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(54) **TRANSMISSION ASSEMBLY OF A ROTATING DRUM INSIDE A TOWER BODY OF A FABRIC DYEING MACHINES**

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ENSEMBLE DE TRANSMISSION D'UN TAMBOUR ROTATIF À L'INTÉRIEUR D'UN CORPS D'UNE TOUR DE MACHINES DE TEINTURE DE TISSUS

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Description

Technical field

[0001] In particular, the invention relates to innovation in machines for continuous processing of various processes such as dyeing, bleaching or washing, which are used in industrial processes related to fabric production.

[0002] More particularly, the invention relates to novelty in exhaust based jet textile dyeing machines for conveying the rotational force to the drum in the tower body, which enables the fabric to be conveyed to the fabric chamber known as J-box, where the fabric is maintained and which is the area where the dyeing takes place.

State of the Art

[0003] The machines of the prior art for such fabrics are in a loop through a tower which includes a motor driven drum, which can be rotated about the rotation axis of the process, enabling the continuous circulation of the fabric as shown in Figures 16, 17, 18 and 19. The fabric descends into the bath by means of the nozzle and the drum, and then it is taken from the bath by the drum and continued on its tour.

[0004] The nozzle is the part where the fabric and the solution connect and both move together. The nozzle both provides both the circulation of the solution and the transport of the fabric.

[0005] The actual movement of the fabric is with the solution sprayed from the nozzle and the drum inside the tower supports it.

[0006] The fabric which is pushed from the nozzle with the solution through the fabric pipe and comes into the section which is called J-box in the form of O or J and which is located in the body, and waits in the bath for other tours. Then it continues the tour in the fabric machine by means of the drum.

[0007] In the present technique, the drum is kept completely closed in the tower body with the housing elements as it is seen in the Figure 17.

[0008] There should be no liquid and pressure loss in order to make a healthy operation in fabric dye machines. It is necessary to transfer the drive from the motor to the drum located in the tower body.

[0009] For this purpose, the drum is positioned within the tower body in the present technique, which is shown in detail in Figures 18 and 19 in detail. The drum provides connection with the packing seat and the pulley. The rotating movement transferred from the motor to the pulley by means of a belt is conveyed to the drum by means of the roller bearing and the shaft to turn the drum. In order to prevent leakage and dropping, the mechanical packing is located on the shaft connected to the packing seat.

[0010] Mechanical packing is a sealing element in systems that rotate at least one half turn systems, especially preventing loss of values such as fluid, pressure, temperature.

[0011] The fixed element of the packings is located on the housing and the rotary element is located on the shaft. In this way, it limits leakage, provides leaktight control.

[0012] In the present technique, the movement to the drum is provided by motor using the belt, pulley, bearing and shaft, and the pulley is closed by the belt casing.

[0013] Sealing is ensured by means of the mechanical packing located on the transfer shaft.

[0014] In this case, the existing packings are moving parts and they are deformed due to wear and movement. This failure depends on the machine size and the working time, though certainly happens between 6 months and 1 year.

[0015] In case of malfunction, it can be intervened by technical service and can be changed after 3 hours of operation.

[0016] During the change, the machine is unavailable and production is stopped.

[0017] More important is that the entire fabric in operation within the machine becomes waste if it fails during the process. The fabric, which is treated in the bath, is unable to complete its circulation due to the seal failure and it is necessary to recover it by recycling.

[0018] At the same time, the excess of the intermediate parts used for conveying the movement to the drum has a great effect on production costs, and it has become necessary to make an improvement considering the installation labor costs and engine power losses.

[0019] Particularly in the fabric dye machines, the packings are the most failed parts. Considering the costs and the damage caused, it can cause very high costs to the manufacturer. At the same time the necessity of dismantling the closed tower and having to re-constitute the assembly for the change operation can cause considerable time and labor costs.

[0020] As a result, the applicant has seen the need to demonstrate power transmission with lower costs in order to achieve the drum movement.

[0021] In this context, the technical aim of the present invention is to provide a machine which enables the transmission of power with less parts and less energy in the same effect to the drum, which in turn rotates on its axis and circulates the fabric within the tower.

[0022] At the same time, it aims to provide a solution that increases the technical characteristics of the drum, which allows the tower to be made more uniform. At the same time, it aims to turn the enclosed tower into a more insulated environment.

[0023] CN 101 760 914 discloses a supercritical fluid dyeing machine, wherein a horizontal type cylindrical dyeing kettle, a magnetomotive cloth lifting wheel, a spray cavity, a wave-shaped cloth guide passage in the dyeing kettle, a heat exchanger, a dye kettle or/and an entrainer kettle and a circulating pump are used as main components to form a dyeing circulation system. Both ends of a fan are respectively connected with fluid

outlets under the spray cavity and the dyeing kettle and form a cloth feeding system together with the magnetomotive cloth lifting wheel, the spray cavity and an operating opening. A rope-shaped fabric realizes circulated dyeing under the common action of the fluid in the magnetomotive cloth lifting wheel and the spray cavity, and the fluid in the dyeing kettle carries out forced circulation by the circulating pump.

[0024] The present invention differs from this document, at least, in that the magnets are positioned in cages on facing plates, with the interposition of a flange functioning as a static sealing and insulation element.

Brief description of drawings

[0025]

Figure 1: A general view of the dyeing machine, where drive unit mounted on its tower assembly.

Figure 2: A view of the interior detail of the dyeing machine tower undercut is given.

Figure 3: A view of the parts of the dyeing machine tower installation details are given.

Figure 4: Installation view of the drive unit containing engine to the dyeing machine tower.

Figure 5: Basic assembled form of transmission mechanism of the invention.

Figure 6: A side view of the transmission mechanism of the subject of the invention.

Figure 7: A side view of the transmission mechanism of the invention and the surface detail view of the facing is given.

Figure 8: Drive unit 3 cage formed perspective view is given.

Figure 9: Drive unit 4 cage form perspective view is given.

Figure 10: Detail view of the installed drive unit.

Figure 11: Detail of mutual positions of drum and drive plates.

Figure 12: The drum front plate front view.

Figure 13: A-A section view of the front view of the drum front plate is given.

Figure 14: Four caged front plate drum perspective view is given.

Figure 15: Three caged front plate drum perspective view is given.

Figure 16: The representation of the position of the tower on the main body is given in the old technique.

Figure 17: A representative view of the existing tower in the former technique.

Figure 18: Former technique tower interior part details are given as an exploded view.

Figure 19: Existing drum and movement transmission parts details in the former technique exploded view is given.

Reference numerals

[0026]

1. Dyeing machine
10. Main body
11. Nozzle
12. Fabric pipe
13. Liquid pipe
14. Housing
15. Fabric
16. Suction
17. Outlet pipe
20. Tower
21. Tower body
21.1. Body opening
22. Container
23. Belt
24. Pulley
25. Packing
26. Packing seat
27. Bearing housing
28. Drum with previous technique (hereinafter referred to as p.t drum)
100. Mechanism
101. Drum
102. Pipe
103. Drum shaft
104. Front plate
105. Rear plate
106. Cage
107. Drive unit
108. Motor
110. Drive shaft
111. Drive plate
112. Sealing flange
113. Mounting flange
114. Extension flange
115. Mounting bushing.

Detailed description of the invention

[0027] The invention is a transmission mechanism (100) for a fabric dyeing machine (1) comprising at least one tower (20), said transmission mechanism (100) comprising a motor (108) and a drum (101), said transmission mechanism (100) transmits rotation force from the motor (108) to the drum (101), the drum being suitable for being located inside a tower body (21) of said at least one tower (20) of said fabric dyeing machine (1), the fabric dyeing machine (1) has at least one housing (14) for receiving said fabric, the housing (14) is located inside a main body (10) of the tower body (21) and occupies the main part of the bottom area of the main body (10), the housing (14) makes it possible to form a liquid bath; the at least one tower (20) being located over each housing (14) wherein its main liquid tank is located inside the main body (10); the at least one drum (101) can be located on each tower (20) and is suitable to support and direct the fabric through its continuous circulation in a closed circuit inside the housing (14); at least one nozzle (11) which is located close to each drum (101), suitable for pushing liquid on the fabric; a liquid pipe (13) which has one of its ends connected to a suction pipe (16) located under the housing (14), at said main part of the bottom area of the main body (10), and its other end connected to the nozzle (11), suitable for providing liquid circulation via a pump located on it; at least one outlet pipe (17), which is located at each housing (14), for providing said continuous fabric circulation, connected to the tower body (21); characterized in that the transmission mechanism further comprises:

a front plate (104), which forms the front of the drum (101), connected to a rear plate (105) via a drum shaft (103), and the front plate having a flat surface and can rotate on its axis;

at least 3 first cages (106) located on the front plate (104), located at equal distances to the surface center of the front plate and to each other;

a drive plate (111), which is connected to said motor (108) via a drive shaft (110), the drive plate (111) has a flat surface and rotates on its own axis with the rotation of the drive shaft (110);

at least 3 second cages (106) located on the drive plate (111), located at equal distances to the surface center of the drive plate (111) and to each other;

plural magnets located inside each first and second cage (106); the first and second cages (106) are located opposingly when being located inside a body opening (21.1) in the tower (20),

a sealing flange (112) which is located between the drive plate (111) and the front plate (104), being positioned so as to not come into contact with the first and second cages (106), said sealing flange (112) being for providing the closure of the opening (21-1) for insulation of the tower (20),

a mounting bushing (115) formed on a surface of the sealing flange (112) between the front plate (104) and the drive plate (111), which enables the drum shaft (103) to be held and rotated in the desired plane.

[0028] The fabric (15) dyeing machine (1) includes a main tank designed to receive the dye required for dyeing for example an x length fabric (15), within the volume separated within the main body (10). The liquid forms a bath by filling

[0029] The bottom of the housing (14) formed in the main body (10). At the same time, the filled liquid circulates in the machine (1) by the liquid pipe (13) and the pump.

[0030] On the upper part of the machine (1), there are p.t drums (28), which rotate on their own axis driven by the motor (108), equal to the number of the housings (14) formed in the main body (10). P.t drums (28) are located within the tower (20).

[0031] The p.t drums (28) formed in each tower (20) and provided according to the 10 number of the housings (14) support and guide the advance of the fabric (15) along the closed process path. The p.t drums (28) are located on the tower (20) in the main body (10) in a closed manner. As shown in Figure 16b, the fabric (15) proceeds from the drum (101) located in the tower (20) into the housing (14) following the fabric pipe (12) with the effect of the liquid being pressed from the nozzle (11). Following an outlet pipe (17) from the bath formed under the housing (14), it goes back to the p.t drum (28).

[0032] In this way, the fabric (15) is treated by continuing the circulation in the main body (10).

[0033] From the bath formed at the bottom of the main body (10) and the housing (14), the liquid is drawn by means of the pump through the liquid pipe (13) to the nozzle (11) and the cycle of the liquid is provided. The nozzle (11) ensures that the fabric (15) is wetted and progressed before being immersed in the bath in 25 the housing (14).

[0034] At this time, the e.t drum (28) assists the process, while at the same time allowing the fabric (15) to move in the desired direction and to recirculate coming from the outlet pipe (17).

[0035] For this purpose, the motor (108) is connected to the tower body (21) and movement is transmitted to the pulley (24) by the belt (23). Figures 18 and 19 show a representative view of the prior art. In this manner, the movement transmitted to the pulley (24) is transmitted to the p.t drum (28) via the bearing housing (27) and the shaft.

