



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
05.03.2008 Bulletin 2008/10

(51) Int Cl.:
B65B 9/20 (2006.01) B65B 61/18 (2006.01)

(21) Application number: **06018497.5**

(22) Date of filing: **04.09.2006**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(72) Inventors:
• **CARIS, Frank Theodorus Catharina**
6002 CT Weert (NL)
• **HENDRIKS, Peter Joseph**
69005 KJ Weert (NL)

(71) Applicant: **CFS Weert B.V.**
6006 RV Weert (NL)

(74) Representative: **Wolff, Felix et al**
Kutzenberger & Wolff
Theodor-Heuss-Ring 23
50668 Köln (DE)

(54) **Process for the production of a doypack-style bag**

(57) The present invention relates to a process for the production of a doypack-style bag (88) that comprises a gusset at its bottom (87) with tips on which the bag can

take a stable stand up position, which is carried out on a vertical flow-wrapper. The present invention also relates to a vertical flow wrapper (1).

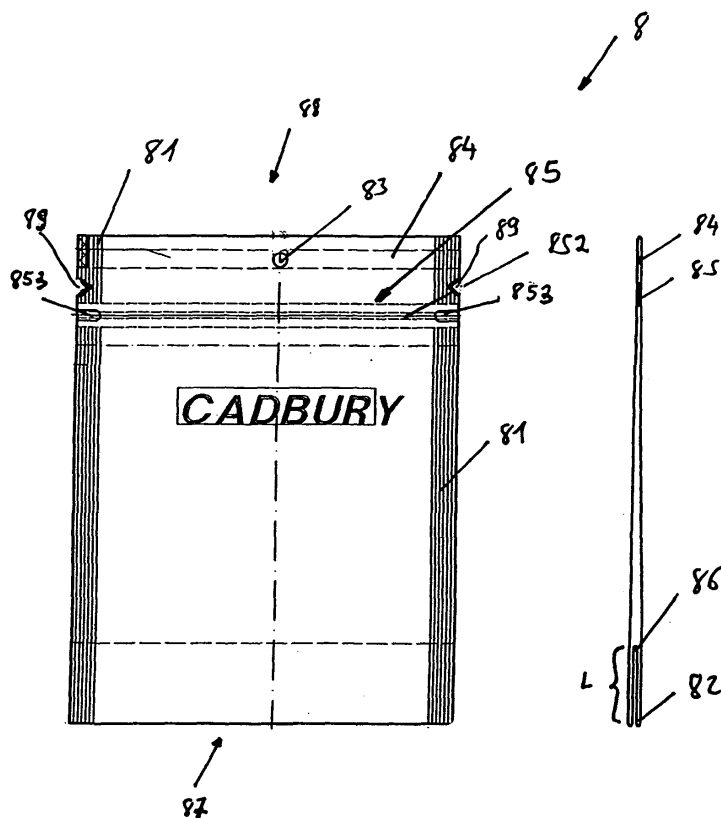


Fig. 2a

Description

[0001] The present invention relates to a process and a machine for the production of a doypack-style bag that comprises a gusset at its bottom with tips on which the bag can take a stable stand up position.

[0002] Processes for producing doypack-style bags are very well known. According to the state of the art, these doypack-style bags are produced on horizontal flow-wrappers. These processes have for example the disadvantage that they are very space-consuming and that they cannot be altered easily.

[0003] It was therefore the objective of the present invention to provide a process that does not have the disadvantages of the processes known from the state of the art.

[0004] This problem is solved with a process for the production of a doypack-style bag that comprises a gusset at the bottom, with tips on which the bag can take a stable stand-up position, which is carried out on a vertical flow-wrapper.

[0005] According to the present invention, the doypack-style bag is produced on a vertical flow-wrapper. This process has the advantage, that it is less space-consuming than processes according to the state of the art. The process can be adapted to other applications with a minor effort. The inventive process is carried out easily.

[0006] Preferably, the inventive process comprises forming a flat film into a film tube. Furthermore, a longitudinal seal is applied to this film tube and subsequently the packaging items are filled into the film tube via a filling tube that fits inside the film tube. In a next step, the gusset, which is situated at the bottom of the doypack-style bag, is formed into the film tube, and afterwards the cross seals of the doypack-style bag are applied to the film tube. In a last step, the ready made doypack-style bag is cut from the film tube.

[0007] Preferably, the forming of the gusset takes place below the filling tube. This preferred embodiment of the present invention has the advantage that the cross-sectional area of the film tube is not reduced during the filling of the doypack-style bag, which increases the production rate of the inventive process and is especially advantageous for packaging items with a low density.

[0008] Preferably, the gusset is formed into the film tube by pushing a forming plate into the film tube, which folds the film tube. In an even preferred embodiment, the forming plate cooperates with a spreader to form the gusset. Most preferably, the spreader is V-shaped and the forming plate has a flat shape, which makes the production of the gusset very easy.

[0009] Even more preferably, the film tube is stretched by a stretcher while or after the gusset is formed, i. e. while or after the forming plate is pushed into the film tube. This preferred embodiment of the present invention has the advantage that the cross seals, which are applied to the film tube, are perpendicular to the transport direc-

tion of the film, so that the produced doypack-style bags do not have bevel cross seals.

[0010] In an even more preferred embodiment of the present invention, a zipper is applied in the vicinity of the tip of the doypack-style bag. This preferred embodiment of the present invention has the advantage that the doypack-style bag is reclosable. The zipper can be opened or closed while the bag is standing on the tips of the gusset. In the area where the cross seals are applied, the closing part of the zipper, in which two or more layer of material overlap is preferably eliminated e.g. punched out. This preferred embodiment of the present invention has the advantage, that the material in the area of the cross seals is not too thick. Preferably this modification of the zipper takes place prior to the sealing of the zipper into the doypack-style bag.

[0011] Preferably, a recess is applied to the doypack-style bag, more preferably also at the top of the doypack-style bag, most preferably in the area of the longitudinal seal. This preferred embodiment of the present invention has the advantage that the doypack-style bag can be presented pendulously to the customers.

[0012] Preferably, the inventive process has the following sequence. After the film tube has been formed, a longitudinal seal is applied and optionally a zipper is sealed to the film tube. The film-tube is transported intermittently downward. The transport length is equivalent to the width of the bag. After the transportation has come to a stop, the gusset is formed and then the film tube is stretched perpendicular to the transport direction.

[0013] In an even more preferred embodiment of the present invention, the movement of the forming plate and the stretcher towards the film is initiated, while the film tube is still transported. This preferred feature of the present invention also has the advantage that the production time of each doypack-style bag is reduced. The stretcher and the forming plate are preferably driven by pneumatic drives. However, the person skilled in the art understands, that other drives can be used. The person skilled in the art also understands, that the sequence of the motion of the individual parts can be timed as needed.

[0014] Another embodiment of the present invention is a doypack-style bag manufactured according to the inventive process.

[0015] Preferably the doypack-style bag has a zipper. More preferably the zipper is at least partially eliminated in the area of the cross seals. Especially the closing part, in which several layers of the zipper overlap is eliminated, preferably punched out.

[0016] A further embodiment of the present invention is a vertical flow wrapper for the production of doypack style bags, that comprises a gusset at its bottom, with a forming shoulder to form a film tube from a planar film, a filling tube to fill packaging items into the film tube, longitudinal sealing means to apply a longitudinal seal to the film tube, cross sealing/cutting-means to apply cross seals to the film tube and to cut the filled bag from the film tube, whereas the filling tube has a tip at one end

and a flat part at the opposite end.

