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(54) DEVICE FOR APPLYING HEAT-SHRINK LABELS

VORRICHTUNG ZUM ANBRINGEN VON WÄRMESCHRUMPFETIKETTEN

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Description

Technical field

[0001] The present invention refers to a device for applying heat-shrink labels, in accordance with the preamble of claim 1 and as known from WO2004/085263.

Background art

[0002] In the field of labelling containers such as bottles, jars and the like, it is common practice nowadays to use heat-shrink sleeves, known in the sector as "shrink sleeves" or sleeve-like labels, which are substantially constituted by a tubular structure of heat-shrink plastic film designed to be fitted over the lateral surface of the container to be labelled.

[0003] The distinctive characteristic of the aforementioned labels consists in the fact that, when they are subjected to heating, they retract, in the process fully adhering to the lateral surface of the container over which they are fitted.

[0004] To complete the labelling operation, in general the container with its label is sent to a heating station, where the heat-shrinking of the label onto the lateral surface of the container is carried out.

[0005] This procedure has been found to be entirely satisfactory for the application of sleeve-like labels on containers like bottles or containers that have a widened bottom since, in these situations, the sleeve-like label is fitted on from above and is brought to rest, with its lower edge, on the supporting surface of the container, against either an edge or a radial projection formed along its longitudinal length.

[0006] In these cases there is no risk that the sleeve-like label could move with respect to the container (and in particular, peel off) during its movement towards the heating station because, as described, its movement downwards is impeded either by the supporting surface or by the radial widenings formed on the container.

[0007] However, it has been found that in some fields of use, such as for example the application of sleeve-like labels onto conical containers with a tapering portion towards the bottom of the container, as in jars used for packaging yogurts, puddings or desserts, it is necessary, precisely because of the conical nature of the jar, to operate by applying the sleeve-like label from the bottom upwards.

[0008] In these cases the containers are moved along the labelling line by means of guides that engage the downwards-facing surface of an upper projection and, partly owing to this, it is evident that the sleeve-like labels would slide downwards during the transport of the container to the heat-shrinking station.

[0009] To resolve this drawback, apparatuses have been offered which simultaneously execute the application, positioning and heat-shrinking of the sleeve-like label onto the container.

[0010] One such apparatus is for example described in European patent application no. EP 1606169 in the name of Comag, which refers to a shuttle-operated device formed essentially by two cylindrical bodies that are arranged coaxially so as to form a gap between them and which are mutually movable along their common axis by means of the action of an injector, which is also used to inject the hot fluid (air or steam) for the heat-shrinking.

[0011] In practice, the sleeve-like label is fitted over the internal cylindrical body and rests on suitable protrusions formed on the internal surface of the external jacket.

[0012] By pushing the external jacket upwards, the injector transports the sleeve-like label, together with the jacket, towards the container to be labelled, in such a way that the label is fitted over the container, and at the same time the external jacket is arranged around it. Then, by means of the injector, the hot fluid is introduced into the gap formed between the external jacket and the container in such a way as to obtain the heat-shrinking of the sleeve-like label onto the container.

[0013] The principal drawback of this device is related to the fact that the thrust on the sleeve-like label is applied by means of protrusions that are angularly spaced around the longitudinal axis of the label, which apply localised vertical forces at determined points of the label with the consequence that, during the heat-shrinking phase, they cause localised deformations which can compromise the successful outcome of the labelling process.

[0014] It has also been observed that, in order to simultaneously execute the application, positioning and heat-shrinking of the sleeve-like label onto the container, it is necessary, for the same speed of the labelling line, to perceptibly reduce the time spent correctly positioning the label with the consequent risk that the sleeve-like label may not be perfectly fitted onto the respective container.

[0015] An applicator of sleeve-like labels is also known, from EP 1587736 B1 in the name of Benco Pack Srl, which is formed by a first plate which is provided with a plurality of vertical bars to hold the label to be applied and by a second plate which is vertically movable with respect to the first plate and on which are fixed spray nozzles of hot air or steam.

[0016] By raising, by means of a pneumatic lifting device, the second plate, the label and the spray nozzles are arranged around the respective containers.

[0017] Subsequently, the introduction of hot air is activated by means of the spray nozzles, and the heat-shrinking of the labels around the respective containers is obtained.

[0018] Although valid from a conceptual point of view, this applicator has also been found to have drawbacks.

[0019] The principal problem regards the difficulty of fitting, at determined speeds, the sleeve-like label to be transferred onto the container over the plurality of vertical bars that rise up from the first plate.

[0020] This determines the necessity of operating

more slowly and consequently reducing the productivity of the plant.

[0021] Furthermore, in this case also, if we wish to execute the heat-shrinking process simultaneously with positioning the label around the container, then it is necessary to seek to limit as far as possible the time spent on pushing and on positioning the sleeve-like label around the container, with a consequent increase in the risk of imperfections.

[0022] Other types of labelling apparatuses are also known that have, normally along the peripheral edge of a carousel, a plurality of forming spindles, around which is wrapped, one at a time, a section of heat-shrink film.

[0023] The free ends of the section of heat-shrink film wrapped around the forming spindle are overlaid and, at the overlaid area, a heat-sealing line is executed in such a way as to make, around the forming spindle, a sleeve-like label.

[0024] Some solutions, such as for example those described in US 3,959,065 and in US 4,302,275, specify means of pushing that are designed to move the sleeve-like label upwards.

[0025] When the sleeve-like label is formed directly on the forming spindles, it comes to fully adhere to the outside surface of such forming spindle and, for this reason, the pushing means are typically constituted by an external body having a plurality of pushing elements which extend radially in the direction of the axis of the forming spindle and are designed to slide inside complementarily-shaped recesses formed on the forming spindle and running parallel to the longitudinal axis of such forming spindle.

Disclosure of the invention

[0026] The principal aim of the present invention is to resolve the problems in the background art and to overcome the above mentioned drawbacks, by offering a device for applying heat-shrink labels that is capable of eliminating, or at least drastically reducing, the above mentioned drawbacks in the devices currently known.

[0027] Within this aim, an object of the invention is to provide a device for applying heat-shrink labels that makes the phase of positioning the sleeve-like label around the container to be labelled extremely rapid and effective.

[0028] Another object of the invention is to make available a device for applying heat-shrink labels which has a high level of operational efficiency, in such a way as to make its use perceptibly advantageous from an economic viewpoint as well as from an operative viewpoint.

[0029] This aim, as well as these and other objects which will become better evident hereinafter, are achieved by a device for applying heat-shrink labels, according to claim 1.

[0030] According to another aspect, the present invention refers to a method for applying heat-shrink labels, according to claim 12.

Brief description of the drawings

[0031] Further characteristics and advantages of the invention will become better apparent from the description that follows of preferred, but not exclusive, embodiments of a device for applying heat-shrink labels according to the invention, illustrated by way of non-limiting examples in the accompanying drawings wherein:

Figure 1 shows a side elevation view of a labelling line with the sleeve-like labels wrapped on the central body;

Figure 2 shows, in an enlarged view, the station for applying the sleeve-like labels of the labelling line shown in Figure 1;

Figure 3 is a side elevation view of the labelling line with the sleeve-like labels fitted over the containers to be labelled;

Figure 4 shows, in an enlarged view, the station for applying the sleeve-like labels of the labelling line shown in Figure 3;

Figure 5 is a perspective view of a pair of applicators with the associated annular body in the lowered condition;

Figure 6 shows an end elevation view of the applicators shown in figure 5;

Figure 7 is a sectional view of the applicators with the annular body in the lowered condition, taken along the line marked VII-VII in Figure 6;

Figure 8 is a perspective view of a pair of applicators with the associated annular body in the raised condition;

Figure 9 shows an end elevation view of the applicators shown in figure 8;

Figure 10 is a sectional view of the applicators with the annular body in the raised condition, taken along the line marked X-X in Figure 9.

Ways of carrying out the invention

[0032] In the embodiments that follow, individual characteristics shown in relation to specific examples may in reality be interchanged with other, different characteristics, existing in other embodiments.

[0033] With reference to the figures, the present invention refers to a device, generally designated by the reference numeral 1, for applying heat-shrink labels 10 onto containers 3 to be labelled such as, for example, jars for yogurts, puddings or desserts.

[0034] The device 1 is, specifically, located at a station 2 for applying a sleeve-like label 10, such station 2 being arranged along a labelling line 100.

[0035] The labelling device 1 has at least one applicator 4 which is adapted to feed from below at least one sleeve-like heat-shrink label 10 around a respective container 3 to be labelled.