[0036] The mechanical seal (25) is used because it is necessary to close the drum (28) located in the tower (20).

[0037] In the present technique, the power generated at the motor (108) is transferred to the drum (101) by the belt (23), the pulley (24), the packing (25), the packing seat (26) and the bearing housing (27).

[0038] The most important of these parts the mechanical seal (25), which is the basis of the invention, and fails at certain intervals in the previous technique, resulting in large material losses.

[0039] In the application of the tower (20), seen in Figure 1, the power obtained from the motor (108) is transmitted via a drive unit (107). The existing belt (23), the pulley (24), the packing (25), the packing seat (26) and the bearing housing (27) are eliminated.

[0040] The p.t drum (28) has been revised and adapted to the new system. The side surfaces were closed and transformed into a design that would allow the system to operate.

[0041] The drive unit (107), comprising a motor (108), a drive shaft (110), a drive plate (111), a sealing flange (112), a mounting flange (113) and an extension flange (114) provides installation to a body opening (21.1) formed on the tower body (21) as shown in Figure 4. This facilitates mounting of the drive unit (107).

[0042] Assembling, disassembling and access inside the tower (20) is facilitated. Labor and installation costs are reduced.

[0043] The mechanism (100) according to the invention is in its most basic shape in the form of Figures 5 and 6. The drum (101) is formed by pipes (102) positioned between the front plate (104) and the rear plate (105). The drum shaft (103) is connected to the front plate (104) and the rear plate (105) through the openings formed in their centers. The drum shaft (103) is driven by the front plate (104).

[0044] With the movement of the front plate (104), the rear plate (105) and the entire drum (101) are rotated.

[0045] The pipes (102) provide better transmission of the fabric (15) compared to the applications of the current art, but also the ease of modification, if damaged.

[0046] The pipes (102) are the areas in contact with the fabric (15) during the pushing of the fabric (15) with the rotation of the drum (101) and the pulling of the fabric (15) from the housing (14) by the outlet pipe (17). The pipes (102) are fixed with the drum shaft (103), the rear plate (105) and the front plate (104).

[0047] Pipes (102) can be formed by teflon-coated or water-resistant plastic coating.

[0048] On the surface of the front plate (104), the cages (106) are positioned as shown in Figures 12 and 13.

[0049] The cages (106) are located at equal distance to the center of the front plate (104) and to each other. At least 3 units are positioned. They are at equal distances to the center of the front plate (4) and to each other when they are placed as triple or quadruplet. The cages (106) allow the magnets to be fixed.

[0050] The magnets are positioned within the cages (106). The cages (106) are formed on the surface of the drive plate (111) in the same manner with respect to the position and the numbers of the cages (106).

[0051] In particular, the magnets positioned on the front plate (104) of the drums (101) are covered for the purpose of water resistance. The waterproofing device is also housed in such a way that the conductor feature is not disturbed.

[0052] The magnets are fixed in the cages (106) formed on the surface of the drive plate (111). With the same principle, the drive plate (111) is disposed at the center and at equal distances.

[0053] For example, if the drive plate (111) includes 4 cages (106) as seen in Figure 9, 4 cages (106) are formed on the front plate (104) of the drum (101), as shown in Figure 12. The magnets are positioned within each formed cage (106).

[0054] With respect to the direction and position of the magnets, the ones in the drive plate (111) have pole orientation such that they are applied to the magnets in the position of the front plate (104) cage (106).

[0055] Magnets positioned in the drive plate (111) are positioned in the direction of forming a drafting zone.

[0056] **In** this way, the possibility of creating different direction is eliminated. Magnets positioned in the drum front plate (104) are pulled by the magnets positioned in the drive plate (111). According to this rule, the magnets are disposed corresponding to each other on the front plate (104) and on to the cages (106) located on the drive plate (111).

[0057] In order to ensure rotation with the same frequency, the magnets placed in the cages (106) located on the surface of the drive plate (111) are positioned in a pole orientation that ensures the pull of the magnets located in the cages on the front plate surface, preventing the deterioration of this balance and providing the continuation of the same operation.

[0058] The cages (106) stabilize the balance and position of the magnets, preventing the deterioration of the magnets by impacts.

[0059] Originally, the operation of the system is provided by positioning the cages (106) in the correct positions and evenly on the front plate (104) and the drive plate (111).

[0060] The sealing flange (112) formed between the front plate (104) and the drive plate (111) is positioned so as not to come into contact with the cages (106) formed on both.

[0061] The body housing (21.1) formed on the tower body (21) is fixed to the body by welding or similar methods. Connection can also be made with screw systems. In order to provide full insulation, especially welded in the whole form.

[0062] It is also made of material that does not isolate the magnetic attraction effect. The tower body (21) is located in the body opening (21.1) so as to prevent liquid and pressure losses.

[0063] With the detail view in Figures 6 and 7, the drum (101) is positioned as the cages (106) positioned on the front plate (104) and the drive plate (111) the cages (106)

are matched.

[0064] In its most basic case, the drive unit (107) is formed by the motor (108), the drive shaft (110), the drive plate (111), the sealing flange (112), the mounting flange (113) and the extension flange (114).

[0065] The motor (108) is connected to the drive plate (111) via the drive shaft (110). The rotation movement formed in the motor (108) is transferred to the drive plate (111) via the drive shaft (110).

[0066] The mounting flange (113) provides the connection of the motor (108), drive plate (111) and the extension flange (114). It also ensures that the drive unit (107) is fixed to the tower body (21).

[0067] The drive unit (107) is positioned as a whole in the body opening (21.1) formed on the tower body (21) by means of the mounting flange (113).

[0068] The movement transmission is provided by magnets positioned in the cages (106) arranged on a drive plate (111) and on the front plate (104).

[0069] The rotational movement of the motor (108) is transmitted via the drive shaft (110) to the drive plate (111) and it is rotated on its own axis. The rotation of the drive plate (111) provides the rotation of the magnets located in the cages (106) by the rotation of the shaft.

[0070] With this rotation, it is shown that the sealing flange (112) is rotated by driving at the same frequency by applying attraction to the magnets on the front plate (104) at the other side. It is provided that the front plate (104) is rotated in a non-contact manner using the magnet push and pull effect. The rotation of the front plate (104) on its axis enables the rotation of the rear plate (105) connected by the drum shaft (110) and the pipes (102) positioned between the two plates. This allows the drum (101) to rotate on its axis.

[0071] The mounting bushing (115) is formed on the surface of the sealing flange (112) between the front plate (104) and the drive plate (111), which allows the drum shaft (103) to be held and rotated in the desired plane on the surface facing the interior of the tower.

[0072] Since the sealing flange (112) completely cuts the connection between the tower (20) and the external environment, the internal liquid and pressure balance is easily achieved. The tower (20) is completely closed. The drive unit (107) is outside the tower (20) and the magnets positioned in the cages (106) on the drive plate (111) and on the front plate (104) are rotated at the same frequency to each other, enabling the power transmittance to the drum (101) without contact.

[0073] The extension flange (114) formed in the drive unit (107) allows the distance between the motor (108) and the tower body (21) to be adjusted. At the same time, the distance between the sealing flange (112) of the drive plate (111) can be adjusted.

[0074] The drive shaft (110) extends over the motor (108) to the center of the drive plate (111) and is fixed.

[0075] The mounting flange (113) enables the motor (108) and the extension flange 10 (114) to be joined together. It has a housing in which the drive shaft (110) can be passed through and which will not interfere with the rotation of the drive shaft (110).

[0076] In other words, there is a mounting flange (113) located behind the drive plate (111), which enables the elements of the drive unit (107) to be joined together, and which also connects to the tower body (21).

Claims

1. A transmission mechanism (100) for a fabric dyeing machine (1) comprising at least one tower (20), said transmission mechanism (100) comprising a motor (108) and a drum (101), said transmission mechanism (100) transmits rotation force from the motor (108) to the drum (101), the drum being suitable for being located inside a tower body (21) of said at least one tower (20) of said fabric dyeing machine (1), the fabric dyeing machine (1) has at least one housing (14) for receiving said fabric, the housing (14) is located inside a main body (10) of the tower body (21) and occupies the main part of the bottom area of the main body (10), the housing (14) makes it possible to form a liquid bath; the at least one tower (20) being located over each housing (14) wherein its main liquid tank is located inside the main body (10); the at least one drum (101) can be located on each tower (20) and is suitable to support and direct the fabric through its continuous circulation in a closed circuit inside the housing (14); at least one nozzle (11) which is located close to each drum (101), suitable for pushing liquid on the fabric; a liquid pipe (13) which has one of its ends connected to a suction pipe (16) located under the housing (14), at said main part of the bottom area of the main body (10), and its other end connected to the nozzle (11), suitable for providing liquid circulation via a pump located on it; at least one outlet pipe (17), which is located at each housing (14), for providing said continuous fabric circulation, connected to the tower body (21); **characterized in that** the transmission mechanism further comprises:

a front plate (104), which forms the front of the drum (101), connected to a rear plate (105) via a drum shaft (103), and the front plate having a flat surface and can rotate on its axis;

at least 3 first cages (106) located on the front plate (104), located at equal distances to the surface center of the front plate and to each other;

a drive plate (111), which is connected to said motor (108) via a drive shaft (110), the drive plate (111) has a flat surface and rotates on its own axis with the rotation of the drive shaft (110);

at least 3 second cages (106) located on the drive plate (111), located at equal distances to the surface center of the drive plate (111) and to

each other;
plural magnets located inside each first and second cage (106); the first and second cages (106) are located opposingly when being located inside a body opening (21.1) in the tower (20);
a sealing flange (112) which is located between the drive plate (111) and the front plate (104), being positioned so as to not come into contact with the first and second cages (106), said sealing flange (112) being for providing the closure of the opening (21-1) for insulation of the tower (20);
a mounting bushing (115) formed on a surface of the sealing flange (112) between the front plate (104) and the drive plate (111), which enables the drum shaft (103) to be held and rotated in the desired plane.

2. The transmission mechanism (100) according to claim 1; **characterized in that** the magnets placed in the second cages (106) on the surface of said drive plate (111) are positioned with the orientation of their poles ensuring the pull of the magnets located inside the first cages (106) on the surface of the front plate (104), in order to ensure rotation with the same frequency.

3. The transmission mechanism (100) according to claim 1; wherein the second cages (106) on the drive plate (111) are located in the same manner as the first cages (106) located on the front plate (104) with same number and position properties in order to achieve same rotation frequency.

4. The transmission mechanism (100) according to claim 1; wherein said sealing flange (112) is made of a material that does not affect the magnetically inducted movement of the magnets located at the opposite sides.

5. The transmission mechanism (100) according to claim 1; comprising a mounting flange (113) positioned behind the drive plate (111), which enables the elements of a drive unit (107) to be brought together, and which also provides the connection of the drive unit (107) to the body opening (21.1) via the connection points formed thereon.

6. The transmission mechanism (100) according to claim 5; comprising an extension flange (114) with mounting points located between the mounting flange (113) and the motor (108), which enables the adjustment of the distance to the mounting flange (113) of the motor (108).

7. The transmission mechanism (100) according to claim 1; wherein the drum (108) comprises pipes (102) forming surfaces in contact with the fabric (15) positioned in an arrangement between the front plate (104) and the rear plate (105).

