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(54) DEVICE FOR POSITIONING AND ORIENTATING AN ARTICLE TO BE WRAPPED

VORRICHTUNG ZUR POSITIONIERUNG UND ORIENTIERUNG EINES EINZUWICKELNDEN GEGENSTANDS

DISPOSITIF DE POSITIONNEMENT ET D'ORIENTATION D'UN ARTICLE DESTINE A ETRE EMBALLE

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EP 1 983 897 B1

Description

TECHNICAL FIELD

[0001] The present invention refers to the field of the packaging and it refers to a positioning and orientating device for an article to be wrapped, for example to transfer, from a conveyor to a lifting and wrapping mean of a wrapping machine, chocolates even very delicate and relatively bulky such as those containing a liqueur and chocolate-coated cherry with liqueur, also called "boeri", which traditionally are wrapped in a manner aesthetically similar to a candy.

BACKGROUND ART

[0002] In the known not specialized wrapping machines, in order to carry out various wrappers of various kind of products, such as chocolates, it is necessary to use pliers installed on vertical axis wheels. Such a machine is known, for known, for example, in GB 20 94 746. This document discloses a device according to the preamble of claim 1.

[0003] Said known wheels has the drawback to orientate the products in inappropriate manner to carry out the wrapper chocolate-coated cherry with liqueur type.

[0004] Other drawback of said known wheels consists in that their conformation can make impossible the automatic positioning of a wrapping sheet above the product because they do not leave sufficient space for the organs fit to said positioning.

[0005] Further drawback of said known pliers wheels consists in that they can have an excessive stressing movement and they can lose the movements synchronism with risks of damaging the articles to be wrapped and the machine on which they are installed.

DISCLOSURE OF THE INVENTION

[0006] An object of the present invention is to propose a positioning and orientating device for an article to be wrapped, which can be used on known type wrapping machines for general use to carry out a wrapper of chocolate-coated cherry with liqueur type, according to claim 1.

[0007] Other object is to propose a compact device with smooth movements in order not to damage the product to be wrapped, and without the risk to lose the synchronism and the movements phase.

[0008] Other object is to propose a reliable, quick and relatively simple device, which can be used advantageously also in other applications.

DISCLOSURE OF THE INVENTION

[0009] The characteristics of the invention are evidenced in following with particular reference to the enclosed drawings, in which:

- figure 1 illustrates a schematic, partial and vertical sectional view of the device for positioning and orientating an article to be wrapped of the present invention;
- figure 2 illustrates a view of a portion of the device of figure 1 partially sectional to show one of its transmission means;
- figure 3 illustrates a sectional view according to plane III-III of the device of figure 1;
- figure 4 illustrates a sectional view according to plane IV-IV of the device of figure 2;
- figures from 5 - 7 illustrate side views of respective portions of the device of figure 1;
- figure 8 illustrates an enlarged view of the section according to plane VIII-VIII of figure 7.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] With reference to the figures 1 - 8, numeral 1 indicates the orientating and positioning device for an article 2 to be wrapped, for example consisting in a chocolate-coated cherry with liqueur, by means of a machine, for example of known type, to carry out various types of wrappers for various types of articles or products. The device 1, for example, can be used as vertical axis wheel in said known type of machines. In alternative the device, opportunely operated, can be associated to a specialized machine or can be interposed between two machines or between a conveyor and a wrapping machine of known type and not shown.

[0011] The positioning and orientating device 1 for an article 2 comprises a support body 3 for four pliers means 5 and being approximately cylinder segment shaped and comprising a cylindrical wall 132.

[0012] A disc element 130, of the support body 3, is horizontally fixed to the upper edge of the cylindrical wall 132, for example by means of screw means.

[0013] The disc element 130 of the support body 3 is centrally fixed to an upper end of a vertical hollow rotating shaft 4 in order to rotate around a vertical axis coinciding with the main geometric axes of the cylindrical wall 132 and of the disc element 130.

[0014] Each pliers means is provided with two jaws 6, 7 equipped with respective opening means 8 to hold and to release the article 2.

[0015] Each of the four pliers means 5 protrudes towards the outside and it is connected to the cylindrical wall 132 of the support body 3 by means of respective rotation means 9.

[0016] Said rotation means 9 allow the rotation of the pliers means 5 around an axis almost radial in respect to the vertical rotation axis of the support body 3, in other words around an axis that is horizontal and crosses the geometric axis of the cylindrical wall and of the disc element. Each of the rotation means 9 comprises a first rotary body 10 supporting, by means of its coupling means 13, a respective pliers means 5. The first rotary body 10 is connected to the support body 3 by means of a first

connection means 11.

[0017] The first connection means 11 is provided with rolling means 30, for example one or more bearings and/or anti-friction bushings, for the free rotation of said first rotary body 10, together with the respective pliers means, around its radial axis.

[0018] The first rotary body 10 is connected to respective transmission means 12 for the rotary motion around the respective radial axis of the same first rotary body 10 and of its joint means 13 with the pliers means 5.

[0019] Each of the transmission means 12 comprises a first gear wheel 112 fixed to the inner end, in other words the end opposite to the pliers means, of the first rotary body 10 and engaged to a second gear wheel 113 of a second rotary body 114 with vertical axis, in other words almost orthogonal to that one of first rotary body 10, and provided with a third gear wheel 115 and engaged to a fourth gear wheel 29 peripherally fixed to a fixed body 27 of the device consisting of a tubular body with symmetry axis coincident with the vertical rotation axis of the support body 3.

[0020] The first 112 and second 113 gear wheels form a conical pair, the third 115 and the fourth 29 gear wheels have vertical and parallel axes and are cylindrical with straight or helicoidal teeth. The fourth gear wheel 29 is coaxial to the fixed body 27 and therefore to the vertical rotation axis of the support body 3.

[0021] Each second rotary body 114 is connected to an inner circular crown shaped flange of the lower edge of the cylindrical wall 132 of the support body 3 by means of a respective second fixing means 133 provided with rolling means consisting, for example, of ball or needle bearings, for the rotation of said second rotary body 114 around its vertical rotation axis.

[0022] The opening means 8 of each pliers means 5, comprise two eccentric 116, 117 consisting of rollers each provided with an almost flat and radial surface 150 fit to abut with an external end of a respective rod means 19 of said opening means 8 axially driven by a respective driving means 120.

[0023] The two eccentrics are parallel and hinged to the joint means 13 of the respective pliers means 5.

[0024] Each of the eccentrics 116, 117 is fixed to a lateral arm 118, 119 connecting to a respective jaw 6, 7.

[0025] When the driving means 120 translate towards the outside the rod means 19, the end of the shaft means acts on the almost flat surfaces 150 causing the rotation of the eccentrics and the opening of the pliers means 5. When the shaft means is brought back to the inside, the pliers means 5 closes itself, for example due to effect of a compressed spring 200 acting on flat abutments of the eccentrics counter-facing the almost flat surfaces 150.

[0026] Each rod means 19 is slidingly housed in a longitudinal passing cavity of the respective first rotary body 10.

[0027] The driving means 120, of each pliers means 5, comprises a first idle wheel means 23 driven by cam means 20 connected to a control shaft 121 coaxial to the rotation shaft 4.

[0028] The first idle wheel means 23 is engaged in one respective housing 122 consisting of an annular groove carried out in, or fixed to, the inner end of the rod means 19 for the axial movement of this latter.

[0029] Each driving means 120 comprises furthermore a transmission means 123 fit to connect the first idle wheel 23 to the cam means 20.

