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(54) DEVICE FOR MANUFACTURING A SHRINK SLEEVE LABEL

VORRICHTUNG ZUR HERSTELLUNG EINES SCHRUMPFSCHLAUCHETIKETTS

DISPOSITIF POUR FABRIQUER UNE ÉTIQUETTE-MANCHON RÉTRACTABLE

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Description

Technical Field

[0001] The present invention relates to a device for manufacturing a shrink sleeve label.

Background Art

[0002] Nowadays apparatuses are widely known for carrying out the continuous labeling of containers, such as bottles or the like, which allow the containers to be labeled with sleeve-like labels, also known as "shrink sleeve" labels, made of polymeric heat-shrink material.

[0003] Specifically, sleeve-like labels are fitted over the containers, which are subsequently sent to a heating station to bring about the shrinkage of the sleeve-like labels on the outside surface of the container, so as to subsequently take on its shape.

[0004] In general, apparatuses of this type are constituted by a carousel, which is rotatable about a substantially vertical axis of rotation and which has, along its peripheral region, a plurality of support pans for respective containers to be labeled which are supplied by a belt feeder and which are then sent, after a partial rotation of the carousel about its axis, to the heating station by means of a special conveyor.

[0005] In a first type of known apparatus of this sort, there is a station for feeding the sleeve-like labels, which is separate from the carousel and provided with a supporting roller for a roll of a flat tubular element made from a printed film of heat-shrink material. Downstream of the supporting roller, there are means for cropping the tubular element which produce, sequentially, the sleeve-like labels to be applied on the containers positioned on the carousel.

[0006] In another type of known apparatus, the sleeve-like labels are produced directly on the carousel by winding portions of a film around a spindle, which is positioned above a respective pan of the carousel. The portions of printed film that are wrapped by the spindles are obtained by taking a continuous film from a reel and cutting it to measure by cutting means that are associated with reading means adapted to detect, along the length of the continuous film, suitable graphic signs or "markers" which identify the areas of the continuous film at which to make the cut.

[0007] Once the winding of the portions of film onto the respective spindle is completed, such spindle is brought, pulled by the rotation of the carousel about its axis, to a heat-sealing device which "welds" the two opposite flaps of the portions of film together, in such a way as to produce the sleeve-like label, which is then, finally, fitted over the container to be labeled.

[0008] In some cases, the heat-sealing device is associated with each spindle and rotates together with such spindle.

[0009] In some cases it is useful to provide, on the

sleeve-like label, easy-break portions in order to allow the user to easily remove the label from the container, so as to be able to separately dispose of the container and the label removed therefrom, in differentiated waste collection.

[0010] First types of apparatuses for providing easy-break portions are known, which are combined with labeling devices wherein the sleeve-like labels are unwound from a roll of a flat tubular element made from a film of heat-shrink material.

[0011] In this case, these apparatuses are typically made from perforation rollers which have an axis of rotation substantially perpendicular to the direction of unwinding of the flat tubular element from the respective reel so as to produce respective easy-break portions that are substantially parallel to the unwinding axis of the tubular element and, consequently, parallel to the axis of the sleeve-like label.

[0012] Alternatively, apparatuses are known which can be associated with labeling devices that use forming spindles in which the easy-break portions are obtained using similar means.

[0013] In this case however, the perforation rollers engage the heat-shrink film before it is cut and transferred to the respective forming spindle, or when the portion has been cut but not yet transferred to the spindle and, as a consequence of this, the easy-break portions thus obtained run transversely to the axis of the sleeve-like label. US 5415721 A discloses a device according to the preamble of claim 1. WO 97/20694 A1 discloses a label sleeve having an easy-break perforation.

[0014] As of today no apparatuses are known which make it possible to provide easy-break portions that are substantially parallel to the axis of the sleeve-like label to be associated with labeling devices that use forming spindles.

Disclosure of the invention

[0015] The aim of the present invention is to solve the above-mentioned problem, by providing a device for manufacturing a sleeve-like label which is extremely reliable in operation.

[0016] Within this aim, an object of the invention is to provide a device for manufacturing a sleeve-like label which is capable of offering wide-ranging guarantees of safety in use.

[0017] Another object of the present invention is to provide a device for manufacturing a sleeve-like label which is simple in terms of construction, so that it is advantageous also from a purely economic viewpoint.

[0018] This aim, as well as these and other objects which will become more evident hereinafter, are achieved by a device for manufacturing a sleeve-like label as well as the associated method for manufacturing a sleeve-like label as identified in the subsequent independent claims.

Brief description of the drawings

[0019] Further characteristics and advantages of the invention will become more apparent from the detailed description that follows of a preferred, but not exclusive, embodiment of the device according to the invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a schematic side view of a device for manufacturing sleeve-like labels;

Figure 2 is a front view of the device for manufacturing sleeve-like labels shown in Figure 1;

Figure 3 is a schematic sectional view of the device for manufacturing labels, taken along the line III-III of Figure 1;

Figure 4 is an enlarged scale view of the region of contact between the perforation device and the band of film wrapped around the forming spindle;

Figure 5 is a perspective view of a possible embodiment of the perforation device;

Figures 6 to 8 show, in sequence, and in sectional views taken along a plane perpendicular to the axis of rotation of the forming spindle, the relative motion steps between the forming spindle around which the band of film is wrapped upon which to provide the easy-break portion and the perforation device;

Figure 9 is a schematic plan view of a device according to the invention;

Figure 10 is a cross-section, enlarged scale view of a forming spindle around which a band of film is wrapped.

Ways of carrying out the invention

[0020] With reference to the figures, a device, generally indicated with the reference numeral 1, for manufacturing a sleeve-like label 2, comprises at least one supply reel 3 which is designed to feed to at least one forming spindle 4 a band of heat-shrink film 5.

[0021] In particular, there are means of wrapping the band of heat-shrink film 5 around the lateral surface 4a of the, or of each, respective forming spindle 4, which are designed to provide a region of overlap 8 between a first longitudinal end 5a of the band of heat-shrink film 5 in contact with the forming spindle 4 and the second longitudinal end 5b of the band of heat-shrink film 5.

[0022] The device 1 has, moreover, means 11 for heat-sealing the first longitudinal end 5a to the second longitudinal end 5b of the band of heat-shrink film 5 which is wrapped around the forming spindle 4 in order to provide a connecting portion at the overlap region 8.

[0023] The device 1 comprises means 9 for transferring the sleeve-like label 2 from the, or from each, forming spindle 4 to a container 10 to be labeled.

[0024] According to the present invention, the device 1 comprises, upstream of the transfer means 9, a perforation device 20 designed to make contact with the band

of heat-shrink film 5 wrapped around the respective forming spindle 4 so as to provide at least one easy-break portion 21 that runs substantially parallel to the axis 101 of the forming spindle 4 and, consequently, of the sleeve-like label 2 wrapped around it.

[0025] In particular, the device 1 has means 22 for relative movement between the, or between each, forming spindle 4 and the perforation device 20, these means 22 being adapted to provide, during contact between the perforation device 20 and the band of heat-shrink film 5 wrapped around the forming spindle 4, a rolling motion without sliding of the forming spindle 4, and, consequently, of the band of film 5 wrapped around it, on the perforation device 20 (as clearly shown in the sequence represented in Figures 6 to 8).

[0026] According to a preferred embodiment, the device 1 comprises a supporting frame 30 for a carousel 31 which can rotate about an axis of rotation 100 and is designed to support, peripherally, the forming spindle 4, which is, in particular, arranged with its axis 101 substantially parallel to the axis of rotation 100 of the carousel 31.

[0027] In this case, with specific reference to the time sequence shown in Figures 6 to 8, the relative movement means 22 comprise a device for the rotary actuation 22a of the forming spindle 4 about its axis 101 so as to eliminate, during the step of contact between the perforation device 20 and the band of heat-shrink film 5 wrapped around the respective forming spindle 4, the effect of rotation of the forming spindle 4 about the carousel 31 and, therefore, along the curved path 200 indicated in the figures with a dotted line.

[0028] Advantageously, the carousel 31 supports, peripherally, a plurality of forming spindles 4.

[0029] With specific reference to the accompanying figures, in the present description the device 1 provides, as previously mentioned, the use of the carousel 31, which can rotate about its substantially vertical axis of rotation 100 and is designed to support the containers 10 to be labeled, during the process of applying the sleeve-like labels 5.

[0030] However, there is no reason why the subject matter of the present invention could not be applied on a different structure such as, for example, linear labeling apparatuses.

[0031] More precisely, the carousel 31 is subjected to rotation, with respect to the supporting frame 30, about its axis of rotation 100, in a direction of rotation indicated in the figures with the letter A.

[0032] Along its peripheral region, the carousel 31 has a plurality of applicator elements constituted, as previously mentioned, by respective forming spindles 4, which are designed to transfer a respective sleeve-like label 2 formed thereon onto the outer surface 10a of at least one container 10 to be labeled, which is also supported by the carousel 31.

[0033] Conveniently, the containers 10 to be labeled are fed to the carousel 31 by a belt feeder, while a conveyor takes the labeled containers 10 from the carousel

31 to bring them to a heating station (not shown in the figures), so as to achieve the heat-shrinking of the sleeve-like labels 2 which thus take on the outside shape of the container 10 over which they are fitted.

[0034] Advantageously, between the belt feeder and the carousel 31 there is an entry feed wheel 8, the function of which is to convey the containers 10 to be labeled to the carousel 31. Similarly, between the carousel 31 and the conveyor there is an exit feed wheel, the function of which is to remove the labeled containers 10 from the carousel 31 and transfer them to the conveyor.

[0035] Furthermore, on the device 1 feeder means are provided, which will be described in detail below and are adapted to make the bands of heat-shrink film 5 available to the respective forming spindles 4.