Patentansprüche

1. Übertragungsmechanismus (100) für eine Stofffärbemaschine (1), die mindestens einen Turm (20) umfasst, der Übertragungsmechanismus (100) einen Motor (108) und eine Trommel (101) umfasst, der Übertragungsmechanismus (100) überträgt Rotationskraft vom Motor (108) auf die Trommel (101), die Trommel dazu geeignet ist, innerhalb eines Turmkörpers (21) des mindestens einen Turm (20) der Stofffärbemaschine (1) angeordnet zu werden, die Stofffärbemaschine (1) weist mindestens ein Gehäuse (14) zur Aufnahme des Stoffes auf, das Gehäuse (14) befindet sich innerhalb eines Hauptkörpers (10) des Turmkörpers (21) und nimmt den Hauptteil der Bodenbereichs des Hauptkörpers (10) ein, das Gehäuse (14) ermöglicht die Bildung eines Flüssigkeitsbades; das Gehäuse (14) ermöglicht die Erzeugung eines Flüssigkeitsbades; sich der mindestens eine Turm (20) über jedem Gehäuse (14) befindet, wobei sich sein Hauptflüssigkeitstank im Inneren des Hauptkörpers (10) befindet; die mindestens eine Trommel (101) kann auf jedem Turm (20) angeordnet sein und ist dazu geeignet, das Gewebe durch seine kontinuierliche Zirkulation in einem geschlossenen Kreislauf Stoffes innerhalb des Gehäuses (14) zu unterstützen und zu leiten; mindestens eine Düse (11), die sich in der Nähe jeder Trommel (101) befindet und dazu geeignet ist, Flüssigkeit auf das Stoffes zu drücken; eine Flüssigkeitsleitung (13), deren eines Ende mit einer Saugrohr (16) verbunden ist, die sich unter dem Gehäuse (14) befindet, und zwar an dem Hauptteil des Bodenbereichs des Hauptkörpers (10), und sein anderes Ende ist mit der Düse (11) verbunden und dazu geeignet, über eine daran angeordnete Pumpe eine Flüssigkeitszirkulation zu ermöglichen; mindestens ein Auslassrohr (17), das sich an jedem Gehäuse (14) befindet, um die kontinuierliche Gewebezirkulation bereitzustellen, und das mit dem Turmkörper (21) verbunden ist; **dadurch gekennzeichnet, dass** der Übertragungsmechanismus weiterhin umfasst:

eine Frontplatte (104), die die Vorderseite der Trommel (101) bildet und über eine Trommelwelle (103) mit einer Rückplatte (105) verbunden ist, wobei die Frontplatte eine flache Oberfläche aufweist und sich um ihre Achse drehen kann;
mindestens 3 erste Käfige (106), die auf der Frontplatte (104) angeordnet sind und in gleichen Abständen zum Oberflächenzentrum der Frontplatte und zueinander angeordnet sind;

eine Antriebsplatte (111), die über eine Antriebswelle (110) mit dem Motor (108) verbunden ist, die Antriebsplatte (111) weist eine flache Oberfläche auf und dreht sich mit der Drehung der Antriebswelle (110) um ihre eigene Achse;
mindestens 3 zweite Käfige (106), die auf der Antriebsplatte (111) angeordnet sind und in gleichen Abständen zum Oberflächenzentrum der Antriebsplatte (111) und zueinander angeordnet sind;
mehrere Magnete, die sich innerhalb jedes ersten und zweiten Käfigs (106) befinden; der erste und zweite Käfig (106) sind gegenüberliegend angeordnet, wenn sie sich innerhalb einer Körperöffnung (21.1) im Turm (20) befinden,
einen Dichtungsflansch (112), der sich zwischen der Antriebsplatte (111) und der Frontplatte (104) befindet und so positioniert ist, dass er nicht mit dem ersten und zweiten Käfig (106) in Kontakt kommt, der Dichtungsflansch (112) zum Verschließen der Öffnung (21-1) zur Isolierung des Turms (20) dient,
eine an einer Oberfläche des Dichtungsflansches (112) zwischen der Frontplatte (104) und der Antriebsplatte (111) ausgebildete Montagebuchse (115), die es ermöglicht, die Trommelwelle (103) in der gewünschten Ebene zu halten und zu drehen.

2. Der Übertragungsmechanismus (100) nach Anspruch 1, **dadurch gekennzeichnet, dass** die in den zweiten Käfigen (106) auf der Oberfläche der Antriebsplatte (111) angeordneten Magnete mit der Ausrichtung ihrer Pole positioniert sind, die den Zug der in den ersten Käfigen (106) angeordneten Magnete auf der Oberfläche der Frontplatte (104) gewährleistet, um eine Drehung mit der gleichen Frequenz sicherzustellen.

3. Der Übertragungsmechanismus (100) gemäß Anspruch 1, wobei die zweiten Käfige (106) auf der Antriebsplatte (111) in der gleichen Weise angeordnet sind wie die ersten Käfige (106), die auf der Frontplatte (104) angeordnet sind, mit der gleichen Anzahl und den gleichen Positionseigenschaften, um die gleiche Drehfrequenz zu erreichen.

4. Der Übertragungsmechanismus (100) gemäß Anspruch 1, wobei der Dichtungsflansch (112) aus einem Material besteht, das die magnetisch induzierte Bewegung der an den gegenüberliegenden Seiten angeordneten Magnete nicht beeinflusst.

5. Der Übertragungsmechanismus (100) nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** hinter der Antriebsplatte (111) ein Montageflansch (113) angeordnet ist, der die Zusammenführung der Elemente einer Antriebseinheit (107) ermöglicht und über die daran ausgebildeten Verbindungsstellen auch die Verbindung der Antriebseinheit (107) mit der Körperöffnung (21.1) ermöglicht.

6. Der Übertragungsmechanismus (100) nach Anspruch 5; umfassend einen Verlängerungsflansch (114) mit Befestigungspunkten, die zwischen dem Montageflansch (113) und dem Motor (108) angeordnet sind, wodurch die Einstellung des Abstands des Motors (108) zum Montageflansch (113) ermöglicht wird.

7. Der Übertragungsmechanismus (100) gemäß Anspruch 1, wobei die Trommel (108) Rohre (102) umfasst, die Oberflächen bilden, die mit dem Gewebe (15) in Kontakt stehen und in einer Anordnung zwischen der Frontplatte (104) und der Rückplatte (105) positioniert sind.

Revendications

1. Mécanisme de transmission (100) pour une machine de teinture de tissus (1) comprenant au moins une tour (20), ledit mécanisme de transmission (100) comprenant un moteur (108) et un tambour (101), ledit mécanisme de transmission (100) transmet la force de rotation du moteur (108) au tambour (101), le tambour étant apte à être placé à l'intérieur d'un corps de tour (21) de ladite au moins une tour (20) de ladite machine de teinture de tissu (1), la machine de teinture de tissu (1) comporte au moins un boîtier (14) destiné à recevoir ledit tissu, le boîtier (14) est situé à l'intérieur d'un corps principal (10) du corps de tour (21) et occupe la partie principale de la zone inférieure du corps principal (10), le boîtier (14) permet de former un bain liquide; la ou les tours (20) étant situées au-dessus de chaque boîtier (14) dans lequel son réservoir de liquide principal est situé à l'intérieur du corps principal (10); le au moins un tambour (101) peut être situé sur chaque tour (20) et est apte à supporter et à diriger le tissu à travers sa circulation continue dans un circuit fermé à l'intérieur du boîtier (14); au moins une buse (11) qui est située à proximité de chaque tambour (101), est adaptée pour pousser du liquide sur le tissu; un tuyau de liquide (13) dont l'une des extrémités est reliée à un tuyau d'aspiration (16) situé sous le boîtier (14), au niveau de ladite partie principale de la zone inférieure du corps principal (10), et son autre extrémité reliée à la buse (11), apte à assurer la circulation du liquide via une pompe située sur celle-ci; au moins un tuyau de sortie (17), qui est situé au niveau de chaque boîtier (14), pour assurer ladite circulation continue du tissu, relié au corps de la tour (21); **caractérisé en ce que** le mécanisme de transmission comprend en outre:

une plaque avant (104), qui forme l'avant du tambour (101), reliée à une plaque arrière (105) par l'intermédiaire d'un arbre de tambour (103), et la plaque avant ayant une surface plane et peut tourner sur son axe;
au moins 3 premières cages (106) situées sur la plaque avant (104), situées à des distances égales du centre de surface de la plaque avant et les unes des autres;
une plaque d'entraînement (111), qui est reliée audit moteur (108) par l'intermédiaire d'un arbre d'entraînement (110), la plaque d'entraînement (111) a une surface plane et tourne sur son propre axe avec la rotation de l'arbre d'entraînement (110);
au moins 3 secondes cages (106) situées sur la plaque d'entraînement (111), situées à des distances égales du centre de surface de la plaque d'entraînement (111) et les unes des autres;
plusieurs aimants situés à l'intérieur de chaque première et seconde cage (106) ; les première et seconde cages (106) sont situées de manière opposée lorsqu'elles sont situées à l'intérieur d'une ouverture de corps (21.1) dans la tour (20);
une bride d'étanchéité (112) qui est située entre la plaque d'entraînement (111) et la plaque avant (104), étant positionnée de manière à ne pas entrer en contact avec les première et deuxième cages (106), ladite bride d'étanchéité (112) étant destinée à assurer la fermeture de l'ouverture (21-1) pour l'isolation de la tour (20);
une bague de montage (115) formée sur une surface de la bride d'étanchéité (112) entre la plaque avant (104) et la plaque d'entraînement (111), qui permet de maintenir et de faire tourner l'arbre du tambour (103) dans le plan souhaité.

2. Le mécanisme de transmission (100) selon la revendication 1, **caractérisé en ce que** les aimants placés dans les deuxièmes cages (106) sur la surface de ladite plaque d'entraînement (111) sont positionnés avec l'orientation de leurs pôles assurant la traction des aimants situés à l'intérieur des premières cages (106) sur la surface de la plaque avant (104), afin d'assurer une rotation avec la même fréquence.

3. Le mécanisme de transmission (100) selon la revendication 1; dans lequel les deuxièmes cages (106) sur la plaque d'entraînement (111) sont situées de la même manière que les premières cages (106) situées sur la plaque avant (104) avec les mêmes propriétés de nombre et de position afin d'obtenir la même fréquence de rotation.

4. Le mécanisme de transmission (100) selon la revendication 1, dans lequel ladite bride d'étanchéité (112) est constituée d'un matériau qui n'affecte pas le mouvement induit magnétiquement des aimants situés sur les côtés opposés.

5. Le mécanisme de transmission (100) selon la revendication 1, comprenant une bride de montage (113) positionnée derrière la plaque d'entraînement (111), qui permet de rapprocher les éléments d'une unité d'entraînement (107), et qui assure également la connexion de l'unité d'entraînement (107) à l'ouverture de corps (21.1) par l'intermédiaire des points de connexion formés sur celle-ci.

6. Le mécanisme de transmission (100) selon la revendication 5, comprenant une bride d'extension (114) avec des points de montage situés entre la bride de montage (113) et le moteur (108), ce qui permet le réglage de la distance à la bride de montage (113) du moteur (108).

7. Le mécanisme de transmission (100) selon la revendication 1; dans lequel le tambour (108) comprend des tuyaux (102) formant des surfaces en contact avec le tissu (15) positionnés dans un arrangement entre la plaque avant (104) et la plaque arrière (105).