[0030] An end of a first arm 125 of the transmission means 123 supports the first idle wheel means 23 and an end of its second arm 126 supports a second idle wheel means 124.

[0031] Said arms 125, 126 of the driving means 120 are mutually parallel and faced to each other and are interconnected by means of a respective pivot 127 perpendicular thereto.

[0032] Said pivot 127 is parallel respect to the rotation axis of the support body 3 and is engaged in rotating manner to a respective bushing 131, provided with rolling means for said pivot, and fixed to the disc element 130 of the support body 3.

[0033] The second idle wheel means 124 of the driving means 120, is sliding engaged inside a shaped groove 128 of the cam means 20.

[0034] In this manner the translation either towards the outside or towards the inside of each rod means 19 is determined by the shape of the shaped groove 128 of the cam means 20.

[0035] The control shaft 121 of the cam means 20 is rotating housed in the longitudinal passing cavity of the rotation shaft 4.

[0036] The upper end of the control shaft 121, the cam means 20 and each second idle wheel means 124 are positioned above the disc element 130 while each of the first idle wheel means 23 and each of the rod means 19 are positioned under the disc element 130.

[0037] The device comprises annular sealing means 134 interposed between the fixed body 27 and the lower end of the cylindrical wall 132 and comprises furthermore a covering element 135 fixed above the disc element 130 in order protect at least the cam means 20.

[0038] The lower ends of the rotation shaft 4 and the control shaft 121 support respective motion connection means consisting, for example, of an intermittent drives or gear wheels 151 and/or grooved terminals 152 or the like.

[0039] Preferably the transmission shaft 4 has an intermittent drive and the control shaft 121 has a connection for the intermittent rotary motion.

[0040] The operation provides that when the article 2, in a predetermined inlet position in front of the pliers means 5 is placed, for example by a pusher, between the opened jaws 6, 7 of said pliers means, said jaws hold it following their closure operated by the opening means 8.

[0041] The support body 3 and the rotary means 9 rotate the pliers means 5 and the article 2 respectively around a vertical axis and a radial axis of the support

body until the article reaches a predetermined position and a predetermined outlet orientation. When the article reaches said position, and orientation the opening means 8 open the jaws 6, 7 releasing the article correctly oriented for successive workings.

[0042] In alternative, the invention provides that only one of the two jaws is mobile being connected to the rod means 19 by means of the eccentrics while the other jaw is fixed in order to facilitate the insertion of the article.

[0043] In order to allow the positioning of the wrapping sheets above the articles 2 in outlet of the device without that the machine organs which carries out said positioning of the sheet interfere with the device, the arms 118, 119 of the jaws 6, 7 of each pliers means 5, protrude from the device 1 of a length ranging between two and five times of the maximum dimension of the article to be wrapped, preferably equal to at least three times of the said maximum dimension of the article.

[0044] In alternative or furthermore to their remarkable length, the arms 118, 119 of the jaws 6, 7 can be shaped, for example, they can be bended in "L" shape or the like.

[0045] An advantage of the present invention is to provide a positioning and orientating device for an article to be wrapped, which can be used on known wrapping machine for general purpose to carry out a wrapper of chocolate-coated cherry with liqueur type.

[0046] Other advantage is provide a compact device which can be advantageously used also in other applications.

[0047] Further advantage is to provide a device with smooth movements in order not to damage the product to be wrapped and without the risk to lose the synchronism and the phase of the movements.

[0048] Other advantage is to provide a reliable, quick and relatively simple device.

Claims

1. Device for positioning and orientating an article (2) to be wrapped by means of a machine and comprising a support body (3) rotating around a vertical axis, the device (1) being furthermore equipped with at least one pliers means (5) connected to the support body (3) to rotate together with it and provided with at least two jaws (6, 7) equipped with opening means (8) to hold and to release the article (2), said device (1) being **characterized in that** the at least one pliers means (5) is connected to the support body (3) by means of respective rotary means (9) for the rotation, around an axis almost radial in respect to the almost vertical rotating axis of said support body (3) of said at least one pliers means (5) and of the article held thereby; when the article (2), in a predetermined inlet position in front of the at least one pliers means (5), it is positioned between the opened jaws (6, 7) of said pliers means (5), said jaws held said article (2) due to their closure operated by the opening means (8); the support body (3) and the rotary means (9) rotate the at least one pliers means (5) and the article (2) respectively around to a vertical axis and to a radial axis of the support body until the article reaches a predetermined position and a predetermined outlet orientation, when said position and orientation are reached by the article (2) the opening means (8) open the jaws (6, 7) releasing the article correctly positioned for successive workings.

2. Device according to claim 1 **characterized in that** the support body (3) is centrally fixed to a vertical rotation shaft (4).

3. Device according to claim 1 **characterized in that** each of the rotation means (9) comprises a first rotary body (10) connected to the support body (3) by means of a first connection means (11) provided with rolling means (30) for the free rotation of the first rotary body (10) around a radial axis; said first rotary body (10) being connected to respective transmission means (12) for the motion around the radial axis of the same first rotary body (10) and of its joint means (13) for the pliers means (5).

4. Device according to claim 3 **characterized in that** each of the transmission means (12) comprises a first gear wheel (112) fixed to the first rotary body (10) and engaged to a second gear wheel (113) of a second rotary body (114) with axis almost orthogonal in respect to that of the first body rotary (10) and provided with a third gear wheel (115) engaged to a fourth gear wheel (29) fixed to a fixed body (27); the first (112) and second (113) gear wheels form a conical pair, the third (115) and fourth (29) gear wheels are cylindrical and the fourth gear wheel (29) is coaxial in respect to the vertical rotation axis of the support body (3); each second rotary body (114) is connected to the support body (3) by means of a respective second fixing means (133) provided with rolling means for the rotation of said second rotary body (114) around a rotation axis almost perpendicular in respect to the horizontal rotation axis of the first rotary body (10).

5. Device according to claim 1 **characterized in that** the opening means (8), of each pliers means (5), comprise at least an eccentric (116, 117) to which is fixed an arm (118, 119) for connecting to a respective jaw (6, 7), in such a manner that at least an eccentric (116, 117) being driven by an external end of a respective rod means (19), of said opening means (8), axially driven by a respective driving means (120).

6. Device according to claims 3 and 5 **characterized in that** each rod means (19) is sliding housed in an longitudinal passing cavity of the respective first rotary body (10).

7. Device according to claim 5 **characterized in that** the driving means (120), of each pliers means (5), comprises a first idle wheel (23) driven by cam means (20) connected to a control shaft (121) coaxial to the rotation shaft (4), said first idle wheel (23) being engaged in a respective housing (122) of the inner end of the rod means (19) for the axial movement of this latter.

8. Device according to claim 7 **characterized in that** each driving means (120) comprises furthermore a transmission means (123) having, at on one end of a its first arm (125), the first idle wheel means (23) and, at on an end of an its second arm (126), a second idle wheel means (124).

9. Device according to claim 8 **characterized in that** the arms (125, 126), of each of the driving means (120), are mutual parallel, faced to each other and interconnected by means of a respective pivot (127) perpendicular thereto, parallel to the rotation axis of the support body (3) and rotating connected to this latter body (3); the second idle wheel means (124), of each driving means (120), is sliding engaged within a shaped groove (128) of the cam means (20) and that each housing (122) for each first idle wheel means (23) consists of a annular groove.

10. Device according to claim 7 **characterized in that** the control shaft (121) is rotating housed in a longitudinal passing cavity of the rotation shaft (4).