[0036] According to a preferred embodiment, the perforation device 20 comprises a first group 20a of perforation bodies 23, which are mutually spaced along a direction 102a that is substantially parallel to the axis 101 of the forming spindle 4.

[0037] Conveniently, the perforation device comprises at least one second group 20b of perforation bodies 23 which lies in a direction 102b parallel to the direction 102a along which the first group 20a of perforation bodies 23 lies.

[0038] In this way it is possible to obtain, on the sleeve-like label 2, two easy-break portions 21 which are arranged mutually spaced and parallel to the axis 101 of the forming spindle.

[0039] According to a preferred embodiment, the perforation device 20 is integral with the supporting frame 30.

[0040] In this regard, the perforation device 20 can be supported, advantageously so that it can be removed, by an upright member 33 which in turn is associated, as shown in Figures 1 and 2, with the supporting frame 30.

[0041] Conveniently, between the supporting frame 30 and the perforation device 20 there are means for adjusting the relative position of the perforation device 20, and more specifically of the group or groups of perforation bodies 23, with respect to the supporting frame 30, and, therefore, with respect to the curved path 200 followed by the axes 101 of the forming spindles 4 about the axis of rotation of the carousel 31.

[0042] These adjusting means can be implemented by one or more collars 34 for locking the perforation device 20 along the extension of the upright member 33 and, optionally, by a linear adjustment rail, which is perpendicular to the axis 101 of the forming spindles and, advantageously, passes through the axis of rotation 100 of the carousel 31.

[0043] The linear adjustment rail is, in particular, defined on a supporting block 35 and can be engaged, conveniently, by a sliding element 36 which supports the group or groups of perforation bodies 23.

[0044] The locking in position of the sliding element 36 with respect to the supporting block 35 can be performed by means of a tightening handle 37.

[0045] There is no reason why interface means could

not be interposed between the perforation device 20 and the supporting frame 30, such as for example pneumatic bearings which are designed to allow a controlled shift of the perforation device 20 with respect to the supporting frame 30 in the event of unexpected contact with the forming spindle 4.

[0046] According to a particularly important aspect of the invention, the forming spindle 4 comprises at least one longitudinal groove 4b which extends in the region designed to face the portion of the band of film 5, or of the sleeve-like label 2, if already formed, which is designed to make contact with the perforation device 20 so as to provide the respective easy-break portions 21.

[0047] The presence of the longitudinal groove or grooves 4b enables the perforation device 20 to penetrate the thickness of the bands of heat-shrink film 5 or of the sleeve-like labels 2 with extremely high precision and great ease.

[0048] Advantageously, the perforation device 20 is positioned downstream of the heat-sealing means 11. In this way, the pressure of the perforation bodies 23 does not cause a sliding of the band of film 5 on the forming spindle 4.

[0049] With reference to the scheme shown in Figure 9, the means of feeding the bands of heat-shrink film 5 to the forming spindles 4 comprise cutting means 14, which are designed to cut the film 13 unwound from the reel 3, so as to make the bands of film 5, which are subsequently used to form the sleeve-like labels 2.

[0050] As shown in Figure 9, a transfer drum 18 can be provided which is rotatable about a respective axis of movement 102 according to a direction of rotation, indicated by the letter C, that is opposite to the direction of rotation A of the carousel 2.

[0051] According to a practical embodiment, the transfer drum 18 has, in a manner that is in and of itself known, a cylindrical side wall on which a plurality of holes are formed that are connected to a pneumatic device adapted to aspirate air into the transfer drum 18 or to expel air from the transfer drum 18, through such holes, as a function of the angular position assumed by such holes, during the rotation of the transfer drum 18, with respect to the axis of movement 102.

[0052] In practice, by means of the aspiration of air through the holes it is possible to keep the portions of film 15, obtained one at a time with the cutting means 14, in adherence to the cylindrical side wall of the transfer drum 18 and, by means of the expulsion of air from the transfer drum 18, it is possible to detach the portions of film 15 from the cylindrical side wall of the transfer drum 18 in order to allow them to be brought onto the forming spindles 4, which are located downstream of the transfer drum 18 and arranged along the peripheral region of the carousel 31, above the containers 10 to be labeled.

[0053] As previously explained, for completing the fabrication of the sleeve-like labels 2, there are means 11 for heat-sealing which carry out the bonding of the opposite flaps 5a, 5b of the portions of film 5 which are

wrapped by the forming spindles 4 of the carousel 31.

[0054] For the purposes of example, the heat-sealing means 11 can be of the ultrasound type, as described in patent application no. WO2004/020291, or of the laser type, as described in patent application no. WO2007/031502.

[0055] The spindles 4 are actuated so as to rotate about their corresponding axis 101 to wrap the portions of film 5 taken from the transfer drum 18 around their outside surface 4a.

[0056] In order to ensure an optimal adherence of the portions of film 5 to the lateral surface 4a of the forming spindles 4, there are means of aspiration of air through a plurality of openings defined on the outer surface of the forming spindles 4.

[0057] For completeness of description, it should be noted that the forming spindles 4 have, in a manner that is in and of itself known, means 9 of sending the sleeve-like labels 2 to the containers 10.

[0058] The sending means 9 can for example be constituted by a thrust ring that is designed to be coaxially moved towards a respective forming spindle 4 in order to push the sleeve-like label 2 that is wrapped around it towards the container 10 to be labeled which is positioned below the forming spindle 4.

[0059] To facilitate this operation, it is advisable to interrupt the action of the aspiration means operating on the forming spindle 4 and to activate means of expulsion of air from its openings located on its outer surface, so as to obtain a detachment of the sleeve-like label 2 from the outer surface 4a of the forming spindle 4 over which it is fitted.

[0060] In practice, by means of the device 1 according to the invention it is possible to perform a method for labeling containers with sleeve-like labels, which involves, essentially, a step of feeding at least one band of heat-shrink film 5 to a forming spindle 4, possibly situated in the peripheral region of the carousel 31, and a step of transferring the sleeve-like label 2 formed around the forming spindle 4 onto a container 10 supported by the device 1 and, in the specific case, by the carousel 31.

[0061] The distinctive characteristic of such method consists in the fact that it involves a step of perforation of at least one portion of the sleeve-like label 2, or of the band of heat-shrink film 5 wrapped around the forming spindle 4, before the aforementioned step of transferring it to the container to be labeled 10.

[0062] In particular, this perforation step makes it possible to provide at least one easy-break portion 21 which extends parallel to the axis 101 of the respective forming spindle 4.

[0063] According to a preferred embodiment of the method, the aforementioned perforation step involves a step of relative movement between the forming spindle 4 and a perforation device 20 so as to provide, during contact between the perforation device 20 and the band of heat-shrink film 5 wrapped around the forming spindle 4, a rolling motion without sliding of the forming spindle

4 on the perforation device 20.

[0064] In particular, the forming spindle 4 is arranged, with its axis 101, substantially parallel to the axis of rotation 100 of the carousel 31.

[0065] The relative motion step is performed by means of the rotary actuation of the forming spindle 4 about its own axis 101 so as to eliminate, during the phase of contact between the perforation device 20 and the band of heat-shrink film 5 wrapped around the respective forming spindle 4, the effect of rotation of the forming spindle 4 around the carousel 31.

[0066] The method according to the invention can, furthermore, execute the following operations: a step of unwinding a film 13 from a reel 12; a step of cutting the film 13 to sequentially obtain the bands of heat-shrink film 5 designed to provide the sleeve-like labels 2; a step of wrapping each one of the bands of film 5 around a respective forming spindle 4 which is supported by the peripheral region of the carousel 31 so that it can rotate about its own axis 101; a step of heat-sealing the longitudinal edges 5a and 5b of the band of heat-shrink film 5 in order to provide the sleeve-like label 2; lastly, a step of transferring the formed sleeve-like label 2 to the outer surface 10a of a container to be labeled 10.

[0067] In particular, the perforation step is executed between the step of wrapping the band of heat-shrink film 5 around the respective forming spindle 4 and the step of transferring the formed sleeve-like label 2 to the container to be labeled 10.

[0068] Advantageously, the perforation step is carried out after the sealing step.

[0069] In practice it has been found that in all the embodiments the invention is capable of fully achieving the set aim and objects.

[0070] In particular, the device 1 makes it possible to provide, on sleeve-like labels 2 formed on a forming spindle 4, easy-break portions 21 which extend parallel to the axis 101 of the forming spindle and, therefore, to the longitudinal axis of the sleeve-like label 2 formed.

[0071] All the characteristics of the invention, indicated above as advantageous, advisable or similar, may also be missing or be substituted by equivalent characteristics.

[0072] The individual characteristics set out with reference to general teachings or to specific embodiments may all be present in other embodiments or may substitute characteristics in such embodiments.

[0073] The invention thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims.

[0074] In practice the materials employed, provided they are compatible with the specific use, as well as the dimensions and the shapes, may be any according to requirements.

[0075] Moreover, all the details may be substituted by other, technically equivalent elements.

[0076] Where the technical features mentioned in any claim are followed by reference numerals and/or signs,

those reference numerals and/or signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference numerals and/or signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference numerals and/or signs.

