



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
09.12.2020 Bulletin 2020/50

(51) Int Cl.:
B65H 1/02 (2006.01) **B65H 7/02 (2006.01)**
B65H 3/04 (2006.01) **B65H 3/12 (2006.01)**

(21) Application number: **20177978.2**

(22) Date of filing: **03.06.2020**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME
Designated Validation States:
KH MA MD TN

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(30) Priority: **05.06.2019 IT 201900008109**

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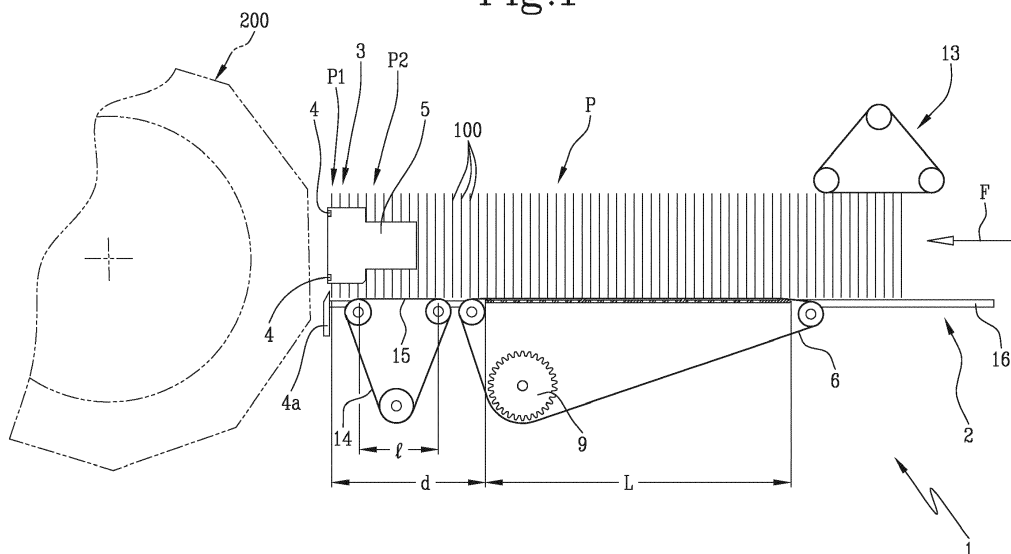
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(54) **DEVICE AND METHOD FOR FEEDING BLANKS TO A MACHINE FOR FURTHER PROCESSING**

(57) A device for feeding blanks (100) to a packing machine, comprising feed means (2) for feeding a stack (P) of blanks (100) and at least one stop element (4) configured to allow or prevent picking up the front blank (100) of the stack (P), wherein the feed means (2) comprise at least one compensating belt (6) having an upper section (7) running parallel to the feed direction (A) of the

stack (P) of blanks (100) and defining a bottom support of a predefined portion of the stack (P) of blanks (100) and wherein the compensating belt (6) is a suction belt connected to a pneumatic suction source and is associated with adjustment means configured to adjust the feed speed of the compensating belt (6) in such a way as to vary the thrust on the stop element (4). [Figure 1]

Fig.1



Description

[0001] This invention relates to a device and a method for feeding blanks to a machine for further processing.

[0002] More specifically, the invention addresses the field of the processing of blanks - for example (but not necessarily) of paper - for example in the sector of the production of packets, where blanks of rigid or semi-rigid material are folded and welded or glued to form packets for containing articles. By way of non-limiting example, the context of this invention is the production of packets of rod-shaped articles such as cigarettes or the like. The prior art teaches feeding blanks in a stack where the blanks, which are planar shaped, are superposed on each other to define a succession of blanks whose large surfaces are in mutual contact.

[0003] The stack of blanks is fed to a guide channel where the stack is progressively advanced so that the blank at the end of it in the outfeed direction is presented to a pickup device which transfers it for further processing, such as, for example, folding processes.

[0004] To ensure that the stack moves "naturally" in the direction of the pickup device, the stack may be inserted in an inclined or vertical guide channel along which it is pushed by gravity or it may be urged towards the pickup device by suitable pushing elements, such as elastic elements, for example. At the outfeed end of the guide channel there is at least one stop element configured to hold back the stack of blanks.

[0005] As the blanks at the end of the stack are picked up one by one, the height of the stack is reduced, making it necessary to top up with more blanks, usually by periodically adding a bundle of new blanks. Disadvantageously, it has been found that the variation in the height of the stack over time varies the pushing action exerted on the stack, in particular on the stop element, hence on the blank at the end. This pushing action, if too weak (because the stack is too short), prevents the stack from being effectively fed along the guide channel, also on account of the friction against the walls of the channel. Conversely, if the pushing action is too strong (because the stack is too high), the risk is that of damaging the blank at the end or causing it adhere too strongly against the blank after it, so that the pickup device picks up two blanks simultaneously, thus reducing the quality of the process or even leading to a jam which makes it necessary to stop the machine.

[0006] This invention therefore has for an aim to provide a device and a method for feeding blanks to a machine for further processing and capable of attaining high standards of process reliability.

[0007] The technical purpose indicated and the aim specified are substantially achieved by a device and a method for feeding blanks to a machine for further processing according to the appended claims.