11. Device according to claim 9 **characterized in that** the upper end of the rotation shaft (4) is fixed to a horizontal disc element (130) of the support body (3); the interconnection pivot (127) of the arms (125, 126) of each driving means (120) is rotating engaged to a respective bushing (131) provided with rolling means for said pivot and fixed to the disc element (130) of the support body (3).

12. Device according to claims 7, 9 and 11 **characterized in that** the upper end of the control shaft (121), the cam means (20) and each second idle wheel means (124) are positioned under the disc element (130) while each of the first idle wheel means (23), the rod means (19), the pliers means (5) and the first rotary body (10) are positioned above the disc element (130); the upper end of the control shaft (121), the cam means (20) and each second idle wheel means (124) are positioned above the disc element (130) while each of the first idle wheel means (23) and of the rod means (19) are positioned under the disc element (130).

13. Device according to claims 3 and 11 **characterized in that** each first connection means (11) is fixed to a cylindrical wall (132) of the support body (3) fixed under the disc element (130).

14. Device according to claims 4, 7,11 and 13 **characterized in that** it comprises annular seal means (134) interposed between the fixed body (27) and the lower end of the cylindrical wall (132), said device (1) further comprises a covering element (135) fixed above to the disc element (130) in order protect at least the cam means (20).

15. Device according to claim 5 **characterized in that** the arms (118, 119) of the jaws (6, 7) of each pliers means (5), are "L" shape bended or the like and protrude from the device of a length at least equal to three times of the maximum size of the article to be wrapped.

Patentansprüche

1. Vorrichtung zum Positionieren und Orientieren eines einzuwickelnden Gegenstandes (2) mittels einer Maschine und umfassend einen Unterstützungskörper (3), der sich um eine vertikale Achse dreht, während die Vorrichtung (1) weiterhin mit mindestens einem Zangenmittel (5) ausgestattet ist, das mit dem Unterstützungskörper (3) zum Drehen damit verbunden ist sowie mit mindestens zwei Klauen (6, 7) bereitgestellt ist, die mit Öffnungsmitteln (8) ausgestattet sind, um den Gegenstand (2) zu halten und freizugeben, während die Vorrichtung (1) **dadurch gekennzeichnet ist, dass** das mindestens eine Zangenmittel (5) mit dem Unterstützungskörper (3) mittels jeweiligen Drehmitteln (9) für die Drehung um eine nahezu radiale Achse in Bezug auf die nahezu vertikale Drehachse des Unterstützungskörpers (3) der mindestens einen Zangenmittel (5) und des davon gehaltenen Gegenstands verbunden ist, wenn der Gegenstand (2) in einer vorbestimmten Einlassposition vor dem mindestens einen Zangenmittel (5) ist, wird er zwischen den offenen Klauen (6, 7) der Zangenmittel (5) positioniert, wobei die Klauen den Gegenstand (2) infolge ihres Schließens halten, das durch die Öffnungsmittel (8) betrieben wird, während der Unterstützungskörper (3) und die Drehmittel (9) das mindestens eine Zangenmittel (5) sowie den Gegenstand (2) jeweils um eine vertikale Achse sowie eine radiale Achse des Unterstützungskörpers drehen, bis der Gegenstand eine vorbestimmte Position und eine vorbestimmte Auslassorientierung erreicht, und wenn die Position und Orientierung durch den Gegenstand (2) erreicht sind, öffnen die Öffnungsmittel (8) die Klauen (6, 7), die den Gegenstand richtig positioniert für nachfolgende Arbeiten freigeben.

2. Vorrichtung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** der Unterstützungskörper (3) mittig an einer vertikalen Drehwelle (4) befestigt ist.

3. Vorrichtung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** jedes der Drehmittel (9) einen ersten Drehkörper (10) aufweist, der mit dem Unterstützungskörper (3) mittels eines ersten Verbindungsmittels (11) verbunden ist, das mit Rollmitteln (30) für die freie Drehung des ersten Drehkörpers (10) um eine radiale Achse bereitgestellt ist, wobei der erste Drehkörper mit jeweiligen Übertragungsmitteln (12) für die Bewegung um die radiale Achse desselben ersten Drehkörpers (10) und um seine Verbindungsmittel (13) für die Zangenmittel (5) verbunden ist.

4. Vorrichtung gemäß Anspruch 3, **dadurch gekennzeichnet, dass** jedes der Übertragungsmittel (12) ein erstes Getrieberad (112) umfasst, das an dem ersten Drehkörper (10) befestigt ist und mit einem zweiten Getrieberad (113) eines zweiten Drehkörpers (114) mit einer nahezu orthogonalen Achse in Bezug auf den ersten Drehkörper (10) in Eingriff steht und mit einem dritten Getrieberad (115) bereitgestellt ist, das mit einem an einem befestigten Körper (27) befestigten vierten Getrieberad (29) in Eingriff steht, wobei das erste (112) und das zweite (113) Getrieberad ein konisches Paar bilden, während das dritte (115) und vierte (29) Getrieberad zylindrisch sind und das vierte Getrieberad (29) koaxial in Bezug auf die vertikale Drehachse des Unterstützungskörpers (3) ist, während jeder zweite Drehkörper (114) mit dem Unterstützungskörper (3) mittels eines jeweiligen zweiten Befestigungsrnittels (113) verbunden ist, das mit Rollmitteln für die Drehung des zweiten Drehkörpers (114) um eine Drehachse nahezu rechtwinklig in Bezug auf die horizontale Drehachse des ersten Drehkörpers (10) bereitgestellt ist.

5. Vorrichtung gemäß Anspruch 1, **dadurch gekennzeichnet, dass** die Öffnungsmittel (8) jedes Zangenmittels (5) mindestens einen Exzenter (116, 117) aufweisen, an dem ein Arm (178, 119) zum Verbinden mit einer jeweiligen Klaue (6, 7) in so einer Weise befestigt ist, dass mindestens ein Exzenter (116, 117) durch ein äußeres Ende eines jeweiligen Stabmittels (19) der Öffnungsmittel (8) angetrieben wird, das durch ein entsprechendes Antriebsmittel (120) axial angetrieben ist.

6. Vorrichtung gemäß den Ansprüchen 3 und 5, **dadurch gekennzeichnet, dass** jedes Stabmittel (19) gleitend in einem Längsdurchgangshohlraum des entsprechenden ersten Drehkörpers (10) angeordnet ist.

7. Vorrichtung gemäß Anspruch 5, **dadurch gekennzeichnet, dass** die Antriebsmittel (120) jedes Zangenmittels (5) ein erstes Leerlaufrad (23) aufweisen, das mittels Nockenmitteln (20) angetrieben wird, die mit einer Steuerwelle (121) koaxial zu der Drehwelle (4) verbunden sind, wobei das erste Leerlaufrad (23) in einem jeweiligen Gehäuse (122) des inneren Endes des Stabmittels (19) für die axiale Bewegung des Letzteren angeordnet ist.

8. Vorrichtung gemäß Anspruch 7, **dadurch gekennzeichnet, dass** jedes Antriebsmittel (120) weiterhin ein Übertragungsmittel (123) aufweist, das an einem Ende seines ersten Arms (125) das erste Leerlaufradmittel (23) sowie an einem Ende von seinem zweiten Arm (126) ein zweites Leerlaufradmittel (124) umfasst.