Claims

1. A device (1) for manufacturing a sleeve-like label (2), comprising at least one supply reel (3) designed to feed to at least one forming spindle (4) a band of heat-shrink film (5) and means for wrapping said band of heat-shrink film (5) around the lateral surface (4a) of said forming spindle (4) which are adapted to provide a region of overlap (8) between a first longitudinal end (5a) of said band of heat-shrink film (5) in contact with said forming spindle (4) and the second longitudinal end (5b) of said band of heat-shrink film (5), means (11) being provided for heat-sealing said first longitudinal end (5a) to said second longitudinal end (5b) of said band of heat-shrink film (5) wrapped around said forming spindle (4) to provide a connecting portion (13) at said overlap region (8), and means (9) for transferring said sleeve-like label (2) from said forming spindle (4) to a container to be labeled (10), **characterized in that** it comprises, upstream of said transfer means (9), a perforation device (20) designed to make contact with the band of heat-shrink film (5) wrapped around said forming spindle (4) so as to provide at least one easy-break portion (21) which extends substantially parallel to the axis (101) of said forming spindle (4), means (22) being provided for relative movement between said forming spindle (4) and said perforation device (20) which are adapted to provide, during contact between said perforation device (20) and the band of heat-shrink film (5) wrapped around said forming spindle (4), a rolling motion without sliding of the forming spindle (4) on the perforation device (20).
2. The device (1) according to claim 1, **characterized in that** it comprises a supporting frame (30) for a carousel (31) which can rotate about a rotation axis (100) and is designed to support peripherally said at least one forming spindle (4), which is arranged so that its own axis (101) is substantially parallel to said rotation axis (100) of the carousel (31), said relative movement means (22) comprising a device for the rotary actuation (22a) of said forming spindle (4) about its own axis (101) to eliminate, during the phase of contact between said perforation device (20) and said band of heat-shrink film (5) wrapped around the respective forming spindle (4), the effect of the rotation of said forming spindle (4) around said carousel (31).
3. The device (1) according to claim 2, **characterized in that** said carousel (31) supports peripherally a plurality of said forming spindles (4).
4. The device (1) according to one or more of the preceding claims, **characterized in that** said perforation device (20) comprises a first group (20a) of perforation bodies (23), which are mutually spaced along a direction (102a) which is substantially parallel to the axis (101) of said at least one forming spindle (4).
5. The device (1) according to claim 4, **characterized in that** said perforation device (20) comprises at least one second group (20b) of perforation bodies (23), which lies parallel to said first group (20a) of perforation bodies (23).
6. The device (1) according to claim 2, **characterized in that** said perforation device (20) is jointly connected to said supporting frame (30).
7. The device (1) according to one or more of the preceding claims, **characterized in that** said forming spindle (4) comprises at least one longitudinal groove (4b) which extends at the region designed to face the portion of said band of heat-shrink film (5) that is designed to make contact with said perforation device (20) to provide said at least one easy-break portion (21).
8. The device (1) according to one or more of the preceding claims, **characterized in that** it comprises means for adjusting the relative position of said perforation device (20) with respect to said supporting frame (30).
9. The device (1) according to one or more of the preceding claims, **characterized in that** it comprises interface means which operate between said perforation device (20) and said supporting frame (30).
10. A method for labeling containers with sleeve-like labels, comprising a step of supplying at least one band of heat-shrink film (5) to a forming spindle (4) and a step of transferring a sleeve-like label (2) formed around said forming spindle (4) onto a container (10) supported by said device (1), a step being provided for perforating at least one portion of the sleeve-like label (2) or of said band of heat-shrink film (5) wrapped around said forming spindle (4) prior to said step of transferring said sleeve-like label (2) onto said container to be labeled (10), said perforation step making it possible to provide at least one easy-break portion (21) which runs substantially parallel to the axis (101) of the respective forming spindle (4).
11. The method according to claim 10, **characterized**

in that said at least one forming spindle (4) is supported at the peripheral region of a carousel (31) which can rotate about a rotation axis (100), said perforation step comprising a step of relative movement between said forming spindle (4) and a perforation device (20) so as to provide, during contact between said perforation device (20) and said band of heat-shrink film (5) wrapped around said forming spindle (4), a rolling motion without sliding of said forming spindle (4) on said perforation device (20).

12. The method according to claim 11, **characterized in that** said relative motion step is performed by means of the rotary actuation of said forming spindle (4) about its own axis (101) to eliminate, during the step of contact between said perforation device (20) and said band of heat-shrink film (5) wrapped around the respective forming spindle (4), the effect of rotation of said forming spindle (4) around said carousel (31).

13. The method according to one or more of claims 10 to 12, **characterized in that** it provides for the execution of the following operations: a step of unwinding a film (13) from a reel (3), a step of cutting said film (13) to obtain sequentially said bands of heat-shrink film (5) designed to provide said sleeve-like labels (2), a step of wrapping each one of said bands of film (5) around a respective forming spindle (4) which is supported by the peripheral region of said carousel (31) so that it can rotate about its own axis (101), a step of heat-sealing the longitudinal edges (5a, 5b) of said band of heat-shrink film (5) in order to provide said sleeve-like label (2), and a step of transferring said formed sleeve-like label (2) to the outer surface (10a) of a container to be labeled (10).

14. The method according to claim 13, **characterized in that** said perforation step is performed between said step of wrapping said band of heat-shrink film (5) onto said forming spindle (4) and said step of transferring said sleeve-like label (2) toward said container to be labeled (10).

15. The method according to claim 13, **characterized in that** said perforation step is performed after said heat-sealing step.

Patentansprüche

1. Eine Vorrichtung (1) zur Produktion eines schlauchartigen Etiketts (2), die mindestens eine Vorwickelrolle (3) umfasst, konstruiert, um mindestens einer Formspindel (4) ein Band von Wärmeschrumpffolie (5) zuzuführen, und Mittel, um das Band Wärmeschrumpffolie (5) um die seitliche Oberfläche (4a) der Formspindel (4) herumzuwickeln,

welche ausgebildet sind, um einen Überlappungsbereich (8) zwischen einem ersten Längsende (5a) des Bandes von Wärmeschrumpffolie (5) in Kontakt mit der Formspindel (4) und dem zweiten Längsende (5b) des Bandes von Wärmeschrumpffolie (5) herzustellen, wobei Mittel (11) bereitgestellt sind, um das erste Längsende (5a) mit dem zweiten Längsende (5b) des Bandes von Wärmeschrumpffolie (5) wärmezusiegeln, das um die Formspindel (4) herumgewickelt ist, um einen Verbindungsabschnitt (13) an dem Überlappungsbereich (8) zu bilden, und Mittel (9), um das schlauchartige Etikett (2) von der Formspindel (4) zu einem zu etikettierenden Behälter (10) zu übertragen, **dadurch gekennzeichnet, dass** sie, stromaufwärts von den Übertragungsmitteln (9), eine Perforationsvorrichtung (20) umfasst, die konstruiert ist, um Kontakt mit dem Band von Wärmeschrumpffolie (5) aufzunehmen, das um die Formspindel (4) herumgewickelt ist, um mindestens eine Sollbruchstelle (21) bereitzustellen, die sich im Wesentlichen parallel zur Achse (101) der Formspindel (4) erstreckt, wobei Mittel (22) für eine Relativbewegung zwischen der Formspindel (4) und der Perforationsvorrichtung (20) bereitgestellt sind, die ausgebildet sind, um während des Kontakts zwischen der Perforationsvorrichtung (20) und dem Band von Wärmeschrumpffolie (5), das um die Formspindel (4) herumgewickelt ist, für eine Rollbewegung ohne Gleiten der Formspindel (4) auf der Perforationsvorrichtung (20) zu sorgen.

2. Die Vorrichtung (1) gemäß Anspruch 1, **dadurch gekennzeichnet, dass** sie einen Stützrahmen (30) für ein Karussell (31) umfasst, das sich um eine Drehachse (100) drehen kann und konstruiert ist, um die mindestens eine Formspindel (4) peripher zu tragen, die so angeordnet ist, dass ihre eigene Achse (101) im Wesentlichen parallel zu der Drehachse (100) des Karussells (31) ist, wobei die Relativbewegungsmittel (22) eine Vorrichtung für die Drehbetätigung (22a) der Formspindel (4) um ihre eigene Achse (101) umfassen, um während der Phase des Kontakts zwischen der Perforationsvorrichtung (20) und dem Band von Wärmeschrumpffolie (5), das um die entsprechende Formspindel (4) herumgewickelt ist, den Effekt der Drehung der Formspindel (4) um das Karussell (31) zu beseitigen.

3. Die Vorrichtung (1) gemäß Anspruch 2, **dadurch gekennzeichnet, dass** das Karussell (31) peripher eine Vielzahl der Formspindeln (4) trägt.

4. Die Vorrichtung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Perforationsvorrichtung (20) eine erste Gruppe (20a) von Perforationskörpern (23) umfasst, die voneinander entlang einer Richtung (102a) beabstandet sind, die im Wesentlichen parallel zur Achse

se (101) der mindestens einen Formspindel (4) ist.

