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(54) **METHOD AND SYSTEM FOR MANUFACTURING A TOBACCO POUCH**

VERFAHREN UND SYSTEM ZUR HERSTELLUNG EINES TABAKBEUTELS

PROCÉDÉ ET SYSTÈME POUR FABRICATION D'UNE POCHE À TABAC

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## Description

### Field of the invention

[0001] The present invention relates to a method and system of making tobacco pouches.

### Background of the invention

[0002] Traditionally, tobacco pouches are made from a film material which is provided on a roll. The film material on the roll is pre-printed and may be a multi-layer or a single layer film material. The film material is unrolled from the roll and guided through an assembly line (or system) for making the tobacco pouches.

[0003] In the assembly line, the film material is folded onto itself in order to form the compartments of the tobacco pouches. Next, seams are made with a heat welding device. During the heat welding, the film material melts and forms a weld which interconnects two parts of the film material which are folded onto one another. The seams extend transverse to the main direction of the film material and form the left side and right side of a the compartment of each tobacco pouch. Subsequently, the tobacco pouches are cut along predefined cutting lines into individual tobacco pouches. Each cut divides the seams in a first and second seam section, wherein the first seam section forms the left side of a leading pouch and the second seam section forms the right side of a trailing pouch. The making of the tobacco pouches is often integrated with a filling assembly line, so that the tobacco pouches are filled with tobacco directly after they are made.

[0004] The tobacco pouches have a mouth which should be open during filling. Further, the mouth should be closed directly after filling in order to keep the tobacco fresh. Furthermore, a user should be able to open the mouth without too much difficulty when he starts to take tobacco from a new tobacco pouch.

[0005] In order to satisfy these different requirements, a non-permanent seal in the form of wax is generally used to close the mouth. Both sides of the film which engage one another at the mouth are provided with a wax layer. The wax acts as a kind of adhesive and keeps the mouth closed before first use. This keeps the tobacco fresh. However, the adhesive strength is weak enough to allow the user to open the mouth. In this way, the wax creates a non-permanent seal at the mouth.

[0006] The wax is generally applied on the film material upstream of the pouch making assembly line and is often provided on the film material in two long bands, which extend lengthwise of the film. The wax bands are as long as the film itself. The wax bands are generally provided by the manufacturer of the film material which can be a different party as the party which makes the pouches and fills the pouches with tobacco. This method of applying the wax has a proven track record and has been used for a number of years.

[0007] Document EP 1 683 763 A2 for example discloses a method of manufacturing a tobacco pouch, the method comprising: unrolling a film material from a roll, conveying the unrolled film material along an adhesive strip application station, and applying strips of adhesive material on the film material, folding the film onto itself along at least one bottom fold which extends lengthwise of the film material, conveying the film material along a first heat welding station and providing a right seam and a left seam in the first heat welding station along at least a right side and a left side of the tobacco pouch which is to be formed, the left and right seam extending transverse to a main longitudinal direction of the film material, conveying the film material along a cutting station and cutting the film material at regular intervals to form individual tobacco pouches. EP 1 683 736 A2 also discloses a tobacco pouch making system for performing such a method. Furthermore, EP 2 532 513 A2 discloses a method and related system for making tobacco pouches, wherein the film for making the pouches is provided with strips of adhesive material positioned in rows at regular intervals.

[0008] In the present invention, the insight was developed that a problem exists with this kind of tobacco pouch. The wax bands run along the entire length of the film. When the film is folded onto itself to form the pouch, and the seams are made with heat welding, the seams cross the bands of wax. At the crossings, the heat welding does not result in a high quality weld, because the wax prevents a high quality weld. The two parts of the film material may come loose quite easily, resulting in holes in the compartment at the left and right side of the pouch. The crossings form weak spots. This is explained further in the figures relating to the prior art.

[0009] Another aspect of the background of the present invention is that tobacco pouches are subject to increasingly strict legal requirements. In particular, the size of the flap is regulated in the sense that the size of the flap is reduced to a certain maximum size. However, many users wish to fold the flap around the tobacco pouch after first use of the tobacco pouch, and this requires a rather large flap. The limited size of the flap according to health warning regulations therefore may have a negative effect on the user friendliness of the tobacco pouch. It was recognized in the present invention that there is no good solution for this problem with current systems for making tobacco pouches.

[0010] Furthermore, the known method does not allow much variations in the position of the wax bands in the pouch. It was recognized that a different method of applying wax on the film material could result in a more versatile system and method of making tobacco pouches and overcomes the known disadvantage of the prior art.

### Object of the invention

[0011] It is an object of the invention to provide a method and system for producing a tobacco pouch which is free of any weak spots along the side.

**[0012]** It is another object of the invention to provide a method and system for producing a tobacco pouch which has a flap which is relatively short but which may still be folded around the tobacco compartment.

**[0013]** It is a further object of the invention to provide an alternative method and system of making the tobacco pouch.

**[0014]** It is another object of the invention to provide a more versatile method and system for making tobacco pouches, in particular a method and system which is more versatile in the size, shape and location of non-permanent seals in tobacco pouches.

### The invention

**[0015]** In order to achieve at least one object, the invention provides a method of manufacturing a tobacco pouch according to claim 1 the method comprising: unrolling a film material from a roll, conveying the unrolled film material along an adhesive application station comprising an adhesive nozzle, and applying at least one row of adhesive regions on the film material at regular intervals by ejecting a volume of adhesive from the at least one adhesive nozzle at regular intervals, folding the film onto itself along at least one bottom fold which extends lengthwise of the film materials, conveying the film material along a first heat welding station and providing a right seam and a left seam in the first heat welding station along at least a right side and a left side of the tobacco pouch which is to be formed, the left and right seam extending transverse to a main longitudinal direction of the film material, conveying the film material along a cutting station and cutting the film material at regular intervals to form individual tobacco pouches.

**[0016]** With the present invention, tobacco pouches can be made without weak spots in the side seams. Alternatively or additionally, the flap can be made to fold onto itself. Further, greater variations in non-permanent seals are possible, because the adhesive nozzles can be configured to apply adhesive in a variety of ways.

**[0017]** In an embodiment, the adhesive regions of at least one row meet the left seam and right seam or end at a distance from the left seam and right seam and do not extend into the left seam and right seam.

**[0018]** In an embodiment, each adhesive region of adhesive material comprises opposite ends, wherein the ends meet the right seam and left seam or are located at a distance from the right seam and left seam.

**[0019]** In an embodiment, each adhesive region is elongate and has a shape of a band, wherein the elongate bands extend parallel to the main longitudinal direction of the film material.

**[0020]** In an embodiment, the method comprises applying first bands and second bands of adhesive at regular intervals along the film, wherein the first and second bands of adhesive are folded onto each other by the making of the at least one bottom fold.

**[0021]** In an embodiment, the first bands and second

bands of adhesive have a substantially same length and a substantially same width and are provided on either side from the bottom fold at a same distance from the bottom fold.

5 **[0022]** In an embodiment, the film material on the roll is free of any bands of adhesive.

**[0023]** In an embodiment, the adhesive is wax. Wax has very good properties for forming non-permanent seals.

10 **[0024]** In an embodiment, the adhesive is hot-melted and subsequently applied as hot-melt. The liquid or almost liquid form of the hot-melt adhesive makes it suitable to be applied via nozzles which engage the film material.

15 **[0025]** In an embodiment, the method comprises activating the one or more adhesive nozzles for a predetermined first period of time, and de-activating the adhesive nozzles for a predetermined second period of time, and repeating these steps for each tobacco pouch.

20 **[0026]** In an embodiment, the method comprises:

- filling a compartment of each tobacco pouch with tobacco in a filling station, and
- conveying the tobacco pouches to a second heat welding station and applying heat at the mouth of the tobacco pouch, thereby melting the adhesive and closing the mouth of the compartment with a non-permanent mouth seal.

25 **[0027]** In an embodiment, the method comprises:

- providing at least one row of flap adhesive regions on a flap section of the film material at the adhesive application station, and
- 35 - folding the flap onto itself along a flap fold line, and
- fixing a forward flap part to a rear flap part with a non-permanent seal with the one or more flap adhesive regions by applying heat to the flap section.

40 **[0028]** In an embodiment, at least one flap adhesive region straddles the cut line along which the film material is cut into individual pouches, the method comprising cutting through the flap adhesive regions during the cutting of the film material to form the individual pouches.

45 **[0029]** In an embodiment, the at least one flap adhesive region has the shape of an elongate band, wherein the at least one flap adhesive region extends at right angles to a main longitudinal direction of the film material.

**[0030]** In an embodiment, the adhesive is applied to the film material while the film material is being conveyed along the at least one adhesive nozzle.

50 **[0031]** In an embodiment, the nozzles engage the film material while the film material is being conveyed along the at least one adhesive nozzle. To this end, the nozzles are pressed against the film material. The pressing is carried out gently.

**[0032]** In an embodiment, the adhesive is applied to the film material while the film material is being conveyed

along the at least one adhesive nozzle in an upward direction, in particular vertically upward.

**[0033]** The present invention further relates to a tobacco pouch making system for making tobacco pouches according to claim 7, the tobacco pouch making system comprising: a roll support for supporting a roll of film material, multiple guides for guiding the film material, an adhesive application station comprising at least one adhesive nozzle for applying one or more rows of adhesive regions onto the film material by ejecting a volume of adhesive from the at least one adhesive nozzle at regular intervals, a folding station for folding the film material onto itself along at least one bottom fold which extends lengthwise of the film material, a heat welding station comprising at least one heating element for making a right seam and a left seam in the film material for forming a right side a left side of the tobacco pouches which are to be formed, a cutting station for cutting the individual tobacco pouches from the film material, wherein the adhesive application station comprises at least one flap adhesive nozzle configured for providing at least one row of flap adhesive regions on a section of the film material which forms the flap, the tobacco pouch making system comprising a flap folding station a front flap part onto a rear flap part along a flap fold.

**[0034]** In an embodiment, the adhesive application station comprises a control unit configured for activating and de-activating the adhesive nozzle for applying at least one row of elongate bands of adhesive at regular intervals and with adhesive-free zones between the adhesive bands, wherein the at least one row of elongate adhesive bands extends parallel to a main longitudinal direction of the film material.

**[0035]** In an embodiment, the tobacco pouch making system comprises a first adhesive nozzle and a second adhesive nozzle positioned at a distance from one another and configured for applying a first row of adhesive regions and a second row of adhesive regions at regular intervals along the film, wherein in particular the folding station is configured for folding the first and second adhesive regions onto each other.

**[0036]** In an embodiment, the first and second adhesive nozzles are configured for applying the first adhesive regions and second adhesive regions with a substantially same length and a substantially same width and at a substantially same distance from the bottom fold.

**[0037]** In an embodiment, an outflow opening of each nozzle has an elongate shape, having a length and a width, wherein the length of the outflow opening is more than 10 times the width, in particular more than 30 times the width. In an embodiment each nozzle has a single outflow opening.

**[0038]** In an embodiment, the tobacco pouch making system comprises a further heating element for heating the flap adhesive regions of the folded flap in order to provide a non-permanent seal which interconnects the front flap part onto the rear flap part of the folded flap.

**[0039]** In an embodiment, the adhesive application sta-

tion comprises a reservoir which holds adhesive, such as wax.

**[0040]** In an embodiment, the heat welding station welds the seams and also heats the adhesive regions to form non-permanent seals.

**[0041]** In an embodiment, the tobacco pouch making system comprises a second heat welding station positioned downstream from the cutting station and configured for applying heat at the mouth of the tobacco pouch, thereby melting the adhesive and closing the mouth of the compartment with a non-permanent mouth seal.

**[0042]** In an embodiment, the adhesive application station is configured to apply adhesive while the film material is being conveyed along the at least one adhesive nozzle.

**[0043]** In an embodiment, the guides are configured to move the film material in an upward direction along the adhesive application station.

**[0044]** In an embodiment, the adhesive application station comprises an X-direction adjustment device, a Y-direction adjustment device and a Z-direction adjustment device for adjusting the position of the at least one adhesive nozzle in the X, Y and Z-direction.