[0017] The above disclosure also relates to this subject matter of the invention.

[0018] Due to the shape of the filling tube, the film tube, from which the doypack-style bag is produced on the inventive vertical flow wrapper, is already pre-shaped. However, the cross-sectional area of the film tube is not reduced, which has a major advantage during the filling of the doypack-style bags. After or while a gusset is formed into the film tube in the vicinity of the flat part of the filling tube, the packaging item is filled into the bag. Preferably the fill in of the packaging item takes place after the cross-sealing jaws are closed to apply the cross seal to the film tube.

[0019] Preferably, the filling tube has rounded edges at the flat part of the filling tube. More preferably, the flat part has a width W which is twice the length L of the gusset. All these preferred embodiments of the inventive vertical flow wrapper have the advantage that the gusset is formed more easily into the film tube.

[0020] In another preferred embodiment of the present invention, the entire forming of the gusset takes place below the filling tube. As mentioned already above, this preferred embodiment of the present invention has the advantage that the entire cross-sectional area of the film tube is available for the fill-in of the packaging items into the doypack-style bag, which reduces the production time of the doypack-style bag and is especially advantageous for packaging items with a relatively low density.

[0021] Preferably, the gussets are formed into the film tube by pushing a forming plate into the film tube. Preferably, this forming plate has a tip that interacts with the film tube. Even more preferred, the forming plate cooperates with a spreader, preferably a V-shaped spreader, to form the gusset.

[0022] Preferably, the inventive vertical flow wrapper comprises a stretcher that stretches the film while or after the gusset is formed. Preferably, the stretcher stretches the film horizontally, i. e. perpendicular to the transport direction of the film tube. This preferred embodiment of the present invention has the advantage that the cross-seals, which are applied after forming the gussets, are perpendicular to the transport direction of the film tube, so that the resulting doypack-style bags are not asymmetrical or have wrinkled cross-seals. The stretching takes place while or after, preferably after the gusset has been formed into the film tube.

[0023] In a preferred embodiment of the present invention, the stretcher pulls at the tip of the doypack-style bag, even more preferred while the forming plate is pushed into the bottom of the doypack-style bag.

[0024] In a preferred embodiment of the present invention, the vertical flow wrapper has means to apply a zipper to the doypack-style bag. Preferably, this zipper is sealed by sealing means to the film tube simultaneously to the application of the longitudinal seal.

[0025] Prior to the sealing of the zipper, the closing part of the zipper is preferably eliminated, more preferably

bly punched out, in the area where the cross seals are applied. This preferred embodiment of the present invention has the advantage, that the material in the area of the cross seals is not too thick. Preferably this modification of the zipper takes place prior to the sealing of the zipper into the doypack-style bag.

[0026] In another preferred embodiment of the present invention, the inventive vertical flow wrapper comprises a punch to apply a recess to the doypack-style bag in the vicinity of the top of the doypack-style bag, especially in the area of the longitudinal seal.

[0027] The inventions are now explained according to figures 1 to 11. The explanations are only exemplarily and do not limit the scope of the present invention. The figures and their description apply to all inventions, respectively.

[0028] Figure 1 shows a schematic of the inventive vertical flow wrapper.

[0029] Figure 2a and 2b show an embodiment of the doypack-style bag.

[0030] Figure 3 shows the cross-section of the filling tube of the inventive vertical flow wrapper.

[0031] Figures 4a and 4b show parts of the inventive vertical flow wrappers in two different views.

[0032] Figures 5a and 5b show the forming of the gusset into the doypack-style bag.

[0033] Figure 6 shows a schematic of the zipper.

[0034] Figure 7 shows a schematic of the horizontal flow wrapper with a zipper feating unit.

[0035] Figure 8 shows the sealing means for the zipper and the longitudinal seal.

[0036] Figure 9 shows a punching unit.

[0037] Figure 10 shows a stationary stretch shoulder.

[0038] Figure 11 show guiding means for the zipper.

[0039] Figure 1 shows a schematic of the inventive vertical flow wrapper 1. A plane film (not depicted) is formed via a symmetrical forming shoulder 2 into a film tube 4 around a filling tube 3. A longitudinal seal 84 is applied to the film tube by longitudinal sealing means 9. Additionally, the vertical flow wrapper can comprise sealing means 10 for a zipper 85. The film tube is transported vertically and intermittently by conveyors 5. Below the filling tube 3, the inventive vertical flow wrapper comprises forming means 6, which form the gusset 86 into the film tube 4. Furthermore, the inventive vertical flow wrapper comprises cross sealing means 7, which are located on the same sides of the filling tube 3 as the conveyors 5, in order to apply cross seals to the film tube. The cross sealing means 7 also comprise cutting means in order to cut the ready made doypack-style bags 8 from the film tube 4. Additionally, the cross sealing means can comprise cutting means in order to cut easy opening means 89 into the cross seals. Prior to entirely closing the doypack-style bag with a second cross seal, the packaging items (not depicted) are filled into the film tube 4 via the filling tube 3. This fill in of the packaging item takes preferably place after the gusset is formed into the film tube and the cross seal jaws 7 are closed to apply the lower

cross seal.

The sequence of the production of a doypack-style bag is as follows:

[0040] After the forming means 6 have formed the gusset into the film tube, a first cross seal 81, is applied to the film tube 4 by the cross sealing jaws 7. Subsequently, the gusset 86 is formed into the film tube 4 and then the packaging item is filled into the film tube 4 via the filling tube 3. Afterwards, the film tube is moved downwards by a distance which is equal to the width of the doypack-style bag. Subsequently, the next gusset is formed into the film tube and then, another cross seal is applied to the film tube. The so ready made doypack-style bag is cut from the film tube by the cutting means which are part of the cross sealing jaws 7.

[0041] Figure 2a shows an embodiment of the doypack-style bag. This doypack-style bag has at its right and at its left a cross seal 81, respectively, and is sealed at its top 88 by a longitudinal seal 84. At the bottom 87, the doypack-style bag comprises a gusset 86 with a length L. Furthermore, the doypack-style bag comprises a recess 83 in the area of the longitudinal seal 84 which allows to present the doypack-style bag in a pendulous position. By means of the zipper 85, the doypack-style bag can be reclosed after its first opening. The closing part 852 of the zipper 85 is punched out (853) in the area of the cross seals 81. The doypack-style bag has the advantage that it can take in a stable stand-up position on top of the tips 82 of the gusset 86. This stand-up position is depicted in figure 2b, in which a three-dimensional filled doypack-style bag is shown. The person skilled in the art understands that during this stand-up position, the tips 82 of the gusset 86 of the doypack-style bag 8 move apart due to the weight of the packaging items, so that the bottom of the bag has an elliptic shape. In this stand-up position, the packaging items can be easily taken out of the doypack-style bag without spilling the packaging items. In order to avoid that the tips 82 are moved apart in the area of the cross seals, a glue or lacquer or the like is applied to the film opposite to the sealing layer of the film. This assures that the tips are also glued together while the cross seal is applied. Alternatively or additionally, holes can be punched into the film tube in the vicinity of the gussets and the area of the cross seals prior to applying the cross seals. This assures that the tips 82 of the gusset are attached to each other even without glue, lacquer or the like.

