the two-layered web before the second strip of the portion to be filled is joined.
 15. The process according to any of the foregoing claims, **characterised in that** the step of joining two opposite zones of the opposite two-layered web flaps involves firmly clamping the flaps using opposite transversal elements.
 16. The process according to any of the foregoing claims, **characterised in that** the step of joining two opposite zones of the opposite two-layered web flaps involves simultaneously sealing the opposite two-layered web flaps.
 17. The process according to any of the foregoing claims or the preamble to claim 1, **characterised in that** the product is inserted in the sachet portion as the portion forming the sachet is fed forward.
 18. The process according to claim 17, **characterised in that** the product is inserted in the sachet portion as the two-layered web is fed forward.
 19. The process according to any of the foregoing claims, **characterised in that** the step of joining suitable zones of the opposite web flaps to form the sa-

- chet portions is performed as the two-layered web is fed forward.
20. The process according to any of the foregoing claims or the preamble to claim 1, **characterised in that** the product dispensing means are inserted between the opposite flaps of the two-layered web before rear or upstream clamping of the zone of the web which forms the sachet portion filled using the dispensing means.
21. The process according to any of the foregoing claims, **characterised in that**, as the two-layered web is fed forward the product dispensing means located in the internal space of a sachet portion are fed forward between first clamping means positioned downstream of the dispensing means and second web clamping means positioned upstream of the dispensing means.
22. The process according to any of the foregoing claims or the preamble to claim 1, **characterised in that** the vertical clamping means forming a separation strip between a portion forming one sachet and the next portion forming another sachet engage with and operate in conjunction with the two-layered web to create an upper spreading apart, or opening of the web upper mouth, upstream of the clamping means.
23. The process according to any of the foregoing claims, **characterised in that** the engaging and clamping means operate, spreading apart the upper part of the opposite two-layered web flaps, immediately downstream of the means for forming or releasing the two-layered web.
24. The process according to any of the foregoing claims, **characterised in that** the web is fed longitudinally with a continuous motion.
25. The process according to any of the foregoing claims, **characterised in that** the product dispensing means are fed longitudinally with a continuous motion.
26. The process according to any of the foregoing claims, **characterised in that** the clamping and sealing means are fed longitudinally with a continuous motion.
27. The process according to any of the foregoing claims, **characterised in that** the web for producing sachets, the product dispensing means and the means for clamping the portions forming the sachets, move forward, at least over a predetermined stretch, at the same speed.
28. The process according to any of the foregoing claims, **characterised in that** the product dispensed is a liquid.
29. The process according to any of the foregoing claims, **characterised in that** the product dispensed is a single item.
30. The process according to any of the foregoing claims, **characterised in that** the product dispensed is a granular or powdered material.
31. The process according to any of the foregoing claims, **characterised in that** the web forming the sachet portions is unwound in a single layer from a supporting reel.
32. The process according to any of the foregoing claims, **characterised in that** there are return means for the single-layered web which guide it towards the means which fold the web and arrange it in two layers to form the sachets.
33. The process according to any of the foregoing claims, **characterised in that** the clamping and sealing plates are moved according to an endless path with a linear stretch interfering with the two-layered web feed trajectory so as to form the sachets.
34. The process according to any of the foregoing claims, **characterised in that** the two-layered web is fed along a linear path.
35. The process according to any of the foregoing claims, **characterised in that** the two-layered web for producing the sachets is fed along a horizontal path.
36. The process according to any of the foregoing claims, **characterised in that** the mouth of the portion forming the sachet is gradually narrowed as the portion moves longitudinally.
37. An apparatus (10) for packaging a product in sachets or the like, in particular in the form of packs of the type with sealed edges; the sachet comprising a first and a second flap, positioned opposite one another, forming an internal space for holding a product; the apparatus comprising:
- means (12) for preparing a web (14) with a first and a second flap (16, 18) which are paired up;
 - means for forming longitudinal portions (13) of the two-layered web, forming a sachet having an internal space (22) between the flaps (16, 18) for holding the product;
 - means for inserting the product in the internal space corresponding to the internal space (22) of the portions forming a sachet, comprising