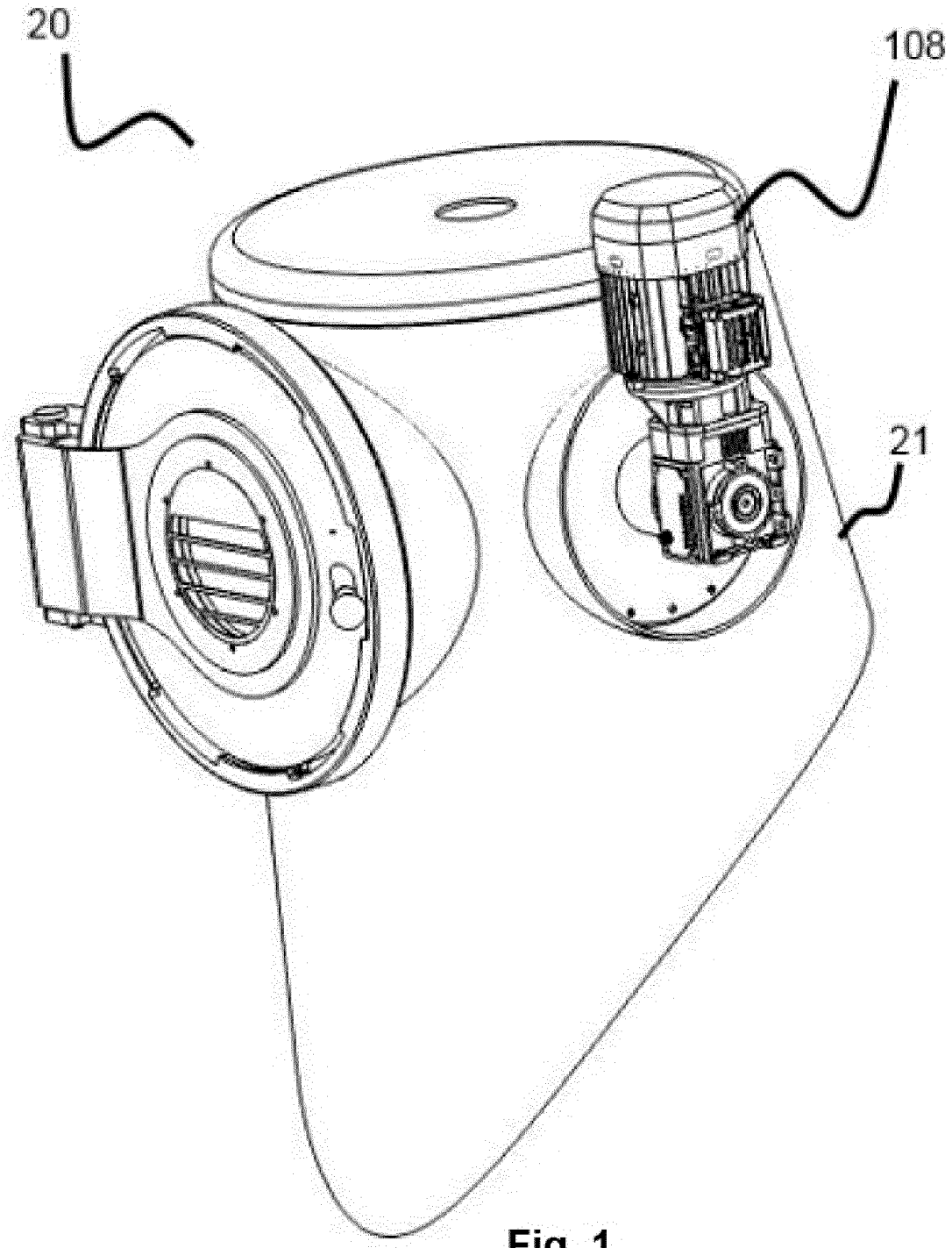

Fig. 1

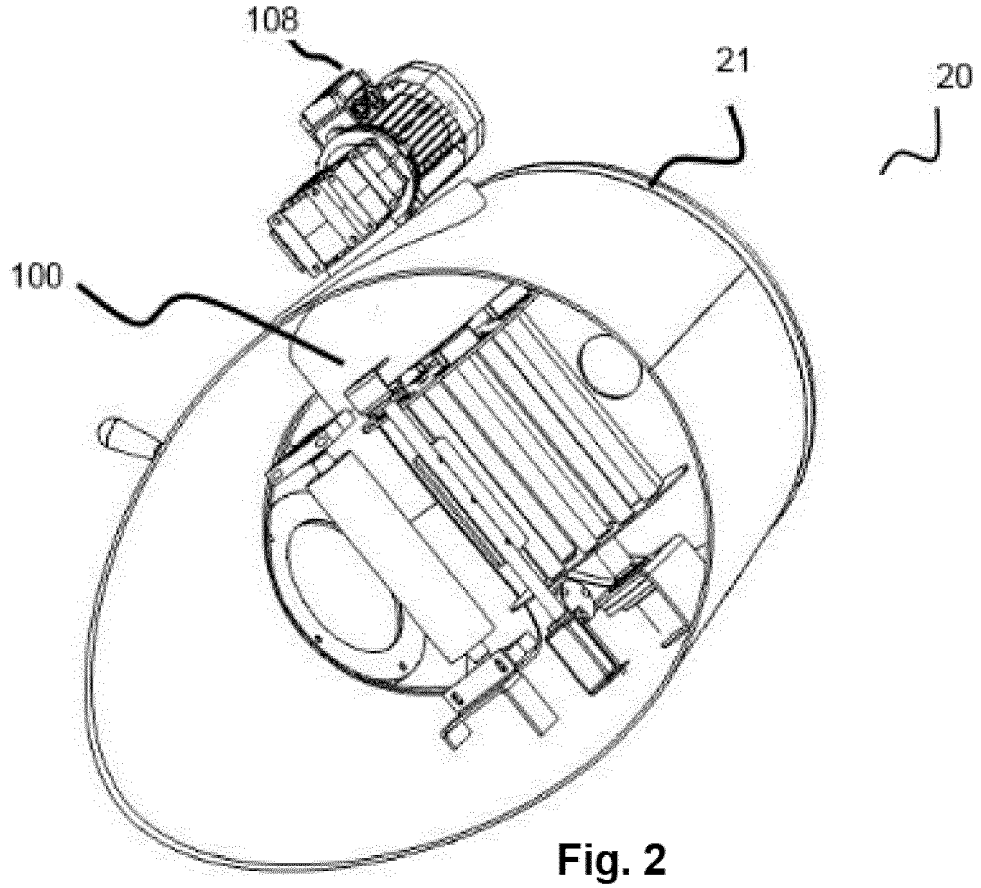

Fig. 2

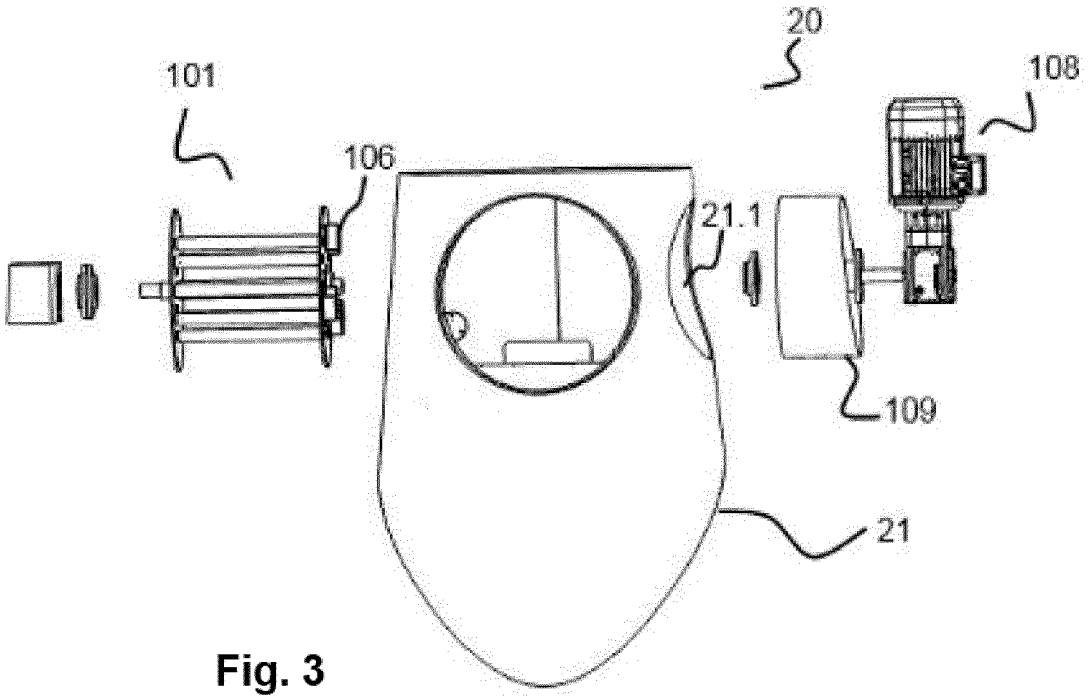

Fig. 3

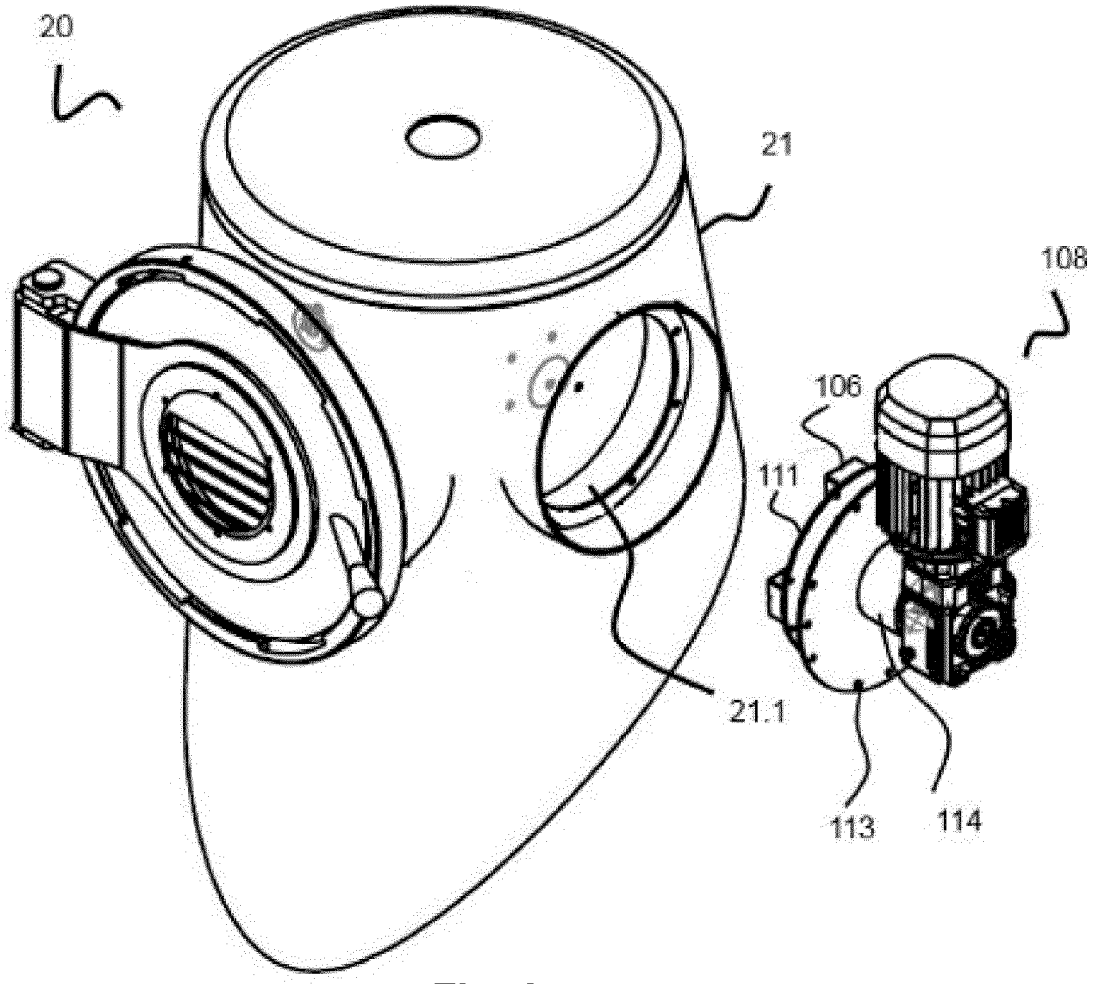