5. Die Vorrichtung (1) gemäß Anspruch 4, **dadurch gekennzeichnet, dass** die Perforationsvorrichtung (20) mindestens eine zweite Gruppe (20b) von Perforationskörpern (23) umfasst, die parallel zu der ersten Gruppe (20a) von Perforationskörpern (23) liegt. 5
6. Die Vorrichtung (1) gemäß Anspruch 2, **dadurch gekennzeichnet, dass** die Perforationsvorrichtung (20) fest mit dem Stützrahmen (30) verbunden ist. 10
7. Die Vorrichtung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** die Formspindel (4) mindestens eine Längsnut (4b) umfasst, die sich in dem Bereich erstreckt, der konstruiert ist, um dem Abschnitt des Bandes von Wärmeschrumpffolie (5) zugewandt zu sein, der dazu dient, in Kontakt mit der Perforationsvorrichtung (20) zu stehen, um die mindestens eine Sollbruchstelle (21) bereitzustellen. 15
8. Die Vorrichtung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** sie Mittel zur Einstellung der Relativposition der Perforationsvorrichtung (20) zu dem Stützrahmen (30) umfasst. 20
9. Die Vorrichtung (1) gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** sie Schnittstellenmittel umfasst, die zwischen der Perforationsvorrichtung (20) und dem Stützrahmen (30) arbeiten. 25
10. Ein Verfahren zur Markierung von Behältern mit schlauchartigen Etiketten, das einen Schritt des Zuführens mindestens eines Bandes von Wärmeschrumpffolie (5) zu einer Formspindel (4) und einen Schritt der Übertragung eines schlauchartigen Etiketts (2), das um die Formspindel (4) herum geformt wurde, auf einen Behälter (10) umfasst, der von der Vorrichtung (1) getragen wird, wobei ein Schritt vorgesehen ist, um mindestens einen Abschnitt des schlauchartigen Etiketts (2) oder des Bandes von Wärmeschrumpffolie (5) zu perforieren, das um die Formspindel (4) herumgewickelt ist, und zwar vor dem Schritt der Übertragung des schlauchartigen Etiketts (2) auf den zu etikettierenden Behälter (10), wobei der Perforationsschritt es ermöglicht, mindestens eine Sollbruchstelle (21) bereitzustellen, die im Wesentlichen parallel zur Achse (101) der entsprechenden Formspindel (4) verläuft. 30
11. Das Verfahren gemäß Anspruch 10, **dadurch gekennzeichnet, dass** die mindestens eine Formspindel (4) im peripheren Bereich eines Karussells (31) getragen wird, das sich um eine Drehachse (100) drehen kann, wobei der Perforationsschritt einen 35

Schritt der Relativbewegung zwischen der Formspindel (4) und einer Perforationsvorrichtung (20) umfasst, um während des Kontakts zwischen der Perforationsvorrichtung (20) und dem Band von Wärmeschrumpffolie (5), das um die Formspindel (4) gewickelt ist, für eine Rollbewegung der Formspindel (4) ohne Gleiten auf der Perforationsvorrichtung (20) zu sorgen.

12. Das Verfahren gemäß Anspruch 11, **dadurch gekennzeichnet, dass** der Schritt der Relativbewegung mit Hilfe der Drehbetätigung der Formspindel (4) um ihre eigene Achse (101) durchgeführt wird, um während des Schritts des Kontakts zwischen der Perforationsvorrichtung (20) und dem Band von Wärmeschrumpffolie (5), das um die entsprechende Formspindel (4) gewickelt ist, den Effekt der Drehung der Formspindel (4) um das Karussell (31) zu beseitigen. 40
13. Das Verfahren gemäß einem oder mehreren der Ansprüche 10 bis 12, **dadurch gekennzeichnet, dass** es für die Durchführung der folgenden Arbeitsvorgänge sorgt: einen Schritt des Abwickelns eines Films (13) von einer Rolle (3), einen Schritt des Schneidens des Films (13), um nacheinander die Bänder von Wärmeschrumpffolie (5) zu erhalten, die dazu bestimmt sind, die schlauchartigen Etiketten (2) zu liefern, einen Schritt des Wickelns jedes der Bänder der Folie (5) um eine entsprechende Formspindel (4), die so vom peripheren Bereich des Karussells (31) getragen wird, dass sie sich um ihre eigene Achse (101) drehen kann, einen Schritt der Wärmeversiegelung der Längskanten (5a, 5b) des Bandes von Wärmeschrumpffolie (5), um das schlauchartige Etikett (2) zu liefern, und einen Schritt der Übertragung des geformten schlauchartigen Etiketts (2) auf die äußere Oberfläche (10a) eines zu etikettierenden Behälters (10). 45
14. Das Verfahren gemäß Anspruch 13, **dadurch gekennzeichnet, dass** der Perforationsschritt zwischen dem Schritt des Wickelns des Bandes von Wärmeschrumpffolie (5) auf die Formspindel (4) und dem Schritt der Übertragung des schlauchartigen Etiketts (2) auf den zu etikettierenden Behälter (10) durchgeführt wird. 50
15. Das Verfahren gemäß Anspruch 13, **dadurch gekennzeichnet, dass** der Perforationsschritt nach dem Wärmeversiegelungsschritt durchgeführt wird. 55

Revendications

1. Dispositif (1) pour fabriquer une étiquette en forme de manchon (2), comprenant au moins une bobine d'alimentation (3) conçue de façon à délivrer à au

- moins un rouleau de formation (4) une bande de film thermorétractable (5) et des moyens pour enrouler ladite bande de film thermorétractable (5) autour de la surface latérale (4a) dudit rouleau de formation (4), qui sont agencés de façon à constituer une région de chevauchement (8) entre une première extrémité longitudinale (5a) de ladite bande de film thermorétractable (5) en contact avec ledit rouleau de formation (4) et la deuxième extrémité longitudinale (5b) de ladite bande de film thermorétractable (5), des moyens (11) étant disposés pour thermosceller ladite première extrémité longitudinale (5a) avec ladite deuxième extrémité longitudinale (5b) de ladite bande de film thermorétractable (5) enroulée autour dudit rouleau de formation (4) de façon à constituer une partie de liaison (13) au niveau de ladite région de chevauchement (8), et des moyens (9) pour transférer ladite étiquette en forme de manchon (2) dudit rouleau de formation (4) à un récipient devant être étiqueté (10), **caractérisé en ce qu'il** comprend, en amont desdits moyens de transfert (9), un dispositif de perforation (20) conçu de façon à venir en contact avec la bande de film thermorétractable (5) enroulée autour dudit rouleau de formation (4) de façon à réaliser au moins une partie à rupture facile (21) qui s'étend sensiblement parallèlement à l'axe (101) dudit rouleau de formation (4), des moyens (22) étant disposés pour un mouvement relatif entre ledit rouleau de formation (4) et ledit dispositif de perforation (20), ceux-ci étant adaptés de façon à produire, durant un contact entre ledit dispositif de perforation (20) et la bande de film thermorétractable (5) enroulée autour dudit rouleau de formation (4), un mouvement de roulement sans glissement du rouleau de formation (4) sur le dispositif de perforation (20).
2. Dispositif (1) selon la revendication 1, **caractérisé en ce qu'il** comprend un bâti de support (30) pour un carrousel (31) qui peut tourner autour d'un axe de rotation (100), et qui est conçu de façon à supporter de façon périphérique ledit au moins un rouleau de formation (4), qui est disposé de telle sorte que son propre axe (101) soit sensiblement parallèle audit axe de rotation (100) du carrousel (31), lesdits moyens de mouvement relatif (22) comprenant un dispositif pour l'actionnement en rotation (22a) dudit rouleau de formation (4) autour de son propre axe (101) afin d'éliminer, durant la phase de contact entre ledit dispositif de perforation (20) et ladite bande de film thermorétractable (5) enroulée autour du rouleau de formation respectif (4), l'effet de la rotation dudit rouleau de formation (4) autour dudit carrousel (31).
 3. Dispositif (1) selon la revendication 2, **caractérisé en ce que** ledit carrousel (31) supporte de façon périphérique une pluralité desdits rouleaux de formation (4).
 4. Dispositif (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit dispositif de perforation (20) comprend un premier groupe (20a) de corps de perforation (23), qui sont mutuellement espacés le long d'une direction (102a) qui est sensiblement parallèle à l'axe (101) dudit au moins un rouleau de formation (4).
 5. Dispositif (1) selon la revendication 4, **caractérisé en ce que** ledit dispositif de perforation (20) comprend au moins un deuxième groupe (20b) de corps de perforation (23), qui est disposé en parallèle audit premier groupe (20a) de corps de perforation (23).
 6. Dispositif (1) selon la revendication 2, **caractérisé en ce que** ledit dispositif de perforation (20) est relié de façon conjointe audit bâti de support (30).
 7. Dispositif (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit rouleau de formation (4) comprend au moins une rainure longitudinale (4b) qui s'étend au niveau de la région conçue de façon à faire face à la partie de ladite bande de film thermorétractable (5) qui est conçue de façon à venir en contact avec ledit dispositif de perforation (20), de façon à constituer ladite au moins une partie de rupture facile (21).
 8. Dispositif (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** comprend des moyens pour ajuster la position relative dudit dispositif de perforation (20) par rapport audit bâti de support (30).
 9. Dispositif (1) selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce qu'il** comprend des moyens formant interface, qui fonctionnent entre ledit dispositif de perforation (20) et ledit bâti de support (30).
 10. Procédé pour étiqueter des récipients avec des étiquettes en forme de manchon, comprenant une étape de délivrance d'au moins une bande de film thermorétractable (5) à un rouleau de formation (4) et une étape de transfert d'une étiquette en forme de manchon (2) formée autour dudit rouleau de formation (4) sur un récipient (10) supporté par ledit dispositif (1), une étape étant réalisée pour perforer au moins une partie de l'étiquette en forme de manchon (2) ou de ladite bande de film thermorétractable (5) enroulée autour dudit rouleau de formation (4) avant ladite étape de transfert de ladite étiquette en forme de manchon (2) sur ledit récipient devant être étiqueté (10), ladite étape de perforation rendant possible de réaliser au moins une partie de rupture facile (21) qui s'étend sensiblement parallèlement à l'axe

(101) du rouleau de formation respectif (4).