**[0045]** The method and system of the present invention are suitable for manufacturing a tobacco pouch, formed from a piece of a film material, wherein a part of the piece of film material is folded onto itself along at least one bottom fold, the tobacco pouch comprising a right side seam and a left side seam which extend along respectively a right side and a left side of the folded part, thereby forming a tobacco compartment, the tobacco compartment comprising a mouth, the tobacco pouch further comprising a flap, wherein a band of adhesive is present at the mouth, wherein a front part of the pouch is attached to a rear part of the pouch at the mouth via the adhesive band, wherein the adhesive forms a non-permanent seal, wherein the band of adhesive does not extend into the seams.

**[0046]** The sides of the tobacco pouch are advantageously free of weak spots as are known from the prior art.

**[0047]** In an example the band of adhesive meets the right and left seam or ends at a distance from the right or left seam.

**[0048]** In an example the at least one band of adhesive extends along the full length of the mouth.

**[0049]** In an example, the flap is folded onto itself along a flap fold, the flap being divided into a forward flap section and a rear flap section, wherein the tobacco pouch comprises at least one flap adhesive region via which the front section of the flap is attached to the rear flap section, the flap adhesive region forming a non-permanent seal which allows the user to unfold the flap section by tearing the flap seal loose.

**[0050]** In an example, the flap adhesive sections are aligned with the seams.

**[0051]** In an example, the adhesive is wax.

**[0052]** In an example, the right seam and the left seam are free of any weakened zones which result from adhe-

sive material being present in the region of the seam.

**[0053]** This disclosure further relates to a tobacco pouch formed from a piece of a film material, wherein a part of the piece of film material is folded onto itself along at least one bottom fold, the tobacco pouch comprising a right side seam and a left side seam which extend along respectively a right side and a left side of the folded part, thereby forming a tobacco compartment, the tobacco compartment comprising a mouth, the tobacco pouch further comprising a flap, wherein a band of adhesive is present at the mouth and forms a non-permanent seal for closing the mouth, wherein the flap is folded onto itself along a flap fold, the flap being divided into a forward flap section and a rear flap section, wherein the tobacco pouch comprises at least one flap adhesive region via which the front section of the flap is attached to the rear flap section, the flap adhesive region forming a non-permanent seal which allows the user to unfold the flap section by tearing the flap seal loose.

**[0054]** The flap is small when the tobacco pouch is purchased and advantageously complies with legal requirements in this field. After the purchase, the user can unfold the flap by breaking the non-permanent seal and the user can advantageously fold the flap around the compartment.

**[0055]** These and other aspects of the invention will be more readily appreciated as the same becomes better understood by reference to the following detailed description and considered in connection with the accompanying drawings in which like reference symbols designate like parts.

#### List of figures

##### [0056]

Figure 1 shows a top view of a length of film material for making tobacco pouches according to the prior art.

Figure 2 shows an isometric view of a tobacco pouch according to the prior art.

Figures 3A and 3B show isometric views of a tobacco pouch making system according to the invention.

Figure 4A shows an isometric view of an adhesive application station to be used in a method and a system according to the invention.

Figure 4B shows a side view of an adhesive application station to be used in a method and a system according to the invention.

Figure 4C shows an exploded isometric view of an adhesive nozzle to be used in a method and a system according to the invention.

Figure 5 shows a top view of a length of film material.

Figure 6A shows a sectional isometric view of an adhesive nozzle for applying flap adhesive regions.

Figure 6B show a top view of a film material according to the invention having an alternative layout of adhesive bands.

Figure 7 shows an isometric view of an example of a tobacco pouch.

Figure 8 shows an isometric view of an alternative example of a tobacco pouch.

Figure 9 shows a heat welding station for welding the mouth of the tobacco pouch.

#### Detailed description of the figures

**[0057]** Turning to figures 1 and 2, a length 1 of film material and a pouch 2 made from the film material according to the prior art are shown. The film material is elongate and generally provided on a roll from which it is unspooled during the making of the tobacco pouches.

The film material comprises a longitudinal fold line 3 which is issued to fold a fold section 4 of the film material onto itself. The film material further comprises a flap section 5 which forms the flap in the resulting pouch.

**[0058]** Cut lines 6 extend transverse to the main longitudinal direction 7 across the film material. The cut lines 6 define the lines along which the individual pouches 2 are cut and mark the right side 8A and left side 8B of the individual pouches.

**[0059]** Two bands 9A, 9B of wax extend in a direction parallel to the main longitudinal direction 7 of the film material. The bands 9A, 9B are provided on the film material prior to the winding of the film material onto the roll. The bands 9A, 9B have essentially a same length as the length of the film material itself.

**[0060]** Furthermore, weld regions 10 are indicated with dashed lines. The weld regions 10 are the regions in which heat welds are applied prior to the cutting process. The heat welds interconnect a front part 11A and a rear part 11B of the folded section 4 and form the compartment 14 of the tobacco pouch. The cutting operation along the cutting lines 6 cut each weld regions 10 in a right weld region 10A and a left weld region 10B.

**[0061]** The bands 9A, 9B of wax cross the weld regions 10 at crossing zones 13A, 13B. At these crossing zones, the heat welding operation does not work very well, because the wax prevents a proper contact between the two layers of film material which are engaged with one another

**[0062]** Turning in particular to figure 2, the consequence of the crossing zones is shown. The individual pouch 2 comprises a compartment 14 defined by a front part 15 and a rear part 16, a bottom fold 3' and the right seam 10A and left seam 10B. The pouch has a flap 18 and a mouth 19. After filling of the tobacco pouch, the tobacco pouch 2 is closed by a non-permanent seal 20 at the mouth 19. The non-permanent seal 20 extends along the length of the mouth 19. The non-permanent seal 20 is formed by the two bands 9A, 9B of wax which are folded onto one another and are heated with a heat application device. The wax melts and the front part 15 and the rear part 16 are attached to one another. The wax is strong enough to form a non-permanent seal, yet weak enough to allow a user to open the mouth upon

first use.

**[0063]** Although this works fine, there is a disadvantage in that the crossing zones 13A, 13B produce weak spots 21 at the sides of the tobacco pouch. At the weak spots, the heat welds of the sides have a low quality and may rip open. The weak spots may in particular become a problem after first use of the tobacco pouch, when the mouth is open and the non-permanent seal has been broken.

**[0064]** Turning to figures 3A and 3B, the tobacco pouch making system 30 according to the invention is shown. The system comprises a roller support 31 for supporting a roll 32 of film material 33. The system further comprises various guides 35 for guiding the film material through the system. Most guides 35 are rollers. The various parts are mounted on a common frame 34.

**[0065]** The system comprises an adhesive application station 36. Downstream of the adhesive application station, a folding station 37 is provided. Further downstream, a first heat welding station 38 is provided. Downstream from the first heat welding station 38, a cutting station 39 is provided.

The adhesive (such as wax) is applied at the adhesive application station. The folding station 37 is used for folding the film material onto itself along at least one bottom fold which extends lengthwise of the film material. The folding station 37 may optionally provide a second fold for folding the flap onto itself, as is further explained below.

**[0066]** The heat welds which form the sides of the pouch are applied in the first heat welding station 38. The first heat welding station 38 comprising at least one heating element 40 for making a right seam 10B and a left seam 10A in the film material for forming a right side 8A and a left side 8B of the tobacco pouches 2 which are to be formed. In this case, four heating elements 40 are provided.

**[0067]** A first buffer station 41 is provided between the folding station 37 and the first heat welding station 38. The first buffer station 41 turns an essentially continuous movement of the film material upstream of the first buffer station 41 into a start-stop movement of the film material downstream of the first buffer station 41. The first heat welding station applies the heat weld during a stationary time period in which the film material is held stationary at the first heat welding station.

**[0068]** The system 30 comprises various sensors for measuring the position and speed of the film material.

**[0069]** Turning to figures 4A and 4B, the adhesive application station 36 is shown in more detail. The adhesive application station 36 comprises three adhesive nozzle assemblies 42A, 42B, 42C, generally indicated with numeral 42. Each adhesive nozzle assembly 42 is mounted on a respective nozzle support 43A, 43B, 43C with a clamp 45. Each nozzle support is mounted on a common support 44. The common support 44 comprises a slider 144 which is guided by guide rods 46 and can slide along the guide rods 46. The guide rods 46 extend between

two end blocks 48.

**[0070]** It is noted that a different number of adhesive nozzles is also possible, such as one or two, or more than three.

5 **[0071]** The common support is adjustable in the Z-direction with an adjustment device 47. The nozzle supports can be moved in the Y-direction (which is the direction transverse to the direction 49 of movement of the film material at the adhesive application station) by loosening the clamps 45 and sliding the nozzle supports along a rail 50 in the common support 44. Each adhesive nozzle can also be adjusted in the X-direction, toward and away from the film material, by an X-adjustment device 51.

10 **[0072]** Each adhesive nozzle assembly comprises an adhesive inlet 52 via which the adhesive is fed to the nozzle. Each adhesive nozzle assembly 42 comprises a control line connector 53 to which a control line can be connected via which the adhesive nozzle assembly 42 is connected to a control unit 54, schematically indicated in fig. 4B.

**[0073]** The adhesive application station comprises a first adhesive nozzle assembly 42A and a second adhesive nozzle assembly 42B positioned at a distance from one another.

25 **[0074]** The adhesive application station 36 is configured to apply adhesive while the film material is being conveyed along the adhesive nozzle in the direction 49. In other words, the adhesive is applied on a moving surface. The guide 35 is configured to move the film material 33 in an upward direction 49 along the adhesive application station.

30 **[0075]** Turning in particular to figures 4B and 4C, each adhesive nozzle assembly 42A, 42B, 42C comprises an adhesive nozzle 100A, 100B, 100C, generally indicated as 100.

35 **[0076]** Each adhesive nozzle comprises an upper part 105, a lower part 106 and a shim plate 107 which is very thin and which defines a width of the outflow opening of the nozzle between the upper part and the lower part. A channel 107 is provided between the upper and lower part. The shim plate 107 has a recess 108 in the forward side. In the assembled state of the nozzle 100, the recess defines the outflow opening. If the recess needs to be changed, the nozzle can be taken apart and a shim plate of a different shape or thickness can be used.

40 **[0077]** The outflow opening is a relatively long and narrow gap. It has a length and a width. The length of the outflow opening is more than 10 times the width, in particular more than 30 times the width. The gap may extend horizontally and may extend at a right angle to the transport direction of the film material.

45 **[0078]** Turning to figure 5, the first and second nozzles 42A, 42B are configured for applying a first row 70A of first bands 55A and a second row 70B of second bands 55B of adhesive at regular intervals along the film, wherein the folding station is configured for folding the first and second band of adhesive onto each other. The control unit 54 is configured for activating and de-activating the

adhesive nozzles 42 for applying two elongate bands 55A, 55B of adhesive at regular intervals and with adhesive-free zones 56A, 56B between the adhesive bands. The adhesive free zones have a width 57 which is equal than or greater than the width 58 of the weld regions 10. As a result, there are no crossing zones 13.

**[0079]** The adhesive bands 55A 55B are elongate and extend parallel to a main longitudinal direction 7 of the film material 33, The first bands 55A and second bands 55B of adhesive have a substantially same length 60 and a substantially same width 61 and are located at a substantially same distance 62 from the bottom fold line 3.

**[0080]** Turning to figures 6A and 6B, in another embodiment, the adhesive application station comprises at least one flap adhesive nozzle 42C (also referred to as a third nozzle 42C) configured for providing at row 70C of bands 63 of flap adhesive on a region 5 of the film material which forms the flap. In this embodiment, the tobacco pouch making system comprises a flap folding station (not shown) for folding a front flap part 64A onto a rear flap part 65B along a flap fold line 65.

**[0081]** It is noted that figure 6A is a sectional view. Therefore, only half of the flap adhesive region 63 is shown, and this half has a length L2/2.

**[0082]** In this embodiment, the tobacco pouch making system will comprise a longer heating element for heating the flap adhesive bands 63 of the folded flap in order to provide a non-permanent seal which interconnects the front flap part 64A onto the rear flap part 64B of the folded flap. It is noted that the heating element for making the seams is also used for welding the adhesive regions into a non-permanent seal. The temperature may also be the same.