Fig. 4

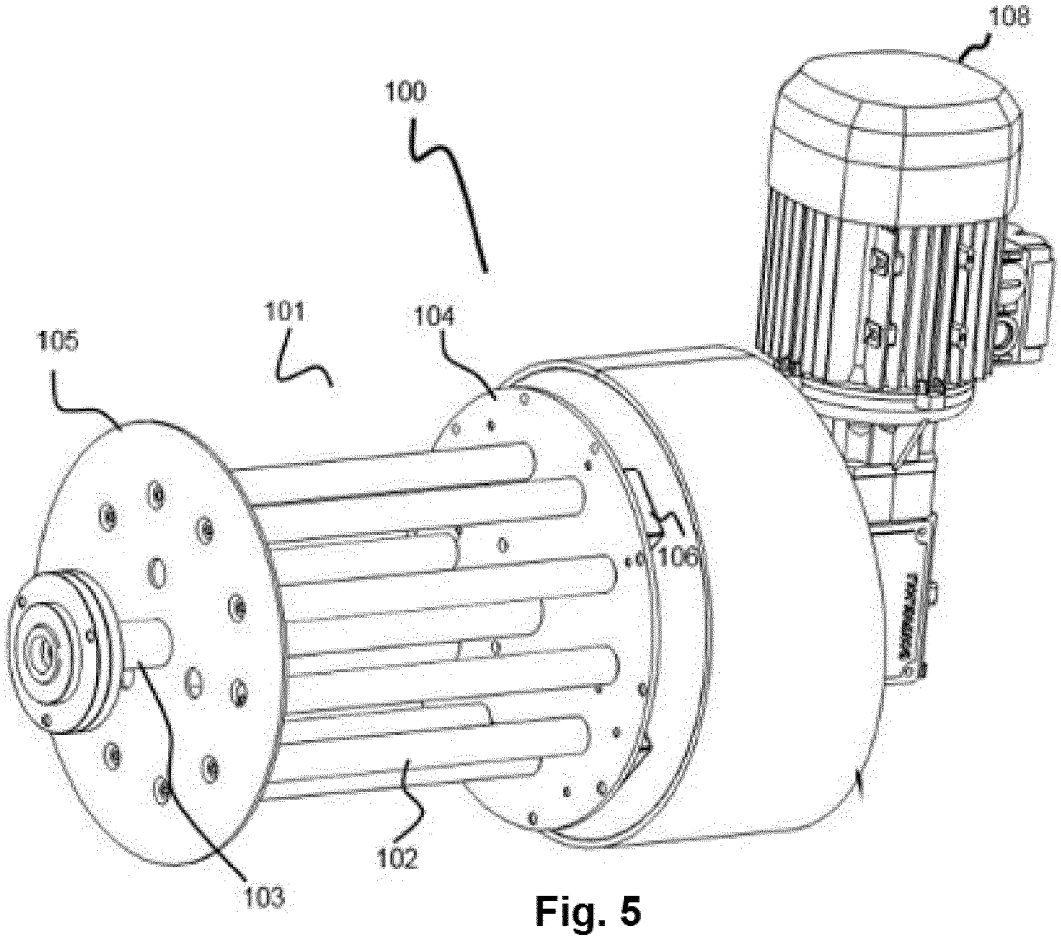
108
100
101
104
105
106
102
103

Fig. 5

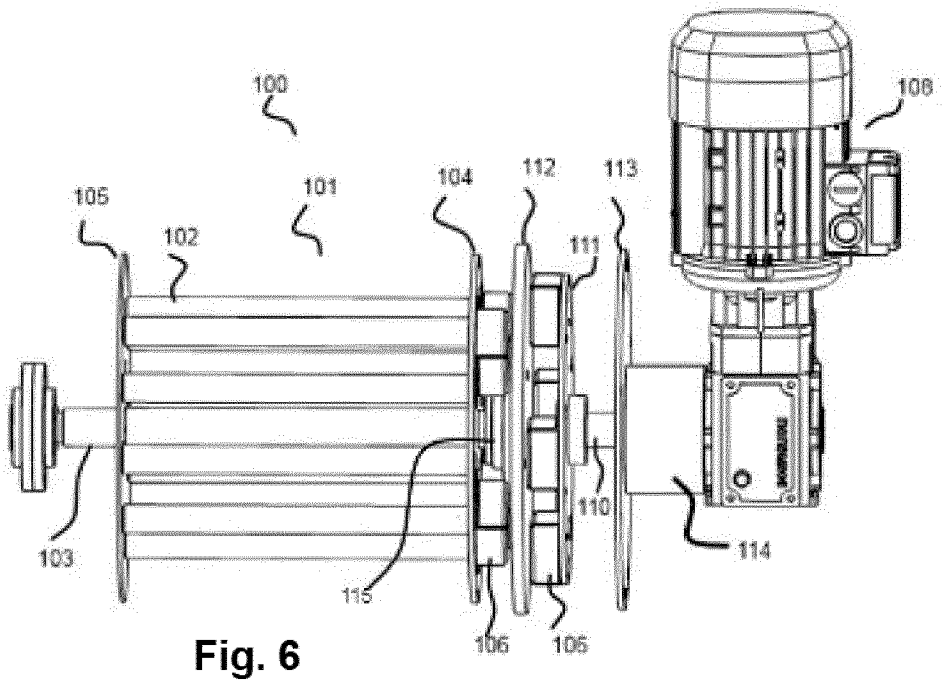
100
108
105
101
104
112
113
102
111
110
114
103
115
106
105