[0008] Further features and advantages of the invention are more apparent in the non-limiting description which follows of a preferred but non-exclusive embodi-

ment of a device and a method for feeding blanks to a machine for further processing, as illustrated in the accompanying drawings, in which:

- 5 - Figure 1 is a schematic side view of a device according to this invention;
- Figure 2 shows a schematic plan view of the device of Figure 1, with the stack of blanks omitted to illustrate normally hidden parts;
- 10 - Figure 3 is an enlarged detail from the view of Figure 1;
- Figure 4 is an enlarged detail from the view of Figure 2, showing also the hidden lines;
- 15 - Figure 5 is a schematic plan view of a portion of the device of Figure 1 in an operating configuration.

[0009] The numeral 1 in the accompanying drawings denotes in its entirety a device for feeding blanks 100 to a machine for further processing. The expression "machine for further processing" is used to mean a generic machine (not illustrated because it is of known type) configured to receive single blanks one after the other in succession and to subject them to further processes, such as, for example: folding, gluing, printing, application of additional elements (such as stamps, coupons, labels or generic stickers) or even to transfer the blanks to storage units. By way of example, in the context of rod-shaped articles, specifically of the tobacco industry, such a machine might be a cigarette packing machine and the device 1 configured to feed the cardboard blanks intended to make hinge-lid packets.

[0010] The device 1 comprises feed means 2 for feeding a stack P of blanks 100 disposed in succession in a superposed configuration, for example defining a feed space for feeding the stack P of blanks 100 along a feed direction A. In the accompanying drawings, the feed direction A is horizontal and the blanks 100 of the stack P can be pushed towards an outfeed section 3 by a generic mechanical pushing element (not illustrated), for example elastic, adapted to generate a force F directed towards the outfeed section 3. In this configuration, the blanks 100 are positioned in a vertical or substantially vertical plane. In an embodiment not illustrated, however, the feed direction A may be inclined at an angle to the horizontal plane, preferably an acute angle between 1° and 30°. In such a case, the stack P of blanks 100 is pushed towards the outfeed section 3 at least partly by gravity.

[0011] As represented schematically in Figures 1 and 2, the feed means 2 comprise at least a fixed bottom wall 12 delimiting at least part of a bottom side of the feed space.

[0012] At the outfeed section 3, there is at least one movable stop element 4 (of known type) disposed at a first end P1 of the stack (P) of blanks 100 and configured to allow or prevent picking up the front end blank from the stack P by a transfer device 200 (of known type) acting in conjunction with the feed means 2 to pick up single

blanks 100 from the first end P1 of the stack P and to transfer the single blanks 100 to a machine for further processing. In the embodiment illustrated, there are two movable stop elements 4 for each side of the stack P, applied on the same support 5 and operating respectively on an upper zone and a lower zone of the same lateral edge of the end blank 100.

[0013] In the context of this invention, however, the stop elements 4 may differ in number and/or location, provided always that they perform the same function of controlling the release of the end blank 100 to be picked up by the transfer device 200.

[0014] In addition or alternatively to the movable stop elements 4 at the outfeed section 3, there may also be provided at least one stop element 4a for blocking the feed movement of the stack P and positioned preferably in such a way as to intercept and block a lower part of the stack P, hence located at a position such that it is positioned upstream (or on the leading edge) of the end blank 100 along the trajectory of the transfer device 200. The stop element 4a may be fixed.

[0015] There may also be an additional stop element (not illustrated), preferably fixed, positioned in such a way as to intercept and block an upper part of the stack P.

[0016] Since the number of blanks 100 in the stack P varies over time as the transfer device 200 picks them up, the height of the stack P (in the feed direction) varies, thus varying the amount of the force F applied by the pushing device and/or by gravity in the direction of the stop element 4a. The force F, therefore, is not constant during the operation of the device 1. The feed means 2 also comprise at least one compensating belt 6 having an upper section 7 running parallel to the feed direction A of the stack P of blanks 100 and defining a bottom support of a predefined portion of the stack of blanks 100 so that the predefined portion of the stack P rests, preferably rests exclusively on, the upper section 7 of the compensating belt 6.

[0017] More specifically, the "predefined portion" of the stack P refers to the part of the stack P positioned on top of the upper section 7 of the compensating belt 6 and whose length, along the feed direction A, is constant over time. Preferably, the operating section 7 of the compensating belt 6 has a length L of between 20 and 40 cm (for example, 27 cm) along the feed direction A and/or ends at a distance d of between 10 and 15 cm (for example, 13 cm) from the end blank 100.

[0018] The upper section 7 of the compensating belt 6 is raised above the fixed bottom wall 12, so that the blanks 100 are not in sliding contact with the bottom wall 12 as they advance and are not therefore slowed by friction with the bottom wall 12.

[0019] More specifically, the operating section 7 of the compensating belt 6 lies in a plane (horizontal in the embodiment shown in the accompanying drawings but in any case preferably parallel to the bottom wall 12) is preferably at a height between 0.2 and 2 mm (for example, 0.5 mm) above the bottom wall 12.

[0020] Further, the compensating belt 6 is a suction belt connected to a source of pneumatic suction (not illustrated). In a preferred embodiment, the compensating belt 6 is provided with a plurality of through holes 8 configured to transmit the pneumatic suction and disposed along a feed direction A of the belt 6. Preferably, the holes are between 4 and 15 mm (for example, 8 mm) in diameter.

[0021] In an embodiment, the holes 8 are disposed along one or more rows parallel to the feed direction A of the compensating belt 6. In particular, in a preferred embodiment, the holes 8 are disposed along two rows parallel to the feed direction A, where the holes 8 of the first row are not completely aligned with the holes 8 of the second row, so that all the blanks 100 resting on the compensating belt 6 are subjected to suction.