**[0083]** The adhesive application station comprises a reservoir (not shown) which holds the adhesive, for example wax.

**[0084]** Generally, the tobacco pouch making system will be followed in line by a system which comprises a second heat welding station 120 (also referred to as a mouth welding station) positioned downstream from the cutting station and downstream from a filling station configured for applying heat at the mouth of the tobacco pouch, thereby melting the adhesive and closing the mouth of the compartment with a non-permanent mouth seal. See also figure 9 and the description below.

**[0085]** Turning to figure 7, the shown tobacco pouch 80 is formed with the layout of the film material shown in figure 5. In this embodiment, the third adhesive nozzle 42C is inactive or may even be removed. The tobacco pouch 80 is made from a piece 81 of a film material. A bottom part of the piece of film material is folded onto itself along at least one bottom fold 3'. The tobacco pouch comprises a right side seam 10A and a left side seam 10B which extend along respectively a right side 8A and a left side 8B of the folded section.

**[0086]** Similar to the tobacco pouch 2 of the prior art, the tobacco pouch 80 according to the invention comprises a compartment 14 defined by a front part 15 and

a rear part 16, a bottom fold 3' and the right seam 10A and left seam 10B. The pouch has a flap 18 and a mouth 19.

**[0087]** At least one band 55A, 55B of adhesive is present at the mouth. The band 55A is provided on a rear section 16 of the film material, and the band 55B is provided on the front section 15 of film material. The front part of the pouch is attached to a rear part of the pouch at the mouth via the adhesive, wherein the adhesive forms a non-permanent seal, wherein the band of adhesive does not extend into the seams but ends at the left seam and right seam.

**[0088]** The bands 55A, 55B of adhesive extend almost along the full length of the mouth. A distance L1 of 1-2 millimetre may be present between the ends 75 of the bands 55A, 55B of adhesive and the seams 10A, 10B, but the end may also meet the seams 10A, 10B.

**[0089]** The right seam 10A and the left seam 10B are free of any weakened zones which result from adhesive material being present in the region of the seam.

**[0090]** Turning to figures 8, 6A and 6B another example of the tobacco pouch 80 is shown which is manufactured while using the third adhesive nozzle 42C, i.e. the flap adhesive nozzle. The tobacco pouch is made with the layout of the film material shown in figures 6A and 6B.

**[0091]** Flap adhesive regions 63 have been provided on the flap section 5 of the film material. The flap adhesive regions 63 extend on both sides of the cutting lines 6. The flap adhesive regions 63 extend from the flap fold line 65 over a distance L2 in the direction of the mouth section 19. The flap adhesive regions 63 have a width L3 which corresponds to the width of the seams 10. However, the width L3 may also be different than the width of the seams 10.

**[0092]** The flap 18 is folded onto itself along a flap fold 84. The flap is divided into a forward flap section 64A and a rear flap section 64B. The tobacco pouch 80 comprises at least one flap adhesive region 63A, 63B via which the front section 64A of the flap is attached to the rear flap section 64b, the flap adhesive region(s) forming a non-permanent seal which allows the user to unfold the flap section by tearing the flap seal loose.

**[0093]** In the shown example of figure 8, the flap adhesive regions 63A, 63B are provided as elongate bands on the left and right side of the flap. However, different configurations are also possible. For instance, a single central flap adhesive region 86 may be provided as indicated with dashed lines in figure 8. Also, the elongate band 63A,63B may be provided as a series of dots or short bands of adhesive.

**[0094]** When the user opens the pouch for the first time, he can simply tear loose the front section 64A from the rear section, in order to extend the effective length of the flap 18. The flap may increase 30-70 percent in length. In the extended state the flap may be folded over the entire compartment of the tobacco pouch.

**[0095]** Turning to figure 9, a heat welding station 120 for closing the mouth of the tobacco pouch 80 is shown.

The tobacco pouches are moved in front of a heating element 121 in a start stop movement. When the tobacco pouch has stopped in front of the heat welding station 120, the heat welding element 121 is pressed against the mouth 19 and the wax melts. The heat welding element 121 is subsequently retracted and the wax solidifies, thereby forming the non-permanent seal.

**[0096]** The heat welding station 120 comprises a base 123 which can be mounted to the frame, a horizontal arm 124 and a vertical arm 125 which supports the heating element 121. Obviously different arrangements are possible.

### Operation

**[0097]** In operation, a roll 32 is positioned on the support 31, and the film material 33 is pulled through the assembly line. The film material 33 on the roll may be free of any bands of adhesive.

**[0098]** The film material is conveyed by a number of guides and is moved along the adhesive application station 36 in a continuous motion.

**[0099]** At the adhesive application station 36, a first row of bands 55A of adhesive is applied on the film material at regular intervals by ejecting a volume of adhesive from at least one adhesive nozzle 42A at regular intervals. A second row of bands 55B of adhesive is applied from a second nozzle 42B. The adhesive may be wax. The adhesive is applied to the film material 33 while the film material is being conveyed along the at least one adhesive nozzle in an upward direction 49, in particular vertically upward.

**[0100]** Each band 55A, 55B of adhesive material ends at the left seam and right seam and does not extend into the left seam and right seam, as it does in the prior art. Each band 55a, 55B of adhesive material comprises opposite ends 75 which meet the right seam and the left seam. Alternatively, the ends 75 may be located at a distance from the right and left seam. The distance may be between zero and 3 mm.

**[0101]** The seams 10 may have a width of 3-10 mm.

**[0102]** The intervals between the bands 55A, 55B are achieved by activating the one or more adhesive nozzles 42A, 42B, 42C for a predetermined first period of time, and de-activating the adhesive nozzles for a predetermined second period of time, and repeating these steps for each tobacco pouch which is to be made.

**[0103]** The first bands 55A and second bands 55B of adhesive have a substantially same length 60 and a substantially same width 61 and are provided on either side from the bottom fold line 3 at a same distance 62 from the bottom fold line 3.

**[0104]** A third row of bands may also be applied.

**[0105]** Next, the film material 33 is transported to the folding station 37 where it folded onto itself along at least one bottom fold 3 which extends lengthwise of the film material. The first bands 55A and second bands 55B of adhesive are folded onto each other by the making of the

at least one bottom fold 3.

**[0106]** Subsequently, the film material is conveyed along a first heat welding station 38. The first heat welding station welds a right seam 10A and a left seam 10B with heat. These seams are actually welded as a single seam 10, and later cut into two separate seams at the cutting station

**[0107]** The right seam 10A extends along a right side 8A of the pouch which is to be formed and the left seam 10B extends along a left side 8B of the tobacco pouch which is to be formed. The left and right seam 10A, 10B extend transverse to a main longitudinal direction 7 of the film material, in particular at right angles to the main longitudinal direction.

**[0108]** The bands 55A, 55B of adhesive are elongate and extend parallel to the main longitudinal direction 7 of the film material.

**[0109]** The film material subsequently passes a second buffer station 72. The buffer changes the pitch distance of the start-stop movement of the film material.

**[0110]** The film material is subsequently conveyed along a cutting station 39 where the film material is cut at regular intervals along the cutting lines 6 to form individual tobacco pouches. Each tobacco pouch comprises a compartment and a flap.

**[0111]** The filling line may follow directly after the making of the tobacco pouches. The pouches are transported along a conveyor to a filling station where a compartment of each tobacco pouch is filled with tobacco.

**[0112]** Next, the tobacco pouches may be conveyed to a mouth heat welding station, where heat is applied at the mouth of the tobacco pouch, in the area of the first band 55A and second band 55B of adhesive. The adhesive melts and upon solidifying, the adhesive forms a non-permanent mouth seal which closes the mouth of the tobacco pouch.

**[0113]** In an alternative embodiment, the method comprises:

- 40 - providing one or more flap adhesive regions 63 on a flap section 5 of the film material at the adhesive application station 36, and
- folding the flap onto itself along a flap fold line 65 in the folding station 37 and
- 45 - fixing a forward flap part 64A to a rear flap part 64B with a non-permanent seal with the one or more flap adhesive regions by applying heat to the flap section.

**[0114]** Each flap adhesive region 63 may straddle the cut line 6 along which the film material is cut into individual pouches, and each flap adhesive region may be cut in two parts by the cutting operation.

**[0115]** As required, detailed embodiments of the present invention are disclosed herein; however, it is to be understood that the disclosed embodiments are merely exemplary of the invention, which scope is defined by the appended claims.

**Claims**

1. Method of manufacturing a tobacco pouch (80), the method comprising:

- unrolling a film material (33) from a roll (32),
- conveying the unrolled film material along an adhesive application station (36) comprising at least one adhesive nozzle (100A, 100B, 100C), and applying at least one row (70A, 70B, 70C) of adhesive regions (55A, 55B, 63) on the film material at regular intervals by ejecting a volume of adhesive from the at least one adhesive nozzle at regular intervals,
- folding the film material onto itself along at least one bottom fold (3) which extends lengthwise of the film material,
- conveying the film material along a first heat welding station (38) and providing a right seam (10A) and a left seam (10B) in the first heat welding station along at least a right side (8A) and a left side (8B) of the tobacco pouch which is to be formed, the left and right seam extending transverse to a main longitudinal direction (7) of the film material,
- conveying the film material along a cutting station (39) and cutting the film material at regular intervals to form individual tobacco pouches,

the method further comprising:

- filling a compartment (14) of each tobacco pouch with tobacco in a filling station, and
- conveying the tobacco pouches to, a second heat welding station and applying heat at the mouth (19) of the tobacco pouch, thereby melting the adhesive and closing the mouth of the compartment with a non-permanent mouth seal.

2. Method according to claim 1, wherein the adhesive regions (55A, 55B) of at least one row (70A, 70B) meet the left seam and right seam or end at a distance from the left seam and right seam and do not extend into the left seam and right seam.

3. Method according to any of claims 1 - 2, wherein each adhesive region is elongate and has a shape of a band, wherein the elongate bands extend parallel to the main longitudinal direction (7) of the film material, the method comprising applying first bands (55A) and second bands (55B) of adhesive at regular intervals along the film, wherein the first and second bands of adhesive are folded onto each other by the making of the at least one bottom fold.

4. Method according to any of the preceding claims, wherein the adhesive is wax.

5. Method according to any of the preceding claims, comprising:

- providing at least one row (70C) of flap adhesive regions (63) on a flap section (5) of the film material at the adhesive application station (36), and
- folding the flap onto itself along a flap fold line (65), and
- fixing a forward flap part (64A) to a rear flap part (64B) with a non-permanent seal with the one or more flap adhesive regions by applying heat to the flap section.

6. Method according to any of the preceding claims, wherein the adhesive is applied to the film material while the film material is being conveyed along the at least one adhesive nozzle, and wherein in particular the adhesive is applied to the film material while the film material is being conveyed along the at least one adhesive nozzle in an upward direction, more in particular vertically upward.

7. Tobacco pouch making system (30) for making tobacco pouches (80), the tobacco pouch making system comprising:

- a roll support (31) for supporting a roll (32) of film material (33),
- multiple guides (35) for guiding the film material,
- an adhesive application station (36) comprising at least one adhesive nozzle (100A, 100B, 100C) for applying one or more rows (70A, 70B, 70C) of adhesive regions (55A, 55B, 63) onto the film material by ejecting a volume of adhesive from the at least one adhesive nozzle at regular intervals,
- a folding station (37) for folding the film material onto itself along at least one bottom fold (3') which extends lengthwise of the film material,
- a heat welding station (38) comprising at least one heating element (40) for making a right seam (10A) and a left seam (10B) in the film material for forming a right side (8A) and a left side (8B) of the tobacco pouches which are to be formed, the left and the right seam extending transverse to a main longitudinal direction of the film material,
- a cutting station (39) for cutting the individual tobacco pouches (80) from the film material, wherein the adhesive application station comprises at least one flap adhesive nozzle (100C) configured for providing at least one row (70C) of flap adhesive regions (63) on a section of the film material which forms the flap, the tobacco pouch making system comprising a flap folding station for folding a front flap part onto a rear

flap part along a flap fold line,  
 wherein the heat welding station is configured  
 for fixing the front flap part (64A) to the rear flap  
 part (64B) with a non-permanent seal with the  
 flap adhesive regions by applying heat to the  
 flap section.