9. Vorrichtung gemäß Anspruch 8, **dadurch gekennzeichnet, dass** die Arme (125, 126) von jedem der Antriebsmittel (120) gegenseitig parallel sind, einander gegenüberliegen sowie mittels eines jeweiligen Schwenkpunkts (127) miteinander verbunden sind, der rechtwinklig dazu ist, parallel zur Drehachse des Unterstützungskörpers (3) ist sowie drehend mit dem letzteren Körper (3) verbunden ist, wobei das zweite Leerlaufradmittel (124) jedes Antriebsmittels (120) gleitend innerhalb einer geformten Rille (128) der Nockenmittel (20) angeordnet ist, und dass jedes Gehäuse (122) für jedes erste Leerlaufradmittel (23) aus einer ringförmigen Rille besteht.

10. Vorrichtung gemäß Anspruch 7, **dadurch gekennzeichnet, dass** die Steuerwelle (121) drehend in einem Längsdurchgangshohlraum der Drehwelle (4) angeordnet ist.

11. Vorrichtung gemäß Anspruch 9, **dadurch gekennzeichnet, dass** das obere Ende der Drehwelle (4) an einem horizontalen Scheibenelement (130) des Unterstützungskörpers (3) befestigt ist, wobei der Verbindungsschwenkpunkt (127) der Arme (125, 126) jedes Antriebsmittels (120) drehend mit einer jeweiligen Hülse (131) in Eingriff steht, die mit Rollmitteln für das Schwenken bereitgestellt ist und an dem Scheibenelement (130) des Unterstützungskörpers (3) befestigt ist.

12. Vorrichtung gemäß Anspruch 7,9 und 11, **dadurch gekennzeichnet, dass** das obere Ende der Steuerwelle (121), die Nockenmittel (20) sowie jedes zweite Leerlaufradmittel (124) unter dem Scheibenelement (130) angeordnet sind, während jeder von dem ersten Leerlaufradmittel (23), dem Stabmittel (19), dem Zangenmittel (5) und dem ersten Drehkörper (10) oberhalb des Scheibenelements (130) angeordnet sind, wobei das obere Ende der Steuerwelle (121), die Nockenmittel (20) sowie jedes zweite Leerlaufradmittel (124) oberhalb des Scheibenelements (130) angeordnet sind während jeder von dem ersten Leerlaufradmittel (23) und dem Stabmittel (19) unter dem Scheibenelement (130) angeordnet

sind.

13. Vorrichtung gemäß den Ansprüchen 3 und 11, **dadurch gekennzeichnet, dass** jedes erste Verbindungsmittel (11) an einer zylindrischen Wand (132) des Unterstützungskörpers (3) befestigt ist, der unter dem Scheibenelement (130) befestigt ist.

14. Vorrichtung gemäß den Ansprüchen 4, 7, 11 und 13, **dadurch gekennzeichnet, dass** sie ein ringförmiges Dichtungsmittel (134) umfasst, das zwischen dem befestigten Körper (27) sowie dem unteren Ende der zylindrischen Wand (132) angeordnet ist, wobei die Vorrichtung (1) weiterhin ein Abdeckelement (135) aufweist, das oberhalb des Scheibenelements (130) befestigt ist, um mindestens die Nockenmittel (20) zu schützen.

15. Vorrichtung gemäß Anspruch 5, **dadurch gekennzeichnet, dass** die Arme (118, 119) der Klauen (6, 7) jedes Zangenmittels (5) "L"-förmig gebogen sind oder Ähnliches sind und von der Vorrichtung über eine Länge hervorstehen, die mindestens gleich dem Dreifachen der maximalen Größe des einzuwickelnden Gegenstands ist.

Revendications

1. Dispositif de positionnement et d'orientation d'un article (2) à emballer à l'aide d'une machine et comprenant un corps de support (3) tournant autour d'un axe vertical, le dispositif (1) étant en outre équipé d'au moins un moyen à pince (5) raccordé au corps de support (3) pour tourner conjointement avec lui et muni d'au moins deux mors (6, 7) équipés d'un moyen d'ouverture (8) pour retenir et relâcher l'article (2), ledit dispositif (1) étant **caractérisé en ce que** le au moins un moyen à pince (5) est raccordé au corps de support (3) à l'aide de moyens rotatifs respectifs (9) pour la rotation, autour d'un axe presque radial par rapport à l'axe rotatif presque vertical dudit corps de support (3) dudit au moins un moyen à pince (5) et de l'article retenu par celui-ci ; lorsque l'article (2), en position d'entrée prédéterminée devant le au moins un moyen à pince (5), est positionné entre les mors ouverts (6, 7) dudit moyen à pince (5), lesdits mors retenant ledit article (2) en raison de leur fermeture actionnée par le moyen d'ouverture (8) ; le corps de support (3) et le moyen rotatif (9) font tourner le au moins un moyen à pince (5) et l'article (2) respectivement autour d'un axe vertical et d'un axe radial du corps de support jusqu'à ce que l'article atteigne une position prédéterminée et une orientation de sortie prédéterminée et, lorsque lesdites position et orientation sont atteintes par l'article (2), le moyen d'ouverture (8) ouvre les mors (6, 7) libérant l'article correctement positionné pour des travaux successifs.

2. Dispositif selon la revendication 1, **caractérisé en ce que** le corps de support (3) est fixé au centre à un arbre (4) à rotation verticale.

3. Dispositif selon la revendication 1, **caractérisé en ce que** chacun des moyens de rotation (9) comprend un premier corps rotatif(10) raccordé au corps de support (3) à l'aide d'un premier moyen de raccordement (11) muni de moyens de roulement (30) pour la rotation libre du premier corps rotatif (10) autour d'un axe radial ; ledit premier corps rotatif (10) étant raccordé à des moyens de transmission respectifs (12) pour le mouvement autour de l'axe radial de ce même premier corps rotatif (10) et de ses moyens de jonction (13) pour le moyen à pince (5).

4. Dispositif selon la revendication 3, **caractérisé en ce que** chacun des moyens de transmission (12) comprend une première roue dentée (112) fixée au premier corps rotatif (10) et engagée sur une deuxième roue dentée (113) d'un second corps rotatif (114) avec un axe presque orthogonal à celui du premier corps rotatif (10) et muni d'une troisième roue dentée (115) engagée sur une quatrième roue dentée (29) fixée à un corps fixe (27) ; les première (112) et deuxième (113) roues dentées forment une paire conique, les troisième (115) et quatrième (29) roues dentées sont cylindriques et la quatrième roue dentée (29) est coaxiale par rapport à l'axe de rotation vertical du corps de support (3) ; chaque second corps rotatif (114) est raccordé au corps de support (3) à l'aide d'un second moyen de fixation (133) respectif muni de moyens de roulement pour la rotation dudit second corps rotatif (114) autour d'un axe de rotation presque perpendiculaire à l'axe de rotation horizontal du premier corps rotatif (10).

5. Dispositif selon la revendication 1, **caractérisé en ce que** le moyen d'ouverture (8) de chaque moyen à pince (5) comprend au moins une excentrique (116, 117) à laquelle est fixé un bras (118, 119) à raccorder à un mors respectif (6, 7), de sorte qu'au moins une excentrique (116, 117) dudit moyen d'ouverture (8) entraînée par une extrémité externe d'un moyen à tige (19) respectif, soit entraînée axialement par un moyen d'entraînement (120) respectif.

6. Dispositif selon les revendications 3 et 5, **caractérisé en ce que** chaque moyen à tige (19) est logé à coulissement dans une cavité de passage longitudinale du premier corps rotatif (10) respectif.