Fig. 6

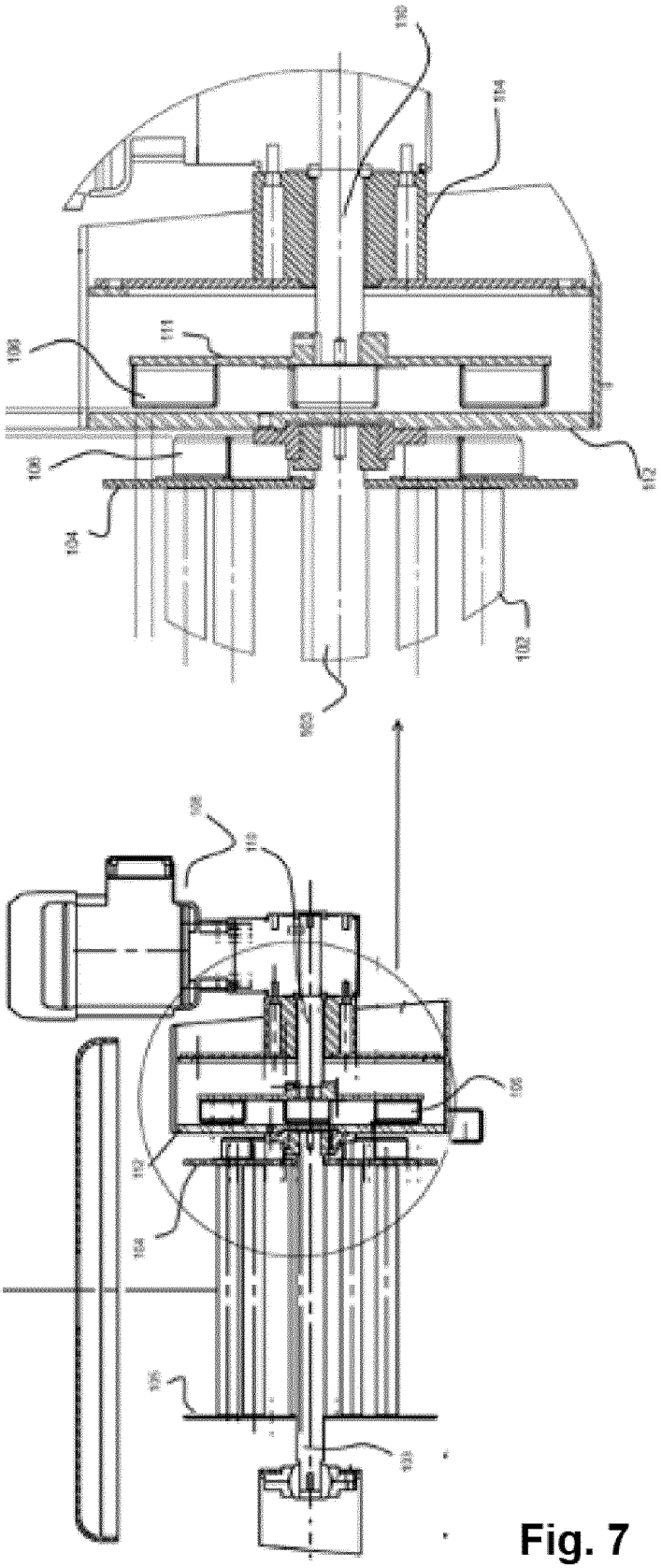

Fig. 7

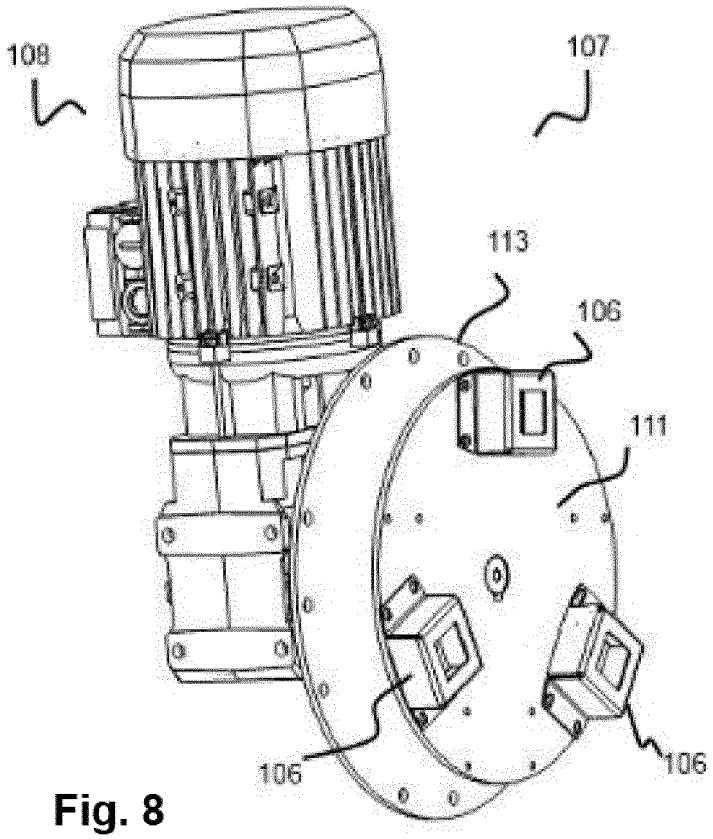

Fig. 8

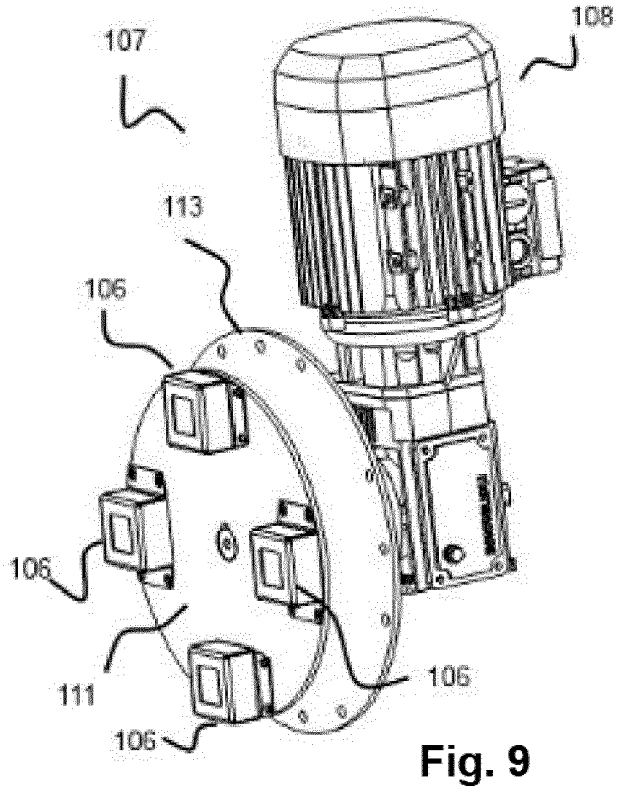

Fig. 9

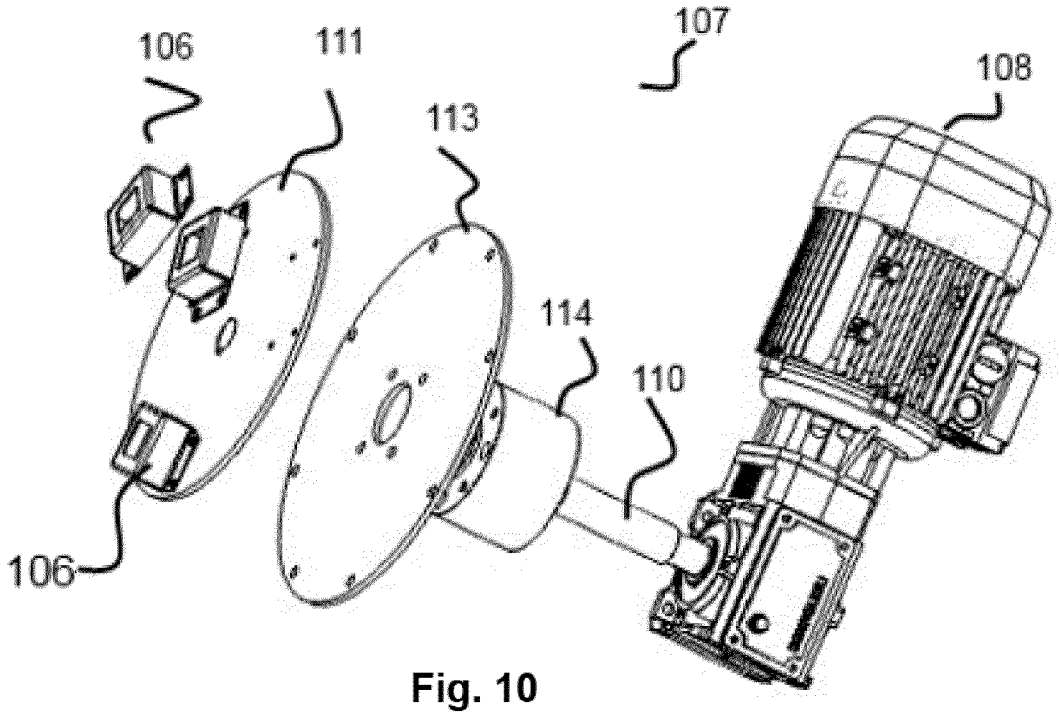
106
111
107
108
113
114
110
106

Fig. 10

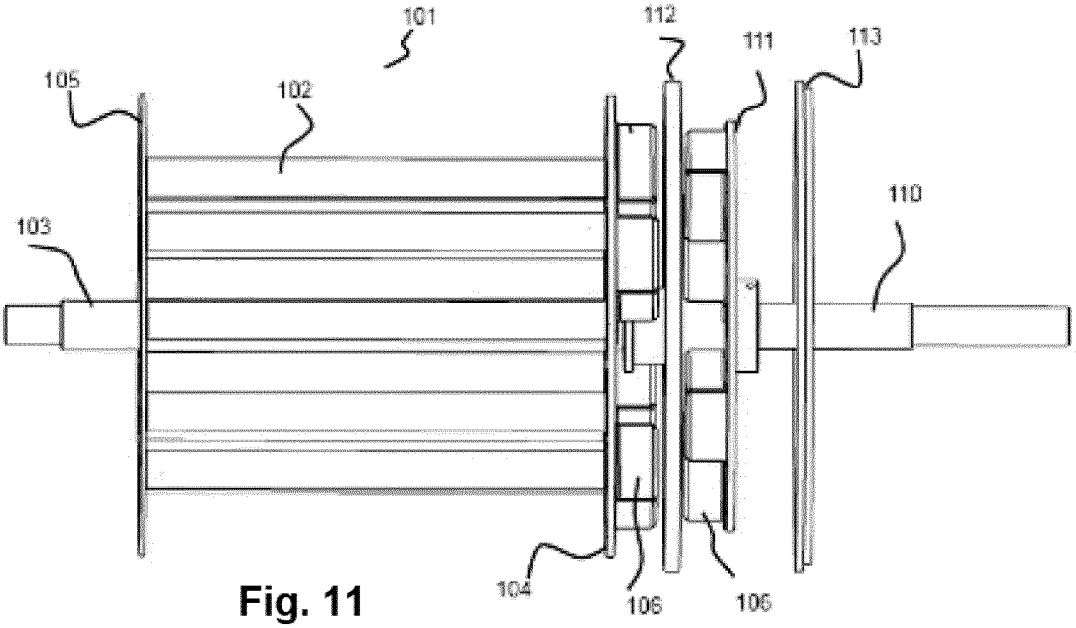
101
112
111
113
105
102
110
103
104
106
106