- product dispensing means (26);
the apparatus being **characterised in that** the means (26) for dispensing the product in the internal space corresponding to the internal space (22) of the portions forming a sachet operate during the step of preparing the longitudinal portions (13) forming sachets in the web (14).
- 5
38. The apparatus according to claim 37, **characterised in that** the means for preparing the longitudinal portions (13) forming a sachet from the two-layered web (14) comprise means (24) for joining two opposite transversal strips (13a, 13b) of the web flaps (16, 18) at two zones of the two-layered web (14) that are longitudinally distanced from one another.
- 10
39. The apparatus according to claim 38, **characterised in that** the means (26) for dispensing the product in the internal space corresponding to the internal space (22) of the portions forming a sachet operate during the step of preparing transversal joins in the web (14) forming the longitudinal portions (13) which form corresponding sachets.
- 15
40. The apparatus according to any of the foregoing claims from 37 to 39, **characterised in that** the two-layered web (14) is open at the top.
- 20
41. The apparatus according to any of the foregoing claims from 37 to 40, **characterised in that** the two-layered web (14) is closed at the bottom.
- 25
42. The apparatus according to any of the foregoing claims from 37 to 41, **characterised in that** the two-layered web (14) has flaps that substantially fit together.
- 30
43. The apparatus according to any of the foregoing claims from 37 to 42, **characterised in that** the portions forming a sachet have an opening (20) for filling.
- 35
44. The apparatus according to any of the foregoing claims from 37 to 43, comprising means for closing the longitudinal portions forming the sachet, with the product held in its internal space.
- 40
45. The apparatus according to any of the foregoing claims from 37 to 44, comprising means for cutting and separating the sachet portions at the transversal joins (13a, 13b) between the flaps forming the portions, to obtain separate sachets containing a respective product.
- 45
46. The apparatus according to claim 45, **characterised in that** the cutting and separating means operate after the means for closing the portions forming the sachets.
- 50
47. The apparatus according to any of the foregoing claims from 37 to 46 or the preamble to claim 37, **characterised in that** the product is inserted in the internal space (22) of the sachet portion (13) with the product dispensing means (26) inserted between the opposite flaps (16, 18) of the sachet portion (13).
- 55
48. The apparatus according to claim 47, **characterised in that** the product is inserted in the internal space (22) of the sachet (13) portion with the product dispensing means (26) inserted in and the side faces in contact with the internal surfaces of the flaps (16, 18) of the sachet portion (13) which are fitted together.
- 50
49. The apparatus according to any of the foregoing claims from 37 to 48 or the preamble to claim 37, **characterised in that** there are means for moving the product dispensing means (26) downward into the portion (13) forming a sachet and upward out of the portion (13) forming the sachet, the product dispensing step being performed as the dispensing means move upward.
- 55
50. The apparatus according to any of the foregoing claims from 37 to 49 or the preamble to claim 37, **characterised in that** the product dispensing means (26) are inserted between the flaps (16, 18) of the two-layered web (14) before the second transversal strip (13b) forming the portion (13) to be filled is joined.
- 50
51. The apparatus according to any of the foregoing claims from 37 to 50, **characterised in that** the means (24) for joining two opposite strips of the opposite flaps (16, 18) of the two-layered web (14) comprise two opposite transversal elements which tightly clamp the opposite flaps.
- 55
52. The apparatus according to any of the foregoing claims from 37 to 51, **characterised in that** the means (24) for joining two opposite zones of the opposite flaps of the two-layered web form means for sealing the opposite flaps (16, 18) of the two-layered web.
- 50
53. The apparatus according to any of the foregoing claims from 37 to 52 or the preamble to claim 37, **characterised in that** the product dispensing means (26) operate on the sachet portion as the portion forming the sachet is fed forward.
- 55
54. The apparatus according to claim 53, **characterised in that** the product dispensing means (26) insert the product in the sachet portion while the two-layered web is fed forward.
- 50
55. The apparatus according to any of the foregoing