7. Dispositif selon la revendication 5, **caractérisé en ce que** le moyen d'entraînement (120) de chaque moyen à pince (5) comprend une première roue folle (23) entraînée par un moyen à came (20) raccordé

à un arbre de commande (121) coaxial à l'arbre de rotation (4), ladite première roue folle (23) étant engagée dans un logement respectif (122) de l'extrémité interne du moyen à tige (19) pour le mouvement axial de ce dernier.

8. Dispositif selon la revendication 7, **caractérisé en ce que** chaque moyen d'entraînement (120) comprend en outre un moyen de transmission (123) ayant, à une extrémité de son premier bras (125), le premier moyen (23) à roue folle et, à une extrémité de son second bras (126), un second moyen (124) à roue folle.

9. Dispositif selon la revendication 8, **caractérisé en ce que** les bras (125, 126), de chacun des moyens d'entraînement (120), sont parallèles l'un à l'autre, tournés l'un vers l'autre et raccordés entre eux à l'aide d'un pivot respectif (127) qui leur est perpendiculaire, parallèle à l'axe de rotation du corps de support (3) et raccordé à rotation à ce dernier corps (3) ; le second moyen (124) à roue folle de chaque moyen d'entraînement (120) est engagé à coulissement à l'intérieur d'une rainure façonnée (128) du moyen à came (20) et **en ce que** chaque logement (122) pour chaque premier moyen (23) à roue folle est constitué d'une rainure annulaire.

10. Dispositif selon la revendication 7, **caractérisé en ce que** l'arbre de commande (121) est logé à rotation dans une cavité de passage longitudinale de l'arbre de rotation (4).

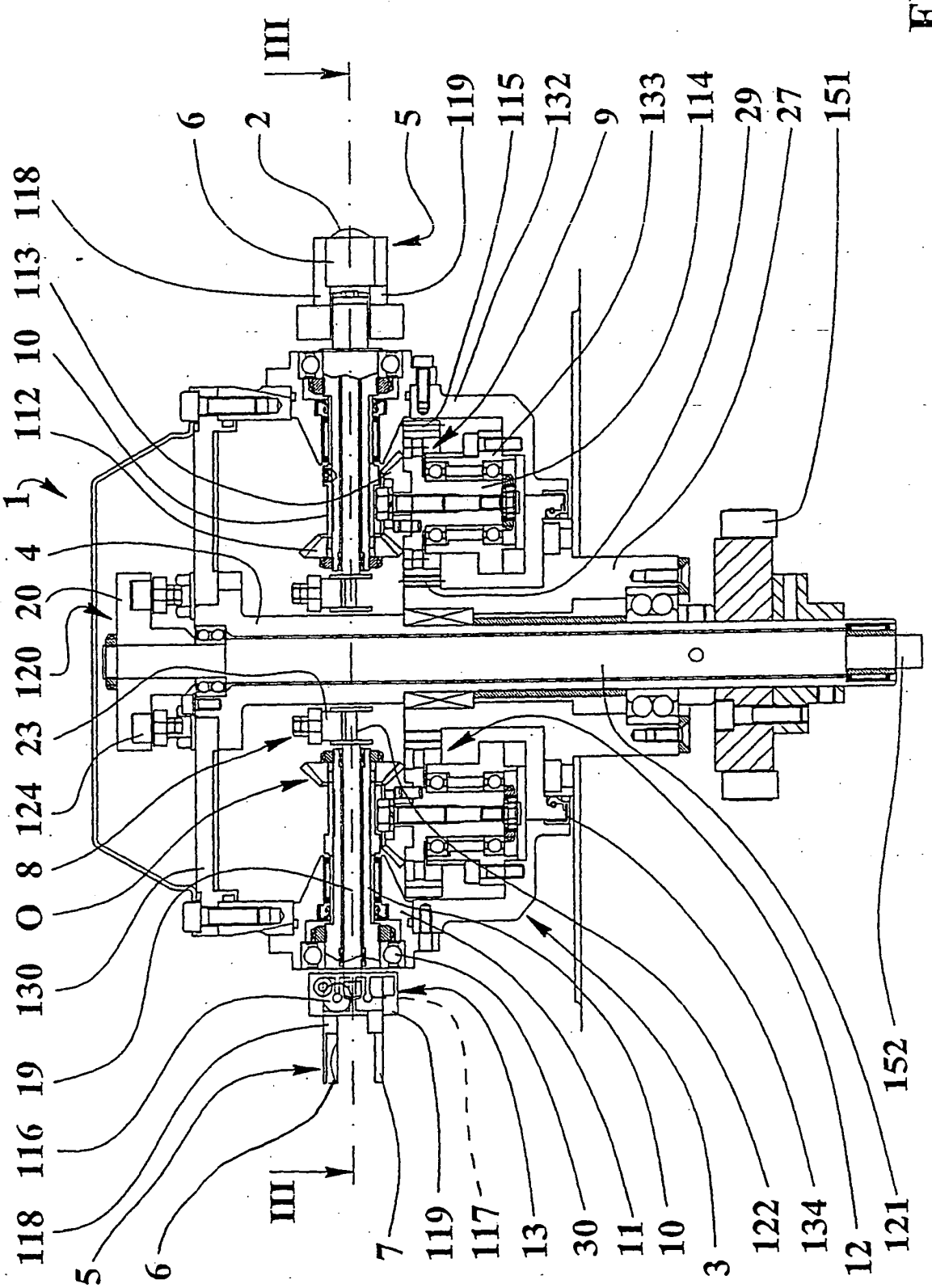
11. Dispositif selon la revendication 9, **caractérisé en ce que** l'extrémité supérieure de l'arbre de rotation (4) est fixée à un élément à disque horizontal (130) du corps de support (3) ; le pivot d'interconnexion (127) des bras (125, 126) de chaque moyen d'entraînement (120) est engagé à rotation sur une douille (131) respective munie de moyens de roulement pour ledit pivot et fixée sur l'élément à disque (130) du corps de support (3).

12. Dispositif selon les revendications 7, 9 et 11, **caractérisé en ce que** l'extrémité supérieure de l'arbre de commande (121), le moyen à came (20) et chaque second moyen (124) à roue folle sont positionnés en dessous de l'élément à disque (130), tandis que chacun du premier moyen (23) à roue folle, du moyen à tige (19), du moyen à pince (5) et du premier corps rotatif (10) est positionné au-dessus de l'élément à disque (130) ; l'extrémité supérieure de l'arbre de commande (121), le moyen à came (20) et chaque second moyen (124) à roue folle sont positionnés au-dessus de l'élément à disque (130), tandis que chacun du premier moyen (23) à roue folle et du moyen à tige (19) est positionné en dessous de l'élément à disque (130).

13. Dispositif selon les revendications 3 et 11, **caractérisé en ce que** chaque premier moyen de raccordement (11) est fixé à une paroi cylindrique (132) du corps de support (3) fixée en dessous de l'élément à disque (130).

14. Dispositif selon les revendications 4, 7, 11 et 13, **caractérisé en ce qu'**il comprend des moyens annulaires d'étanchéité (134) intercalés entre le corps fixe (27) et l'extrémité inférieure de la paroi cylindrique (132), ledit dispositif (1) comprenant en outre un élément de recouvrement (135) fixé au-dessus de l'élément à disque (130) afin de protéger au moins le moyen à came (20).