[0042] Figure 3 shows a cross section of the filling tube 3. This cross section comprises at one end 34 a tip 31. At the opposite end 35 of the cross section of the filling tube, the filling tube has a flat end 32. However, it can comprise rounded edges 33 at this end 32 of the filling tube. The width W of the flat part 32 of the filling tube 3 corresponds to twice the length L of the gusset 86. This facilitates the forming of the gussets 86 which take place below the filling tube. The tip 31 also facilitates

the production of the final shape of the doypack-style bag. The inventive vertical flow wrapper also comprises folding plates 18, which are attached to the frame of the vertical flow wrapper by a mounting 19. The folding plane 18 facilitate the folding of a flat film into the desired form of the film tube. At this mounting the conveyors 5 are also attached.

[0043] Figure 4a shows the cross section of the film tube 4. The film tube is transported intermittently by means of the conveyor 5. The forming means 6 for the gusset 86 comprise a forming plate 63, a spreader 62 at the flat end 32 of the film tube, and a stretcher 61 at the tip of the film tube. The stretcher 61 comprises a gripper 61 a, that grabs and releases the tip of the film tube 4. The stretching unit 61 b accomplishes the horizontal movement of the gripper 61 a as shown by the double arrow. As depicted by the arrows, the flat forming plate 63 as well as the stretcher 61 can be moved horizontally in two directions.

[0044] Figure 4b shows a side view of the view according to figure 4a. As can be seen from figure 4b, the forming plate comprises two parts which are moved, as depicted by the arrows, simultaneously in a horizontal direction. One forming plate 63 is located above the sealing means 7, and one forming plate 63 is located below the sealing jaws 7. Another vertical arrow at the bottom of figure 4b depicts the transport direction of the film tube 4. While the film tube 4 below the cross sealing means 7 comprise already the gusset 86, the gusset above the sealing means has still to be formed into the film tube above the forming plate below. The forming plate 63 below cross sealing means 7 is only needed to avoid that the packaging items within the film tube deform the gusset, before the second cross seal 81 is applied.

[0045] The formation of the gusset and the shaping of the doypack-style bag is explained according to figures 5a and 5b. After and/or while the film tube 4 has been advanced by one package width and is in a stand-still position, the formation plate 63 is moved horizontally towards the film tube 4, as depicted by the arrow, and starts the formation of the gusset 86. The formation of the gusset 86 is supported by the spreader 62, which is located below the filling tube 3 and which cooperates with the forming plate 63. The spreader 62 and the forming plate 63 are shaped such that the forming plate can move, at least partially, inside the spreader 62 to form the gusset 86. Simultaneously or after the movement of the forming plate 63, a stretcher 61 is moved towards the tip of the film tube. The stretcher comprises a gripper 61 a which is closed after it is in contact with the film tube. The gripper 61 a grips the longitudinal seal 84 of the film tube and after it has been gripped, a stretching unit 61 b moves the gripper 61 a away from the film tube 3, in order to stretch the film tube 4 horizontally. The stretching of the film tube simultaneously with or after the formation of the gusset at the opposite end of the film tube avoids the formation of wrinkles and a cross seals, which are not perpendicular to the transport direction of the film. After

the forming of the doypack-style bag has been finalized, the cross seal jaws 7 move towards each other, as depicted by the arrows, and apply the cross seal to the film tube. While or after the cross seals are applied, the gripper 61 a of the stretcher 61 lets lose of the film tube and the stretcher 61 as well as the formation plate 62 are moved to their original position. After the cross seal jaws are closed the packaging item is filled into the bag.

[0046] The stretching of the film tube can also be carried out by a stretch shoulder 20 which is located below the filling tube 3. The stretch shoulder is attached to the filling tube. As can be seen from **figure 10**, this stretch shoulder sticks out of the tip 31 of the filling tube 4, so that while moving downwards, the film tube is directed in the direction as shown by the arrow. The actual stretching takes place, when the forming plate interacts with the film tube at the opposite side of the film tube 4. This embodiment of the present invention has the advantage, that no other moving parts than the forming plate 63 are needed to form the gusset.

[0047] **Figure 6** shows a schematic of the zipper 85. This zipper comprises a closing unit 852 which can be, as known by a person skilled in the art, opened and closed. The zipper further comprises a flat portion which can be attached preferably sealed to a film. In the lower part of figure 6, reference number 853 refers to a space in which the closing part 852 has been eliminated, preferably punched out. The length of this part is equal or larger than the length of the cross seal which is applied later to the film tube 4. This area is punched out in order to achieve a gas-tight cross seal.

[0048] **Figure 7** shows a schematic of the horizontal flow wrapper with a zipper feeding unit. The zipper 85 is rolled off from a zipper role 15 and fed to the flow wrapper 1 where it is sealed to the film tube, as can be seen in figure 8. Prior to the sealing of the zipper 85 to the film tube 4, the holes 853, as show in figure 6, are punched into the zipper by a punching unit 14. This punching unit can be moved back and forth along the line of transportation of the zipper to allow the production of doypack-style bags with a different width. As soon as the film tube is transported horizontally downwards, it takes along the zipper 85. Consequently, a control roller 16 is moved upwards. As soon as this upward movement is detected by some sensor, it activates the zipper drive 17 which rolls zipper material from the zipper role 15. Consequently, the indication means 16 move down again until a certain position, which is also detected by the sensor and which causes the zipper drive to stop. The inventive vertical flow wrapper also comprises a hole punch 13 which punches the recess 83 into the bag 8. It can be moved up and down, as shown by the arrow to be adjustable to different bag width.

[0049] **Figure 8** shows sealing means for the zipper, which seal the zipper 85 to the film tube 4. These sealing means for the zipper as well as the sealing means 9 for the longitudinal seal are both located on arms 12 which can rotate around an axis 11. During the sealing action,

these arms are in a closed position. The punching unit 14 is also attached to the arms 12.

[0050] **Figure 9** shows the punching unit which punches the recess 83 into the longitudinal seal after this has been applied to the film tube.

[0051] **Figure 11** show guiding means 24 for the zipper, in order to assure that the zipper is always parallel to the transport direction of the film tube. The guiding means are especially essential in the vicinity of the sealing means 9, 10. Thus they extend approximately from below the forming shoulder 2 until after the sealing units 9, 10.

Reference signs

[0052]

1	vertical flow wrapper
2	forming shoulder
3	filling tube
31	tip
32	flat part
33	rounded edges
34	one end
35	opposite end
4	film tube
5	conveyor, transportation means
6	forming means to form the gusset
61	stretcher
61 a	gripper
61 b	stretching unit
62	spreader
63	forming plate
7	cross sealing jaws, cutting means
8	doypack-style bag
81	cross seal
82	tip of gusset
83	recess, hole
84	longitudinal seal
85	zipper
851	sealing area of the zipper
852	closing area of the zipper
853	punch out of the closing area of the zipper
86	gusset
87	bottom of the doypack-style bag
88	top of the doypack-style bag
89	easy opening means
9	longitudinal sealing means
10	sealing means for the zipper
11	axis
12	arm
13	punching unit for recess
14	punching unit for zipper
15	zipper role
16	indication means
17	zipper drive
18	folding plate
19	mounting

20 stretch shoulder
 21 zipper guidance
 W width of the filling tube
 L length of the gusset