- claims from 37 to 54, **characterised in that** the means for joining suitable zones of the opposite web flaps to form the sachet portions (13) operate as the two-layered web (14) is fed forward.
56. The apparatus according to any of the foregoing claims from 37 to 55 or the preamble to claim 37, **characterised in that** the product dispensing means (26) are inserted between the opposite flaps of the two-layered web (14) before rear or upstream clamping of the zone of the web (13b) which forms the sachet portion (13) filled using the dispensing means (16).
57. The apparatus according to any of the foregoing claims from 37 to 56, **characterised in that**, as the two-layered web (14) is fed forward the product dispensing means (26) located in the internal space of a sachet portion are fed forward between first clamping means (24) positioned downstream of the dispensing means (26) according to the direction of feed, and second web clamping means (24) positioned upstream of the dispensing means according to the direction of feed.
58. The apparatus according to any of the foregoing claims from 37 to 57 or the preamble to claim 37, **characterised in that** the transversal clamping means (24) forming a separation strip between a portion forming one sachet and the next portion forming another sachet engage with and operate in conjunction with the two-layered web (14) to create an upper spreading apart, or opening (19) of the web upper mouth, upstream of the clamping means (24).
59. The apparatus according to any of the foregoing claims from 37 to 58, **characterised in that** the engaging and clamping means (24) operate, spreading apart the upper part of the opposite two-layered web flaps (16, 18), immediately downstream of the means (12) for forming or releasing the two-layered web (14).
60. The apparatus according to any of the foregoing claims from 37 to 59, **characterised in that** there are means for feeding the web (14) longitudinally with a continuous motion.
61. The apparatus according to any of the foregoing claims from 37 to 60, **characterised in that** there are means for feeding the product dispensing means (26) longitudinally with a continuous motion.
62. The apparatus according to any of the foregoing claims from 37 to 61, **characterised in that** there are means for feeding the clamping and sealing means (24) longitudinally with a continuous motion.
63. The apparatus according to any of the foregoing claims from 37 to 62, **characterised in that** the web (14) for producing sachets, the product dispensing means (26) and the means (24) for clamping the portions (13) forming the sachets, move forward, at least over a predetermined stretch, at the same speed.
64. The apparatus according to any of the foregoing claims from 37 to 63, **characterised in that** the product dispensed is a liquid (11).
65. The apparatus according to any of the foregoing claims from 37 to 64, **characterised in that** there are means (91) for dispensing a single item (92).
66. The apparatus according to any of the foregoing claims from 37 to 65, **characterised in that** there are means (51) for dispensing a granular or powdered product.
67. The apparatus according to any of the foregoing claims from 37 to 66, **characterised in that** the web (14) forming the sachet portions (13) is unwound in a flat single layer (14a) from a material supporting reel (30) forming web feed means.
68. The apparatus according to any of the foregoing claims from 37 to 67, **characterised in that** there are return means (32) for the single-layered web (14a) which guide it towards the means (12) which fold the web and arrange it in two layers to form the sachets.
69. The apparatus according to any of the foregoing claims from 37 to 68, **characterised in that** the clamping and sealing means (24) comprise a plurality of plates (54) extending transversally and operating in conjunction with a corresponding transversal plate belonging to a plurality of opposite plates (56) located on the other or opposite side of the web (14).
70. The apparatus according to any of the foregoing claims from 37 to 69, **characterised in that** the means (12) for connecting the web flaps in two layers take the form of a first and a second roller (60, 62) extending vertically.
71. The apparatus according to any of the foregoing claims from 37 to 70, **characterised in that** the clamping and sealing plates (54, 56) are moved according to an endless path with a linear stretch interfering with the two-layered web (14) feed trajectory so as to form the sachets.
72. The apparatus according to any of the foregoing claims from 37 to 71, **characterised in that** the two-layered web feed means feed the web (14) along a linear path.

73. The apparatus according to any of the foregoing claims from 37 to 72, **characterised in that** the two-layered web feed means feed the web (14) along a horizontal path.