[0036] The applicator 4 comprises a central body 5, which is substantially cylindrical or, in general, shaped

so as to conform to the shape of the lateral surface of the container 3 to be labelled and is designed to accommodate, around its own lateral surface 5a, a respective sleeve-like label 10 to be fed to the container to be labelled 3.

[0037] Conveniently, the sleeve-like label 10 is transferred, already formed, by virtue of known means of transfer, to the applicator 4.

[0038] For the purposes of example, the central body 5 can thus have a cylindrical lateral surface 5a with a circular bottom as shown in the figures, but it can also have a bottom that is rectangular or triangular or according to the shape of the lateral surface upon which to apply the label of the body to be labelled 3.

[0039] The applicator 4 has, furthermore, an annular pusher body 6 that is arranged coaxially to, and outside, the central body 5 and which can perform a translational motion, on command, with respect to the central body 5 along the axis 101 of the central body 5 in order to place the sleeve-like label 10 around a respective container 3 to be labelled.

[0040] The average transversal dimensions of the label 10 are larger (typically by 1-5 mm) than the transversal dimensions of the lateral surface 5a of the central body 5 in such a way as to form a meatus, or gap, between the internal surface of the label 10 and the lateral surface 5a of the central body 5.

[0041] The device 1 is provided with heating means 7 that act in the region of action of the applicator 4 (and therefore at the application station 2), and which are adapted to activate the partial heat-shrinking of the sleeve-like label 10 fitted around the respective container to be labelled 3.

[0042] Practically speaking, the heating means 7 that act at the application station 2 act, for an extremely short time and/or in localised areas of the sleeve-like label 10, in such a way as to permit a partial heat-shrinking that is at least capable of ensuring that the sleeve-like label 10 does not slide downwards during its subsequent movement along the labelling line 100.

[0043] In this regard, it is possible for the labelling line 100 to be provided with a guide 8 for moving the containers 3 to be labelled in the upright condition.

[0044] The guide 8 can be for example constituted by a pair of movement rails, upon which rests the lower surface of the top edge of the containers 3.

[0045] Conveniently, the heating means 7 can be constituted by first heating means 7a located proximate to the portion of the movement guide 8 that is arranged at the region of action of the applicator 4.

[0046] With reference to the embodiment shown in the figures from 1 to 4, the first heating means 7a can be constituted by a perforated duct 9 that can be connected, at a first end 9a, to a steam supply duct 11, and at the other end, with an end nozzle 12 for discharging the condensate.

[0047] The heating means 7 can comprise, furthermore, second heating means 13 which comprise at least

one spray nozzle 13a that is supported by the applicator 4 and which can be moved simultaneously with the annular body 6 in order to be located beside the sleeve-like label 10 once this has been positioned by the applicator around the container to be labelled 3. The device 1 is conveniently provided with a station for completing the heat-shrinking 14 which is arranged downstream of the region of action of the applicator 4 (and therefore downstream of the application station 2) along the movement guide 8.

[0048] The station for completing the heat-shrinking 14 can be implemented, for example, by using heating ovens 14a which are located below the area through which the containers 3 transit.

[0049] According to a preferred embodiment, the central body 5 has, internally, an axial cavity 15 that accommodates elastic return means, typically a spring 16, that act between the central body 5 (and typically between an upper abutment edge 17) and the annular body 6 and which are adapted to return the annular body 6 to the lowered position (as shown in figures from 5 to 7).

[0050] The device 1 is also provided with movement means 18 for moving the annular body 6 which act in contrast with the elastic return means in order to push the annular body 6 upwards so as to bring, on command, the respective sleeve-like label 10 from the lateral surface 5a of the cylindrical body 5 into engagement with the respective container to be labelled 3.

[0051] Advantageously, the movement means comprise pusher elements 19 which act, on the impulse of drive means and owing to the interposition of means of kinematic connection 20, at least partially along the axial cavity 15 of the central body 5.

[0052] The central body 5 is provided, conveniently, with first longitudinal slots 21 which pass through the lateral surface 5a of the central body 5.

[0053] The longitudinal slots 21 can be engaged slidably by respective portions 22 for connection between the annular body 6 and a central element 23 which can move along the axial cavity 15 under the alternated action of the movement means 18 and the elastic return means.

[0054] The central body 5 also has second longitudinal slots 26 which are adapted to reduce the sliding friction between the external surface 5a of the central body 5 and the internal surface of the sleeve-like labels 10 associated with it.

[0055] Conveniently, the central body 5 has a tapering portion 27 that is directed upwards and which is adapted to facilitate the feeding of the sleeve-like labels 10 to the central body 5.

[0056] To increase the productivity of the line, the applicators 4 can be mounted on the external surface of a drum 28 which rotates about an axis that is substantially horizontal and inside which the movement means 18 act.

[0057] With this embodiment, a region can be set aside for feeding the sleeve-like labels 10 to the central bodies 5 before they are brought to the application station 2.

[0058] The present invention further refers to a method

for applying heat-shrink labels 10 to containers to be labelled 3, which comprises the phases of:

- feeding a container to be labelled 3 to a station 2 for applying a sleeve-like heat-shrink label 10; 5
- feeding from below, by means of an applicator 4, a sleeve-like label 10 to the container to be labelled 3;
- heating, by virtue of heating means 7 arranged at the application station 2, at least one portion of the sleeve-like label 10 fitted around the container 3 to be labelled in order to activate the partial heat-shrinking of the sleeve-like label 10; 10
- sending the container 3 from the application station 2 toward a heating station 14, which is adapted to complete the heat-shrinking of the sleeve-like label 10 onto the container to be labelled 3. 15

[0059] The invention, thus conceived, is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. 20

[0060] In practice it has been found that in all the embodiments the invention has fully achieved the aim and objects.

[0061] In particular, the use of the central cylindrical body 5 facilitates the feeding of the sleeve-like labels 10 to the applicator 4 and the annular body 6, upon which rests all of the lower edge of the sleeve-like label 10, makes it possible to push the label upwards uniformly without the possibility of localised tensions being created. 25

[0062] In addition, the possibility of carrying out the heat-shrinking process at two different times (and, in particular, in two distinct regions) makes it possible to perceptibly increase the time spent on positioning the label, so drastically reducing the possibility of errors during this critical phase. 30

[0063] In practice the dimensions may be any, according to the requirements. 35

[0064] Moreover, all the details may be substituted by other, technically equivalent elements.

[0065] In this regard, there is no specific reason to prevent the annular body 6 from being divided into one or more sections. 40

[0066] Where the technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs. 45

Claims

1. A device (1) for applying heat-shrink labels (10), comprising at least one applicator (4), which is adapted to feed from below, and located at an application station (2) for applying a sleeve-like label, at least one sleeve-like heat-shrink label (10) around a re- 55

spective container (3) to be labelled, said applicator (4) comprising a central body (5), which is substantially cylindrical or shaped so as to conform to the shape of said container to be labelled (3), said device (1) comprising means of transfer for transferring said sleeve-like label (10) to the applicator (4), where said sleeve-like label (10) is fed around the lateral surface (5a) of a respective central body (5), **characterized in that** a gap is provided between the lateral surface (5a) of said central body (5) and the internal surface of the sleeve-like label (10) fitted onto said central body (5), the average transversal dimensions of said sleeve-like label (10) being 1-5 mm larger than the transversal dimensions of said lateral surface (5a) of said central body (5), said device (1) being provided with an annular pusher body (6) which is arranged coaxially and externally to said central body (5) and can perform a translational motion on command with respect to said central body (5) along the axis of said central body (5) in order to place said sleeve-like label (10) around said container to be labelled (3), all of the lower edge of said sleeve-like label (10) resting upon said annular pusher body (6).

2. The device (1) for applying heat-shrink labels according to claim 1, **characterized in that** it comprises heating means (7), which act at a region of action of said at least one applicator (4) and are adapted to activate a partial heat-shrinking of the sleeve-like label (10) fitted around the respective container to be labelled (3). 25
3. The device (1) for applying heat-shrink labels according to claim 2, **characterized in that** it comprises a guide (8) for moving said containers to be labelled (3) in the upright condition, said heating means (7) comprising first heating means (7a) located proximate to the portion of said movement guide (8) that is arranged at the region of action of said at least one applicator (4). 30
4. The device (1) for applying heat-shrink labels according to claim 3 **characterized in that** said heating means (7) comprises second heating means (13), which comprise at least one spray nozzle (13a) that is supported by said applicator (4) and can move simultaneously with said annular body (6). 35
5. The device (1) for applying heat-shrink labels according to one or more of the preceding claims 2-4, **characterized in that** it comprises a station (14) completing the heat-shrinking process which is arranged downstream of said region of action of said at least one applicator (4) along said movement guide (8). 40
6. The device (1) for applying heat-shrink labels according to one or more of the preceding claims, **char-** 45

acterized in that said central body (5) is provided internally with an axial cavity (15), which accommodates elastic return means (16) that act between said central body (5) and said annular body (6) and are adapted to return said annular body (6) to the lowered position.