8. Tobacco pouch making system according to claim  
 7, wherein the adhesive application station compris-  
 es a control unit (54) configured for activating and  
 de-activating the adhesive nozzle for applying at  
 least one row of elongate bands (55A, 55B, 63) of  
 adhesive at regular intervals and with adhesive-free  
 zones (56A, 56B) between the adhesive bands,  
 wherein the at least one row of elongate adhesive  
 bands extends parallel to a main longitudinal direc-  
 tion (7) of the film material.
9. Tobacco pouch making system according claim 7 -  
 8, comprising a first adhesive nozzle (100A) and a  
 second adhesive nozzle (100B) positioned at a dis-  
 tance from one another and configured for applying  
 a first row of adhesive regions and a second row of  
 adhesive regions at regular intervals along the film  
 material, wherein in particular the folding station is  
 configured for folding the first and second adhesive  
 regions onto each other.
10. Tobacco pouch making system according to any of  
 claims 7 - 9, wherein an outflow opening of each  
 nozzle has an elongate shape, having a length and  
 a width, wherein the length of the outflow opening is  
 more than 10 times the width, in particular more than  
 30 times the width.
11. Tobacco pouch making system according to any of  
 claims 7 - 10, wherein the nozzles are configured to  
 engage the film material.
12. Tobacco pouch making system according to any of  
 claims 7 - 11, wherein the adhesive application sta-  
 tion is configured to apply adhesive while the film  
 material is being conveyed along the at least one  
 adhesive nozzle, and wherein in particular the guides  
 are configured to move the film material in an upward  
 direction (49) along the adhesive application station.

### Patentansprüche

1. Verfahren zur Herstellung eines Tabakbeutels (80),  
 wobei das Verfahren umfasst:
- Abrollen eines Folienmaterials (33) von einer  
 Rolle (32),
  - Fördern des abgerollten Folienmaterials ent-  
 lang einer Klebstoffauftragsstation (36), die min-  
 destens eine Klebstoffdüse (100A, 100B, 100C)

aufweist, und Aufbringen mindestens einer Rei-  
 he (70A, 70B, 70C) von Klebepbereichen (55A,  
 55B, 63) auf das Folienmaterial in regelmäßigen  
 Abständen durch Ausstoßen eines Volumens  
 an Klebstoff aus der mindestens einen Kleb-  
 stoffdüse in regelmäßigen Abständen,  
 - Falten des Folienmaterials auf sich selbst ent-  
 lang mindestens einer Bodenfalte (3), die sich  
 in Längsrichtung des Folienmaterials erstreckt,  
 - Fördern des Folienmaterials entlang einer ers-  
 ten Wärmeschweißstation (38) und Erstellen ei-  
 ner rechten Naht (10A) und einer linken Naht  
 (10B) in der ersten Wärmeschweißstation ent-  
 lang mindestens einer rechten Seite (8A) und  
 einer linken Seite (8B) des auszubildenden Ta-  
 bakbeutels, wobei die linke und rechte Naht quer  
 zu einer Hauptlängsrichtung (7) des Folienma-  
 terials verlaufen,  
 - Fördern des Folienmaterials entlang einer  
 Schneidestation (39) und Schneiden des Foli-  
 enmaterials in regelmäßigen Abständen zu ein-  
 zelnem Tabakbeutel,

wobei das Verfahren ferner umfasst:

- Füllen eines Fachs (14) jedes Tabakbeutels  
 mit Tabak in einer Füllstation, und
- Fördern der Tabakbeutel zu einer zweiten Wär-  
 meschweißstation und Aufbringen von Wärme  
 an die Öffnung (19) des Tabakbeutels, wodurch  
 der Klebstoff aufgeschmolzen wird und die Öff-  
 nung des Fachs mit einer nichtpermanenten  
 Dichtung der Öffnung verschlossen wird.

2. Verfahren nach Anspruch 1, wobei die Klebepberei-  
 che (55A, 55B) mindestens einer Reihe (70A, 70B)  
 auf die linke und rechte Naht treffen oder in einem  
 Abstand von der linken und rechten Naht enden und  
 sich nicht in die linke und rechte Naht erstrecken.
3. Verfahren nach mindestens einem beliebigen der  
 Ansprüche 1-2, wobei jeder Klebepbereich länglich  
 ist und die Form eines Bandes aufweist, wobei sich  
 die länglichen Bänder parallel zur Hauptlängsrich-  
 tung (7) des Folienmaterials erstrecken, wobei das  
 Verfahren das Aufbringen von ersten Bändern (55A)  
 und zweiten Bändern (55B) an Klebstoff in regelmä-  
 ßigen Abständen entlang der Folie umfasst, wobei  
 die ersten und zweiten Bänder aus Klebstoff durch  
 das Herstellen der mindestens einen Bodenfalte auf-  
 einander gefaltet werden.
4. Verfahren nach mindestens einem beliebigen der  
 vorhergehenden Ansprüche, wobei der Klebstoff  
 Wachs ist.
5. Verfahren nach mindestens einem beliebigen der  
 vorangehenden Ansprüche, umfassend:

- Bereitstellen mindestens einer Reihe (70C) von Klappenklebgebereichen (63) an einem Klappenabschnitt (5) des Folienmaterials an der Klebstoffauftragsstation (36), und
  - Falten der Klappe auf sich selbst entlang einer Klappenfalllinie (65), und
  - Befestigen eines vorderen Klappenteils (64A) an einem hinteren Klappenteil (64B) mit einer nicht dauerhaften Dichtung mit dem einen oder den mehreren Klappenklebgebereichen durch Aufbringen von Wärme auf den Klappenabschnitt.
6. Verfahren nach mindestens einem beliebigen der vorhergehenden Ansprüche, wobei der Klebstoff auf das Folienmaterial aufgetragen wird, während das Folienmaterial entlang der mindestens einen Klebstoffdüse gefördert wird, und wobei insbesondere der Klebstoff auf das Folienmaterial aufgetragen wird, während das Folienmaterial entlang der mindestens einen Klebstoffdüse nach oben, insbesondere senkrecht nach oben, gefördert wird.
7. Tabakbeutelherstellungssystem (30) zum Herstellen von Tabakbeuteln (80), wobei das Tabakbeutelherstellungssystem umfasst:
- einen Rollenträger (31) zum Abstützen einer Rolle (32) an Folienmaterial (33),
  - mehrere Führungen (35) zum Führen des Folienmaterials,
  - eine Klebstoffauftragsstation (36) mit mindestens einer Klebstoffdüse (100A, 100B, 100C) zum Aufbringen einer oder mehrerer Reihen (70A, 70B, 70C) von Klebgebereichen (55A, 55B, 63) auf das Folienmaterial durch Ausstoßen eines Volumens an Klebstoff aus der mindestens einen Klebstoffdüse in regelmäßigen Abständen,
  - eine Faltstation (37) zum Falten des Folienmaterials auf sich selbst entlang mindestens einer Bodenfalte (3'), die sich in Längsrichtung des Folienmaterials erstreckt,
  - eine Wärmeschweißstation (38) mit mindestens einem Heizelement (40) zum Herstellen einer rechten Naht (10A) und einer linken Naht (10B) in dem Folienmaterial zur Bildung einer rechten Seite (8A) und einer linken Seite (8B) der herzustellenden Tabakbeutel, wobei sich die linke und die rechte Naht quer zu einer Hauptlängsrichtung des Folienmaterials erstrecken,
  - eine Schneidstation (39) zum Schneiden der einzelnen Tabakbeutel (80) aus dem Folienmaterial,
- wobei die Klebstoffauftragsstation mindestens eine Klappenklebstoffdüse (100C) umfasst, die so ausgelegt ist, dass sie mindestens eine Reihe
- (70C) von Klappenklebgebereichen (63) auf einem die Klappe bildenden Abschnitt des Folienmaterials aufbringt, wobei das Tabakbeutelherstellungssystem eine Klappenfaltstation zum Falten eines vorderen Klappenteils auf einen hinteren Klappenteil entlang einer Klappenfalllinie aufweist,
- wobei die Wärmeschweißstation eingerichtet ist zum Befestigen des vorderen Klappenteils (64A) an dem hinteren Klappenteil (64B) mit einer nicht dauerhaften Versiegelung mit den Klappenklebgebereichen durch Aufbringen von Wärme auf den Klappenabschnitt.
8. Tabakbeutelherstellungssystem nach Anspruch 7, wobei die Klebstoffauftragsstation eine Steuereinheit (54) umfasst, die ausgelegt ist, die Klebstoffdüsen zu aktivieren und zu deaktivieren, um mindestens eine Reihe von länglichen Bändern (55A, 55B, 63) an Klebstoff in regelmäßigen Abständen und mit klebstofffreien Zonen (56A, 56B) zwischen den Bändern an Klebstoff zu erstellen, wobei sich die mindestens eine Reihe von länglichen Bändern an Klebstoff parallel zu einer Hauptlängsrichtung (7) des Folienmaterials erstreckt.
9. Tabakbeutelherstellungssystem nach Anspruch 7 - 8, das eine erste Klebstoffdüse (100A) und eine zweite Klebstoffdüse (100B) aufweist, die in einem Abstand voneinander angeordnet und so ausgelegt sind, dass eine erste Reihe von Klebgebereichen und eine zweite Reihe von Klebgebereichen in regelmäßigen Abständen entlang des Folienmaterials ausgebildet werden, wobei insbesondere die Faltstation ausgebildet ist, den ersten Klebgebereich und den zweiten Klebgebereich aufeinander zu falten.
10. Tabakbeutelherstellungssystem nach mindestens einem beliebigen der Ansprüche 7 bis 9, wobei eine Ausströmöffnung jeder Düse eine längliche Form mit einer Länge und einer Breite aufweist, wobei die Länge der Ausströmöffnung mehr als das 10-fache der Breite, insbesondere mehr als das 30-fache der Breite beträgt.
11. System zur Herstellung von Tabakbeuteln nach mindestens einem beliebigen der Ansprüche 7 bis 10, wobei die Düsen so konfiguriert sind, dass sie in Kontakt mit dem Folienmaterial kommen.
12. Tabakbeutelherstellungssystem nach mindestens einem beliebigen der Ansprüche 7-11, wobei die Klebstoffauftragsstation eingerichtet ist, Klebstoff aufzubringen, während das Folienmaterial entlang der mindestens einen Klebstoffdüse gefördert wird, und wobei insbesondere die Führungen dazu ausgebildet sind, das Folienmaterial entlang der Klebstoffauftragsstation in einer Aufwärtsrichtung (49) zu

bewegen.