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74. The apparatus according to any of the foregoing claims from 37 to 73, **characterised in that** during web (14) feed the mouth (19) of the portion (13) forming the sachet is gradually narrowed as the portion moves longitudinally.

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75. The apparatus according to any of the foregoing claims from 37 to 74, comprising a plurality of dispensing elements (26) which are aligned in the direction of feed.

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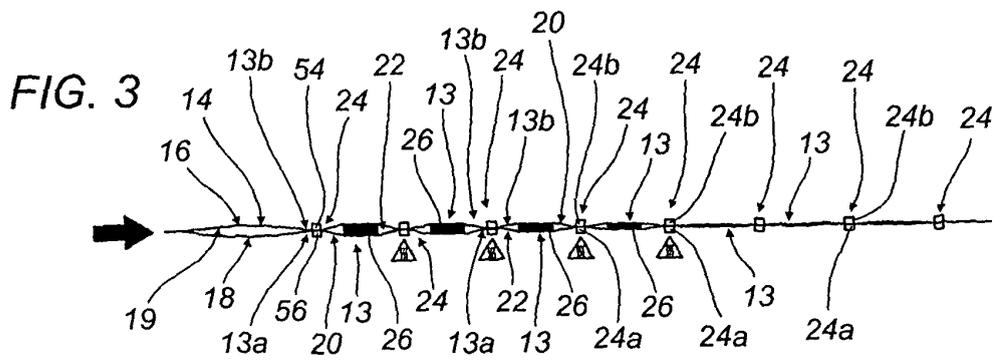