Claims

1. Process for the production of a doypack-style bag (8), that comprises a gusset (86) at the bottom (87), with tips (82) on which the bag can take a stable stand-up position, characterize in, that it is carried out on a vertical flow wrapper (1).
2. Process according to claim 1, **characterized by** forming a flat film into a film tube (4), providing a longitudinal seal (84) to the film tube (4), filling a packaging item into the film tube (4) through a filling tube (3), forming the gusset (86) into the film tube, applying the cross seals (81).
3. Process according to claim 2, **characterized in, that** the forming of the gusset (86) takes place below the filling tube (3).
4. Process according to one of the preceding claims, **characterized in, that** the gusset (86) is formed into the film tube (4) by pushing a forming plate (63) into the film tube (4).
5. Process according to claim 4, **characterized in, that** the forming plate (63) cooperates with a spreader (62) to form the gusset (86).
6. Process according to one of the preceding claims, **characterized in that** the film tube (4) is stretched, preferably horizontally, preferably by a stretcher (61) while or after the gusset (86) is formed.
7. Process according to claim 6, **characterized in that** the stretcher (61) pulls at the top (81) of the doypack style bag, while the forming plate (63) is pushed into the bottom (87) of the doypack style bag.
8. Process according to one of the preceding claims, that a zipper (85) is applied to the doypack style bag.
9. Process according to one of the preceding claims, that a recess (83) is applied to the doypack style bag.
10. Process according to one of the preceding claims, **characterized in, that** the sequence of all movements of the various parts (5,6,7,9,10) are adjustable as needed by a control unit.
11. Process according to one of the preceding claims, **characterized in, that** the movement of the forming plate (63) and the stretcher (61) towards the film is

initiated while the film tube (4) is still transported.

5

12. Doypack-style bag (8) manufactured by a process according to one of the preceding claims.

10

13. Doypack-style bag (8) according to claim 12, **characterized in, that** it comprises a zipper (85).

15

14. Doypack-style bag (8) according to one of the preceding claims, **characterized in, that** the closing part (852) of the zipper (85) is eliminated in the area of the cross seals (81).

20

15. Vertical flow wrapper (1), for the production of doypack style bag (8), that comprises a gusset (86) at its bottom (87), with a forming shoulder to form a film tube (4) from a planar film, a filling tube (3) to fill packaging items into the film tube, longitudinal sealing means (9) to apply a longitudinal seal (81) to the film tube, cross sealing/cutting-means (7) to apply cross seals (81) to the film tube (4) and to cut the filled bag (8) from the film tube (3), **characterized in, that** the filling tube (3) has a tip (31) at one end (34) and a flat part (32) at the opposite end (35).

25

16. Vertical flow wrapper (1) according to claim 15, **characterized in, that** the flat part (32) has rounded edges (33).

30

17. Vertical flow wrapper (1) according to one of the preceding claims or according to the preamble of claim 13, **characterized in, that** the entire forming of the gusset takes place below the filling-tube (3).

35

18. Vertical flow wrapper according to one of the preceding claims, **characterized in, that** the gusset is formed into the tube by pushing a forming plate (63) into the film tube (4).

40

19. Vertical flow wrapper (1) according to claim 18, **characterized in, that** the forming plate (63) cooperates with a spreader (62) to form the gusset.

45

20. Vertical flow wrapper (1) according to one of the preceding claims, **characterized in, that** it comprises a stretcher (20, 61) that stretches the film tube (4) horizontally, while or after the gusset (86) is formed.

50

21. Vertical flow wrapper (1) according to claim 20, **characterized in, that** the stretcher (61) pulls at the top (81) of the doypack style bag, while the forming plate (63) is pushed into the bottom (87) of the doypack style bag.

55

22. Vertical flow wrapper (1) according to one of the preceding claims, **characterized in, that** a zipper is applied to the doypack style bag.

23. Vertical flow wrapper (1) according to one of the preceding claims, that it comprises a punch to apply a recess (83) to the doypack style bag.