[0022] The compensating belt 6 (which may be a toothed belt) is driven by a respective drive pulley 9, connected to a respective drive unit, not illustrated. Further, the compensating belt 6 is preferably made of a non-porous flexible material, specifically rubber or elastomeric material. Alternatively, the compensating belt 6 may be made of porous material, with or without the holes 8.

[0023] As shown in Figure 3, the device 1 further comprises, under the upper section 7 of the compensating belt 6, a suction support panel 10 configured in such a way that each hole 8 of the upper section 7 of the compensating belt 6 remains connected to the pneumatic suction source as the compensating belt 6 advances. The upper section 7 of the compensating belt 6 may be disposed in sliding support relationship on the support panel 10.

[0024] The support panel 10 is flat and is provided with at least one elongate recess 11 connected to the pneumatic suction source and aligned with a feed trajectory of the holes 8 so it is simultaneously connected to a plurality of holes 8.

[0025] The connection of the recess 11 to the suction source may be accomplished by providing the recess 11 with respective suction ports 11a, or holes, connected at the bottom to the pneumatic suction source. Preferably, the suction ports 11a are disposed in succession along the feed direction A, at a different spacing compared to the holes 8 of the compensating belt 6, specifically at a smaller spacing (Figure 4).

[0026] More in detail, the support panel 10 may have two or more elongate recesses 11 which, in that case, are separated from each other by a separating wall 11b whose size, along the feed direction A, is smaller than the diameter of the holes 8 of the compensating belt 6.

[0027] In the embodiment illustrated, as shown in Figure 2, the device 1 comprises two compensating belts 6 running side by side and disposed symmetrically about a longitudinal feed plane (perpendicular to the blanks) of the stack P of blanks 100. In other embodiments not illustrated, there may be only one compensating belt, disposed in a central or laterally offset position, or more than two compensating belts running side by side perpendicular to the feed direction A.

ularly to the feed direction A.

[0028] Advantageously, the compensating belt 6 is associated with adjustment means configured to adjust the feed speed of the compensating belt 6 in such a way as to vary the pushing action on the stop element 4a.

[0029] More specifically, the adjustment means comprise at least one thrust sensor (not illustrated) associated with the at least one stop element 4a and a control unit configured to vary the feed speed of the compensating belt 6, specifically by feedback, as a function of the thrust value measured by the at least one thrust sensor.

[0030] The control unit is preferably configured to keep the thrust value of the stack P of blanks 100 on the at least one stop element 4a constant, specifically at a predetermined or settable value.

[0031] The thrust sensor comprises, for example, an analogue sensor or a load cell, applied on at least one of the stop elements 4, 4a. In the case of two or more stop elements 4, 4a for each side, as in Figure 1, the thrust sensor is applied on at least on stop element: for example, the bottom one (preferred). Where the feed direction A is horizontal, however, it is preferable for each stop element 4, 4a to be associated with a respective thrust sensor.

[0032] The use of one or more compensating belts 6, as described above, allows ensuring that the pushing action applied in the feed direction by the stack P of blanks 100 on the end blank 100 is kept constant at an optimum value, compensating for any variations over time on account of the stack P getting shorter or longer: for example, when a new bundle of blanks 100 is added. Upstream of the compensating belt 6, the device 1 preferably comprises a support surface 16 which is configured to support the stack P of blanks 100 and above which there is a levelling device 13, configured and/or disposed to operate on a portion of the stack P of blanks 100 resting on the support surface 16 to push the single blanks 100 against the support surface 16 and aligns them with each other. Preferably, the configuration of the levelling device 13 is selected between a belt (embodiment shown in Figure 1), a roller or a fixed (elastically deformable) baffle.

[0033] The device 1 further comprises, between the compensating belt 6 and the stop element 4, 4a, at least one aligning belt 14 disposed and/or configured to come into local contact with an outfeed end stretch P2 of the stack P of blanks 100 and in such a way as to ensure that each blank 100 of the outfeed end stretch P2 is progressively aligned with a positioning plane, specifically by localized acceleration or deceleration performed by the aligning belt 14 on the blanks of the outfeed end stretch P2. That way, the aligning belt 14 has the effect of locally deforming the blanks 100 of the outfeed end stretch P2, specifically through local acceleration or deceleration performed by the aligning belt 14 so as to bring forward the rearmost zones of the blanks or to hold back the frontmost portions, thus causing the blanks 100 to gradually adopt a shape as planar as possible in a plane

perpendicular to the feed direction of the stack P (Figure 5).

[0034] More in detail, the aligning belt 14 has a respective drive device (not illustrated: a motor-driven pulley, for example) and is fed at a higher or lower speed than the feed speed of the stack P of blanks 100. Further, this feed speed is different, hence higher or lower, than the feed speed of the compensating belt 6.

[0035] In effect, the purpose of the aligning belt 14 is to come into contact with a perimeter portion of each blank 100 of the outfeed end stretch P2 of the stack P of blanks 100 so as to bring forward or hold back the perimeter portion relative to the rest of the blank 100 in order to reduce or eliminate curvatures or bulges in the blanks 100.

[0036] For example, where the blanks 100 of the outfeed end stretch P2 of the stack P of blanks 100 bulge forward - that is to say, have a backward facing concavity, where the lateral edges lag behind - the aligning belt 14 could compensate for the bulge by locally accelerating the lagging edge, thereby varying the positioning plane of the blank 100 so as to give the blank a "flatter" shape. Conversely, a backward bulge - that is to say, a blank 100 with a forward facing concavity, where the lateral edges are at the front - can be reduced or eliminated by slowing the aligning belt 14 that is in contact with the edges at the front.