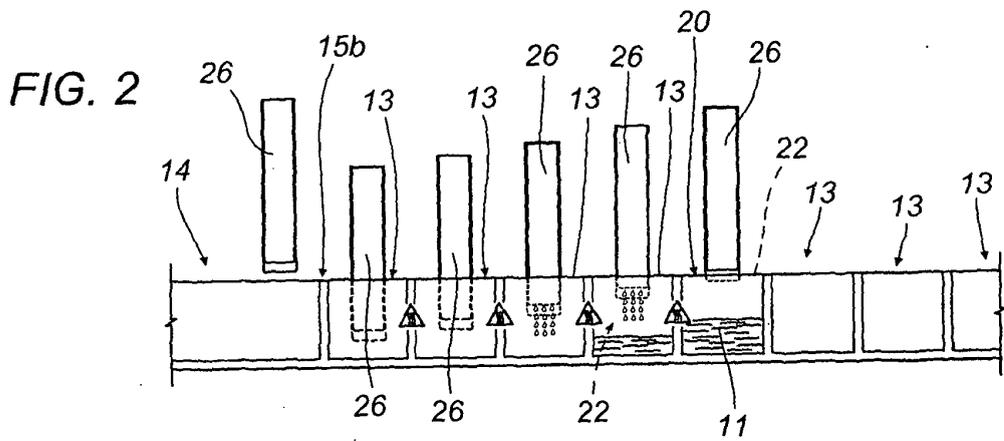
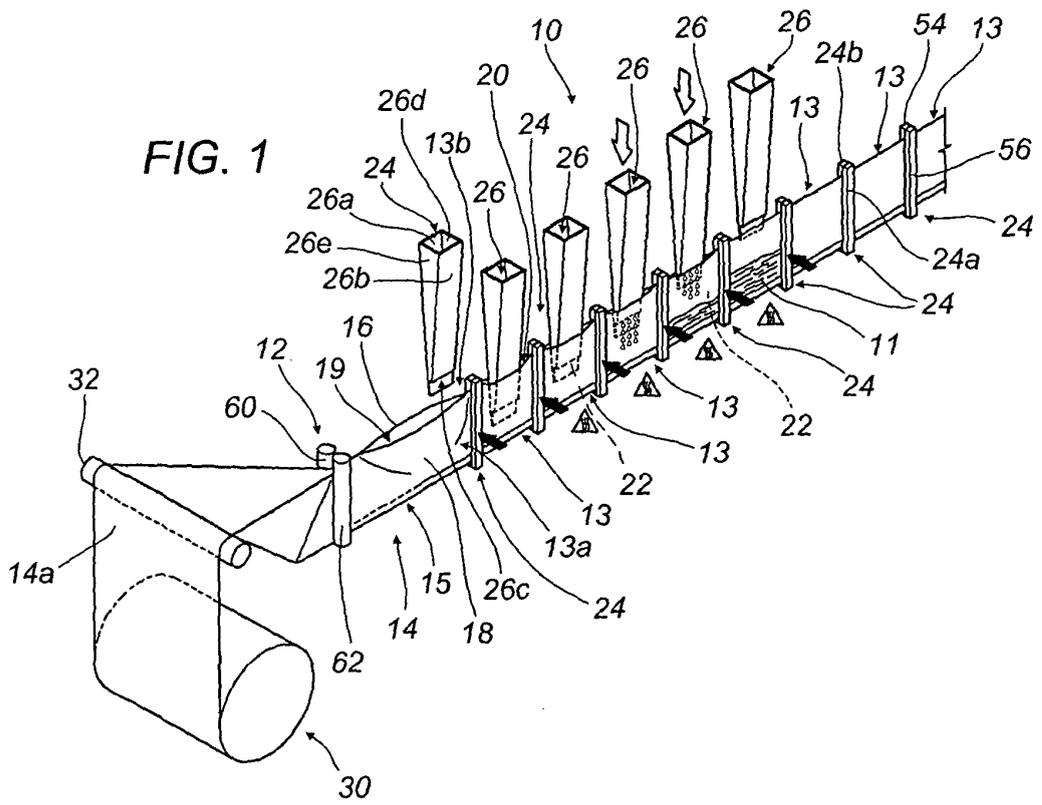
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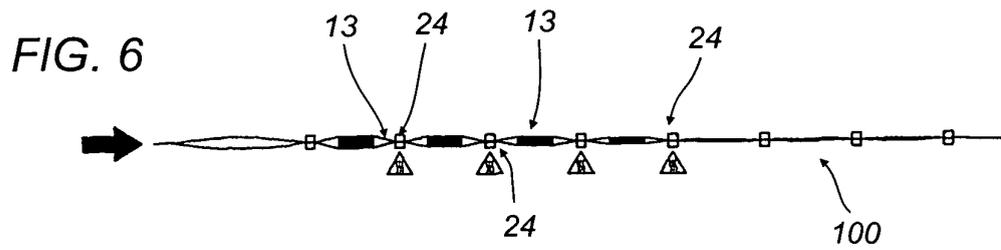
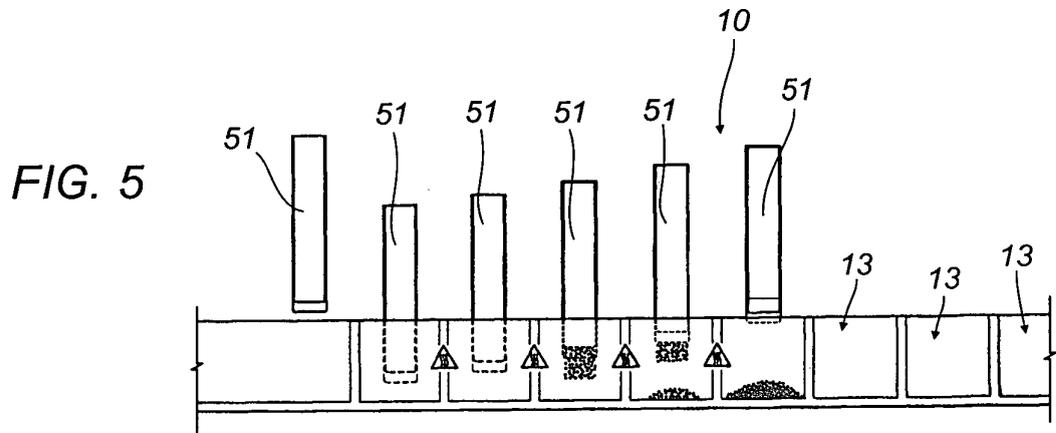
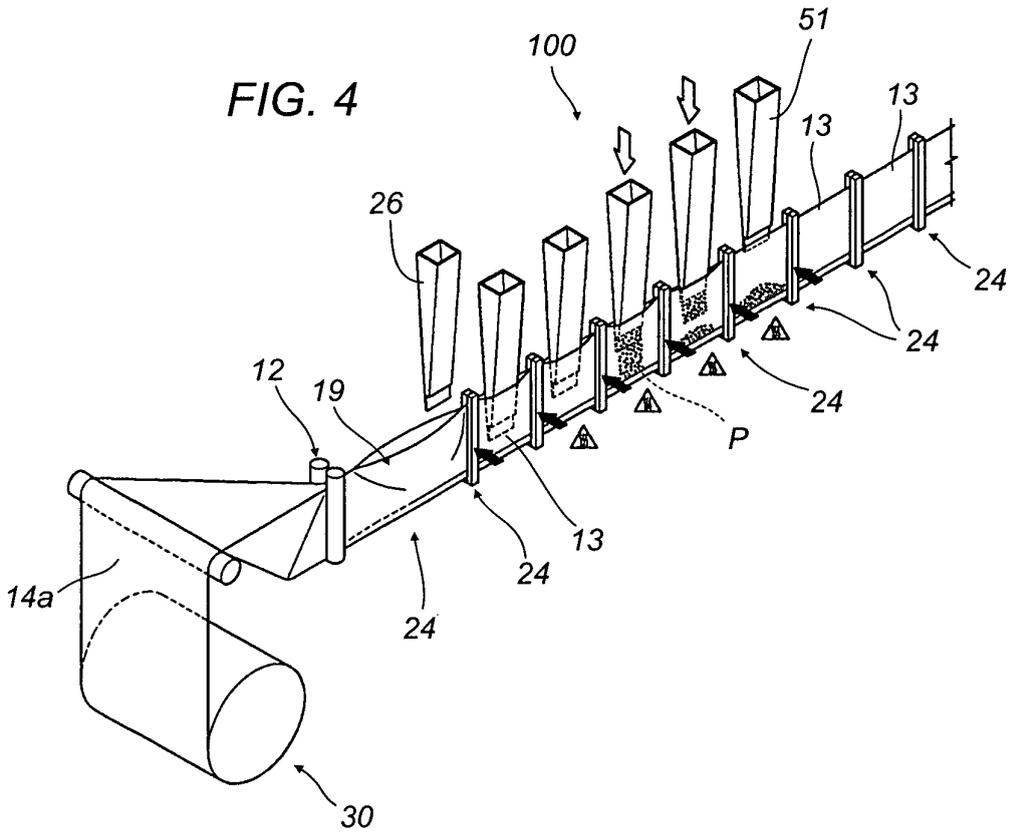