15. Dispositif selon la revendication 5, **caractérisé en ce que** les bras (118, 119) des mors (6, 7) de chaque moyen à pince (5) sont ployés en forme de "L" ou analogue et font saillie du dispositif d'une longueur au moins égale à trois fois la taille maximale de l'article à emballer.


III
6
2
5
119
115
132
9
133
114
29
27
151
118
113
10
112
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4
20
120
23
124
8
O
130
19
116
118
5
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III
7
119
117
13
30
11
10
3
122
134
12
121
152

FIG.1

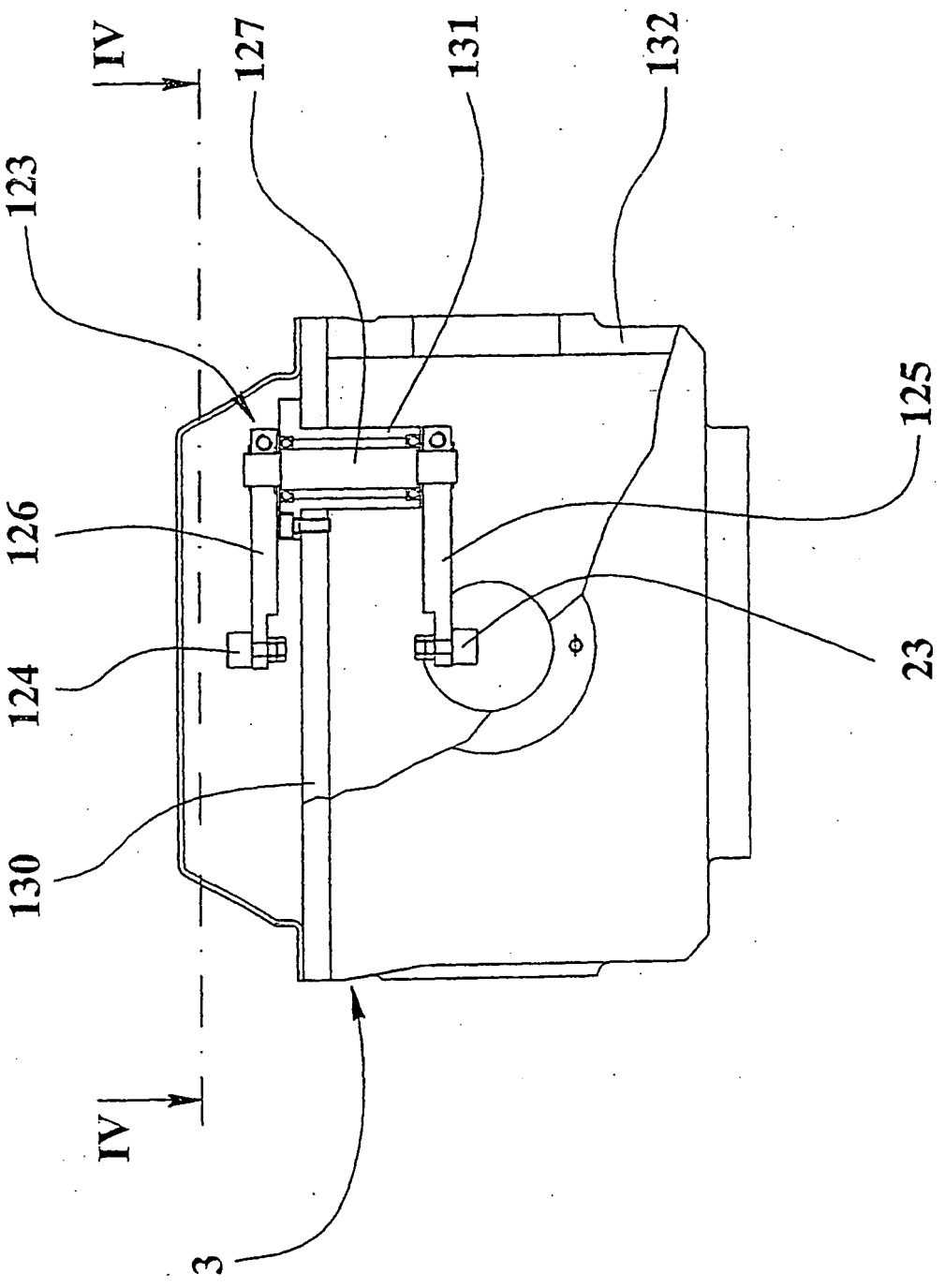
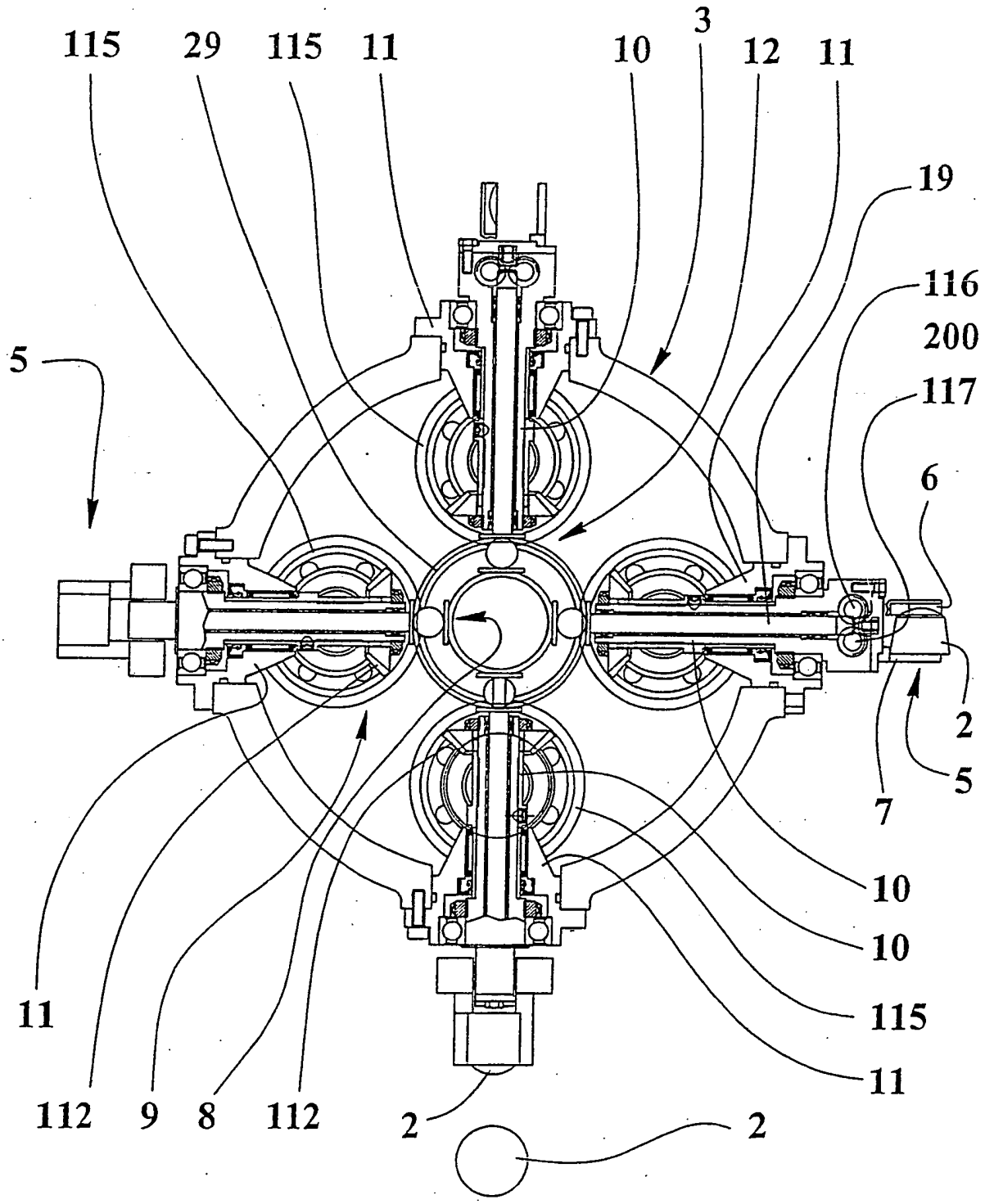