## Revendications

1. Procédé de fabrication d'une blague à tabac (80), le procédé comprenant les étapes de:

- dérouler un matériau en film (33) d'un rouleau (32),
- transporter le matériau en film déroulé le long d'une station d'application d'adhésif (36) comprenant au moins une buse d'adhésif (100A, 100B, 100C), et appliquer au moins une rangée (70A, 70B, 70C) de régions d'adhésif (55A, 55B, 63) sur le matériau en film à intervalles réguliers en éjectant un volume d'adhésif de la au moins une buse d'adhésif à intervalles réguliers,
- plier le matériau en film sur lui-même le long d'au moins un pli inférieur (3) qui s'étend dans le sens de la longueur du matériau en film,
- acheminer le matériau en film le long d'une première station de soudage à chaud (38) et faire une soudure droite (10A) et une soudure gauche (10B) dans la première station de soudage à chaud le long d'au moins un côté droit (8A) et un côté gauche (8B) de la blague à tabac qui doit être formée, les soudures gauche et droite s'étendant transversalement à une direction longitudinale principale (7) du matériau en film,
- acheminer le matériau en film le long d'une station de découpe (39) et découper le matériau en film à intervalles réguliers pour former des blagues à tabac individuelles,

le procédé comprenant en outre les étapes consistant à :

- remplir un compartiment (14) de chaque blague à tabac avec du tabac dans une station de remplissage, et
  - acheminer les blagues à tabac vers une seconde station de soudage à chaud et appliquer de la chaleur à l'embouchure (19) de la blague à tabac, faisant ainsi fondre l'adhésif et fermant l'embouchure du compartiment avec un joint d'étanchéité non permanent.
2. Procédé selon la revendication 1, dans lequel les régions adhésives (55A, 55B) d'au moins une rangée (70A, 70B) rencontrent les soudures gauche et droite ou se terminent à une distance des soudures gauche et droite et ne s'étendent pas dans les soudures gauche et droite.
3. Procédé selon l'une quelconque des revendications 1 à 2, dans lequel chaque région d'adhésif est allongée et présente une forme de bande, dans lequel

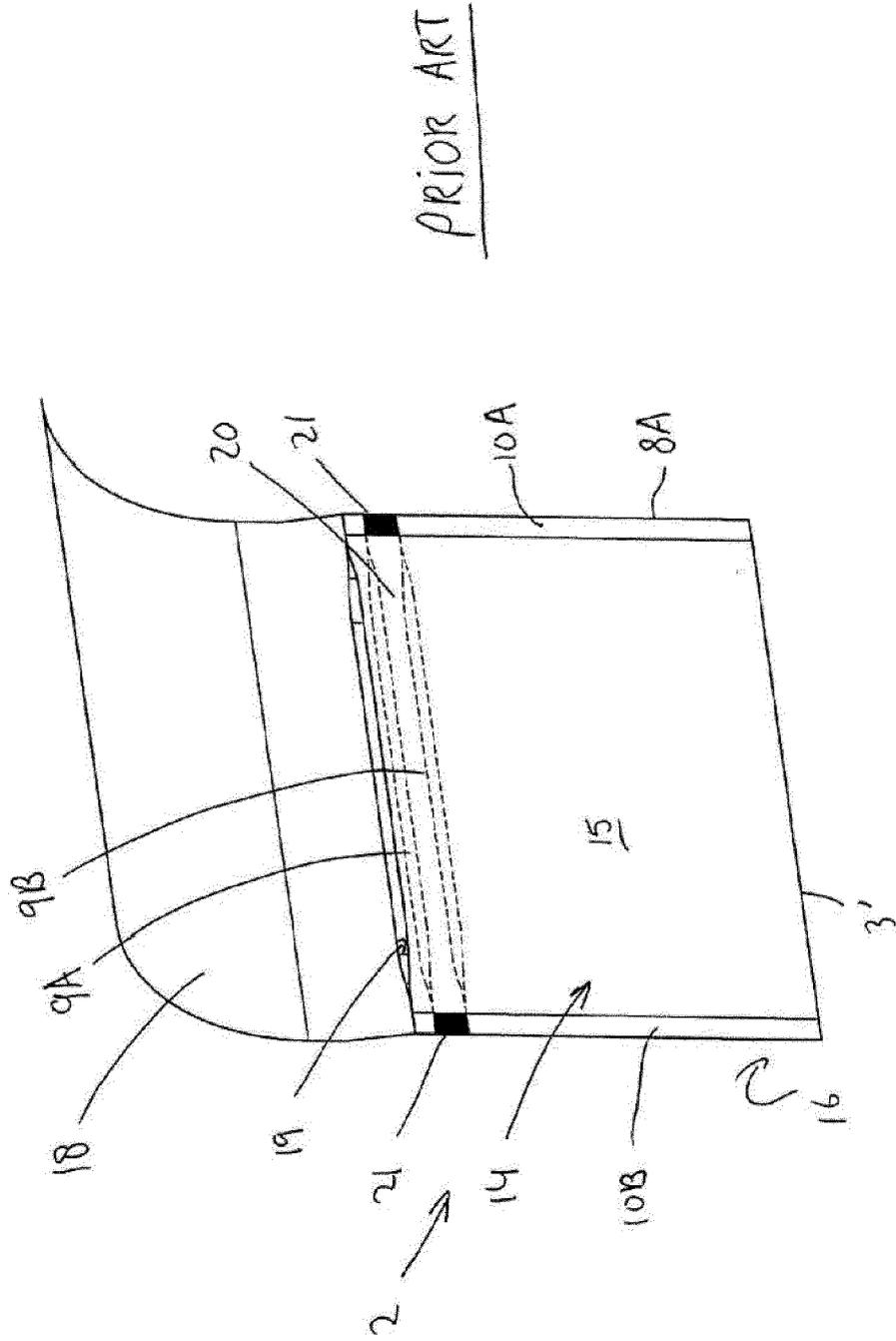
les bandes allongées s'étendent parallèlement à la direction longitudinale principale (7) du matériau en film, le procédé comprenant l'étape d'appliquer des premières bandes (55A) et des secondes bandes (55B) d'adhésif à des intervalles réguliers le long du film, dans lequel les première et seconde bandes d'adhésif sont pliées l'une sur l'autre par la réalisation de l'au moins un pli inférieur.

4. Procédé selon l'une quelconque des revendications précédentes, dans lequel l'adhésif est de la cire.
5. Procédé selon l'une quelconque des revendications précédentes, comprenant les étapes de:
- fournir au moins une rangée (70C) de régions d'adhésif de rabat (63) sur une section de rabat (5) du matériau en film à la station d'application d'adhésif (36), et
  - plier le rabat sur lui-même le long d'une ligne de pliage de rabat (65), et
  - fixer une partie de rabat avant (64A) sur une partie de rabat arrière (64B) avec un joint non permanent au moyen de la ou des régions adhésives de rabat en appliquant de la chaleur à la section de rabat.
6. Procédé selon l'une quelconque des revendications précédentes, dans lequel l'adhésif est appliqué sur le matériau en film tandis que le matériau en film est acheminé le long de la au moins une buse d'adhésif, et en particulier l'adhésif est appliqué sur le matériau en film tandis que le matériau en film est transporté le long de la au moins une buse adhésive dans une direction ascendante, plus particulièrement verticalement vers le haut.
7. Système de fabrication (30) de blagues à tabac pour fabriquer des blagues de tabac (80), le système de fabrication de blagues à tabac comprenant:
- un support de rouleau (31) pour supporter un rouleau (32) de matériau en film (33),
  - des guides multiples (35) pour guider le matériau en film,
  - une station d'application d'adhésif (36) comprenant au moins une buse d'adhésif (100A, 100B, 100C) pour appliquer une ou plusieurs rangées (70A, 70B, 70C) de régions d'adhésif (55A, 55B, 63) sur le matériau en film en éjectant un volume d'adhésif de la au moins une buse d'adhésif à intervalles réguliers,
  - une station de pliage (37) pour plier le matériau en film sur lui-même le long d'au moins un pli inférieur (3) s'étendant longitudinalement au matériau en film,
  - une station de soudage à chaud (38) comprenant au moins un élément chauffant (40) pour

- réaliser une soudure droite (10A) et une soudure gauche (10B) dans le matériau en film pour former un côté droit (8A) et un côté gauche (8B) des blagues à tabac qui doivent être formés, les soudures gauche et droite s'étendant transversalement à une direction longitudinale principale du matériau en film,
- une station de découpe (39) pour découper les blagues à tabac individuelles (80) à partir du matériau en film,
- dans lequel la station d'application d'adhésif comprend au moins une buse d'adhésif de rabat (100C) configurée pour fournir au moins une rangée (70C) de régions d'adhésif de rabat (63) sur une section du matériau en film qui forme le rabat, le système de fabrication de blagues à tabac comprenant une station de pliage de rabat pour plier une partie de rabat avant sur une partie de rabat arrière le long d'une ligne de pliage de rabat,
- dans lequel station de soudage à chaud est configurée pour fixer la partie de rabat avant (64A) à la partie de rabat arrière (64B) avec une étanchéité non-permanente avec les régions d'adhésif de rabat en appliquant de la chaleur sur la section de rabat.
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- 10
- 15
- 20
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8. Système de fabrication de blagues à tabac selon la revendication 7, dans lequel la station d'application d'adhésif comprend une unité de commande (54) configurée pour activer et désactiver la buse d'adhésif pour appliquer au moins une rangée de bandes allongées (55A, 55B, 63) d'adhésif à intervalles réguliers et avec des régions libres d'adhésif (56A, 56B) entre les bandes adhésives, dans lequel la au moins une rangée de bandes d'adhésif allongées s'étend parallèlement à une direction longitudinale principale (7) du matériau en film.
- 30
- 35
9. Système de fabrication de blagues à tabac selon la revendication 7 ou 8, comprenant une première buse d'adhésif (100A) et une seconde buse d'adhésif (100B) positionnées à distance l'une de l'autre et configurées pour appliquer une première rangée de régions d'adhésif et une seconde rangée de régions d'adhésif à intervalles réguliers le long du matériau en film, dans lequel, en particulier, la station de pliage est configurée pour plier les première et seconde régions d'adhésif l'une sur l'autre.
- 40
- 45
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10. Système de fabrication de blagues à tabac selon l'une quelconque des revendications 7 à 9, dans lequel une ouverture de sortie de chaque buse a une forme allongée, ayant une longueur et une largeur, dans lequel la longueur de l'ouverture de sortie vaut plus de 10 fois la largeur, en particulier plus de 30 fois la largeur.
- 55
11. Système de fabrication de blagues à tabac selon l'une quelconque des revendications 7 à 10, dans lequel les buses sont configurées pour entrer en contact avec le matériau en film.
12. Système de fabrication de blagues à tabac selon l'une quelconque des revendications 7 à 11, dans lequel la station d'application d'adhésif est configurée pour appliquer un adhésif tandis que le matériau en film est transporté le long de la au moins une buse d'adhésif, et dans lequel, en particulier, les guides sont configurés pour déplacer le matériau en film dans une direction ascendante (49) le long de la station d'application d'adhésif.