FIG. 7

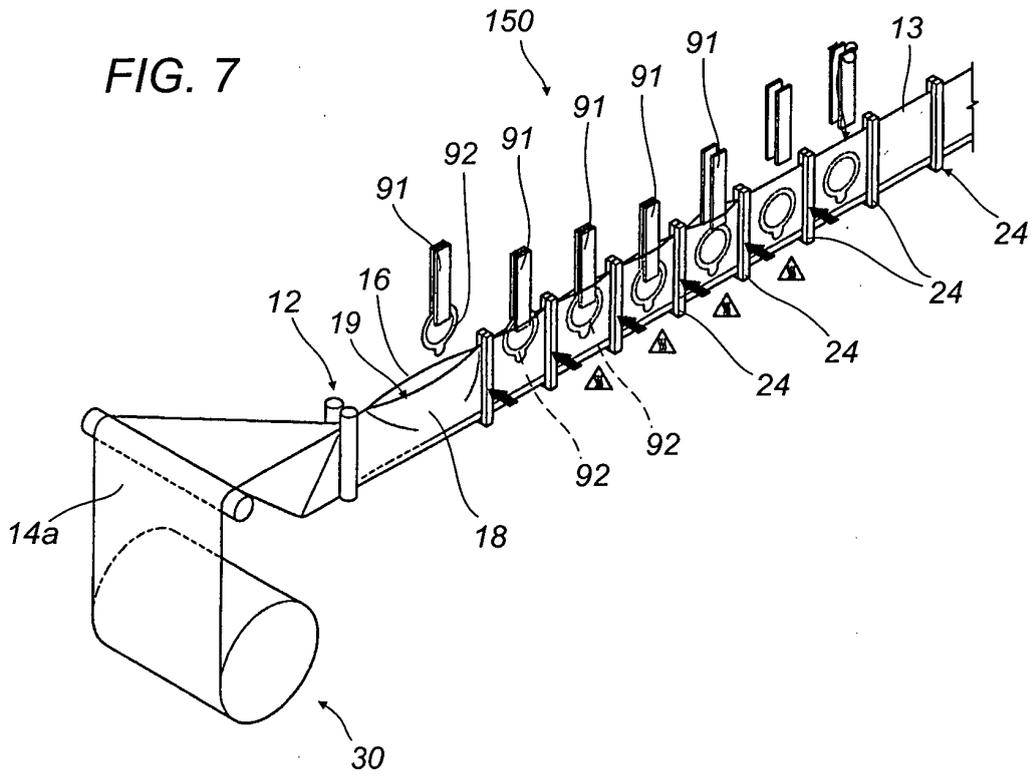


FIG. 8

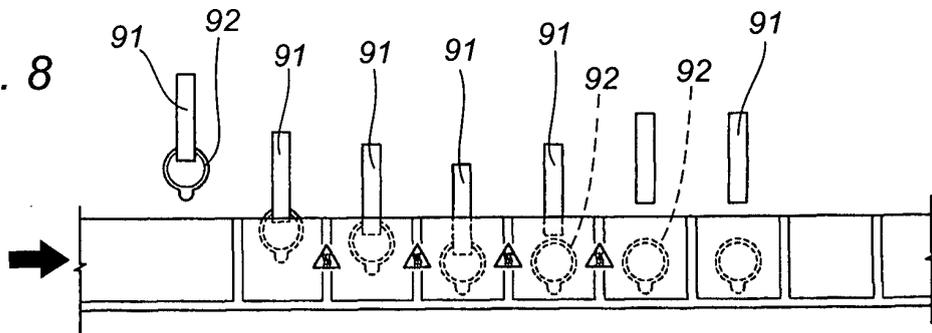
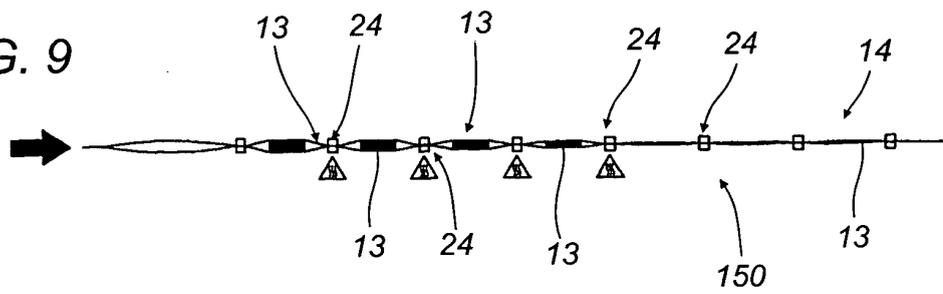


FIG. 9





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Y	* the whole document *	32-34, 68,70-72	
X	FR 2 546 134 A (STAAR DEVELOPMENT CY SA) 23 November 1984 (1984-11-23) * page 4, lines 28-33; figure 8 *	1,13,34, 37,49,72	
X	GB 1 153 779 A (SALOMON J) 29 May 1969 (1969-05-29) * column 4, lines 52-58; figures 1,2 *	1,28,37, 64	
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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 October 2005	Examiner Grentzius, W
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