7. The device (1) for applying heat-shrink labels according to claim 6, **characterized in that** it comprises movement means (18) for moving said annular body (6), which act in contrast with said elastic return means in order to push upward said annular body (6) so as to move the respective sleeve-like label (10) into engagement with the respective container to be labelled (3).

8. The device (1) for applying heat-shrink labels according to claim 7, **characterized in that** said movement means (18) act at least partially along said axial cavity (15) of said central body (5).

9. The device (1) for applying heat-shrink labels according to claim 8, **characterized in that** said central body (5) comprises first longitudinal slots (21), which pass through the lateral surface (5a) of said central body (5) and can be engaged slidingly by respective portions (22) for connection between said annular body (6) and a central element (23), which can move along said axial cavity (15), said central element (23) being connected kinematically to said movement means (16) and to said elastic return means.

10. The device (1) for applying heat-shrink labels according to one or more of the preceding claims, **characterized in that** said central body (5) comprises second longitudinal slots (26), which are adapted to reduce the sliding friction between the lateral surface (5a) of said central body (5) and the internal surface of said sleeve-like label (10).

11. The device (1) for applying heat-shrink labels according to one or more of the preceding claims, **characterized in that** said central body (5) has a tapering portion (27) that is directed upward and is adapted to facilitate the feeding of said sleeve-like labels (10) to said central body (5).

12. A method for applying heat-shrink labels, comprising the steps of:

- feeding a container to be labelled (3) to a station (2) for applying at least one sleeve-like heat-shrink label (10);
- transferring a sleeve-like heat-shrink label (10) to an applicator (4), said applicator (4) comprising a central body (5), which is substantially cylindrical or shaped so as to conform to the shape of said container to be labelled (3), said sleeve-

like label (10) being fed around the lateral surface (5a) of a respective central body (5), a gap being provided between the lateral surface (5a) of said central body (5) and the internal surface of the sleeve-like label (10) fitted onto said central body (5), the average transversal dimensions of said sleeve-like label (10) being 1-5 mm larger than the transversal dimensions of said lateral surface (5a) of said central body (5);

- feeding from below, by means of said applicator (4), said sleeve-like label (10) to said container to be labelled (3), an annular pusher body (6) being arranged coaxially and externally to said central body (5) and being able to perform a translational motion on command with respect to said central body (5) along the axis of said central body (5) in order to place said sleeve-like label (10) around said container to be labelled (3), all of the lower edge of said sleeve-like label (10) resting upon said annular pusher body (6);

- heating, by virtue of heating means (7) arranged at said application station (2), at least one portion of said sleeve-like label (10) fitted around said container to be labelled (3) in order to activate the partial heat-shrinking of said sleeve-like label (10);

- sending said container (3) from said application station (2) toward a heating station (14), which is adapted to complete the heat-shrinking of said sleeve-like label (10) onto said container to be labelled (3).

Patentansprüche

1. Eine Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten (10), die mindestens einen Applikator (4) umfasst, der ausgebildet ist, um von unten zuzuführen, und an einer Applikationsstation (2) positioniert ist zum Anbringen eines hülsenartigen Etiketts, mindestens eines hülsenartigen Wärmeschrumpfetiketts (10) um einen entsprechenden Behälter (3) herum, der etikettiert werden soll, wobei der Applikator (4) einen zentralen Körper (5) umfasst, der im Wesentlichen zylindrisch oder so geformt ist, dass er der Form des zu etikettierenden Behälters (3) entspricht, wobei die Vorrichtung (1) Übertragungsmittel zum Übertragen des hülsenartigen Etiketts (10) an den Applikator (4) umfasst, wobei das hülsenartige Etikett (10) um die Seitenfläche (5a) eines entsprechenden zentralen Körpers (5) herum zugeführt wird, **dadurch gekennzeichnet, dass** eine Lücke zwischen der Seitenfläche (5a) des zentralen Körpers (5) und der Innenfläche des hülsenartigen Etiketts (10) bereitgestellt wird, das auf dem zentralen Körper (5) angebracht ist, wobei die durchschnittlichen Quermaße des hülsenartigen

Etiketts (10) 1-5mm größer sind als die Quermaße der Seitenfläche (5a) des zentralen Körpers (5), wobei die Vorrichtung (1) mit einem ringförmigen Schiebekörper (6) ausgestattet ist, der koaxial mit und außerhalb des zentralen Körpers (5) angeordnet ist und auf Befehl eine Translationsbewegung im Verhältnis zu dem zentralen Körper (5) entlang der Achse des zentralen Körpers (5) durchführen kann, um das hülsenartige Etikett (10) um den zu etikettierenden Behälter (3) herum zu positionieren, wobei die gesamte Unterkante des hülsenartigen Etiketts (10) auf dem ringförmigen Schiebekörper (6) aufliegt.

2. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß Anspruch 1, **dadurch gekennzeichnet, dass** sie Erhitzungsmittel (7) umfasst, die in einem Wirkungsbereich des mindestens einen Applikators (4) arbeiten und ausgebildet sind, um eine partielle Wärmeschrumpfung des hülsenartigen Etiketts (10) auszulösen, das um den entsprechenden zu etikettierenden Behälter (3) herum angebracht wird.
3. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß Anspruch 2, **dadurch gekennzeichnet, dass** sie eine Führung (8) zum Bewegen der zu etikettierenden Behälter (3) in aufrechtem Zustand umfasst, wobei die Erhitzungsmittel (7) erste Erhitzungsmittel (7a) umfassen, die sich nahe dem Teil der Bewegungsführung (8) befinden, der im Wirkungsbereich des mindestens einen Applikators (4) angeordnet ist.
4. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß Anspruch 3, **dadurch gekennzeichnet, dass** die Erhitzungsmittel (7) zweite Erhitzungsmittel (13) umfassen, welche mindestens eine Sprühdüse (13a) umfassen, die von dem Applikator (4) getragen wird und sich gleichzeitig mit dem ringförmigen Körper (6) bewegen kann.
5. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß einem oder mehreren der obigen Ansprüche 2-4, **dadurch gekennzeichnet, dass** sie eine Station (14) umfasst, die den Wärmeschrumpfprozess abschließt und stromabwärts vom Wirkungsbereich des mindestens einen Applikators (4) entlang der Bewegungsführung (8) angeordnet ist.
6. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der zentrale Körper (5) innen mit einem axialen Hohlraum (15) versehen ist, der elastische Rückstellmittel (16) aufnimmt, die zwischen dem zentralen Körper (5) und dem ringförmigen Körper (6) wirken und ausgebildet sind, um den ringförmigen Kör-

per (6) wieder in die abgesenkte Position zurückzubringen.

7. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß Anspruch 6, **dadurch gekennzeichnet, dass** sie Bewegungsmittel (18) zum Bewegen des ringförmigen Körpers (6) umfasst, die in Kontrast zu den elastischen Rückstellmitteln arbeiten, um den ringförmigen Körper (6) nach oben zu drücken und so das entsprechende hülsenartige Etikett (10) in Eingriff mit dem jeweiligen zu etikettierenden Behälter (3) zu bewegen.
8. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß Anspruch 7, **dadurch gekennzeichnet, dass** die Bewegungsmittel (18) zumindest teilweise entlang des axialen Hohlraums (15) des zentralen Körpers (5) wirken.
9. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß Anspruch 8, **dadurch gekennzeichnet, dass** der zentrale Körper (5) erste Längsschlitze (21) umfasst, die durch die Seitenfläche (5a) des zentralen Körpers (5) verlaufen und mit entsprechenden Abschnitten (22) zur Verbindung zwischen dem ringförmigen Körper (6) und einem zentralen Element (23) verschiebbar in Eingriff gebracht werden können, die sich entlang dem axialen Hohlraum (15) bewegen können, wobei das zentrale Element (23) kinematisch mit den Bewegungsmitteln (16) und mit den elastischen Rückstellmitteln verbunden ist.
10. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der zentrale Körper (5) zweite Längsschlitze (26) umfasst, die ausgebildet sind, um die Gleitreibung zwischen der Seitenfläche (5a) des zentralen Körpers (5) und der Innenfläche des hülsenartigen Etiketts (10) zu vermindern.
11. Die Vorrichtung (1) zum Anbringen von Wärmeschrumpfetiketten gemäß einem oder mehreren der obigen Ansprüche, **dadurch gekennzeichnet, dass** der zentrale Körper (5) einen spitz zulaufenden Abschnitt (27) hat, der nach oben gerichtet und ausgebildet ist, um die Zufuhr der hülsenartigen Etiketten (10) zu dem zentralen Körper (5) zu erleichtern.
12. Ein Verfahren zum Anbringen von Wärmeschrumpfetiketten, das folgende Schritte umfasst:
 - Zuführen eines zu etikettierenden Behälters (3) an eine Station (2) zum Anbringen mindestens eines hülsenartigen Wärmeschrumpfetiketts (10);
 - Übertragen eines hülsenartigen Wärme-