11. Procédé selon la revendication 10, **caractérisé en ce que** ledit au moins un rouleau de formation (4) est supporté au niveau de la région périphérique d'un carrousel (31) qui peut tourner autour d'un axe de rotation (100), ladite étape de perforation comprenant une étape de mouvement relatif entre ledit rouleau de formation (4) et un dispositif de perforation (20), de façon à produire, durant le contact entre ledit dispositif de perforation (20) et ladite bande de film thermorétractable (5) enroulée autour dudit rouleau de formation (4), un mouvement de roulement sans glissement dudit rouleau de formation (4) sur ledit dispositif de perforation (20). 5
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12. Procédé selon la revendication 11, **caractérisé en ce que** ladite étape de mouvement relatif est effectuée à l'aide de l'actionnement en rotation dudit rouleau de formation (4) autour de son propre axe (101), de façon à éliminer, durant l'étape de contact entre ledit dispositif de perforation (20) et ladite bande de film thermorétractable (5) enroulée autour du rouleau de formation respectif (4), l'effet de rotation dudit rouleau de formation (4) autour dudit carrousel (31). 20
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13. Procédé selon l'une ou plusieurs des revendications 10 à 12, **caractérisé en ce qu'il** assure l'exécution des opérations suivantes : une étape de déroulement d'un film (13) à partir d'une bobine (3), une étape de coupe dudit film (13) de façon à obtenir en séquence lesdites bandes de film thermorétractable (5), conçues de façon à procurer lesdites étiquettes en forme de manchon (2), une étape d'enroulement de chacune desdites bandes de film (5) autour d'un rouleau de formation respectif (4), qui est supporté par la région périphérique dudit carrousel (31) de telle sorte qu'il puisse tourner autour de son propre axe (101), une étape de thermoscellage des bords longitudinaux (5a, 5b) de ladite bande de film thermorétractable (5) de façon à constituer ladite étiquette en forme de manchon (2), et une étape de transfert de ladite étiquette en forme de manchon formée (2) à la surface extérieure (10a) d'un récipient devant être étiqueté (10). 30
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14. Procédé selon la revendication 13, **caractérisé en ce que** ladite étape de perforation est effectuée entre ladite étape d'enroulement de ladite bande de film thermorétractable (5) sur ledit rouleau de formation (4) et ladite étape de transfert de ladite étiquette en forme de manchon (2) vers ledit récipient devant être étiqueté (10). 50
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15. Procédé selon la revendication 13, **caractérisé en ce que** ladite étape de perforation est effectuée après ladite étape de thermoscellage.

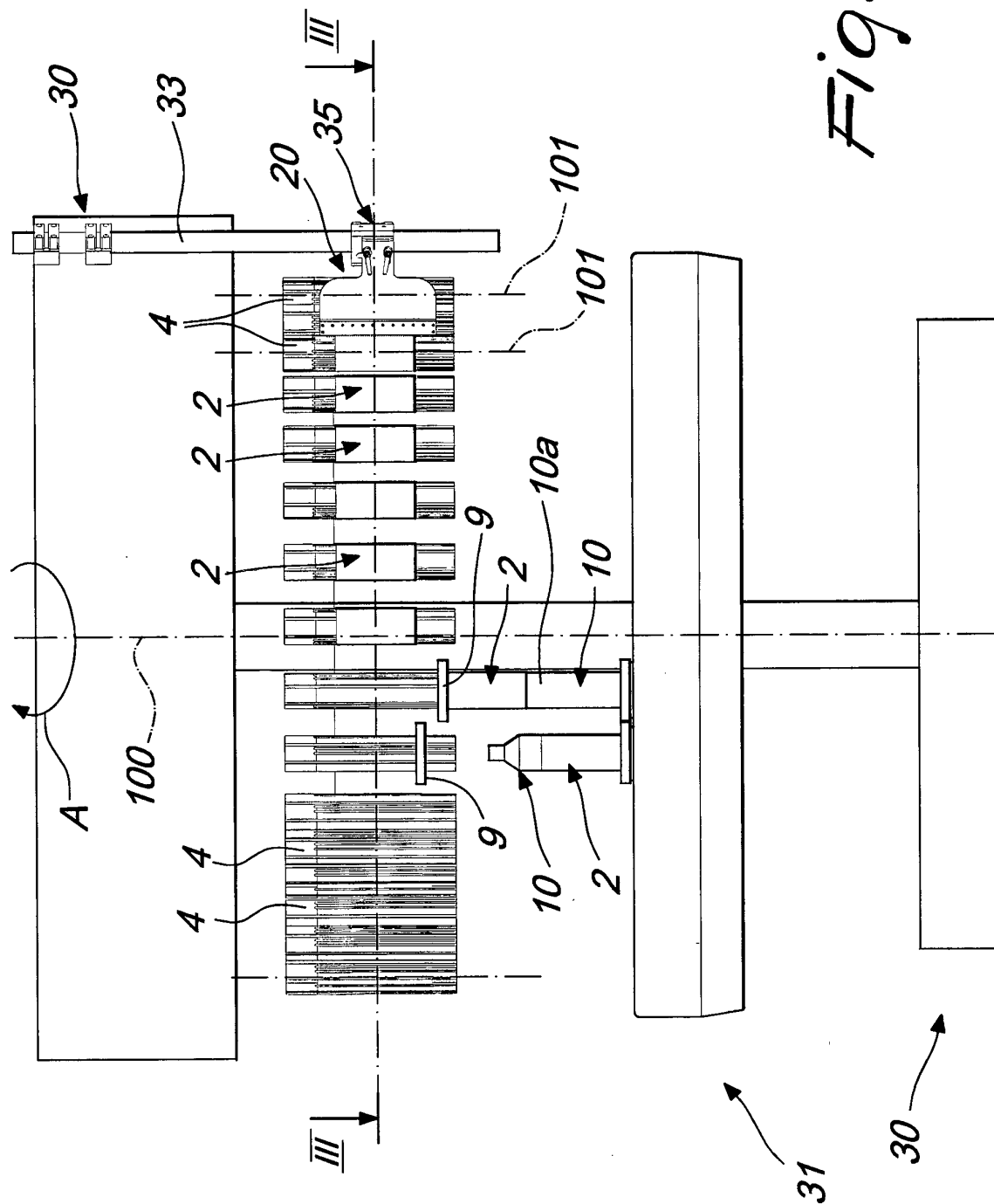
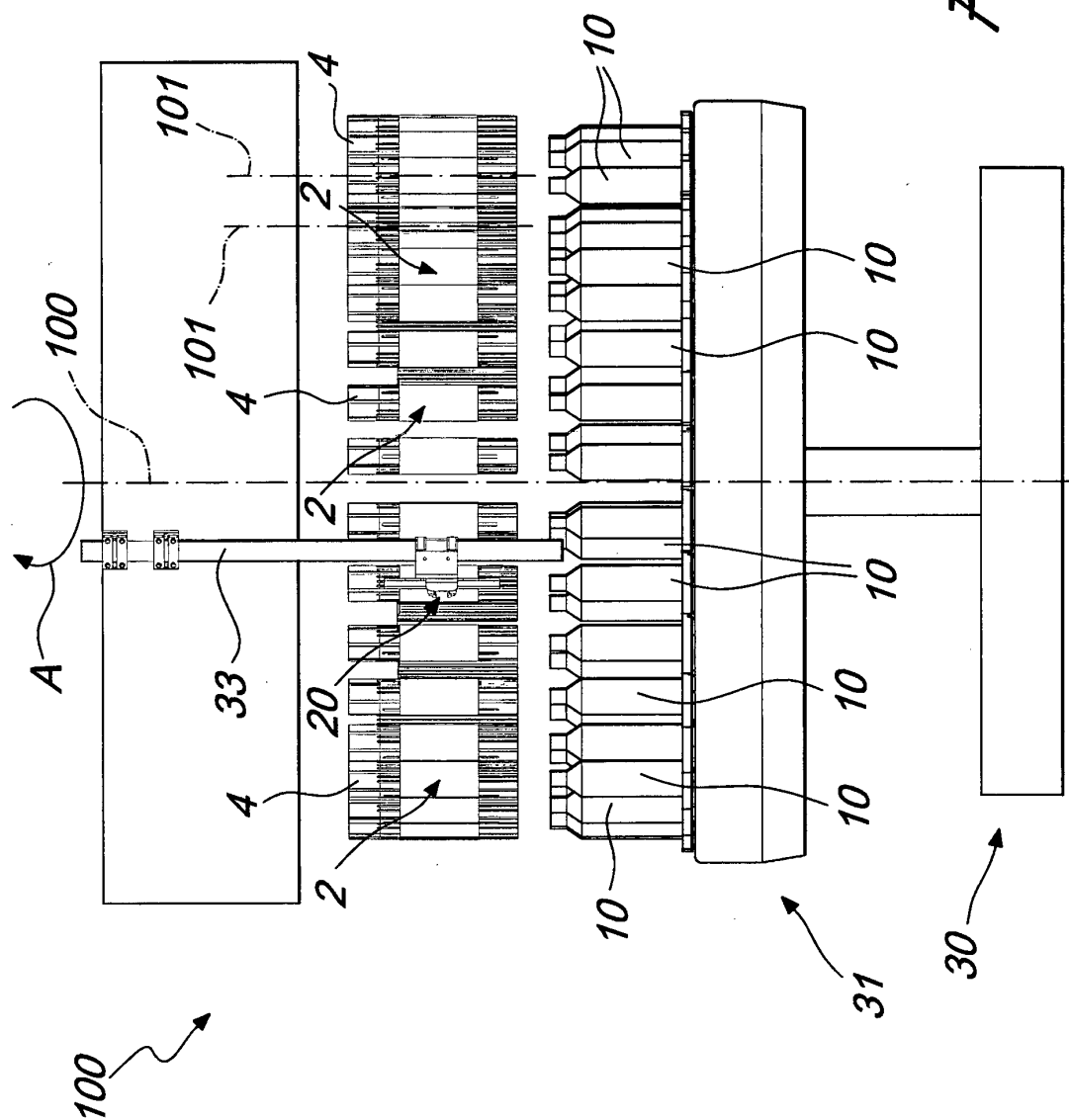