FIG.2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29
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3
12
11
19
116
200
117
6
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2
5
7
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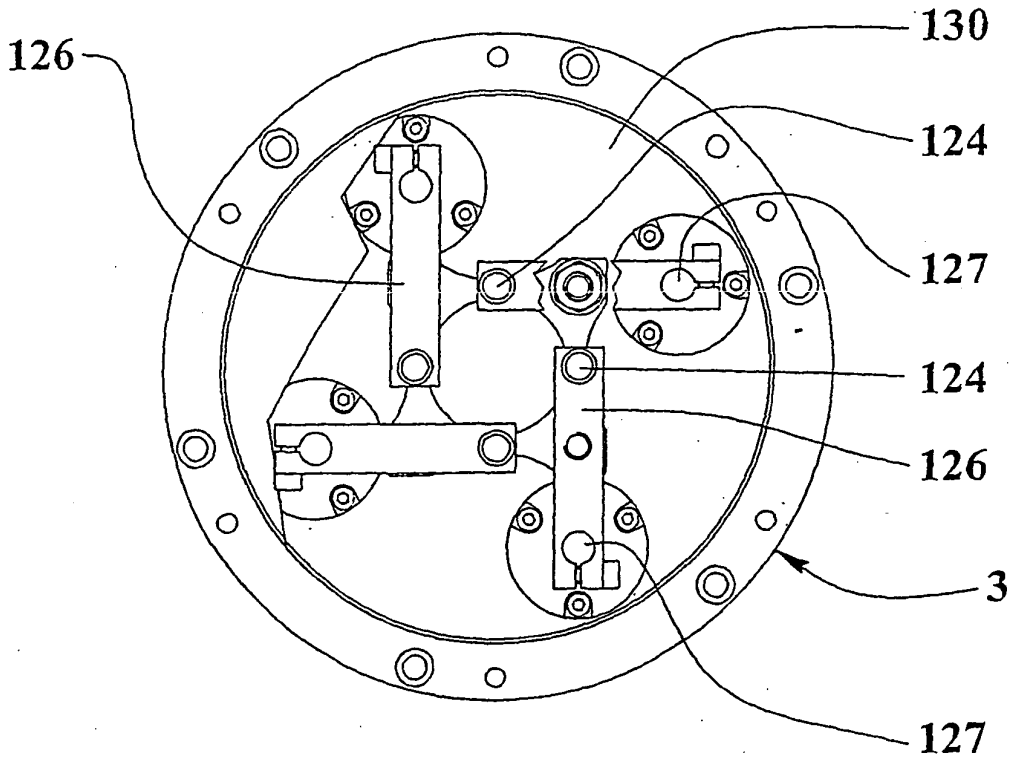
10
115
11
11
112
9
8
112
2
2

FIG.3

FIG.4



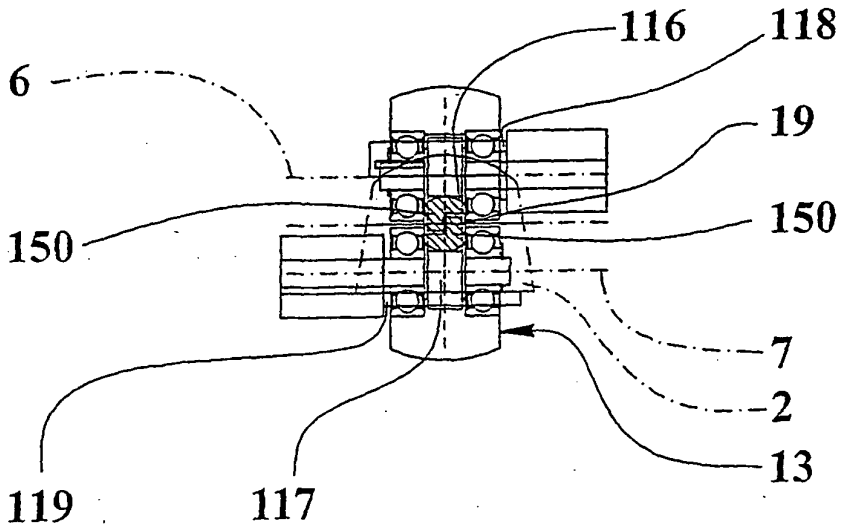
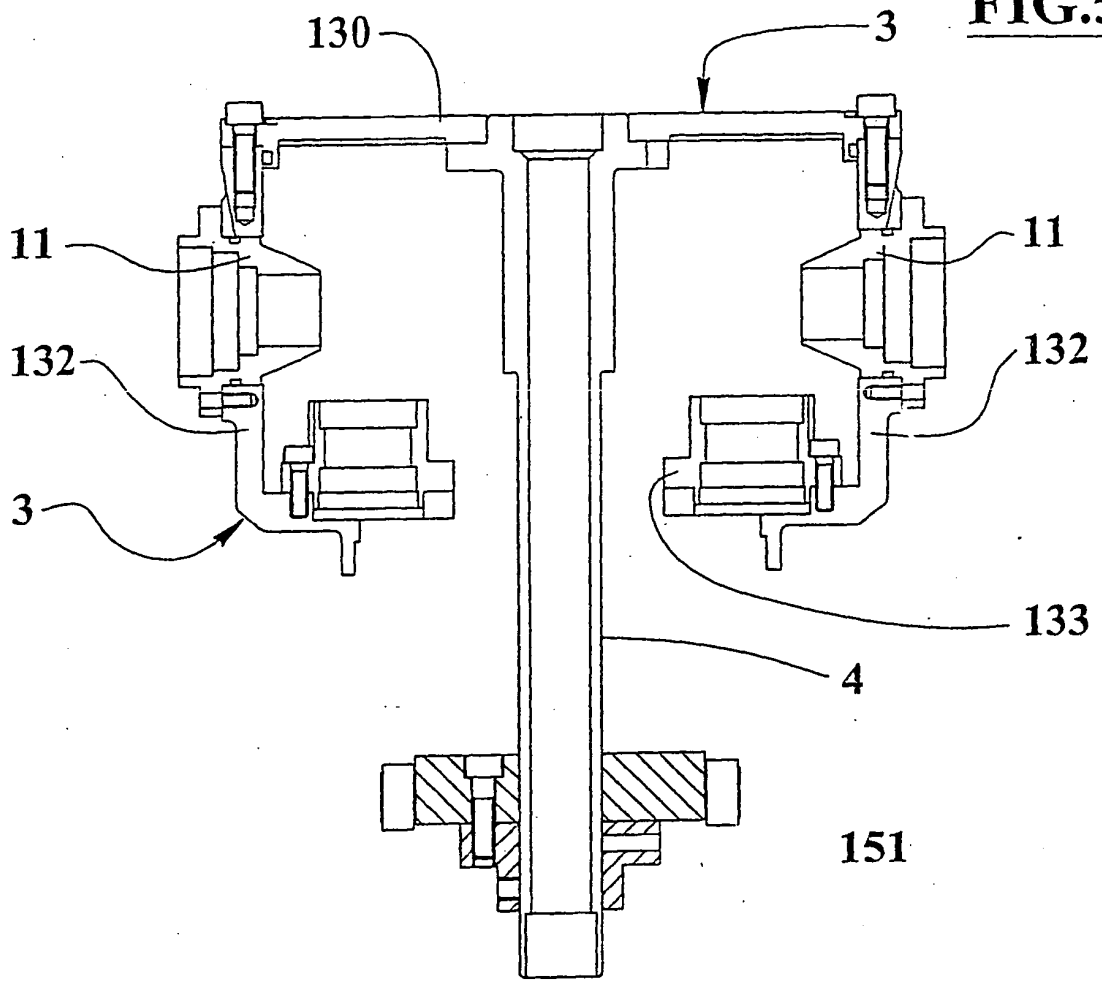