schrumpfetiketts (10) an einen Applikator (4), wobei der Applikator (4) einen zentralen Körper (5) umfasst, der im Wesentlichen zylindrisch oder so geformt ist, dass er der Form des zu etikettierenden Behälters (3) entspricht, wobei das hülsenartige Etikett (10) um die Seitenfläche (5a) eines entsprechenden zentralen Körpers (5) herum zugeführt wird, wobei eine Lücke zwischen der Seitenfläche (5a) des zentralen Körpers (5) und der Innenfläche des hülsenartigen Etiketts (10), das auf den zentralen Körper (5) aufgetragen wird, bereitgestellt wird, wobei die durchschnittlichen Quermaße des hülsenartigen Etiketts (10) 1-5 mm größer sind als die Quermaße der Seitenfläche (5a) des zentralen Körpers (5);

- von unten Zuführen, mit Hilfe des Applikators (4), des hülsenartigen Etiketts (10) an den zu etikettierenden Behälter (3), wobei ein ringförmiger Schiebekörper (6) koaxial mit und außerhalb des zentralen Körpers (5) angeordnet ist und in der Lage ist, auf Befehl eine Translationsbewegung im Verhältnis zu dem zentralen Körper (5) entlang der Achse des zentralen Körpers (5) durchzuführen, um das hülsenartige Etikett (10) um den zu etikettierenden Behälter (3) herum zu positionieren, wobei die gesamte Unterkante des hülsenartigen Etiketts (10) auf dem ringförmigen Schiebekörper (6) aufliegt;
- Erhitzen, mit Hilfe von Erhitzungsmitteln (7), die an der Applikationsstation (2) angeordnet sind, mindestens eines Teils des hülsenartigen Etiketts (10), das um den zu etikettierenden Behälter (3) herum angebracht ist, um die partielle Wärmeschrumpfung des hülsenartigen Etiketts (10) zu aktivieren;
- Überführen des Behälters (3) von der Applikationsstation (2) zu einer Erhitzungsstation (14), die ausgebildet ist, um die Wärmeschrumpfung des hülsenartigen Etiketts (10) auf den zu etikettierenden Behälter (3) abzuschließen.

Revendications

1. Dispositif (1) pour appliquer des étiquettes thermorétrécissables (10), comprenant au moins un applicateur (4), qui est adapté pour délivrer à partir du dessous, et disposé dans une station d'application (2) pour appliquer une étiquette en forme de manchon, au moins une étiquette thermorétrécissables (10) en forme de manchon autour d'un récipient respectif (3) devant être étiqueté, ledit applicateur (4) comprenant un corps central (5), qui est sensiblement cylindrique ou formé de façon à se conformer à la forme dudit récipient devant être étiqueté (3), ledit dispositif (1) comprenant des moyens de transfert pour transférer ladite étiquette en forme de man-

chon (10) à l'applicateur (4), ladite étiquette (10) en forme de manchon étant délivrée autour de la surface latérale (5a) d'un corps central respectif (5), **caractérisé en ce qu'un** espace est réalisé entre la surface latérale (5a) dudit corps central (5) et la surface intérieure de l'étiquette en forme de manchon (10) disposée sur ledit corps central (5), les dimensions transversales moyennes de ladite étiquette (10) en forme de manchon étant supérieures de 1 à 5 mm aux dimensions transversales de ladite surface latérale (5a) dudit corps central (5), ledit dispositif (1) étant muni d'un corps de poussoir annulaire (6) qui est disposé de façon coaxiale et extérieure vis-à-vis dudit corps central (5) et qui peut effectuer un mouvement de translation sur commande par rapport audit corps central (5) le long de l'axe dudit corps central (5) de façon à disposer ladite étiquette (10) en forme de manchon autour dudit récipient devant être étiqueté (3), la totalité du bord inférieur de ladite étiquette (10) en forme de manchon reposant sur ledit corps de poussoir annulaire (6).

2. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon la revendication 1, **caractérisé en ce qu'il** comprend des moyens de chauffage (7), qui agissent en une région d'action dudit au moins un applicateur (4) et qui sont adaptés de façon à activer une thermorétrécissement partielle de l'étiquette (10) en forme de manchon disposée autour du récipient respectif devant être étiqueté (3).
3. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon la revendication 2, **caractérisé en ce qu'il** comprend un guide (8) pour déplacer lesdits récipients devant être étiquetés (3) dans la condition verticale, lesdits moyens de chauffage (7) comprenant des premiers moyens de chauffage (7a) disposés à proximité de la partie dudit guide de mouvement (8) qui est située dans la région d'action dudit applicateur au nombre d'au moins un (4).
4. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon la revendication 3, **caractérisé en ce que** lesdits moyens de chauffage (7) comprennent des deuxième moyens de chauffage (13), qui comprennent au moins une buse de pulvérisation (13a) qui est supportée par ledit applicateur (4) et qui peut se déplacer simultanément audit corps annulaire (6).
5. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon l'une ou plusieurs des revendications 2 à 4 précédentes, **caractérisé en ce qu'il** comprend une station (14) achevant le processus de thermorétrécissement, celle-ci étant disposée en aval de ladite région d'action dudit au moins un applicateur (4) le long dudit guide de mouvement (8).

6. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit corps central (5) est muni intérieurement d'une cavité axiale (15), qui reçoit des moyens de rappel élastiques (16), qui agissent entre ledit corps central (5) et ledit corps annulaire (6), et qui sont adaptés de façon à remettre ledit corps annulaire (6) dans la position abaissée. 5
7. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon la revendication 6, **caractérisé en ce qu'il** comprend des moyens de déplacement (18) pour déplacer ledit corps annulaire (6), qui agissent en opposition vis-à-vis desdits moyens de rappel élastiques de façon à pousser vers le haut ledit corps annulaire (6) de façon à déplacer l'étiquette (10) en forme de manchon respective en prise avec le récipient respectif devant être étiqueté (3). 10
8. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon la revendication 7, **caractérisé en ce que** lesdits moyens de déplacement (18) agissent au moins partiellement le long de ladite cavité axiale (15) dudit corps central (5). 15
9. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon la revendication 8, **caractérisé en ce que** ledit corps central (5) comprend des premières fentes longitudinales (21), qui traversent la surface latérale (5a) dudit corps central (5), et qui peuvent venir en prise de façon coulissante avec des parties respectives (22) pour une liaison entre ledit corps annulaire (6) et un élément central (23), qui peut se déplacer le long de ladite cavité axiale (15), ledit élément central (23) étant relié de façon cinématique auxdits moyens de déplacement (16) et auxdits moyens de rappel élastiques. 20
10. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit corps central (5) comprend des deuxièmes fentes longitudinales (26), qui sont adaptées de façon à réduire le frottement de coulissement entre la surface latérale (5a) dudit corps central (5) et la surface intérieure de ladite étiquette (10) en forme de manchon. 25
11. Dispositif (1) pour appliquer des étiquettes thermorétrécissables selon l'une ou plusieurs des revendications précédentes, **caractérisé en ce que** ledit corps central (5) comporte une partie d'effilement (27) qui est dirigée vers le haut et qui est adaptée de façon à faciliter la délivrance desdites étiquettes (10) en forme de manchon audit corps central (5). 30
12. Procédé pour appliquer des étiquettes thermorétré-

cissables, comprenant les étapes consistant à :