5

10

15

20

25

30

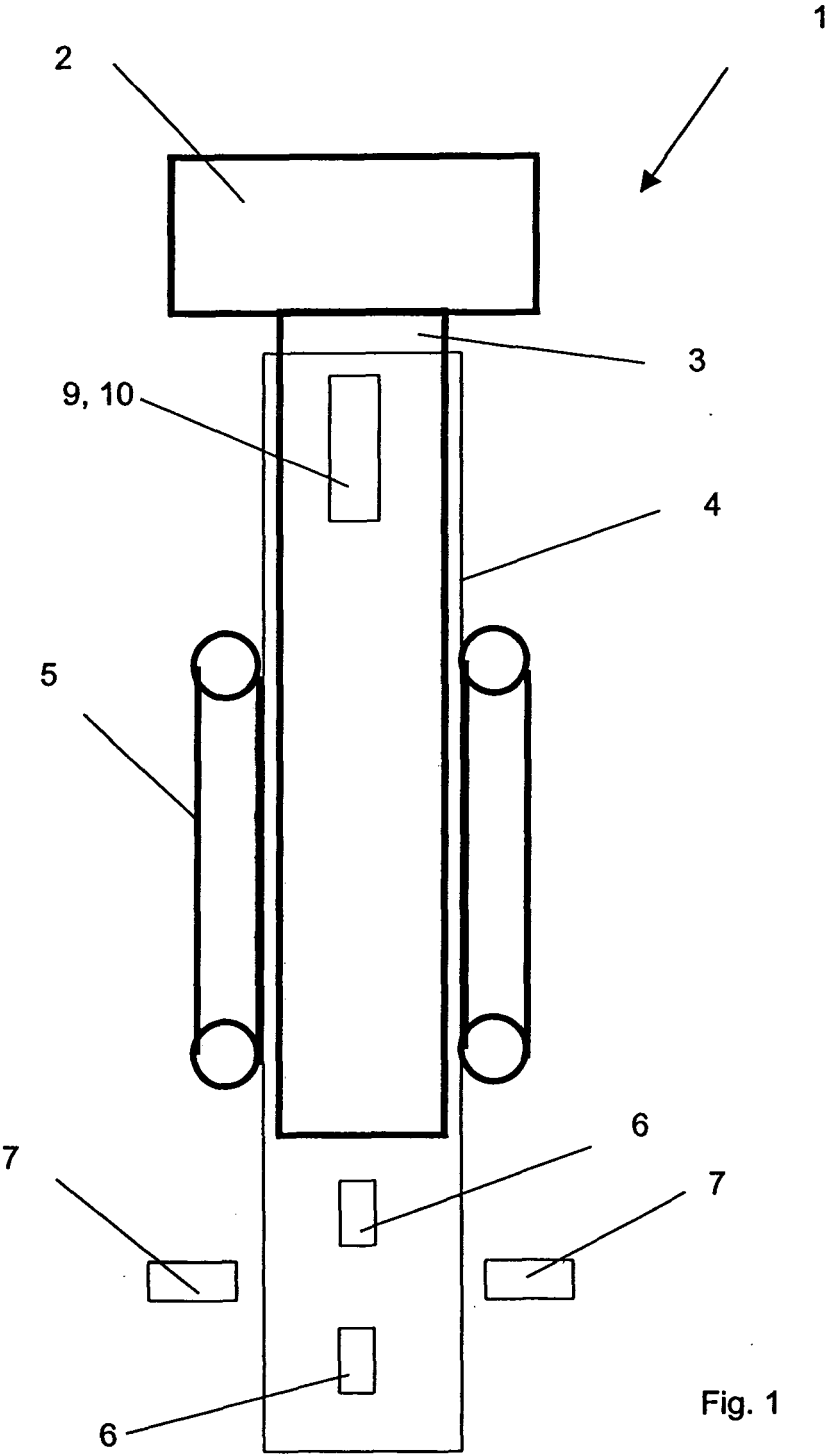
35

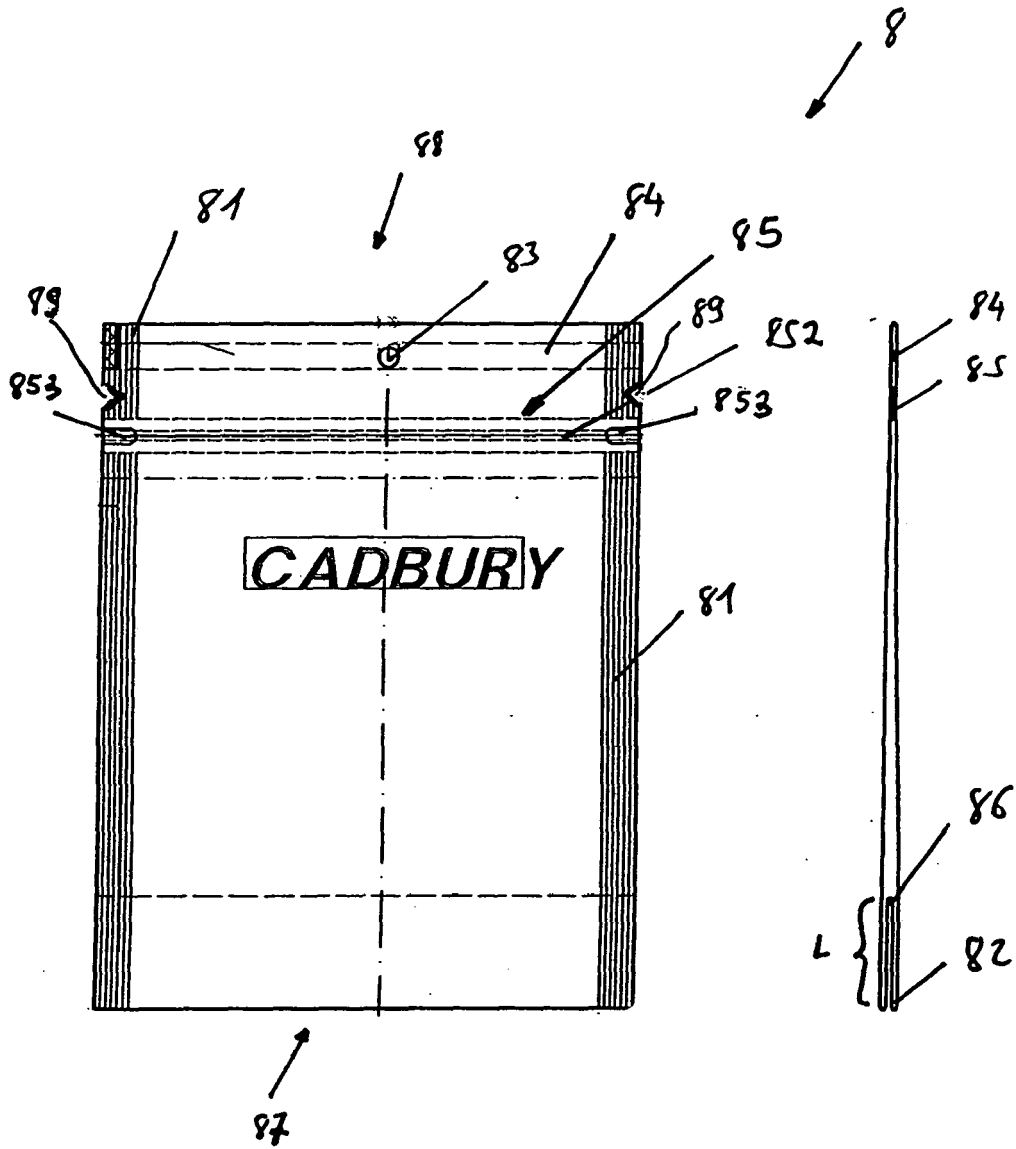
40

45

50

55





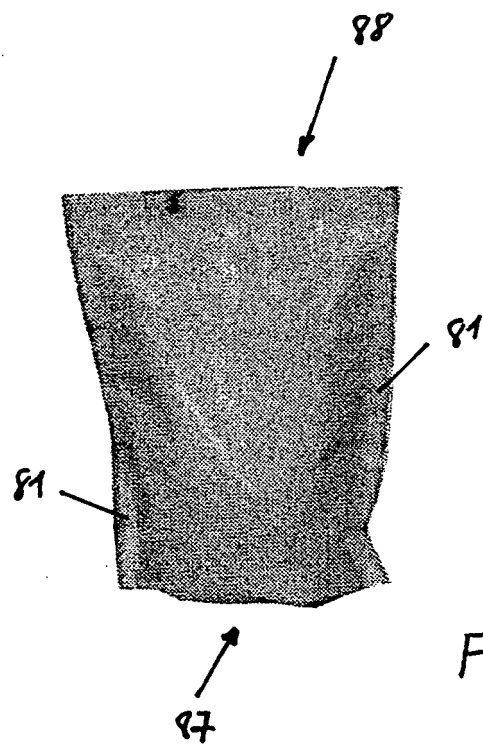