Fig. 2



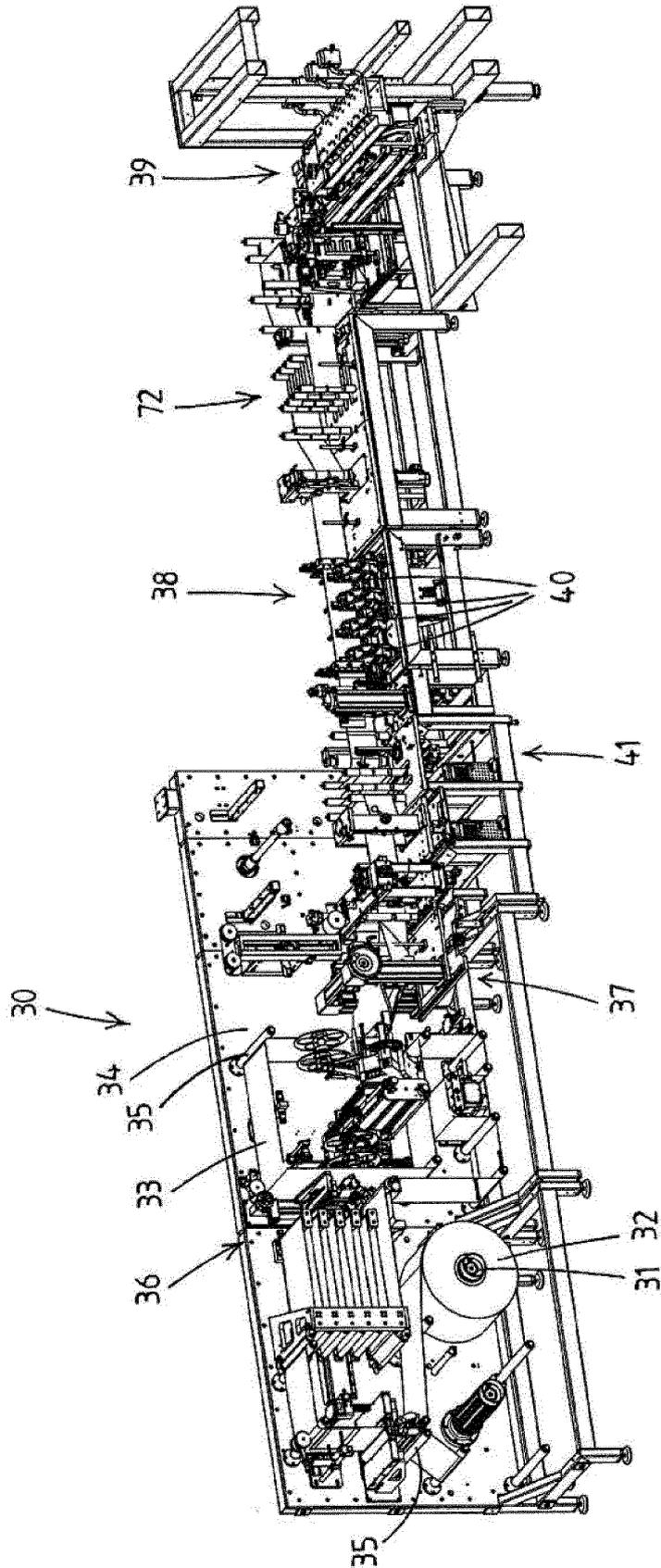


Fig.3A

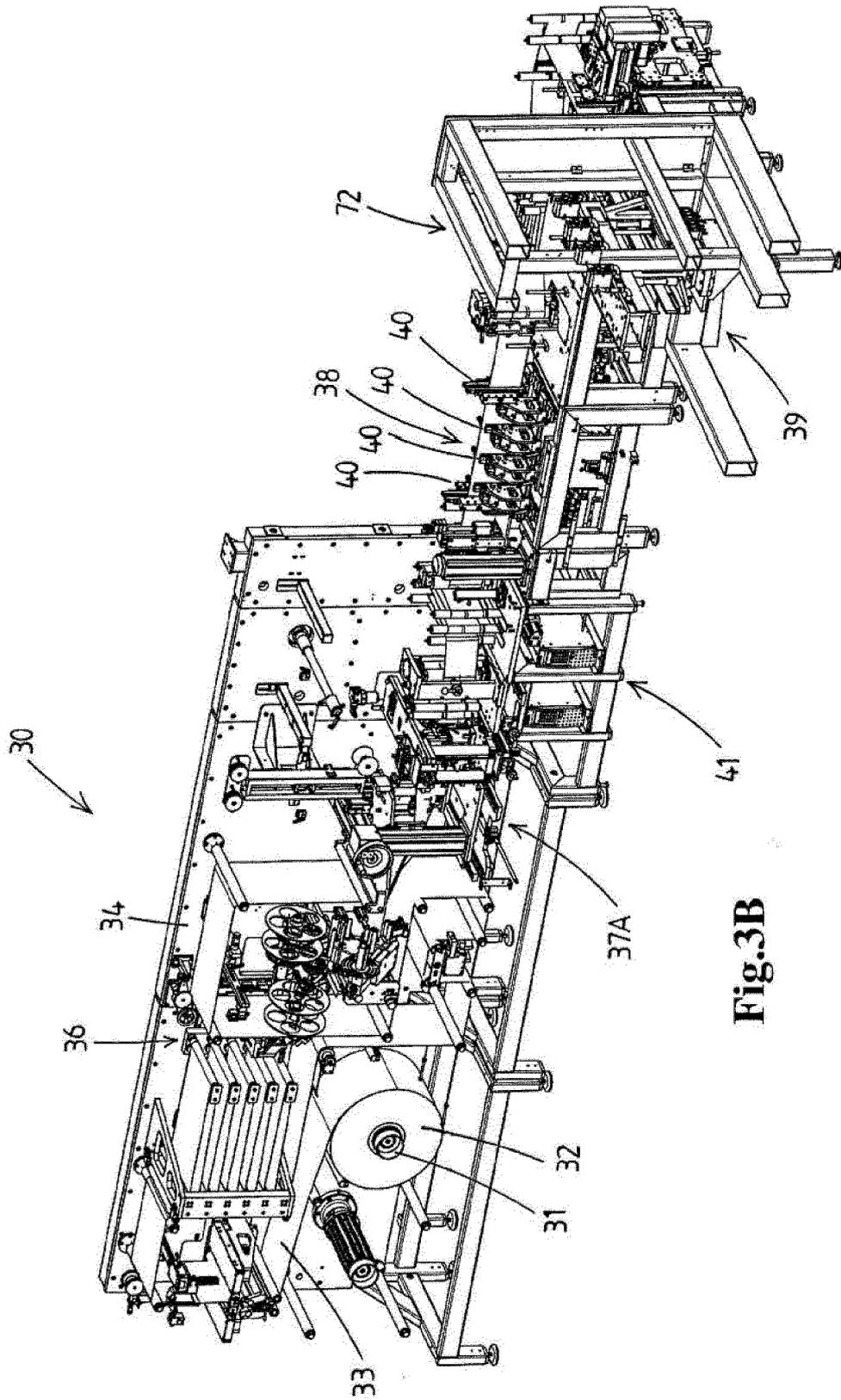
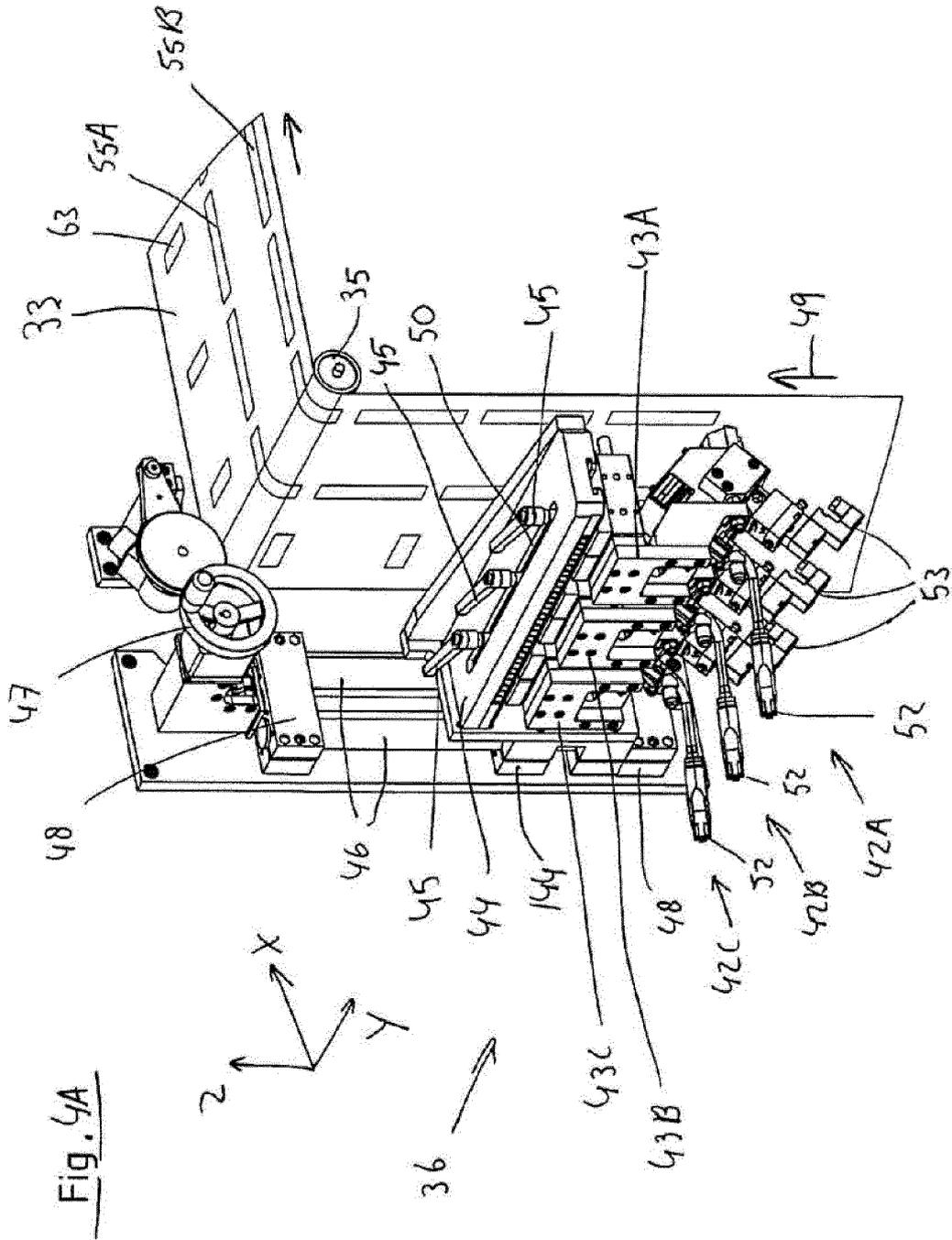


Fig.3B



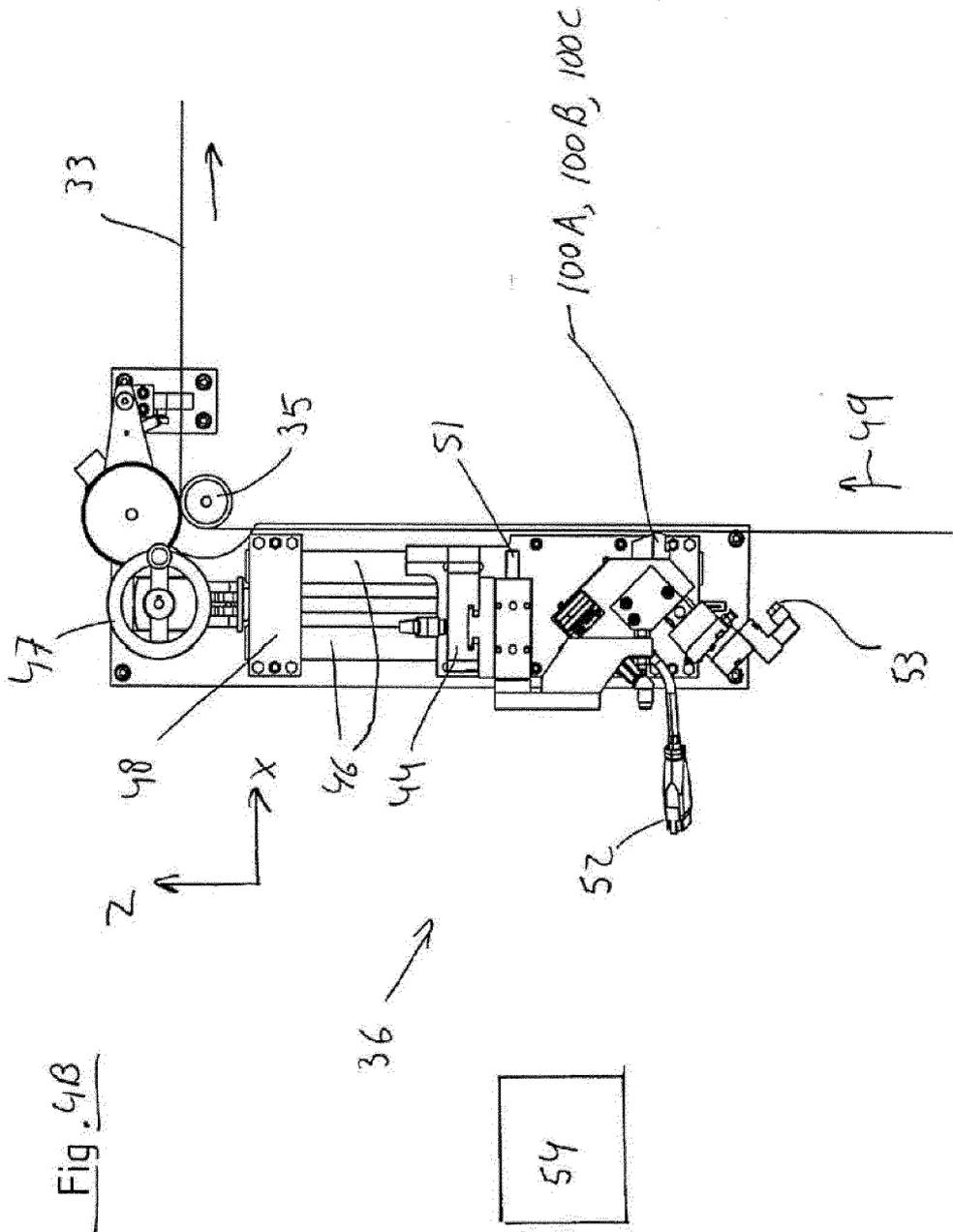
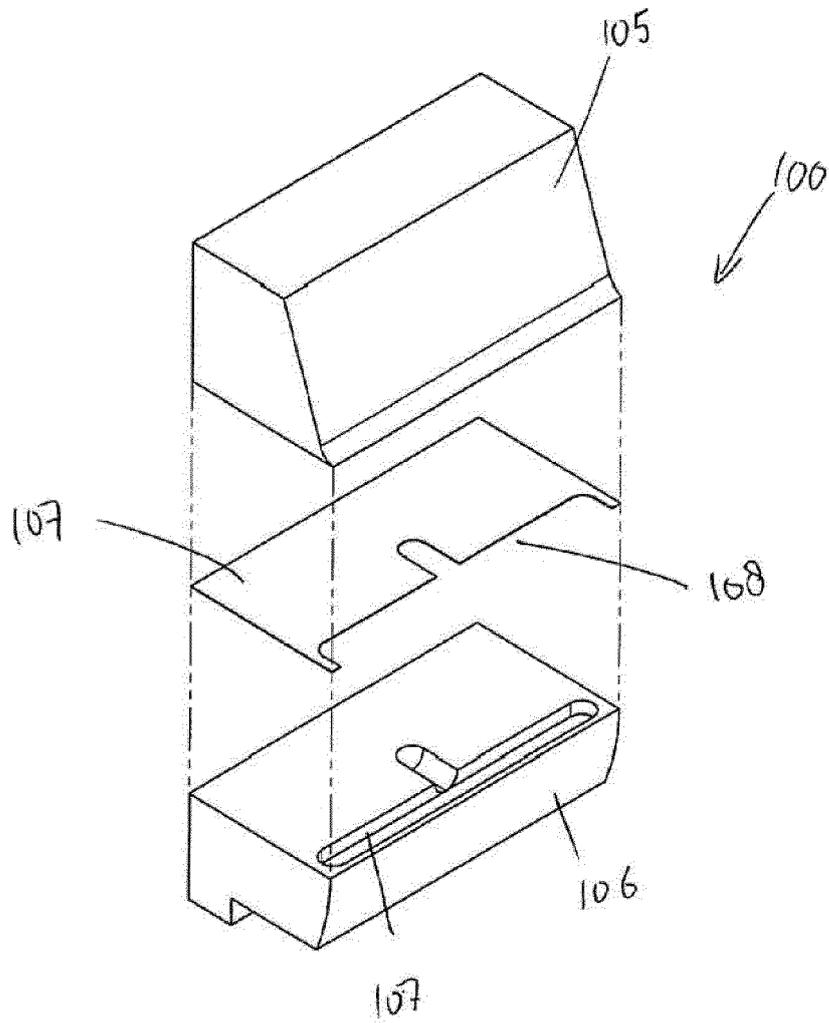