- délivrer un récipient devant être étiqueté (3) à une station (2) pour appliquer au moins une étiquette thermorétrécissables en forme de manchon (10) ;
- transférer une étiquette thermorétrécissables (10) en forme de manchon à un applicateur (4), ledit applicateur (4) comprenant un corps central (5), qui est sensiblement cylindrique ou formé de façon à se conformer à la forme dudit récipient devant être étiqueté (3), ladite étiquette en forme de manchon (10) étant délivrée autour de la surface latérale (5a) d'un corps central respectif (5), un espace étant réalisé entre la surface latérale (5a) dudit corps central (5) et la surface intérieure de l'étiquette (10) en forme de manchon disposée sur ledit corps central (5), les dimensions transversales moyennes de ladite étiquette (10) en forme de manchon étant supérieures de 1 à 5 mm aux dimensions transversales de ladite surface latérale (5a) dudit corps central (5) ;
- délivrer à partir du dessous, à l'aide dudit applicateur (4), ladite étiquette en forme de manchon (10) audit récipient devant être étiqueté (3), un corps de poussoir annulaire (6) étant disposé de façon coaxiale et extérieure vis-à-vis dudit corps central (5) et étant susceptible d'effectuer un mouvement de translation sur commande par rapport audit corps central (5) le long de l'axe dudit corps central (5) de façon à disposer ladite étiquette en forme de manchon (10) autour dudit récipient devant être étiqueté (3), la totalité du bord inférieur de ladite étiquette (10) en forme de manchon reposant sur ledit corps de poussoir annulaire (6) ;
- chauffer, à l'aide de moyens de chauffage (7) disposés dans ladite station d'application (2), au moins une partie de ladite étiquette (10) en forme de manchon disposée autour dudit récipient devant être étiqueté (3) de façon à activer le thermorétrécissement partielle de ladite étiquette (10) en forme de manchon ;
- envoyer ledit récipient (3) à partir de ladite station d'application (2) vers une station de chauffage (14), qui est adaptée pour achever le thermorétrécissement de ladite étiquette (10) en forme de manchon sur ledit récipient devant être étiqueté (3).

Fig. 1

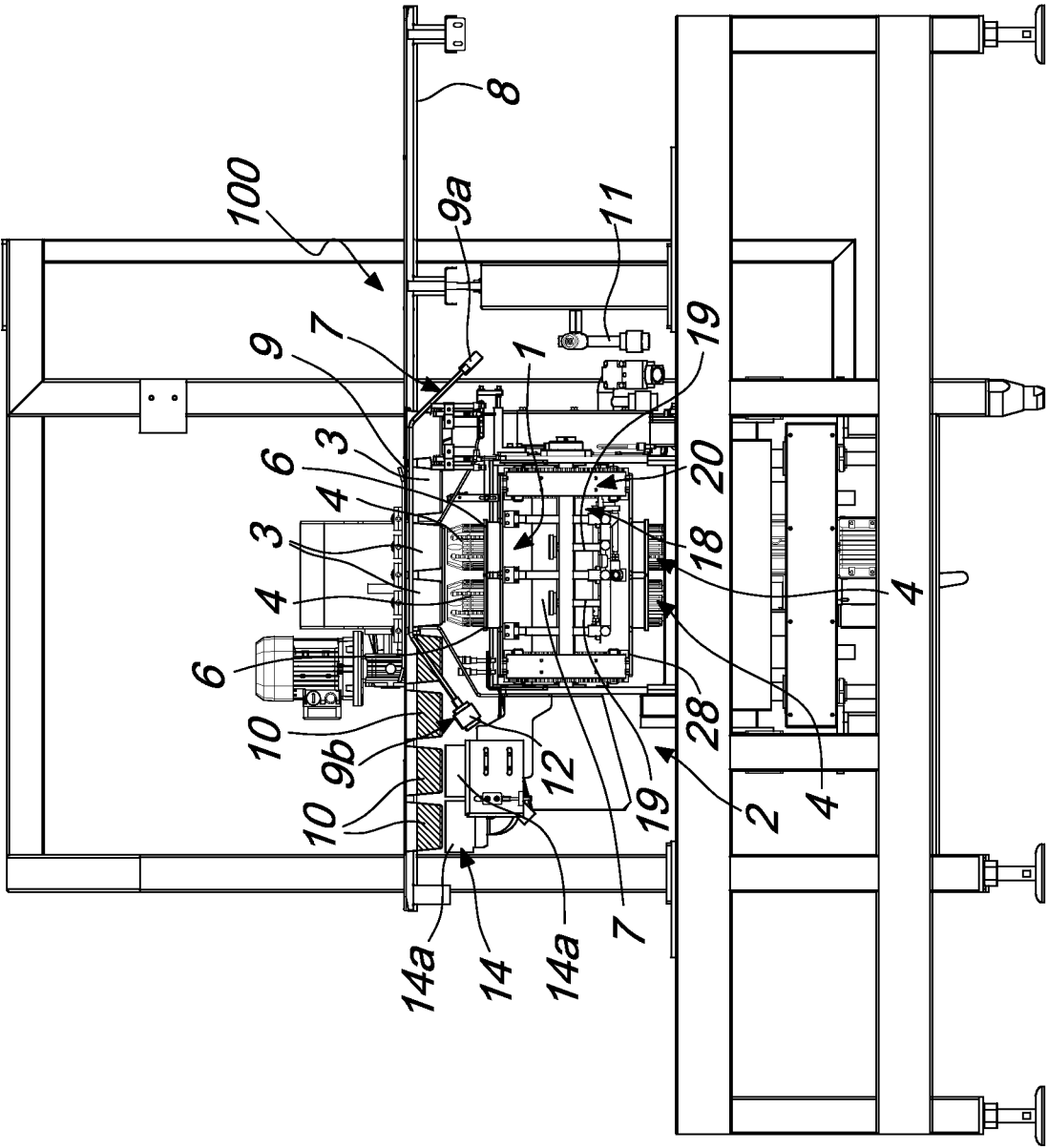
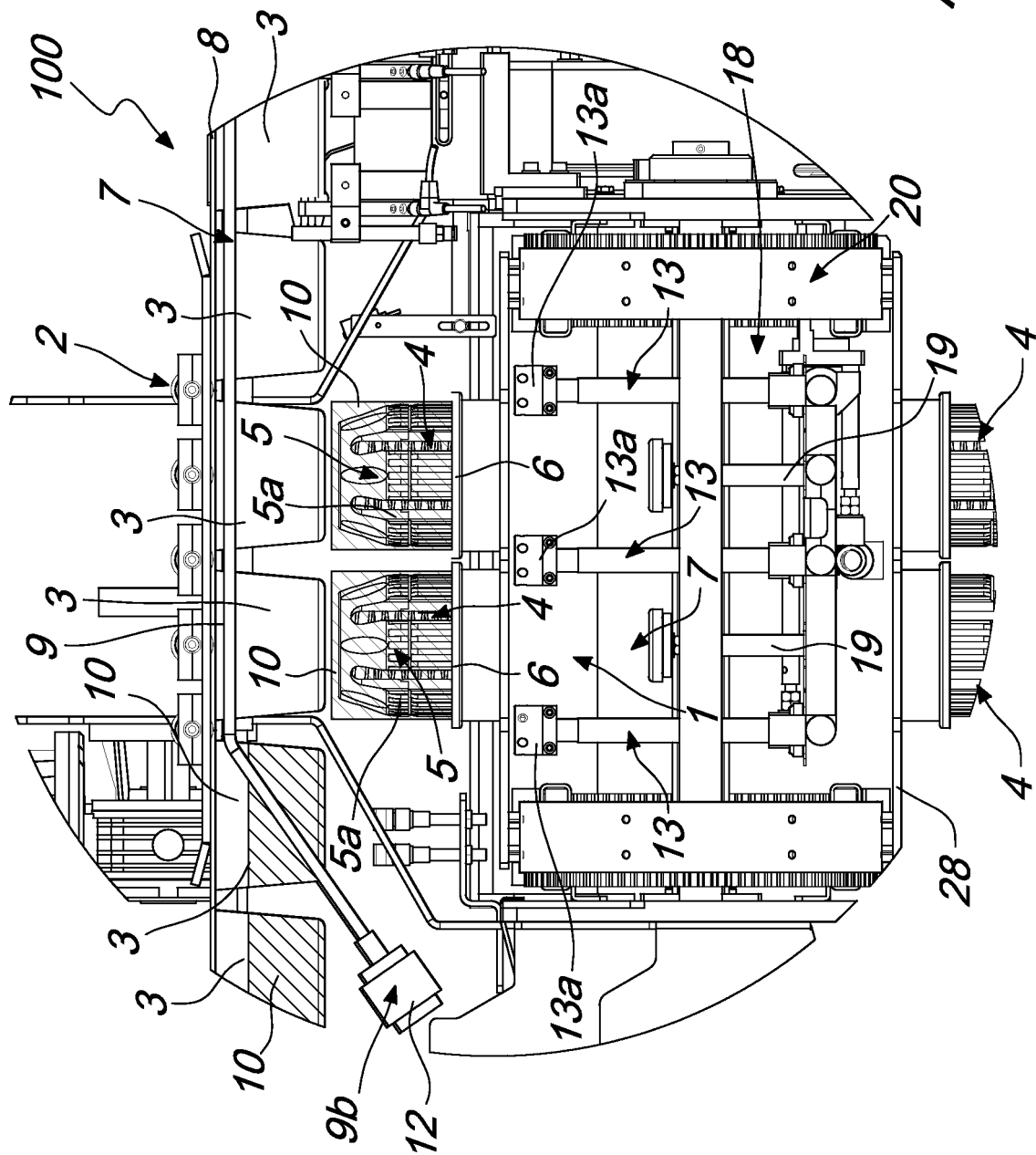