Fig. 11

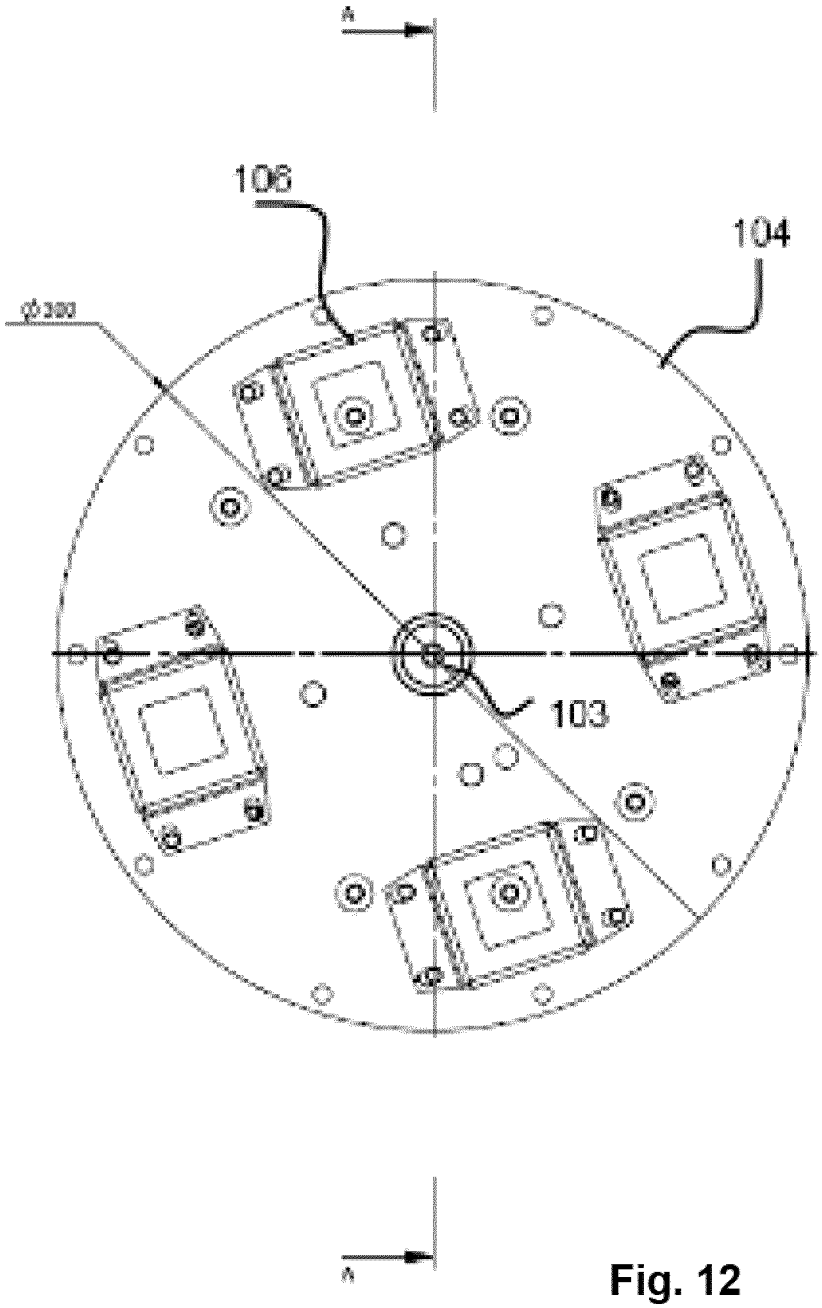

Fig. 12

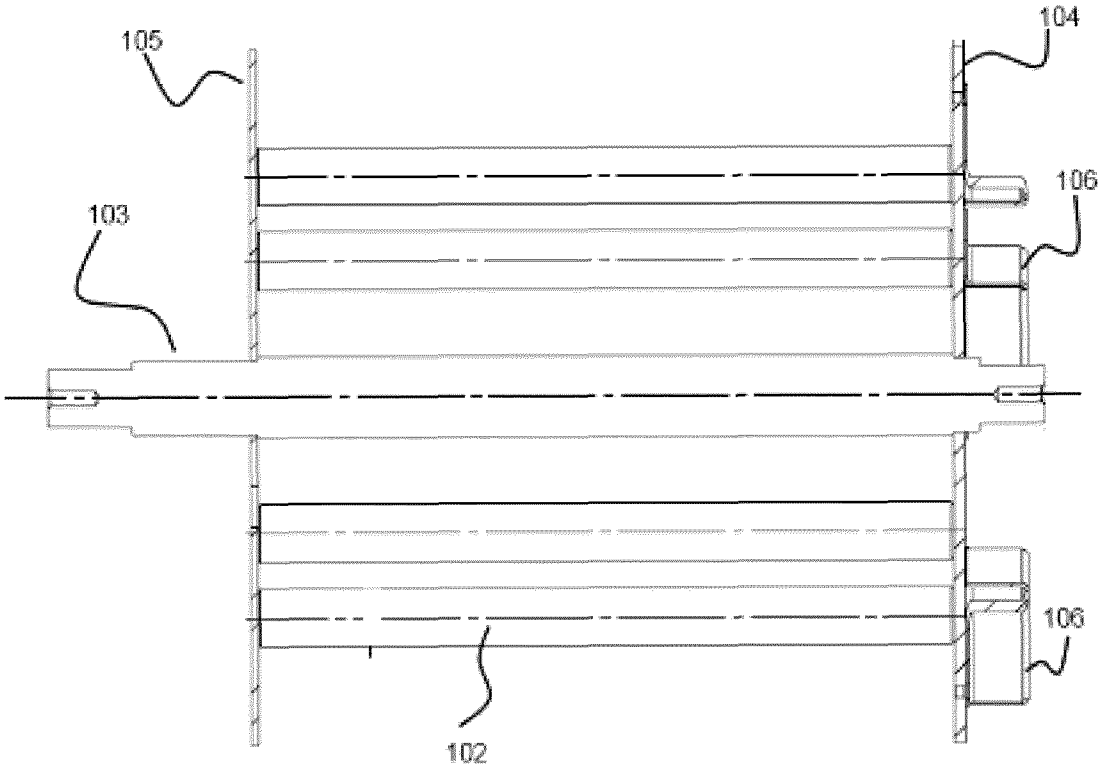

Fig. 13

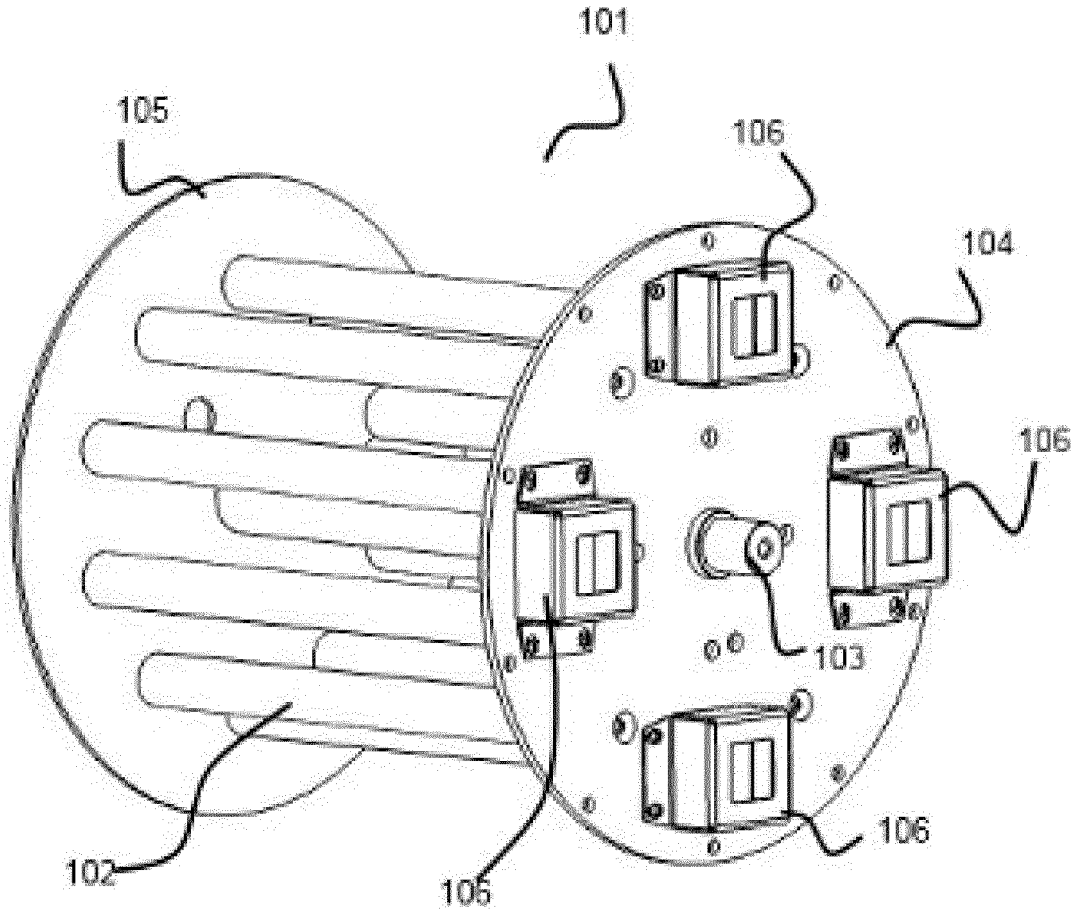

Fig. 14

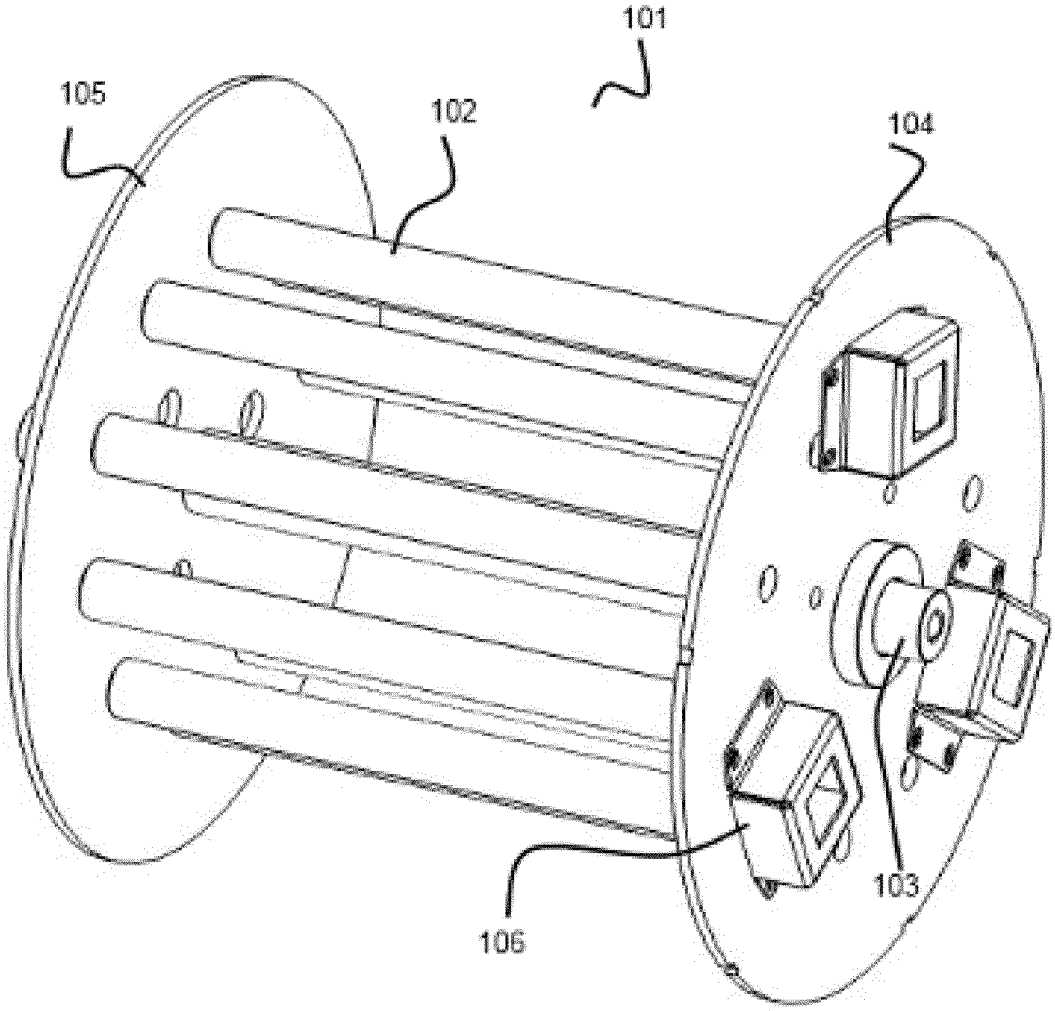

Fig. 15