[0037] For this purpose, the aligning belt 14 may be disposed below and/or beside the blanks 100 relative to their feed direction A and, in some cases, above them.

[0038] In the embodiment illustrated, there are two aligning belts 14 alongside each other, on opposite sides relative to the feed direction A, preferably further apart than the two compensating belts 6 so they are positioned on the "outer" sides of the compensating belts 6.

[0039] This configuration, shown in Figure 2, can advantageously serve to reduce or eliminate forward facing bulges of the blanks 100, specifically curvatures of the blanks about a substantially vertical axis (having the shape of a C in the plan view of Figure 5). In effect, the aligning belts 14 are in contact with lagging (laterally outermost) portions of the bottom edge of the blanks 100 and accelerating these portions would make the blanks 100 at the outfeed end P2 of the stack P adopt a flatter shape which makes them easier to be picked up by the transfer device 200.

[0040] Moreover, in the configuration of Figure 2, as also shown in Figure 1, the aligning belts 14 are preferably positioned under the stack of blanks and their respective upper sections 15 are parallel, preferably coplanar, with the upper sections 7 of the compensating belts 6.

[0041] Alternatively, in embodiments not illustrated, there may be (in addition or instead of one or more bottom aligning belts) one or more lateral aligning belts, mounted in such a way as to act on respective lateral portions of the outfeed end section P2 of the stack P of blanks 100. This makes it possible to locally accelerate or "brake"

one or more corresponding lateral edges of the blanks 100. In such a situation, the lateral aligning belt has a lateral operating section positioned parallel to the feed direction A of the stack P of blanks 100 and defining a lateral support for the end portion P2, so that the latter laterally abuts the lateral operating section of the aligning belt to support it, preferably to exclusively support it. More specifically, it has been noted that the use of two or more aligning belts 14 is advantageous in the case of blanks 100 made of recycled or thin card material which tend to bend, hence bulge, more easily, whilst the use of a single aligning belt 14 is recommended in the case of material of non-uniform thickness (for example, a stack of blanks with labels on them, hence thicker where the labels are). The aligning belt 14 may act on a respective side or perimeter portion of the blanks 100 which the stop element 4 does not act on. In other words, the aligning belt 14 and the stop element 4 act on respective, different sides or perimeter portions of the blanks 100, so as not to interfere with each other. Alternatively, the aligning belt 14 and the stop element 4 may act on the same sides or perimeter portions of the blanks 100.

[0042] Irrespective of the position of the aligning belt 14, the operating section (in contact with the blanks 100, specifically at the bottom, side, or top thereof) of the aligning belt 14 has a length l of between 15 and 45 mm (for example, 30 mm) and terminates preferably at the end blank 100 or in the proximity thereof.

[0043] Preferably, also, the aligning belt 14 acts on a different stretch or section of the stack P of blanks 100 than the compensating belt 6, specifically further downstream thereof. The compensating and aligning actions do not interfere with each other but take place at different positions and instants. Alternatively, the aligning belt 14 and the compensating belt 6 might be partly opposite to each other in the direction orthogonal to the feed direction A. In that case, a part of the blanks might be subjected simultaneously to the compensating and aligning action.

[0044] In a preferred embodiment, the aligning belt 14 is made of flexible, preferably non-porous material, specifically rubber or elastomeric material, and may be a toothed belt.

[0045] Further, the aligning belt 14 may have a porous and/or perforated configuration to act as a suction belt or, alternatively, it may be a non-suction belt acting on the blanks 100 only by friction.

[0046] The feed speed of the aligning belt 14 may be adjusted by feedback as a function of the shape of the blanks (detected, for example, by sensors, optical sensors, for example) or, alternatively, it may be kept constant at a predetermined or presettable value.

[0047] In use, as the stack P of blanks 100 advances, the thrust sensor detects the instantaneous pushing action applied by the stack P on the respective stop element 4 and sends a corresponding signal to the control unit which, based on the value transmitted with the signal, instantaneously corrects the feed speed of the compensating belt 6 by actuating the drive unit of the belt 6 ac-

cordingly. More specifically, the control unit may compare the value of the pushing action measured and a predetermined or presettable reference value and, based on the comparison, determines the extent of the corrective action to be applied to the feed speed of the compensating belt 6.

[0048] At the same time, the blanks of the end stretch P2 of the stack P are operated on by the aligning belt 14 which is, for example, set to a feed value determined as a function of the corrective action to be applied on the shape of the blanks 100, specifically to locally vary the speed of a peripheral zone of the blanks 100 of the end stretch P2, in such a way as to locally deform the blanks 100, varying the geometry of the positioning plane to compensate the curvature or bulging of the blanks. The feed speed of the aligning belt 14 is thus selected in such a way that it is greater than or less than the feed speed of the stack P of blanks 100.

[0049] The inventive concept of this invention includes variant embodiments which are not specifically described or illustrated in the drawings but which, nevertheless, do not depart from the scope of the inventive concept. By way of an example, the aligning action might be accomplished not by one or more aligning belts but by one or more generic aligning means configured to locally accelerate or decelerate a peripheral zone of the blanks 100. For example, a different embodiment of the aligning means might be an aligning wheel or roller whose axis is transverse or perpendicular to the feed direction A of the stack P of blanks.

[0050] Also imaginable according to the invention are solutions comprising at least one compensating means (or belt) but without aligning means or belts. The present invention achieves the preset aims, overcoming the disadvantages of the prior art.