Fig. 2



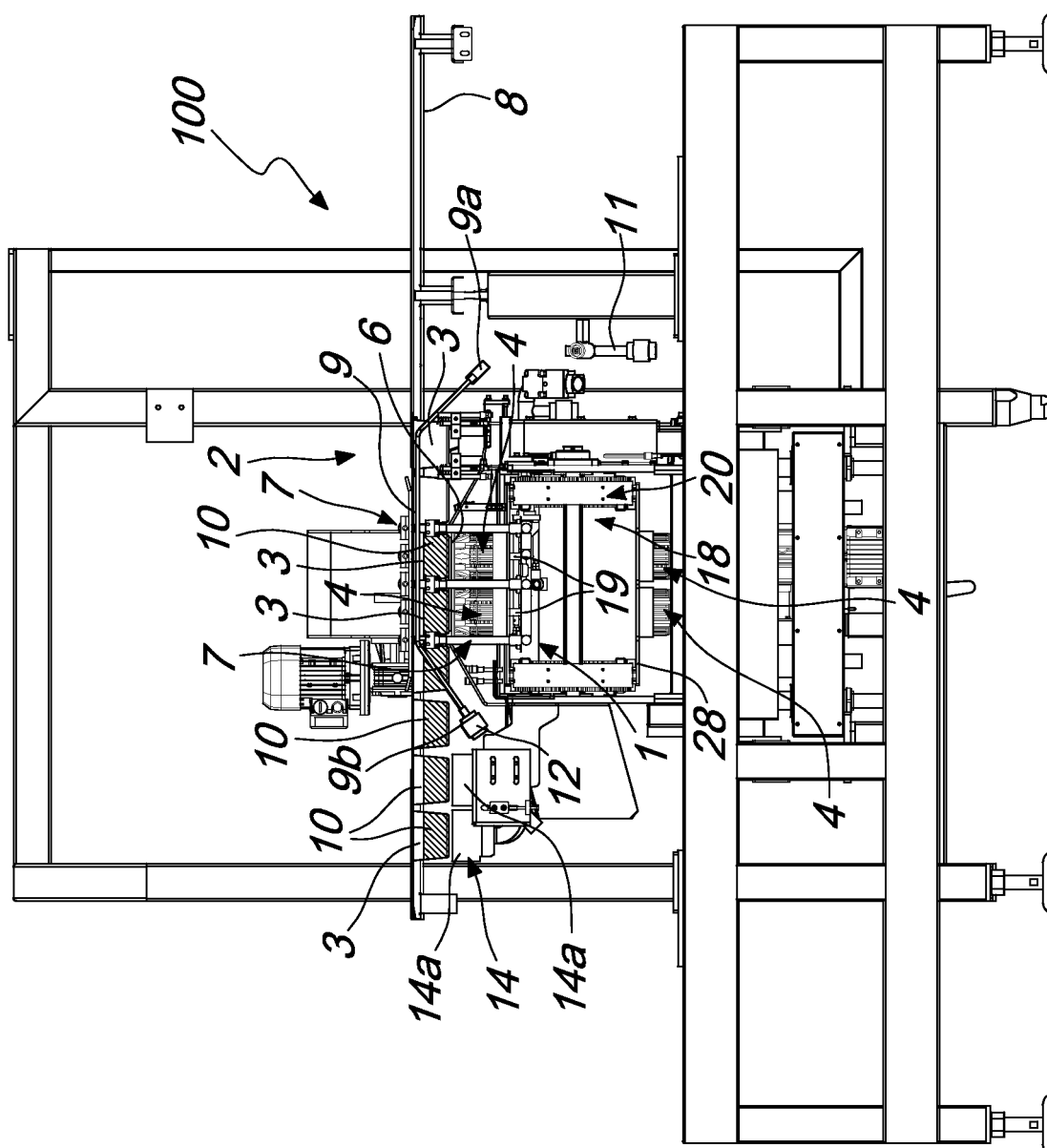
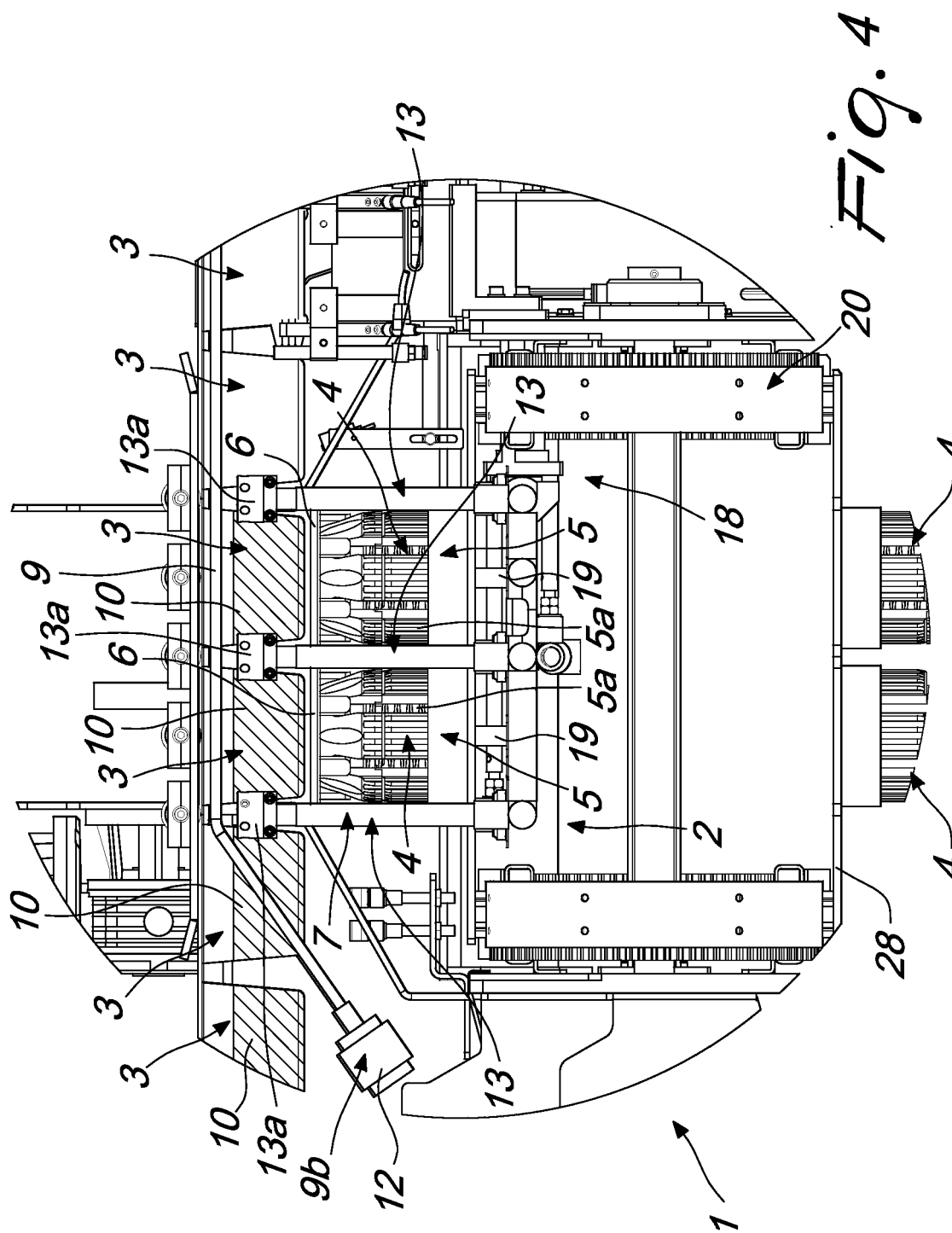