Fig. 2b

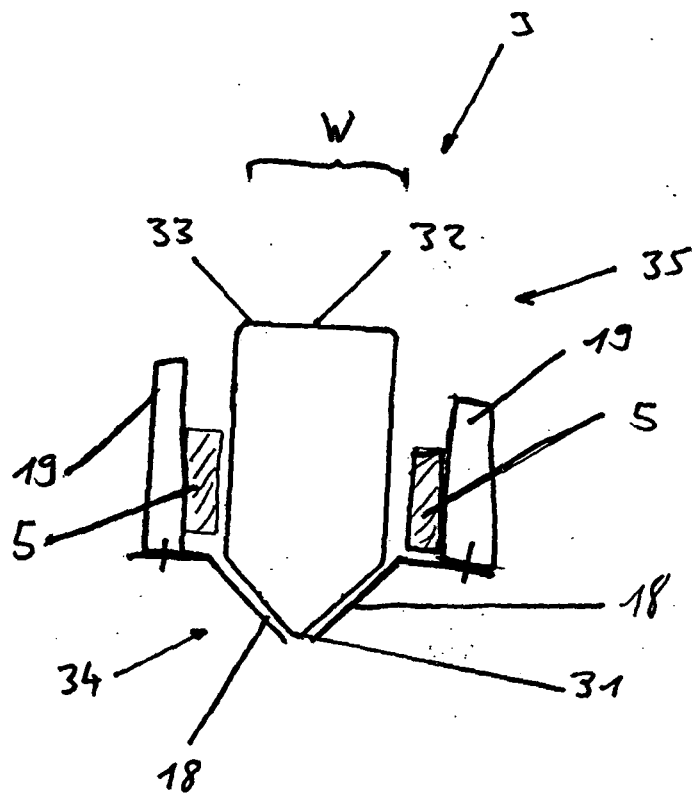


Fig. 3

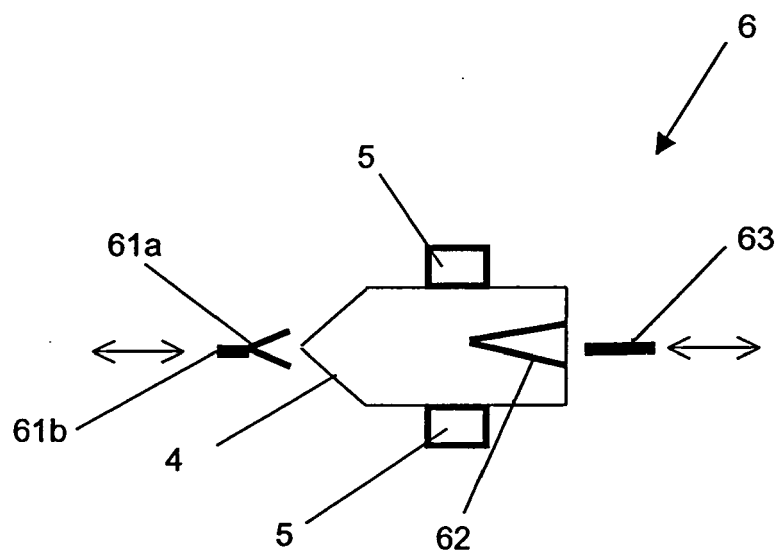


Fig. 4a

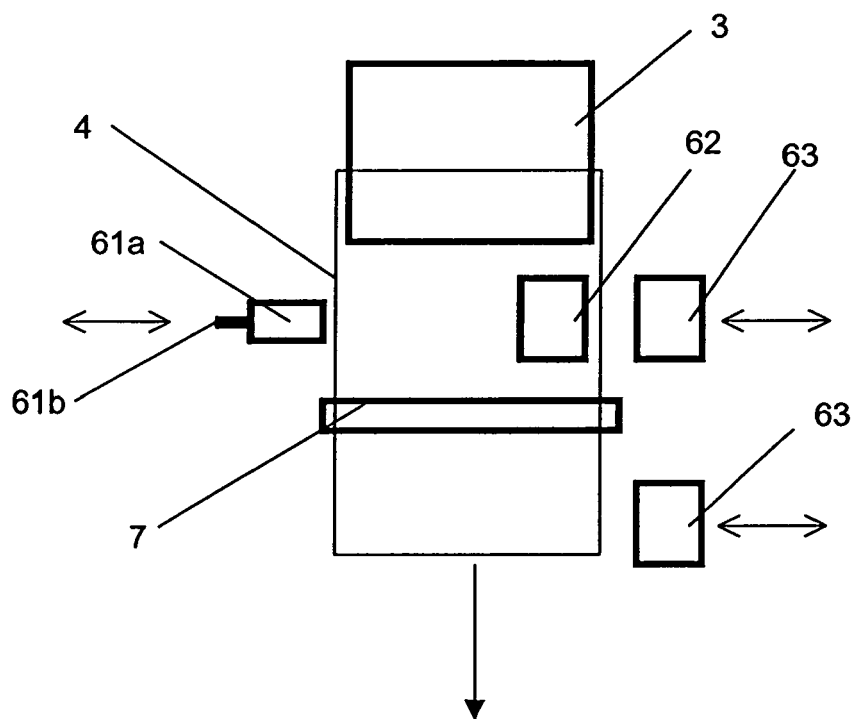


Fig. 4b