[0051] In effect, the action of the compensating belts allows keeping constant the thrust applied by the stack of blanks on the end blank (hence on the stop element), ensuring the optimum conditions for the transfer device to pick up the blanks. Moreover, the suction applied by the compensating belt allows removing the air between the blanks above, which are thus made to adhere more closely to each other to form a compact block of blanks. This compact block, held by the suction of the compensating belt, also acts as a "screen" against the variable pushing action of the trailing end of the stack of blanks, thereby making the pushing action applied on the end blank (hence on the stop element) even more uniform.

[0052] Moreover, the action of the aligning belts allows stabilizing the shape of the blanks in the proximity of the transfer device (making them flatter), thereby increasing the reliability with which the single blanks at the end of the stack are picked up.

Claims

1. A device for feeding blanks (100) to a machine for

further processing in particular to a packing machine, comprising:

- feed means (2) for feeding a stack (P) of blanks (100) disposed in succession in a superposed configuration;
- at least one stop element (4) disposed at a first end (P1) of the stack (P) of blanks (100) and configured to retain the stack (P) of blanks (100);

wherein the feed means (2) are configured to feed the stack (P) of blanks (100) in such a way that the stack (P) of blanks (100) is subjected to a pushing action (F) in the direction of the at least one stop element (4, 4a), in particular by gravity and/or by means of a pushing member applied to a second end of the stack (P), opposite to the first end (P1); **characterized in that** the feed means (2) also comprise at least one compensating belt (6) having an upper section (7) running parallel to the feed direction (A) of the stack (P) of blanks (100) and defining a bottom support of a predefined portion of the stack (P) of blanks (100) so that the predefined portion of the stack (P) rests, preferably rests exclusively on, the upper section (7) of the at least one compensating belt (6), and **in that** the compensating belt (6) is a suction belt connected to a pneumatic suction source and is associated with adjustment means configured to adjust the feed speed of the compensating belt (6) in such a way as to vary the thrust on the stop element (4).

2. The device according to claim 1, wherein the adjustment means comprise at least one thrust sensor associated with the at least one stop element (4, 4a) and a control unit configured to vary the feed speed of the compensating belt (6), specifically by feedback, as a function of the thrust value measured by the at least one thrust sensor.
3. The device according to claim 2, wherein the control unit is configured to keep the thrust value of the stack (P) of blanks (100) on the at least one stop element (4, 4a) constant, specifically at a predetermined or settable value.
4. The device according to one or more of the preceding claims, wherein the operating section (7) of the compensating belt (6) has a length (L) of between 20 and 40 cm and/or ends at a distance (d) of between 10 and 15 cm from the end blank (100).
5. The device according to one or more of the preceding claims, wherein the compensating belt (6) has a plurality of though holes (8) configured to transmit the pneumatic suction and disposed along a feed direction (A) of the compensating belt (6).

6. The device according to claim 5, wherein the holes (8) are disposed along one or more rows parallel to the feed direction of the compensating belt (6).
7. The device according to claim 5 or 6, further comprising, under the upper section (7) of the compensating belt (6), a suction support panel (10) configured in such a way that each hole (8) of the upper section (7) of the compensating belt (6) remains connected to the pneumatic suction source as the compensating belt (6) advances.
8. The device according to claim 7, wherein the support panel (10) is flat and is provided with at least one elongate recess (11) connected to the pneumatic suction source, the elongate recess (11) being aligned with a feed trajectory of the holes (8) of the upper section (7) of the compensating belt (6) in such a way that it is simultaneously connected to a plurality of the holes (8).
9. The device according to claim 8, wherein the support panel (10) is provided with at least two elongate recesses (11) aligned along the feed direction (A) and separated from each other by a wall (11b) whose size, along the feed direction of the compensating belt (6) is smaller than the diameter of the holes (8).
10. The device according to one or more of the preceding claims, wherein the feed means (2) define a feed space for feeding the stack (P) of blanks (100) and comprise a fixed bottom wall (12) delimiting at least part of a bottom side of the feed space, and wherein the upper section (7) of the compensating belt (6) lies in a plane at a higher level than the bottom wall (12).
11. The device according to one or more of the preceding claims, wherein the compensating belt (6) is a belt made of a flexible, preferably non-porous material, specifically rubber or elastomeric material.
12. The device according to one or more of the preceding claims, comprising two or more compensating belts (6) running side by side, preferably a pair of compensating belts (6) disposed symmetrically about a longitudinal feed plane of the stack (P) of blanks (100).
13. The device according to one or more of the preceding claims, further comprising a flat support surface (16) for supporting the stack (P) of blanks (100), disposed upstream of the at least one compensating belt (6), and a levelling element (13) configured and/or disposed to operate on a stretch of the stack (P) of blanks (100) disposed on top of the flat support surface (16) in order to push the individual blanks (100) against the flat support surface (16) so as to line

them up with each other, the levelling element (13) being preferably selected between a belt, a roller or fixed baffle.