Fig. 3



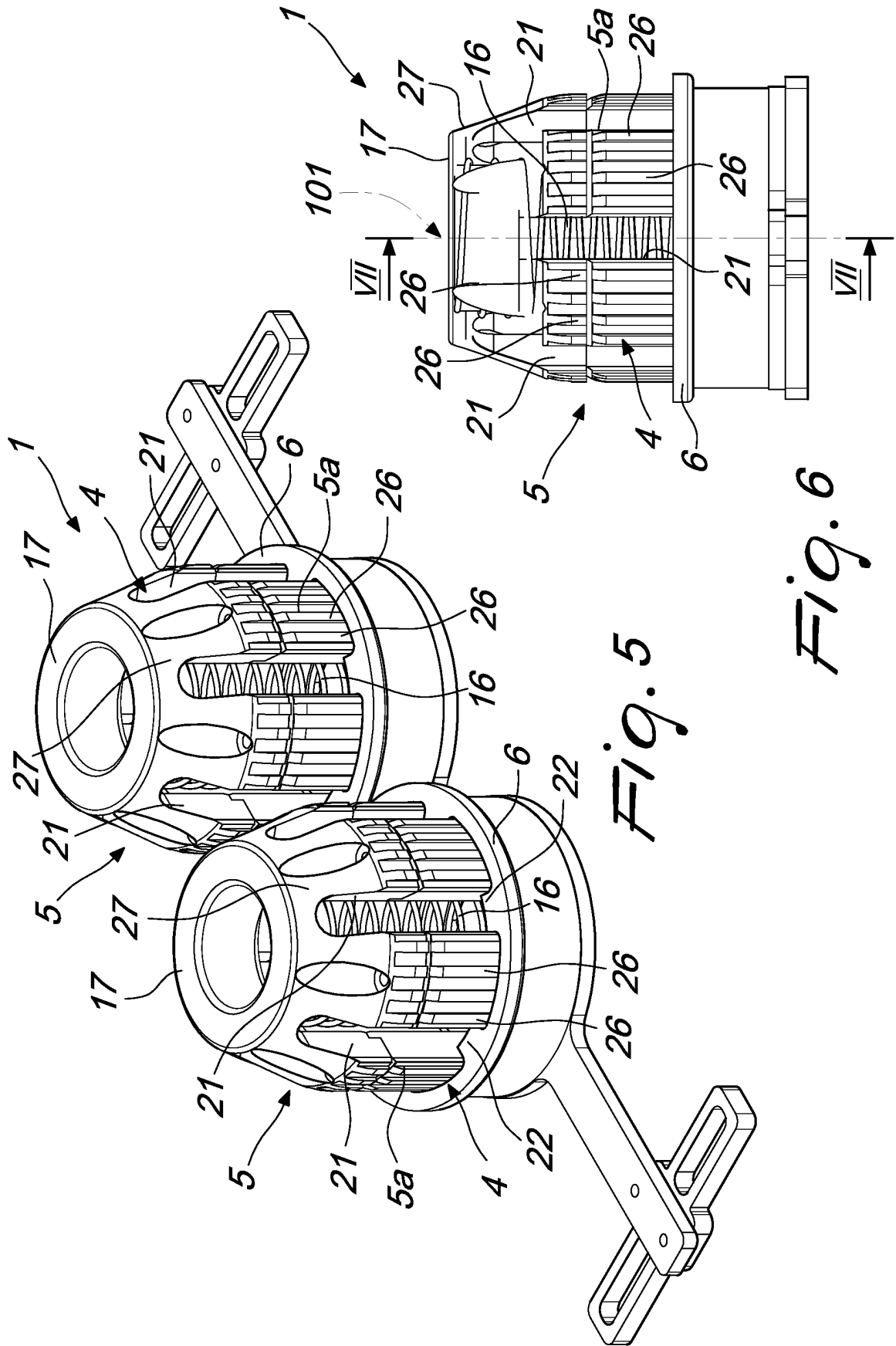


Fig. 6

Fig. 5

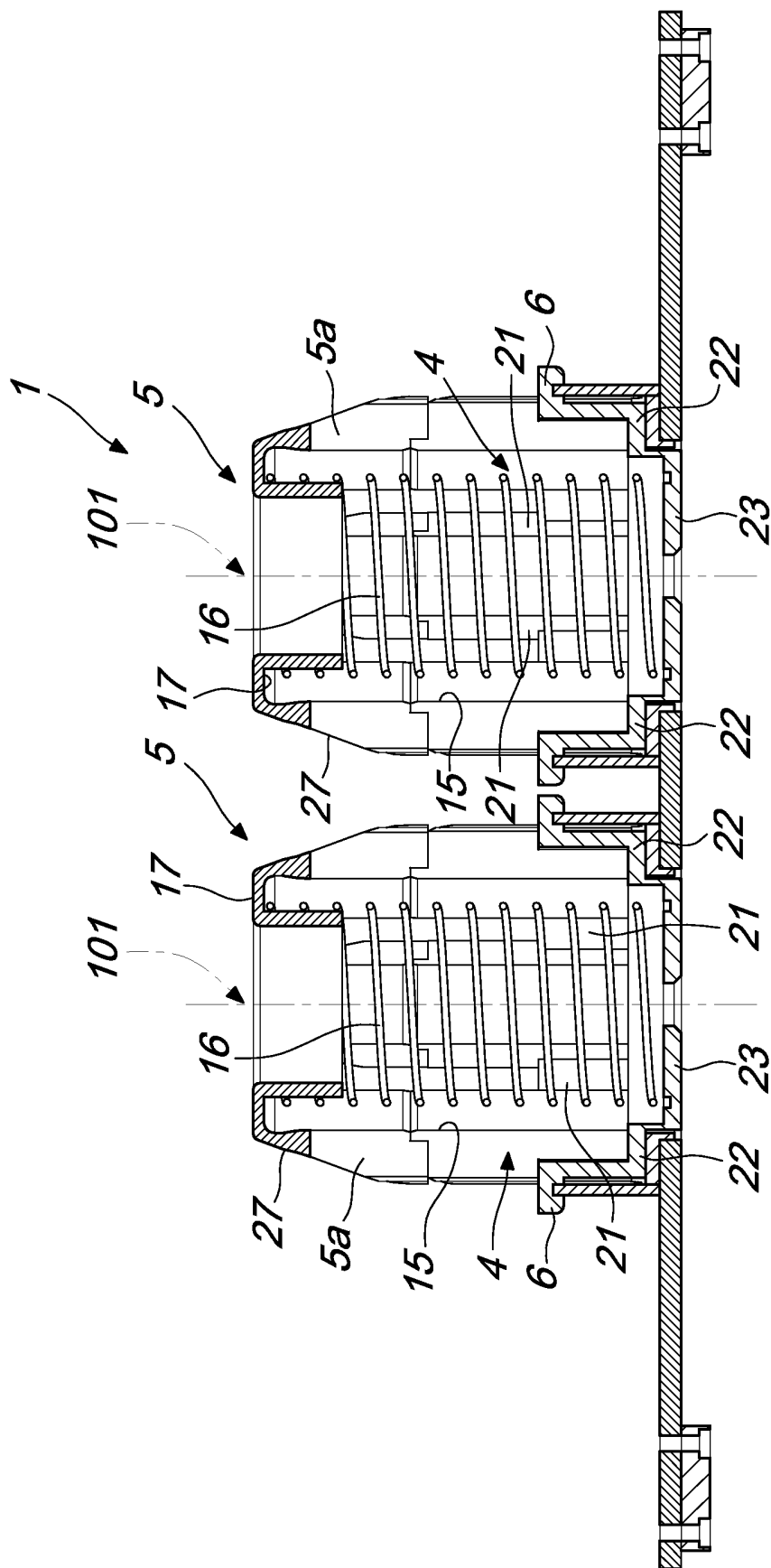


Fig. 7

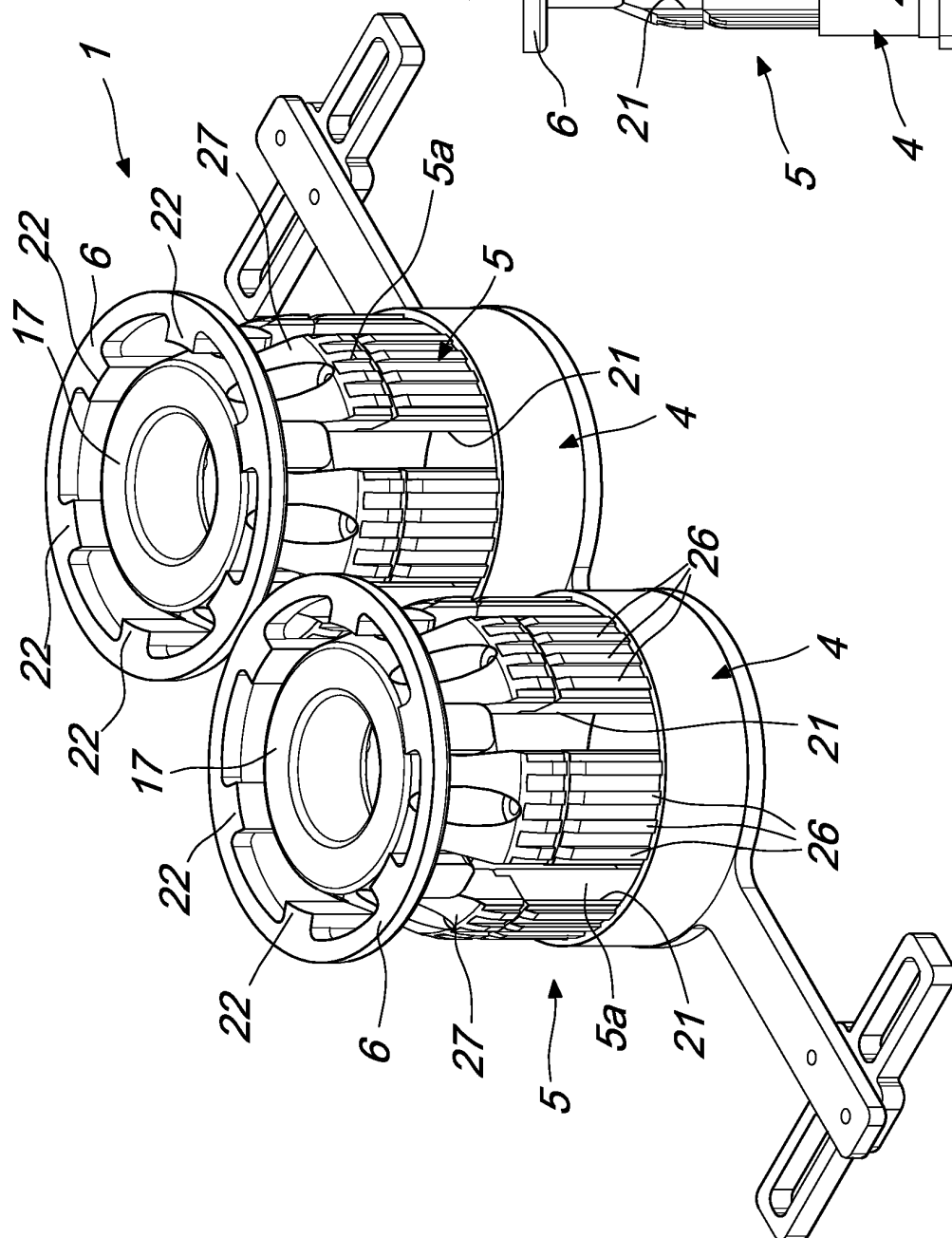