Fig. 1



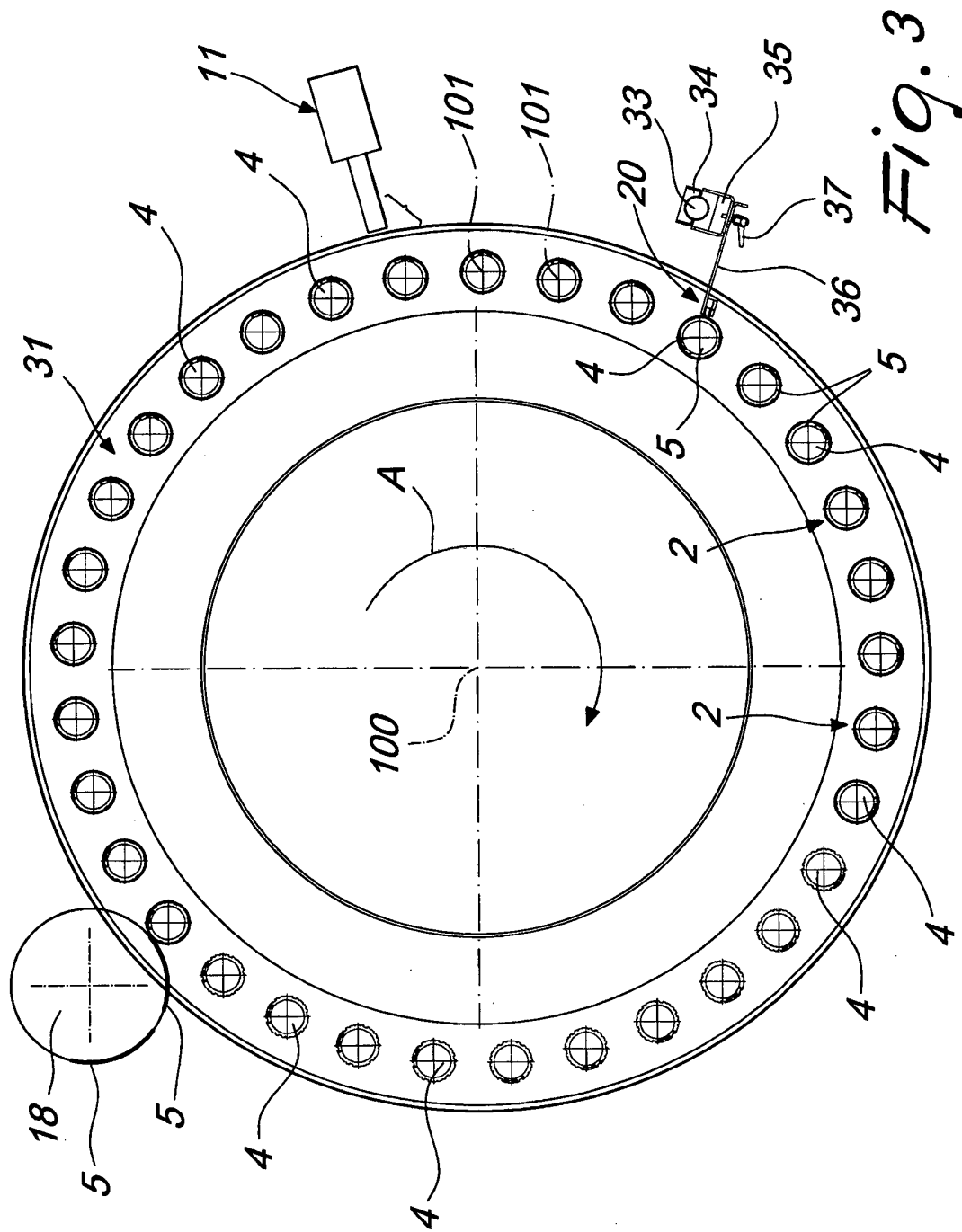
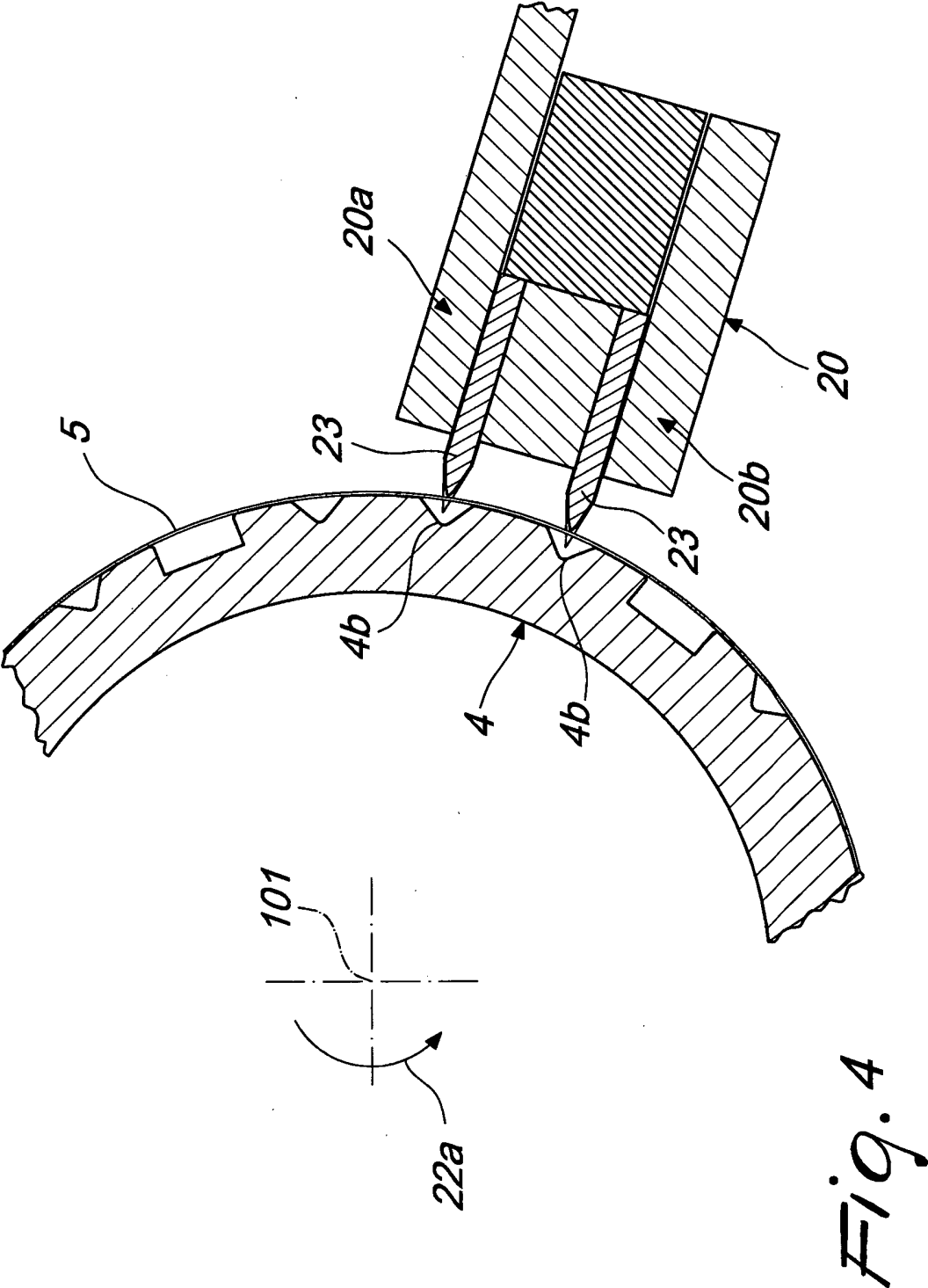