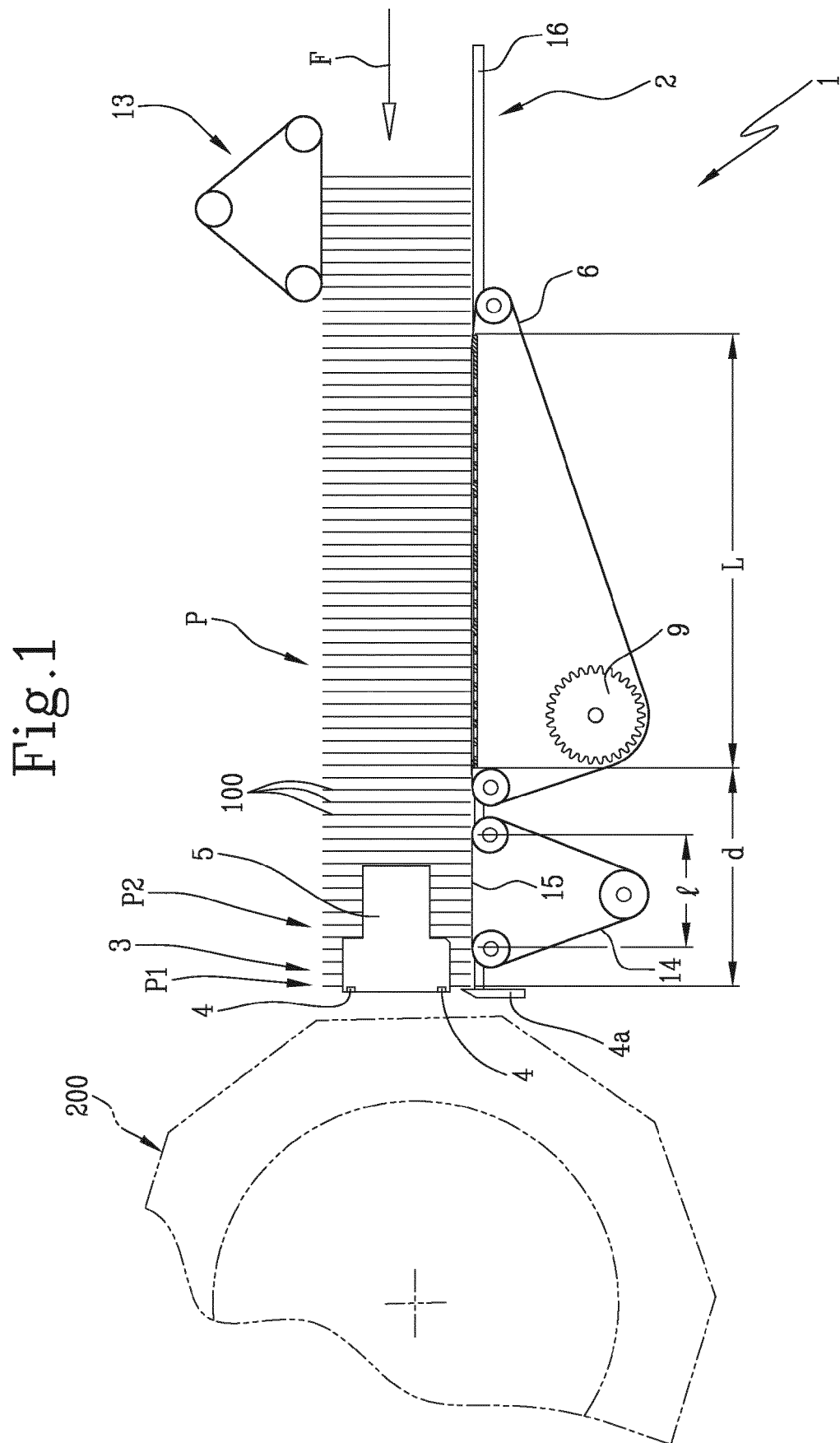
14. The device according to one or more of the preceding claims, further comprising, between the at least one compensating belt (6) and the at least one stop element (4, 4a), at least one aligning belt (14) disposed and/or configured to come into local contact with an outfeed end stretch (P2) of the stack (P) of blanks (100) and in such a way as to ensure that each blank (100) of the outfeed end stretch (P2) is progressively aligned with a positioning plane, specifically by localized acceleration or deceleration performed by the aligning belt (14).
15. The device according to claim 14, wherein the aligning belt (14) has at least one movable portion designed to come into contact with the blanks (100) of the outfeed end stretch (P2) and having a speed component along a feed direction of the stack (P), and wherein the aligning belt (14) is associated with a respective motor configured to move the movable portion of the aligning belt (14) at a higher or lower speed than the stack (P) of blanks (100) and/or higher or lower than the feed speed of the compensating belt (6).
16. The device according to claim 14 or 15, wherein the at least one aligning belt (14) is disposed under the stack (P) of blanks (100) and has a respective upper section (15) which is parallel and preferably coplanar with the upper section (7) of the at least one compensating belt (6).
17. The device according to claim 14 or 15, wherein the at least one aligning belt (14) is disposed in such a way as to act on a respective side portion of the outfeed end stretch (P2) of the stack (P) of blanks (100).
18. A method for feeding blanks to a machine for further processing, in particular to a packing machine, and preferably using a device (1) according to one or more of the preceding claims, comprising the following steps:

- feeding a stack (P) of blanks (100) disposed in succession in a superposed configuration along a feed direction (A) towards a stop element (4, 4a);

wherein the stack (P) of blanks (100) is subjected to a pushing action (F) in the direction of the at least one stop element (4, 4a), in particular by gravity and/or by means of a pushing member applied to a second end of the stack (P) of blanks (100), opposite to the first end (P1); **characterized in that** the step of feeding the stack (P) of blanks (100) along the

feed direction (A) is accomplished with the aid of at least one compensating belt (6) having an upper section (7) running parallel to the feed direction (A) of the stack (P) of blanks (100) and defining a bottom support of a predefined portion of the stack (P) of blanks (100) so that the predefined portion of the stack (P) of blanks (100) rests, preferably rests exclusively on, the operating section (7) of the at least one compensating belt (6), and **in that** the compensating belt (6) is a suction belt connected to a pneumatic suction source and has a feed speed which is adjusted in such a way as to vary the thrust on the stop element (4, 4a).