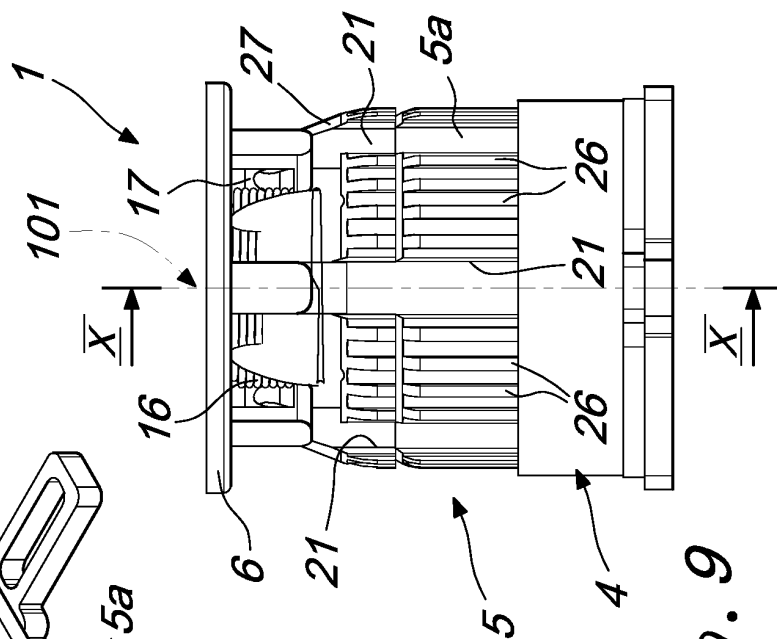


Fig. 9

Fig. 8



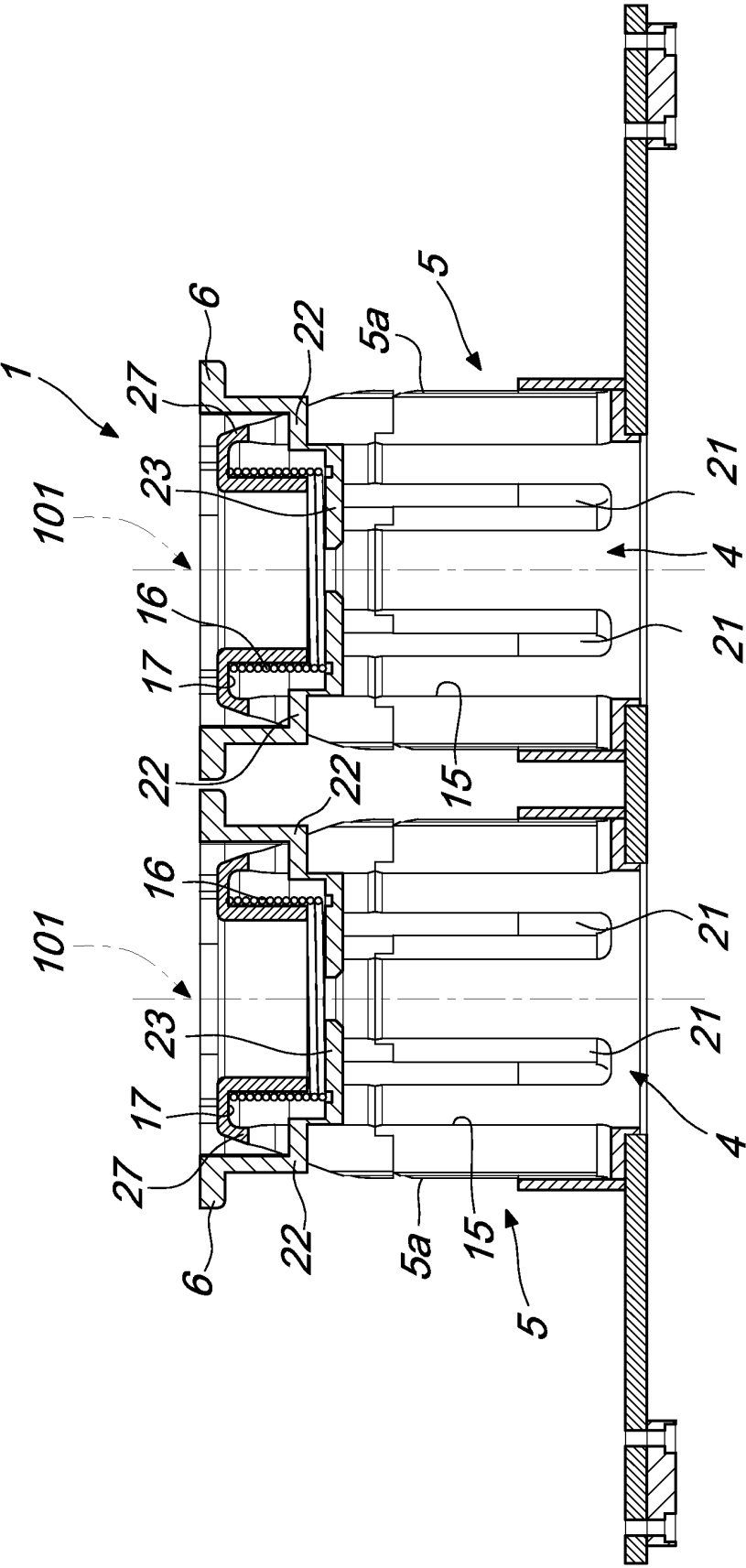


Fig. 10

REFERENCES CITED IN THE DESCRIPTION

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