Fig. 3



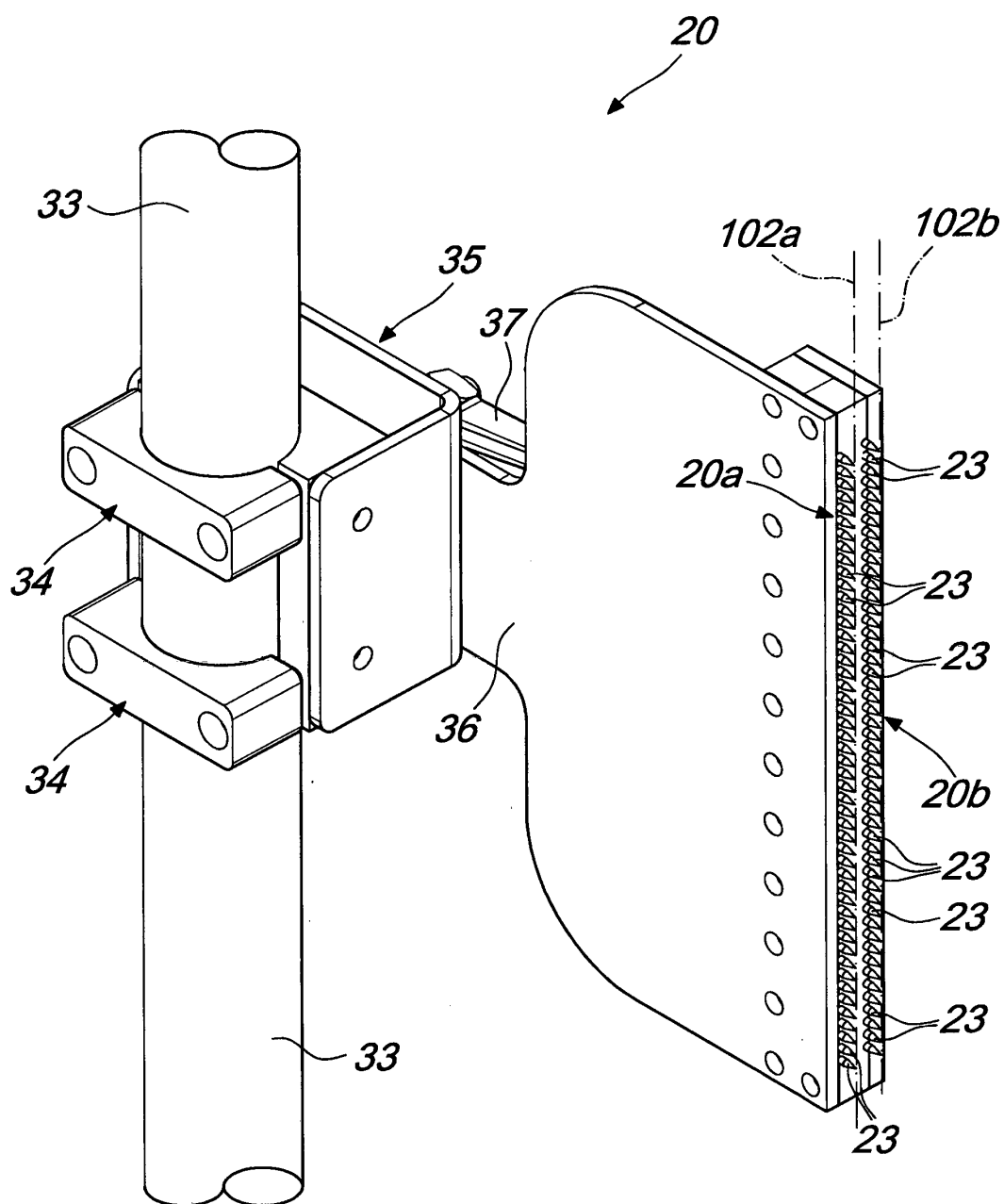
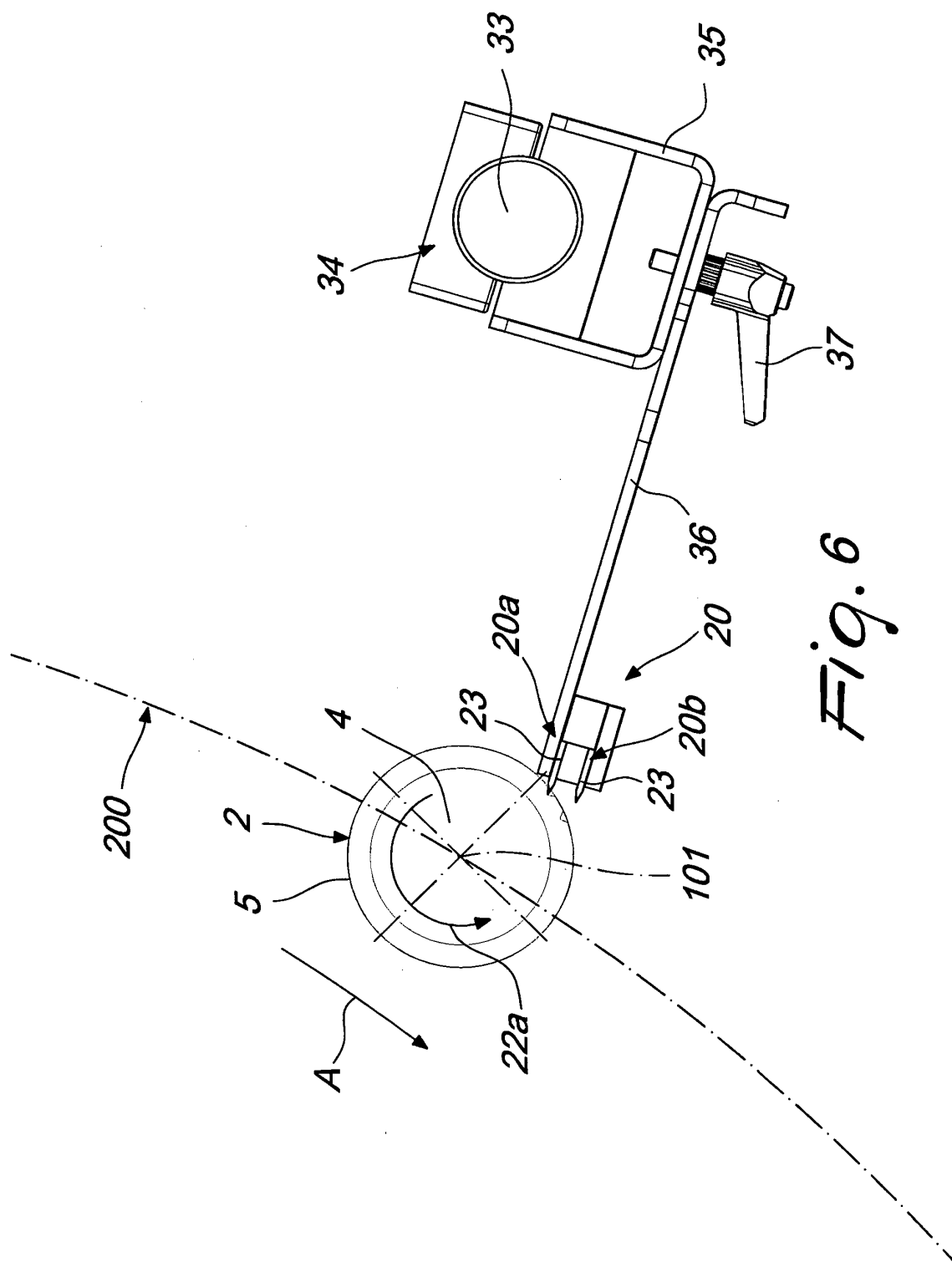
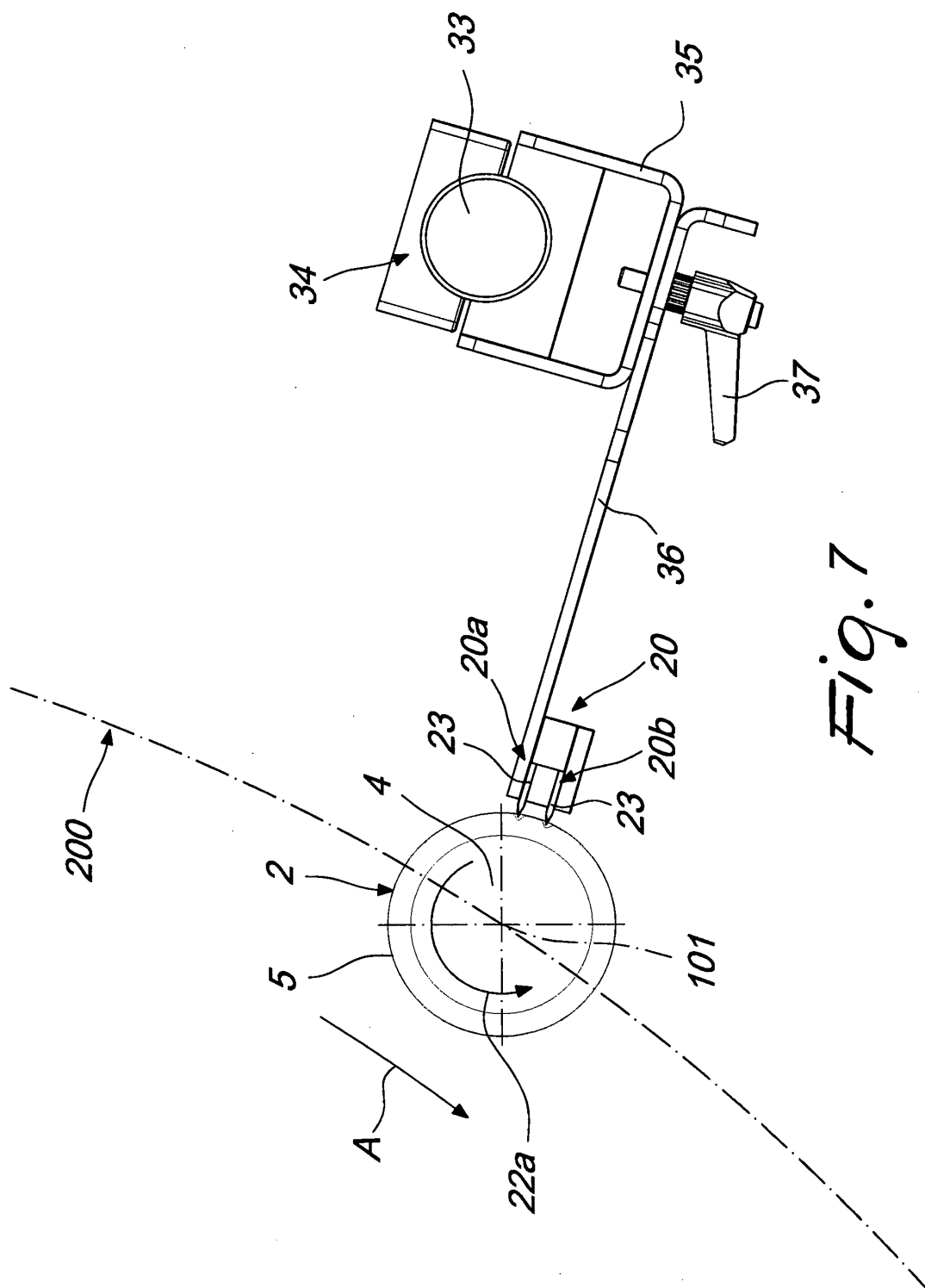
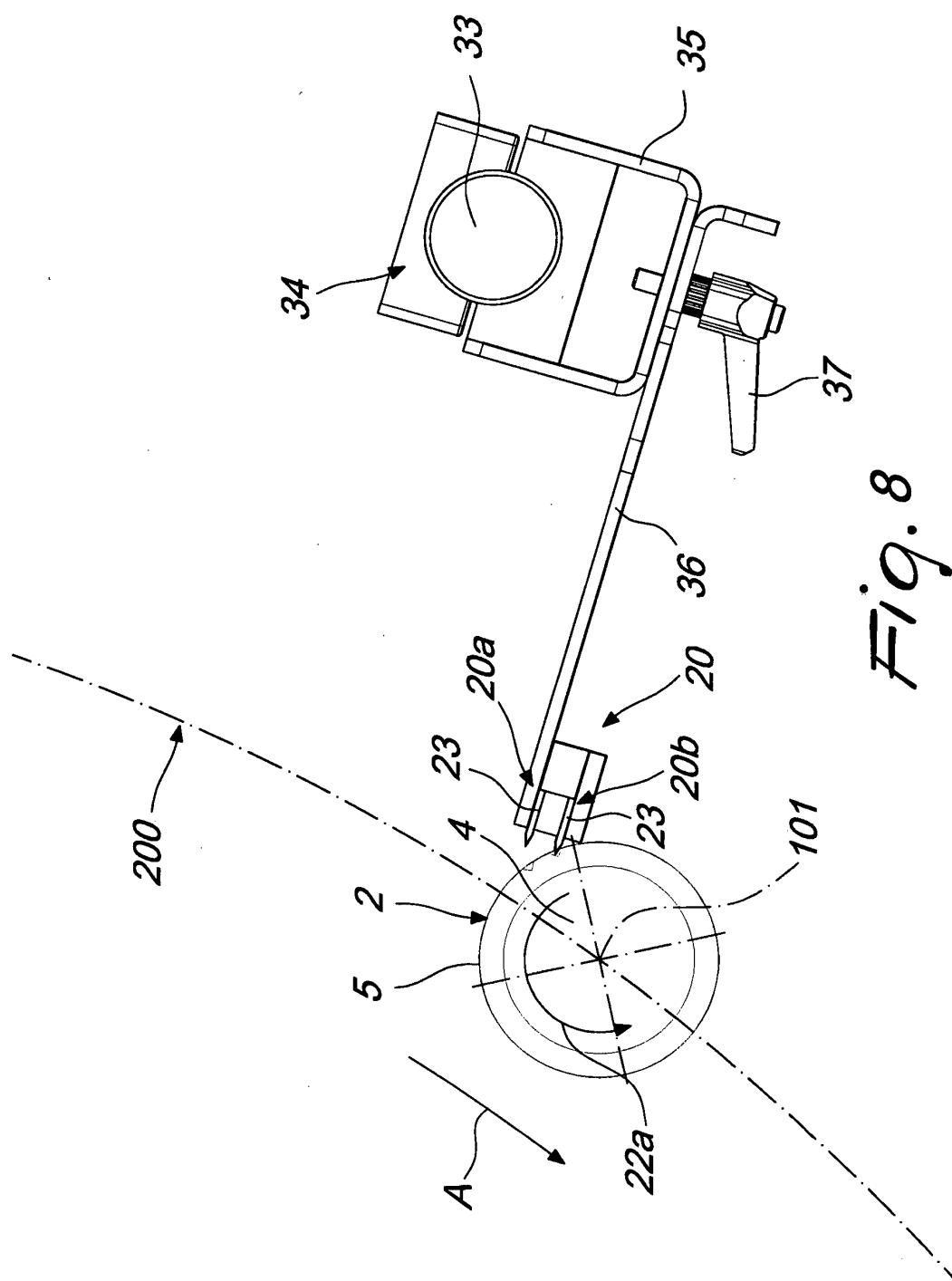
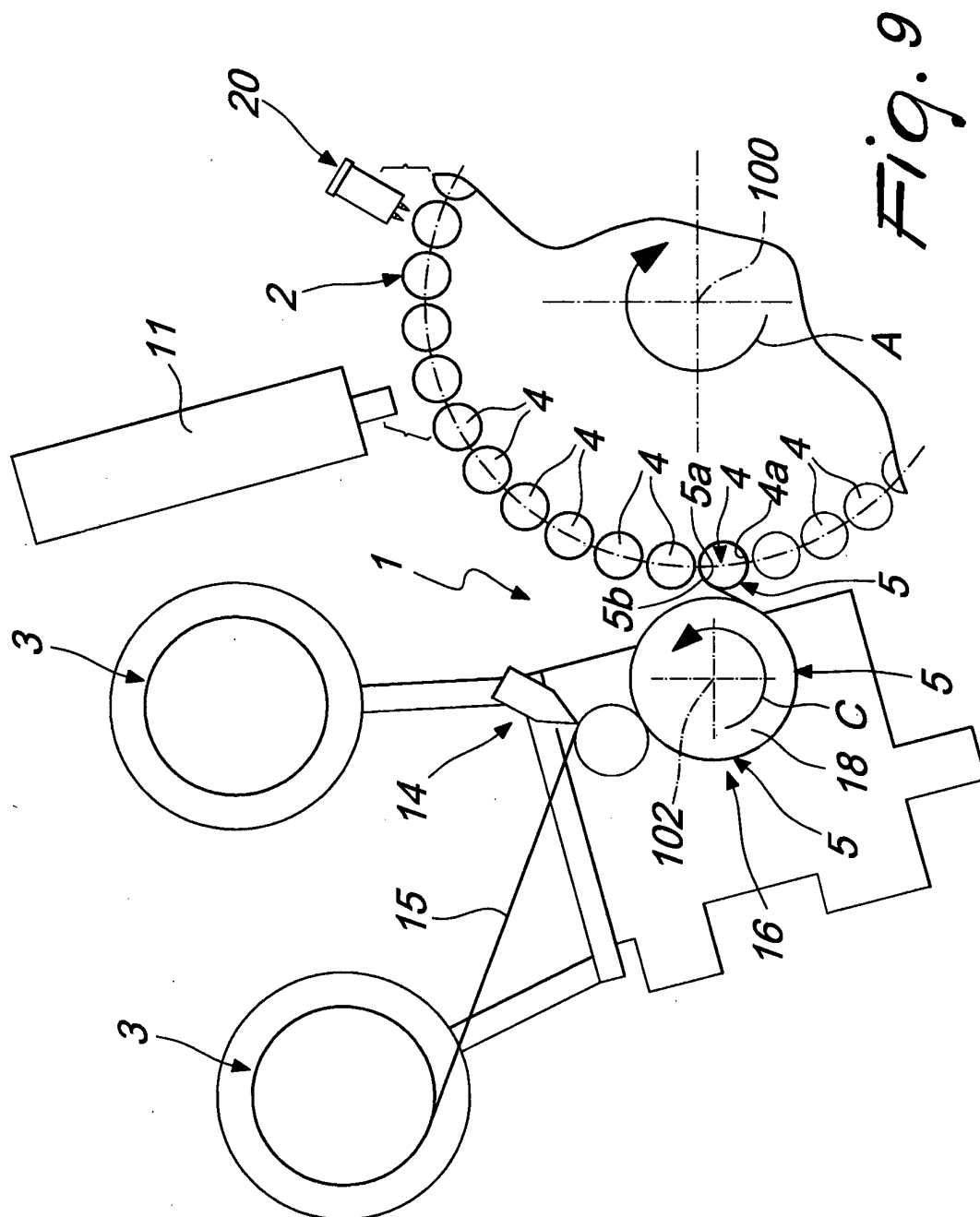