FIG.8

FIG.5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3
11
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132
132
3
133
4
151

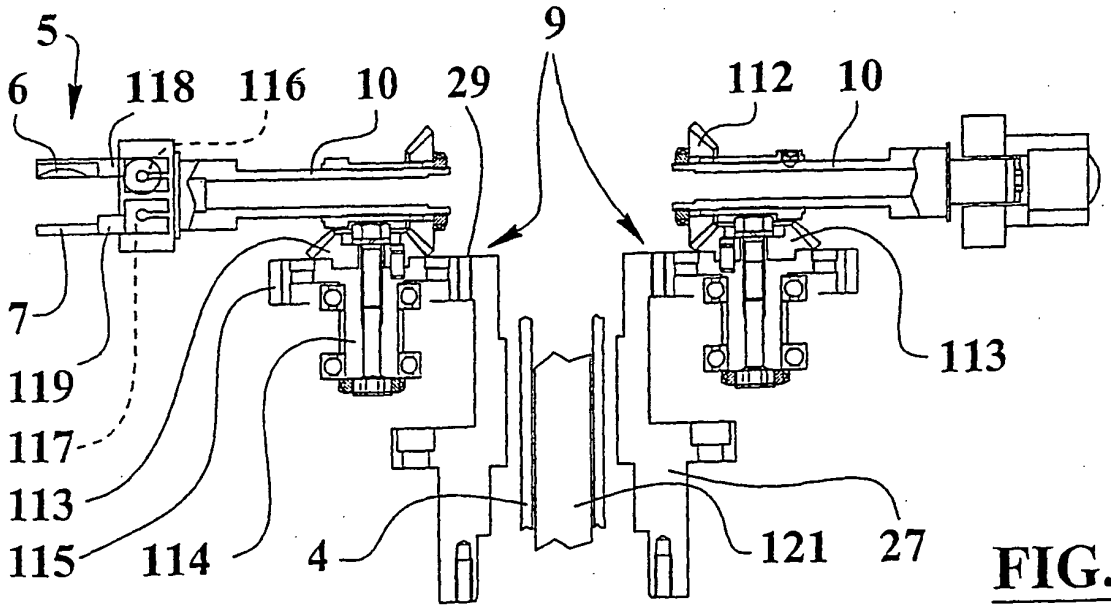
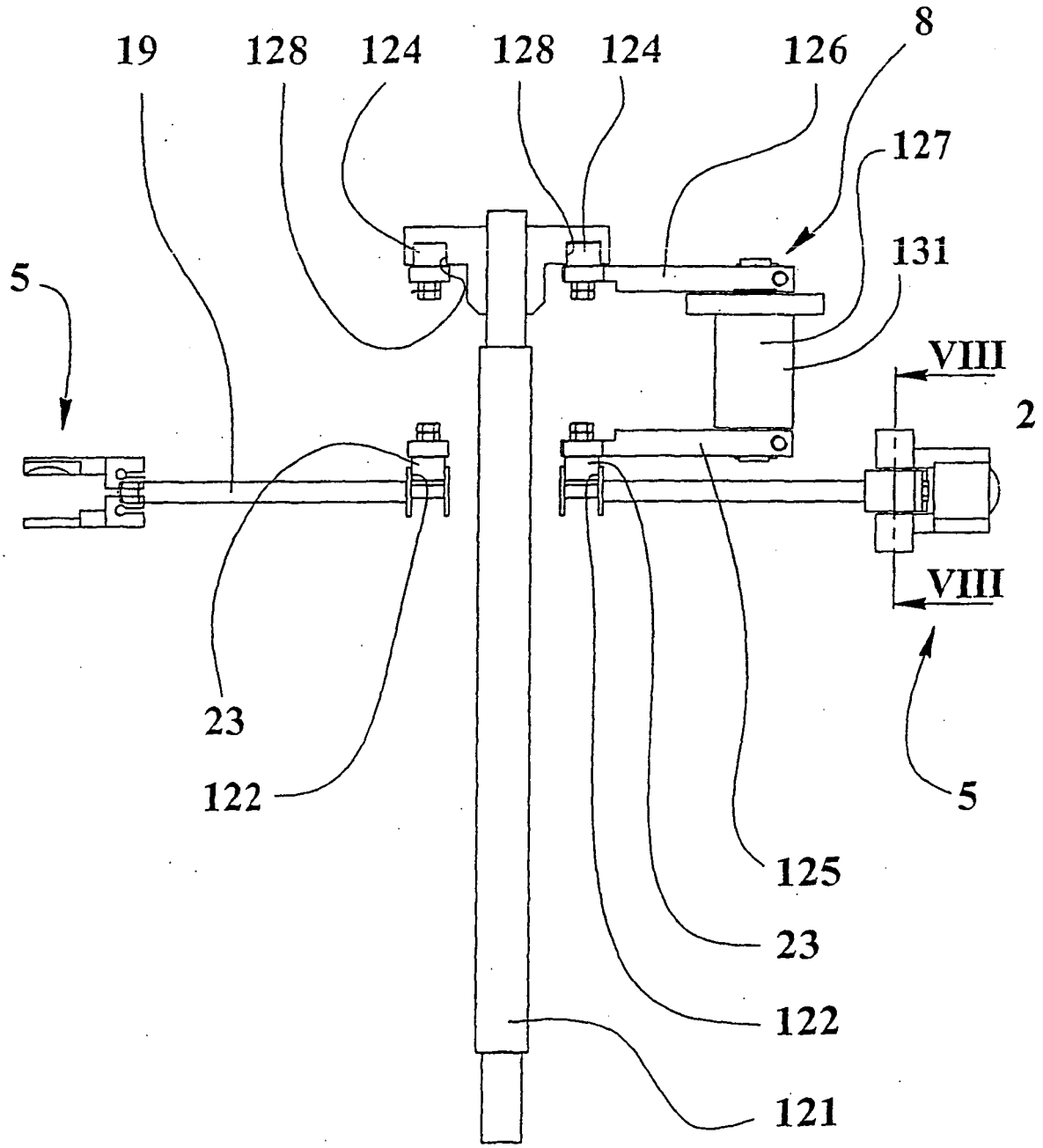

5
9
6
118
116
10
29
112
10
7
119
117
113
115
114
4
113
121
27

FIG.6

FIG.7


19
128
124
128
124
126
8
127
131
5
VIII
2
VIII
23
122
5
125
23
122
121

REFERENCES CITED IN THE DESCRIPTION

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