Fig. 4B

Fig. 4c



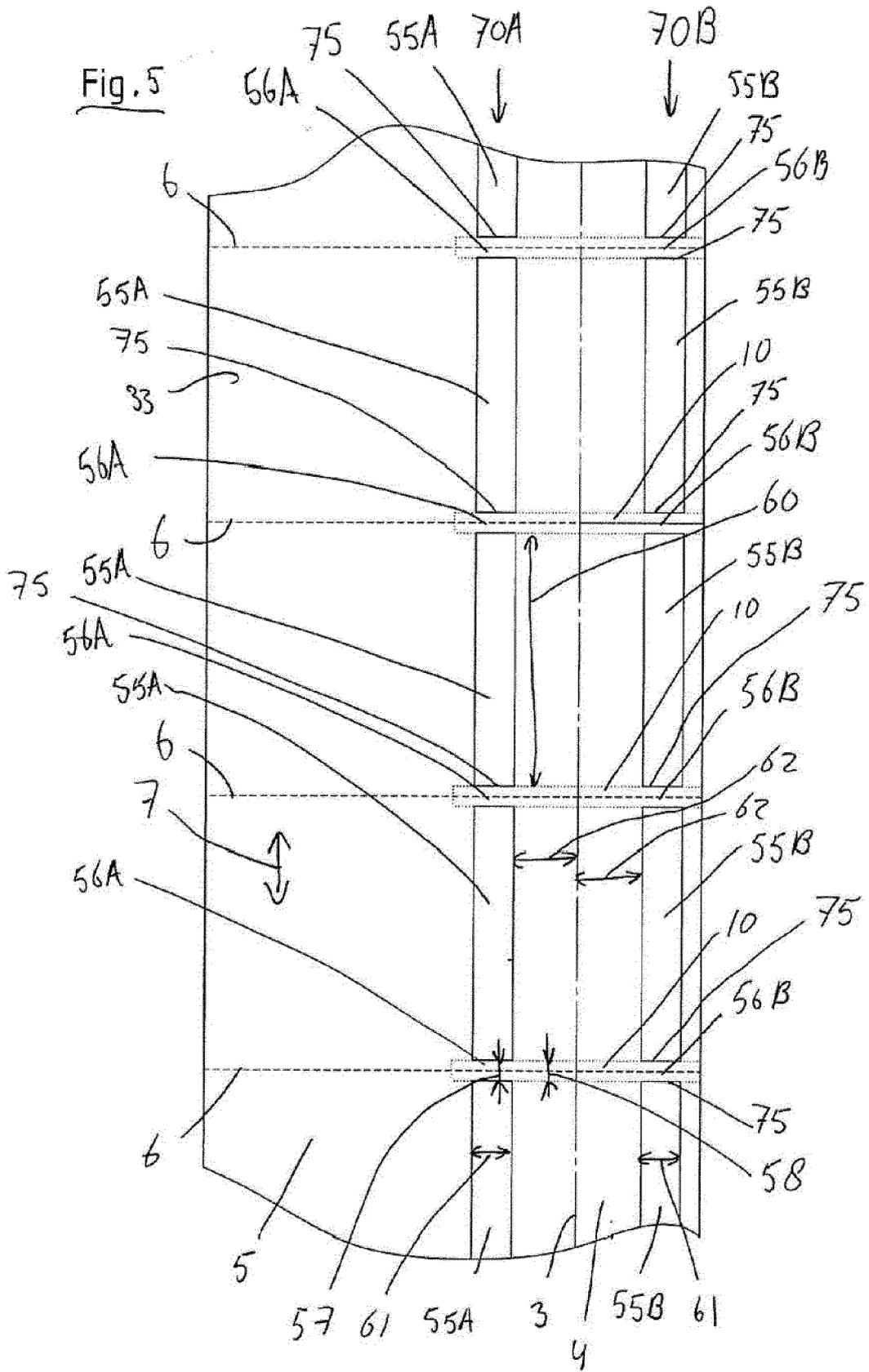
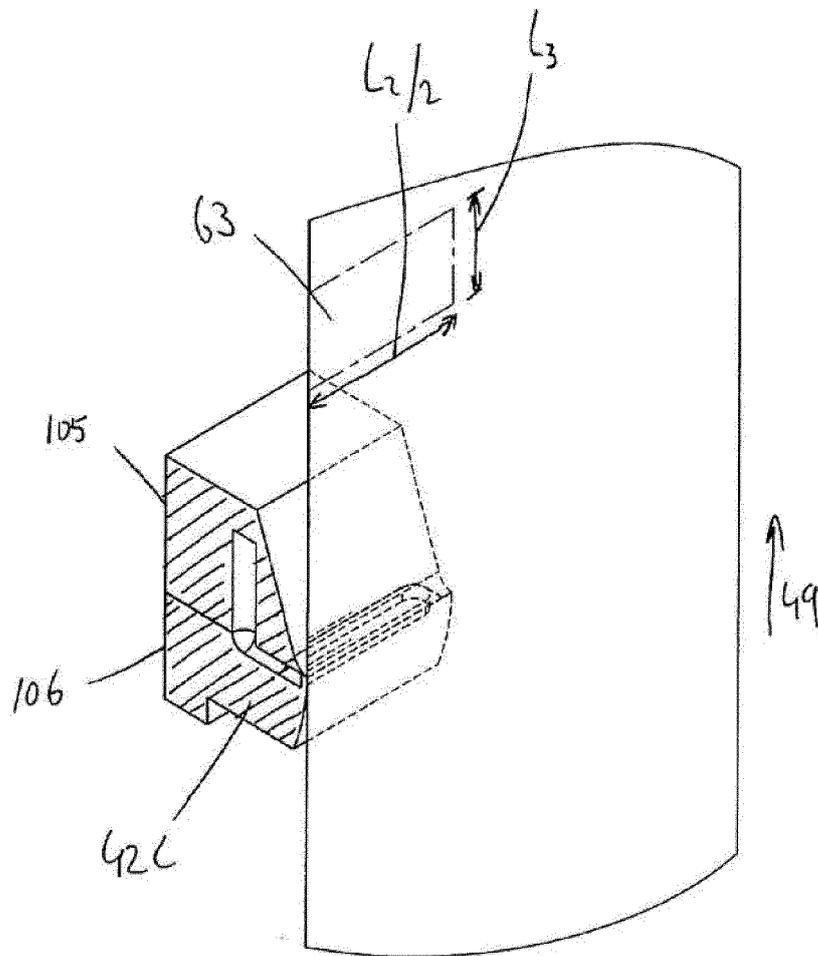
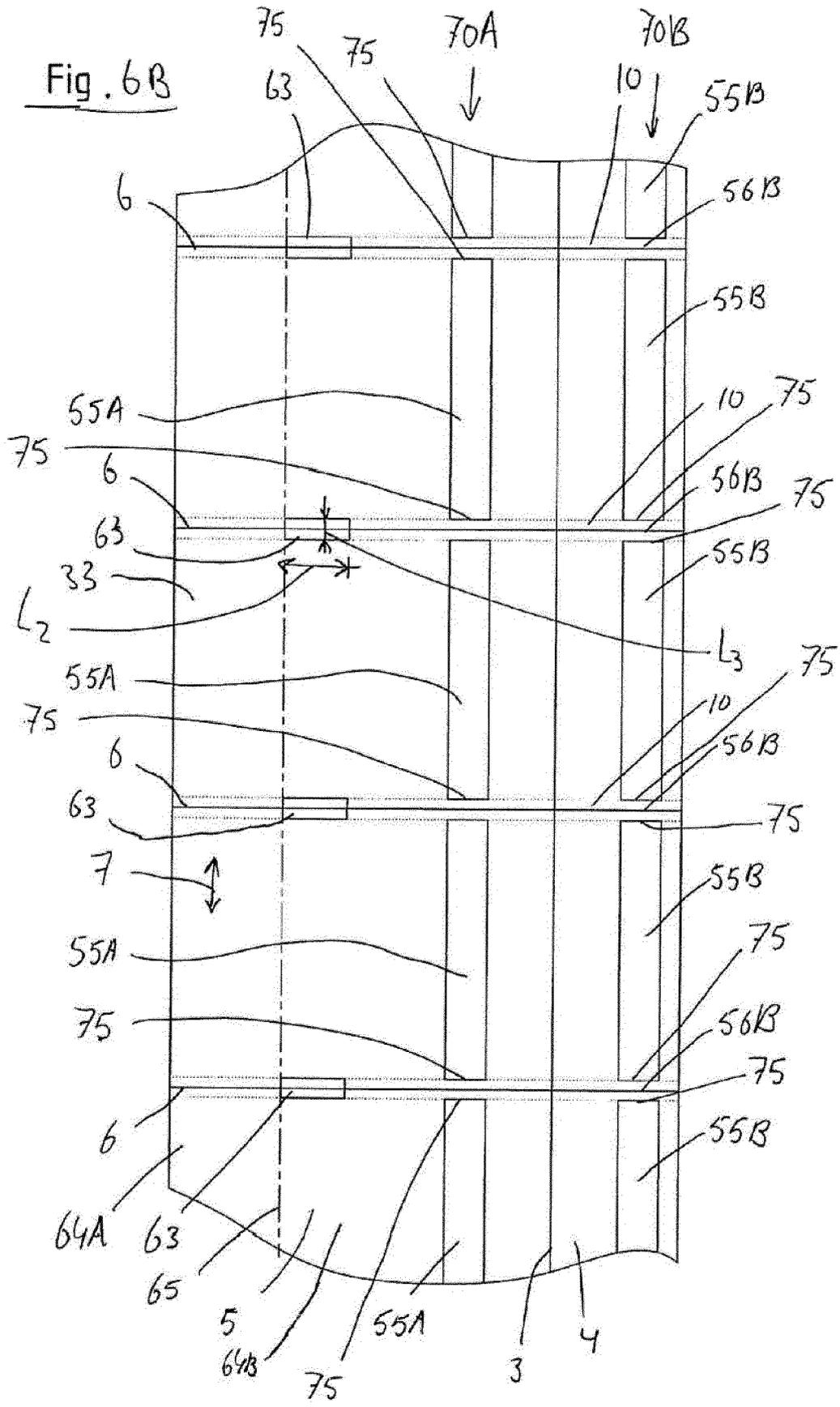
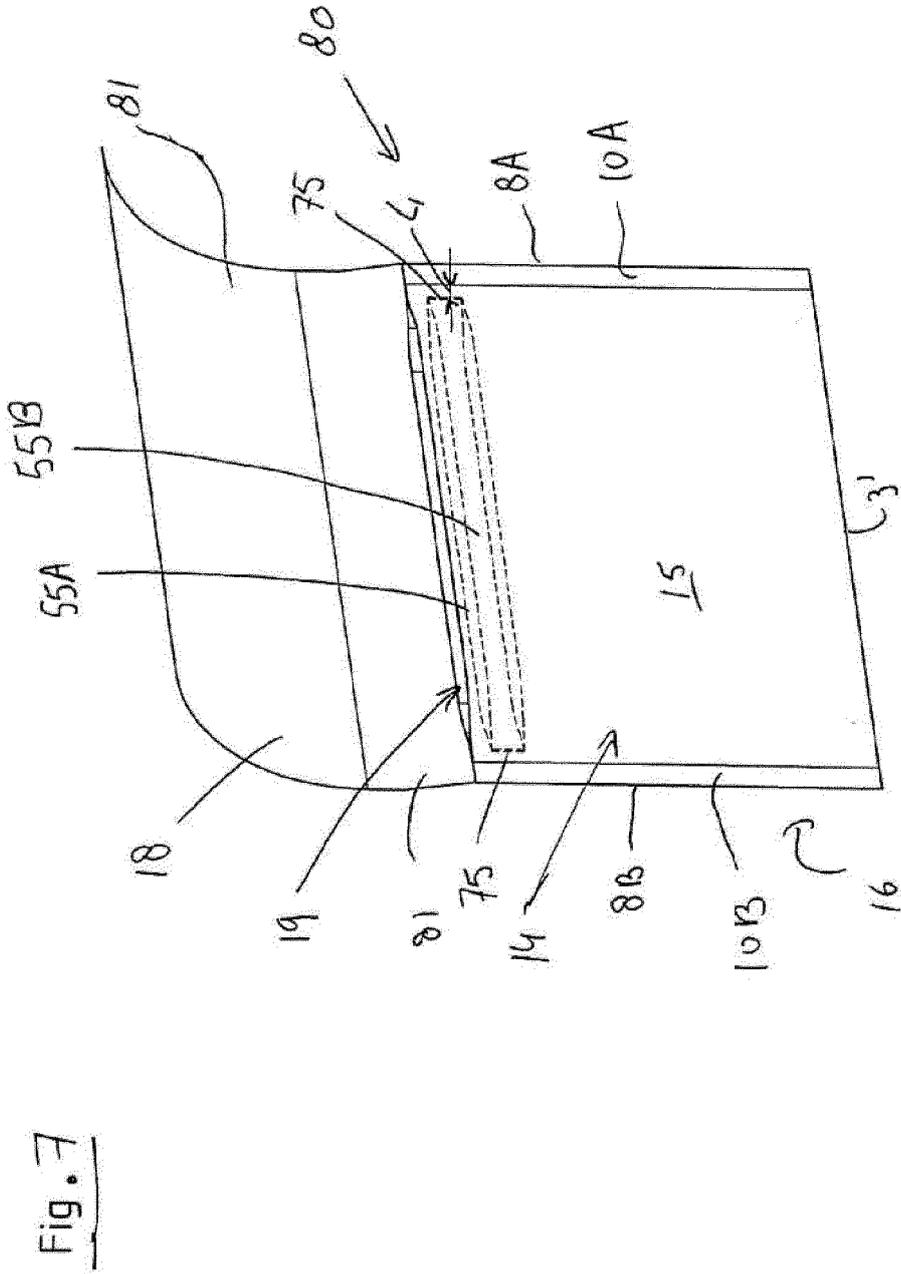