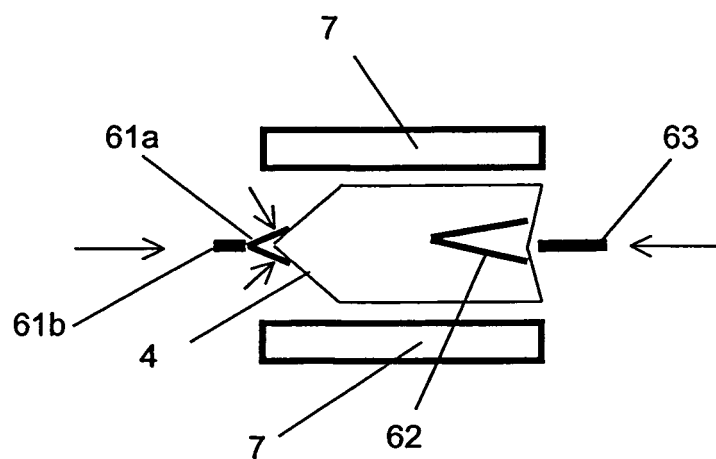


Fig. 5a

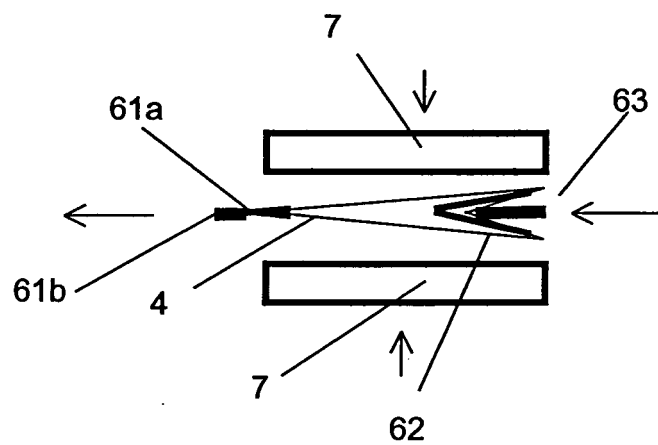


Fig. 5b

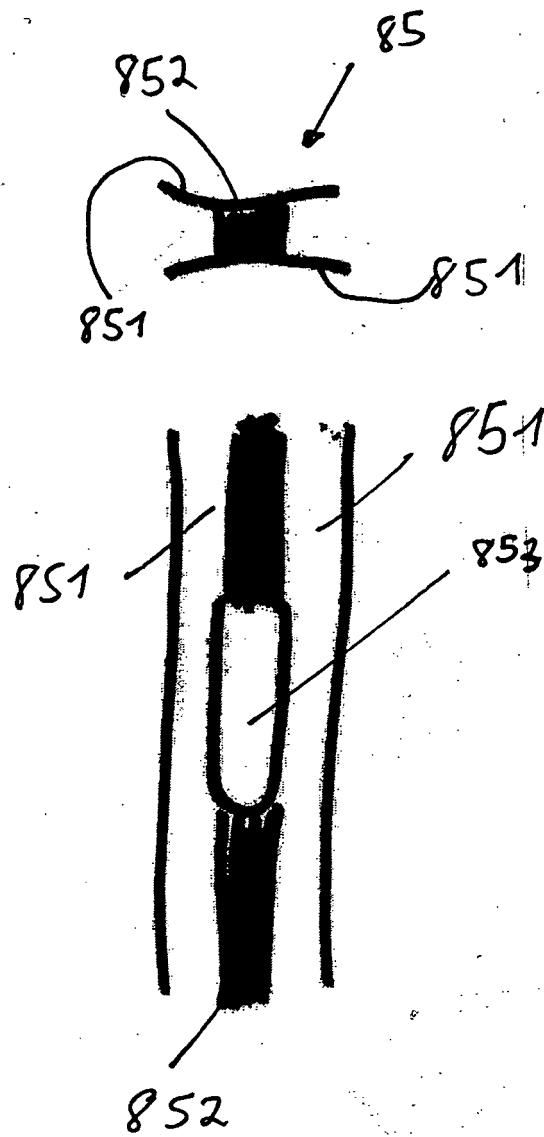
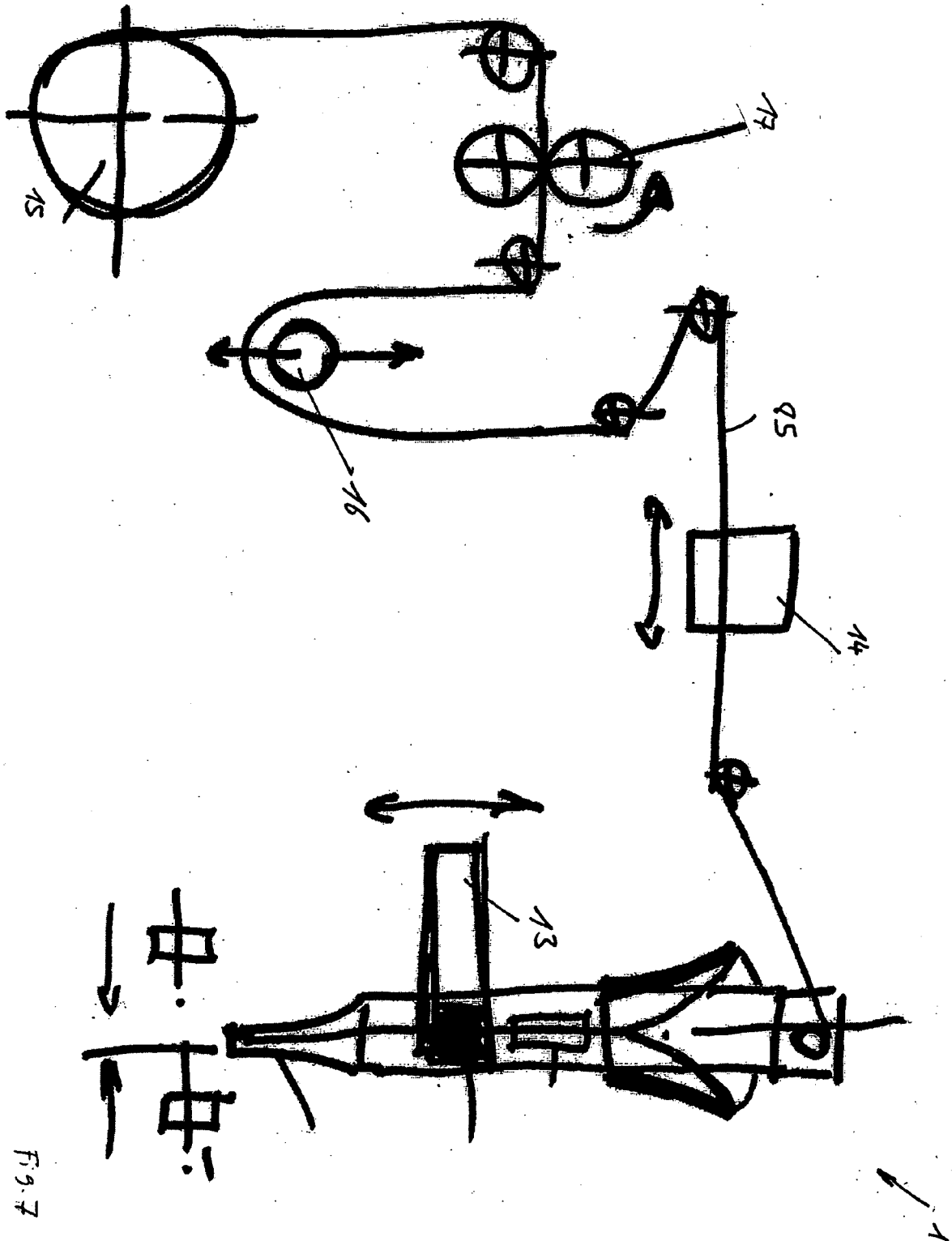