19. The method according to claim 18, wherein the feed speed of the compensating belt (6) is adjusted, specifically by feedback, as a function of a thrust value measured by at least one thrust sensor associated with the at least one stop element (4, 4a), preferably in such a way as to keep the thrust value measured by the thrust sensor preferably constant, and more preferably at a predetermined or presettable value.



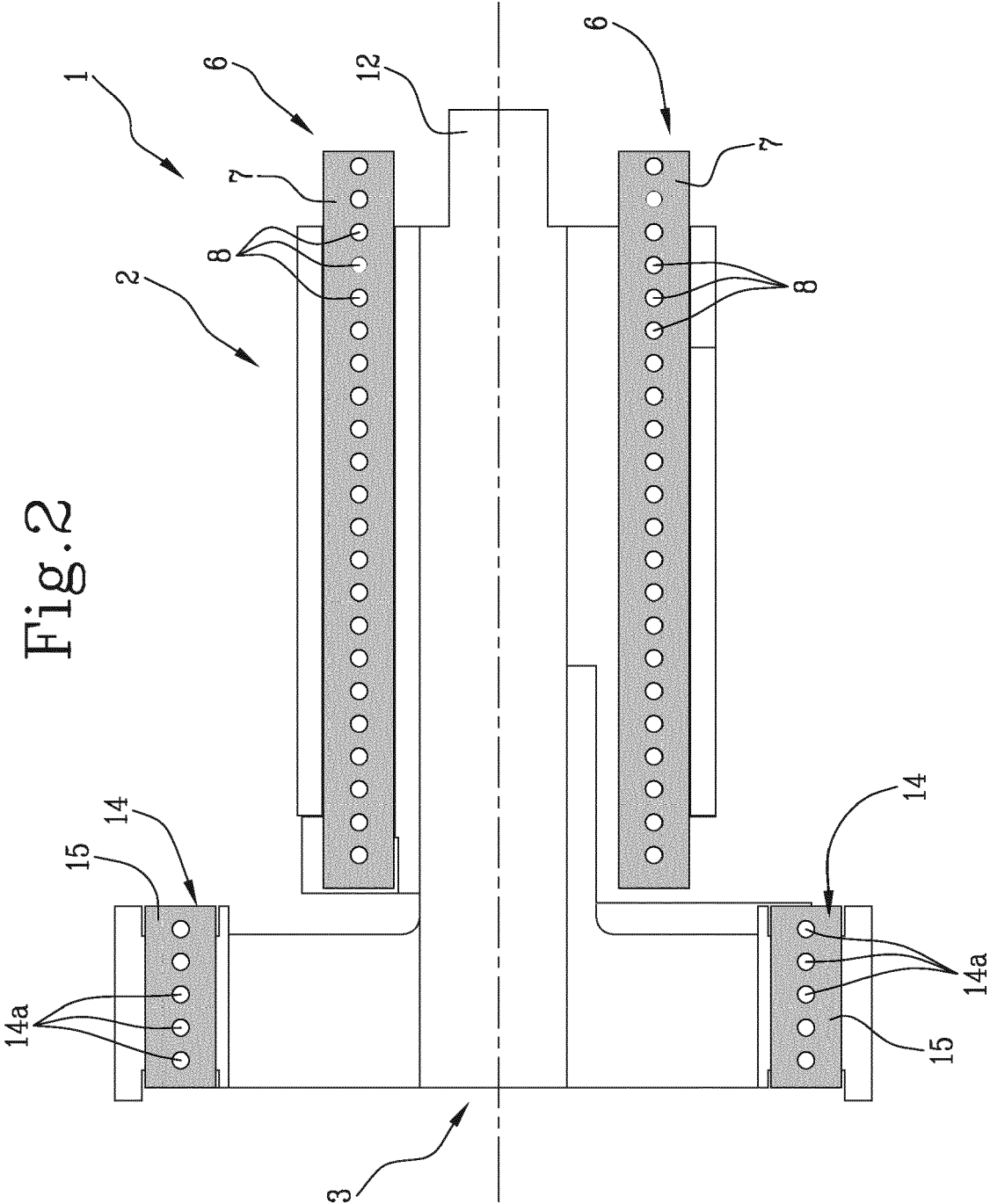


Fig.3

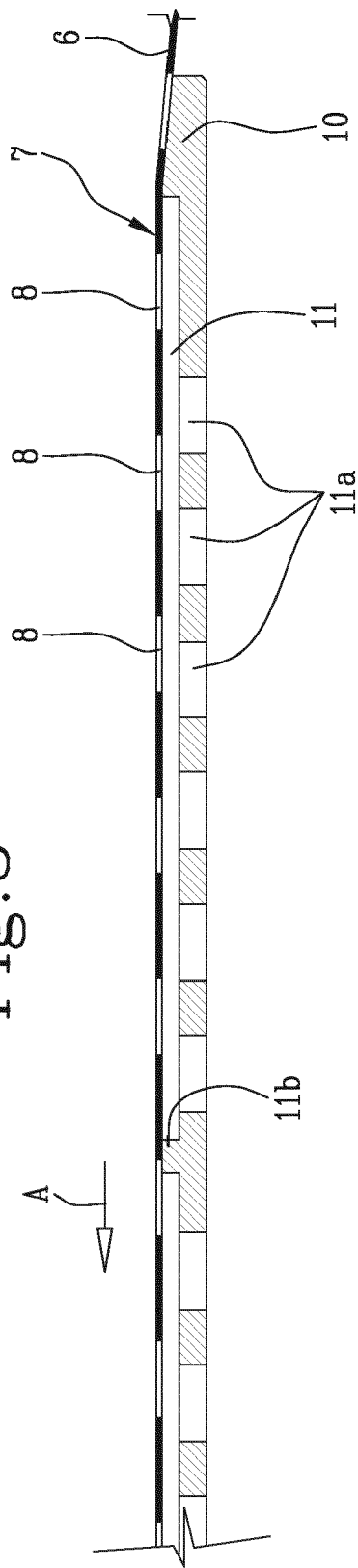


Fig.4

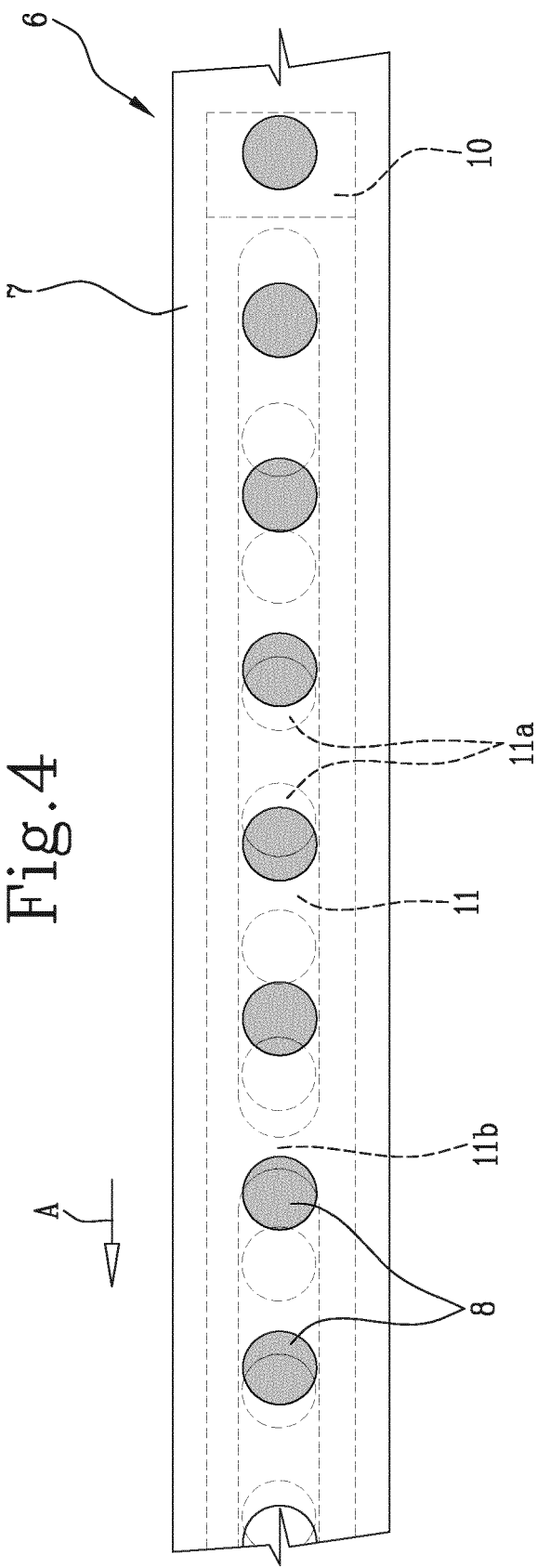
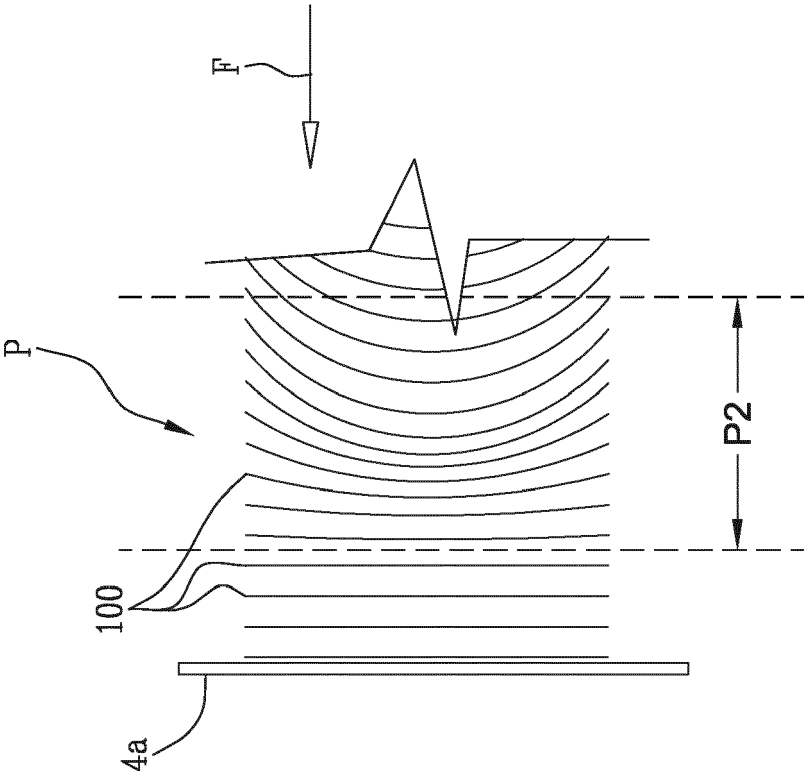


Fig.5





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