Fig. 6A







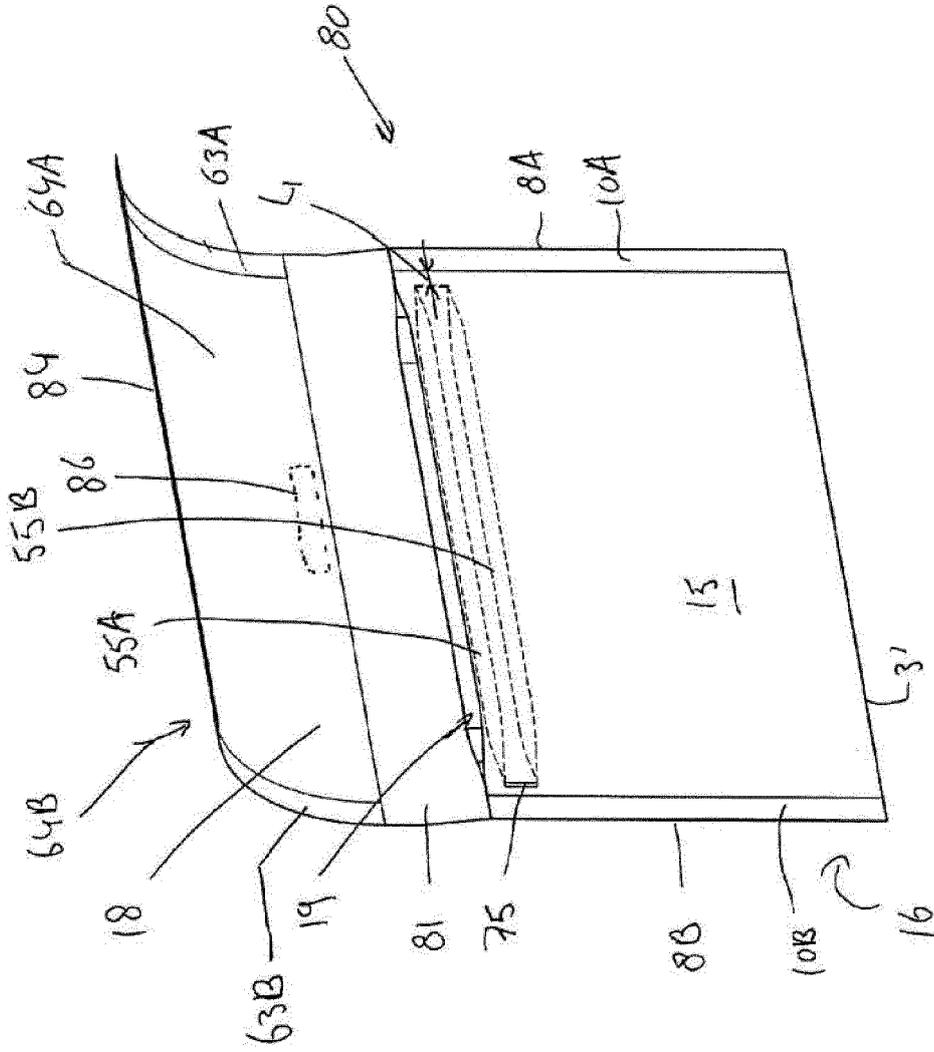
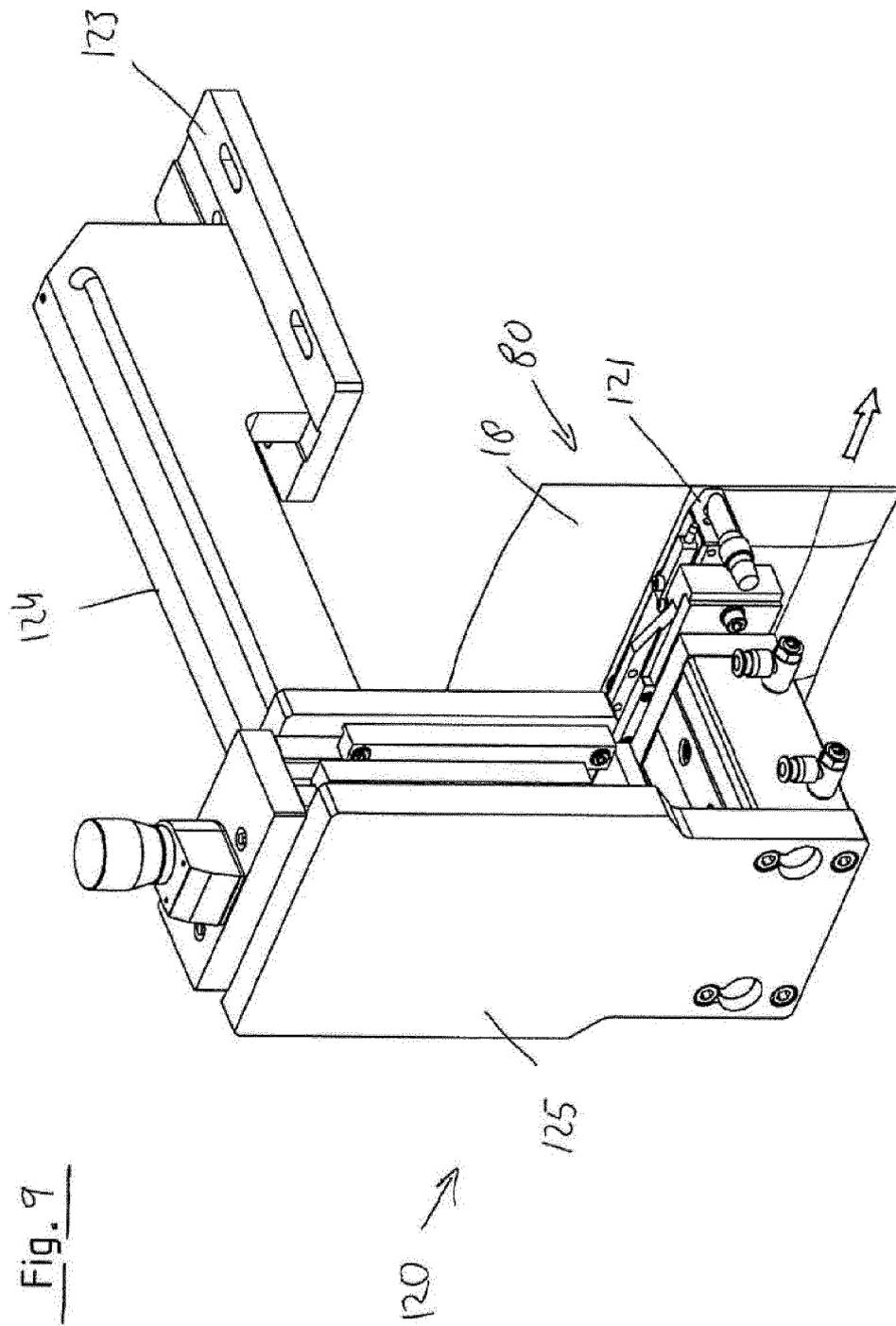


Fig. 8



**REFERENCES CITED IN THE DESCRIPTION**

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