Fig. 5









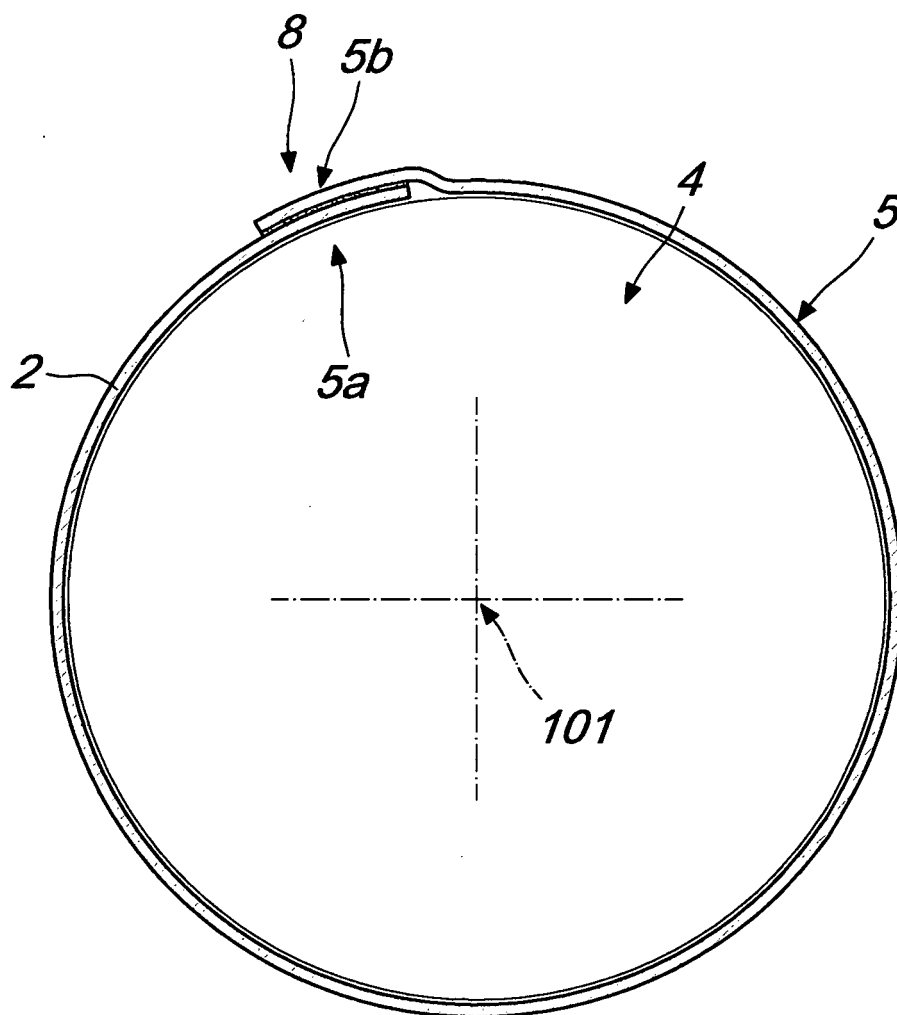


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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