Fig. 6



F.9.7

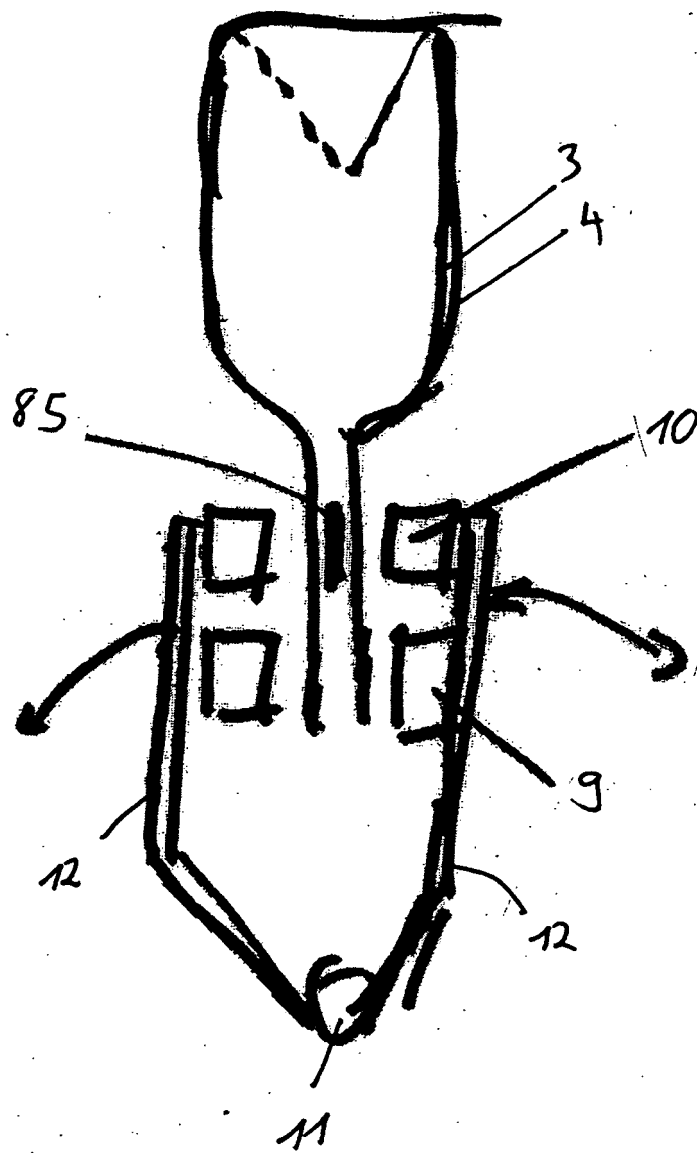


Fig. 8

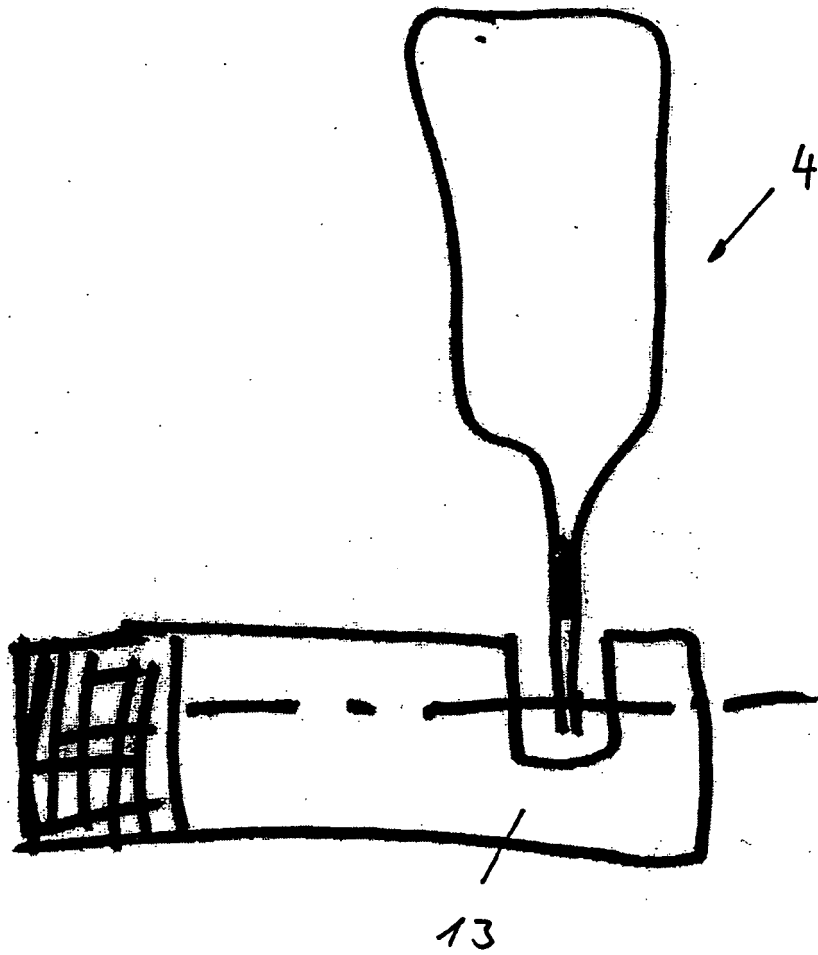


Fig. 9

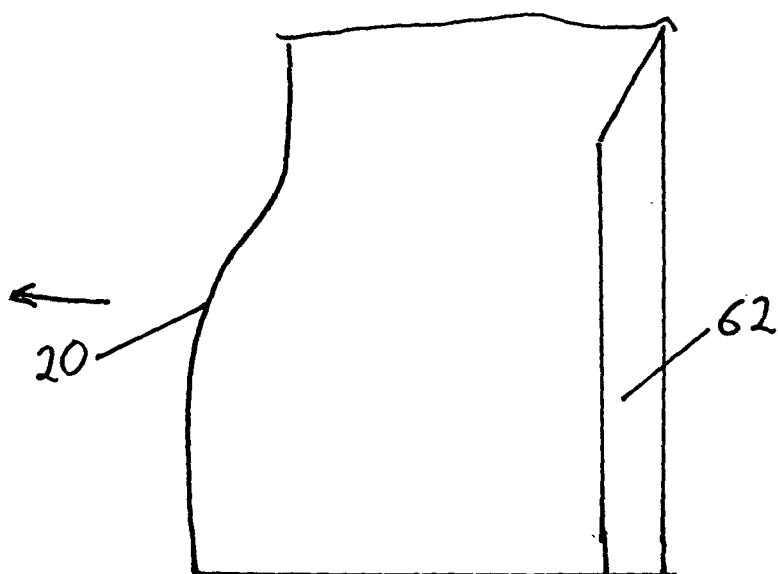
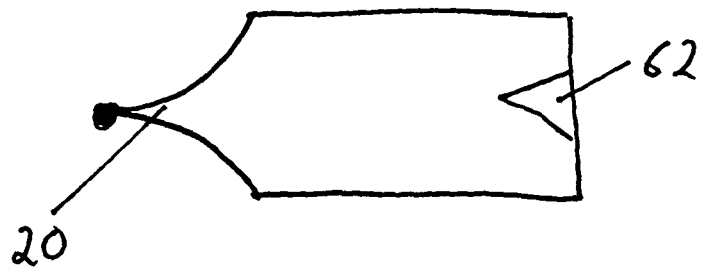


Fig 10

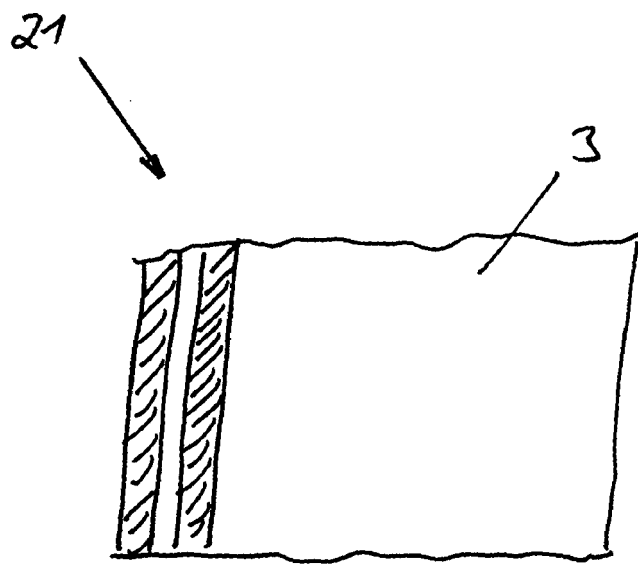


Fig 11



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 01 8497

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	WO 97/15497 A (ICA SPA [IT]; RAPPARINI GINO [IT]) 1 May 1997 (1997-05-01) * the whole document * -----	1-5, 8-10,12, 13, 17-19, 22,23	INV. B65B9/20 ADD. B65B61/18
X	DE 102 51 069 A1 (ROVEMA GMBH [DE]) 13 May 2004 (2004-05-13) * the whole document * -----	1,2,6,7, 11,15,16	
X	WO 00/73052 A (BERGMANN GERHARD HEINRICH [CH]; BERGMANN MARION [CH]) 7 December 2000 (2000-12-07) * page 7, line 24 - page 9, line 28; figures * -----	1,2,4,5, 8-10,12, 13,18, 19,22,23	
X	EP 0 792 801 A1 (FLEXICO FRANCE SARL [FR]) 3 September 1997 (1997-09-03) * column 5, lines 13-15; figures * -----	1,12-14	
A	GB 2 298 850 A (GAINSBOROUGH CRAFTSMEN LIMITED [GB]) 18 September 1996 (1996-09-18) * figures 23-25 * -----	1-23	TECHNICAL FIELDS SEARCHED (IPC) B65D B65B
A	EP 0 917 946 A2 (ORIHIRO ENGINEERING CO LTD [JP]) 26 May 1999 (1999-05-26) * the whole document * -----	1-23	
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 30 January 2007	Examiner Vigilante, Marco
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ----- & : member of the same patent family, corresponding document	

2
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 01 8497

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

30-01-2007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9715497	A	01-05-1997	AU 4730596 A	15-05-1997
			CN 1200703 A	02-12-1998
			DE 69607644 D1	11-05-2000
			DE 69607644 T2	05-10-2000
			EP 0865379 A1	23-09-1998
			ES 2146868 T3	16-08-2000
			IT B0950507 A1	28-04-1997

DE 10251069	A1	13-05-2004	NONE	

WO 0073052	A	07-12-2000	AU 5072700 A	18-12-2000
			CN 1353642 A	12-06-2002
			DE 19925969 A1	21-12-2000
			EP 1189746 A1	27-03-2002
			HU 0202005 A2	28-09-2002

EP 0792801	A1	03-09-1997	AT 249361 T	15-09-2003
			DE 69724680 D1	16-10-2003
			DE 69724680 T2	22-07-2004
			ES 2205141 T3	01-05-2004
			FR 2745263 A1	29-08-1997
			US 5826401 A	27-10-1998

GB 2298850	A	18-09-1996	AU 4950196 A	02-10-1996
			WO 9628349 A1	19-09-1996

EP 0917946	A2	26-05-1999	AU 716763 B2	09-03-2000
			AU 9234298 A	17-06-1999
			CA 2254063 A1	20-05-1999
			DE 69814310 D1	12-06-2003
			DE 69814310 T2	19-02-2004
			DE 69817886 D1	09-10-2003
			DE 69817886 T2	15-07-2004
			HK 1044738 A1	08-04-2004
			TW 386062 B	01-04-2000
			US 6145282 A	14-11-2000