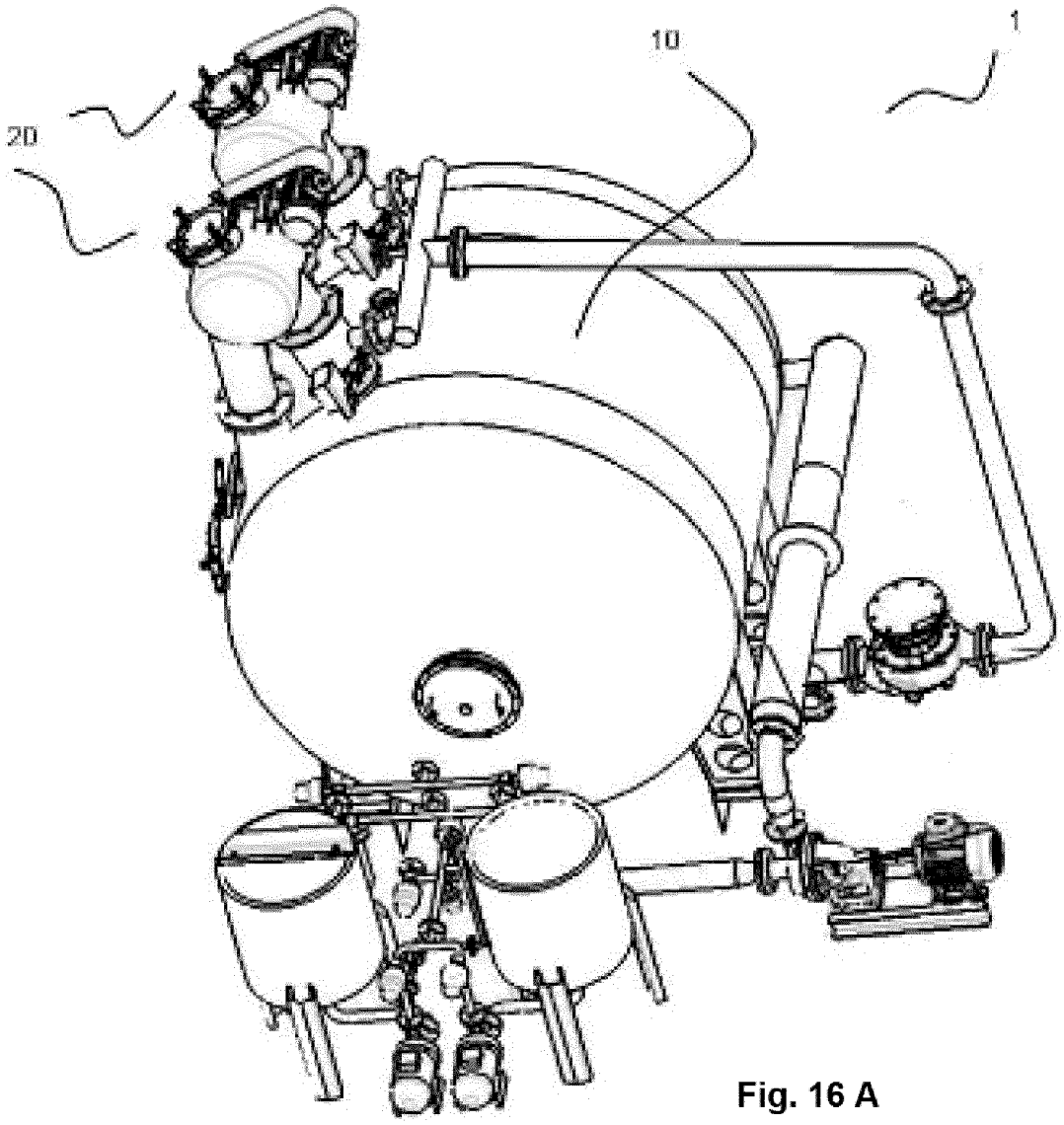

Fig. 16 A

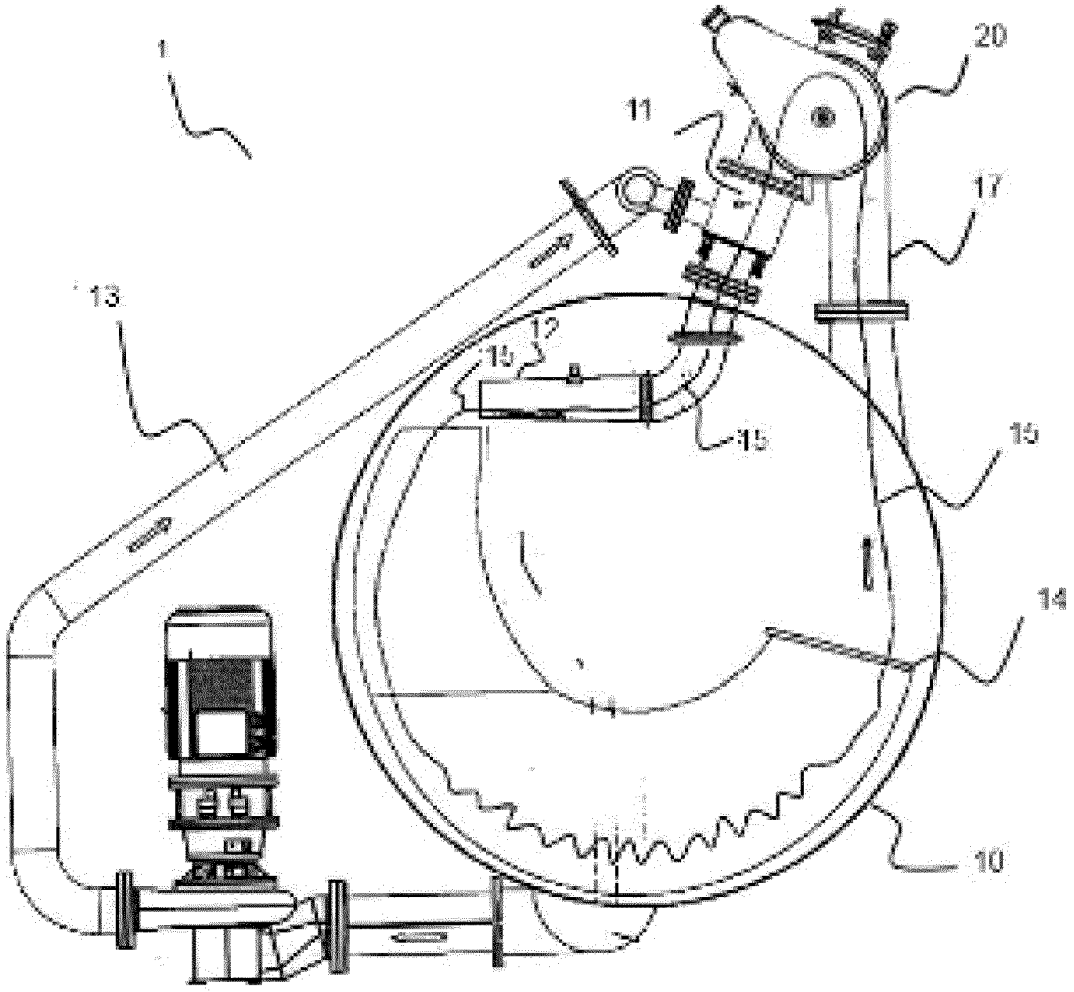

Fig. 16 B

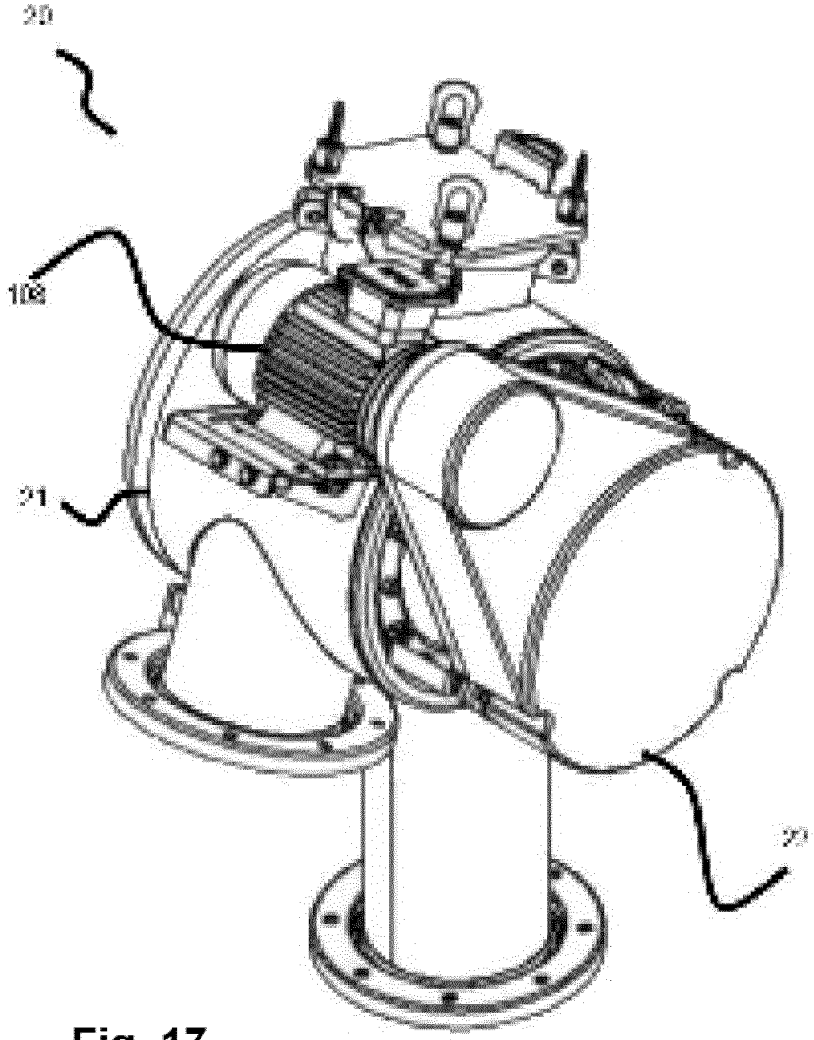

Fig. 17

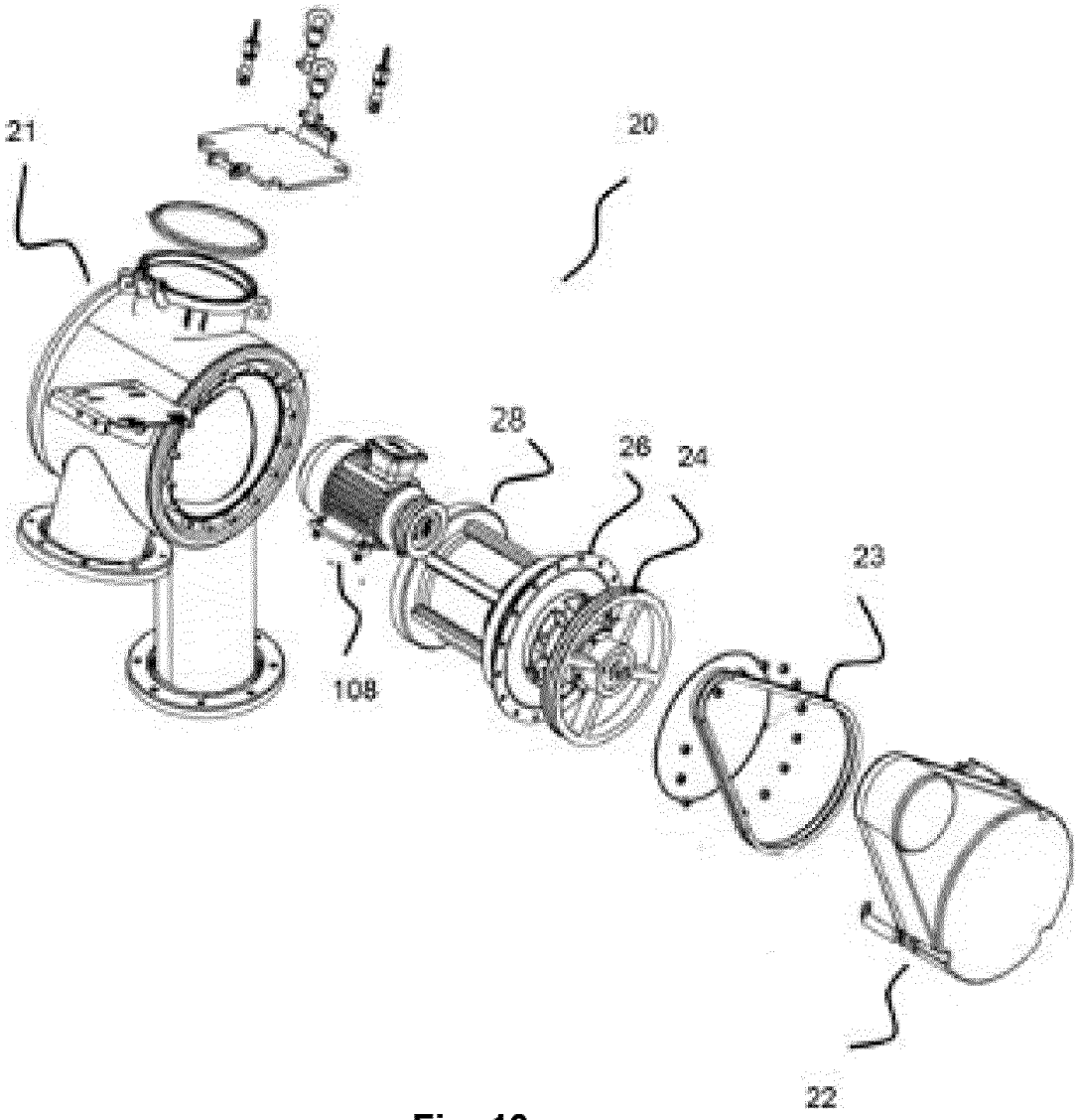

Fig. 18

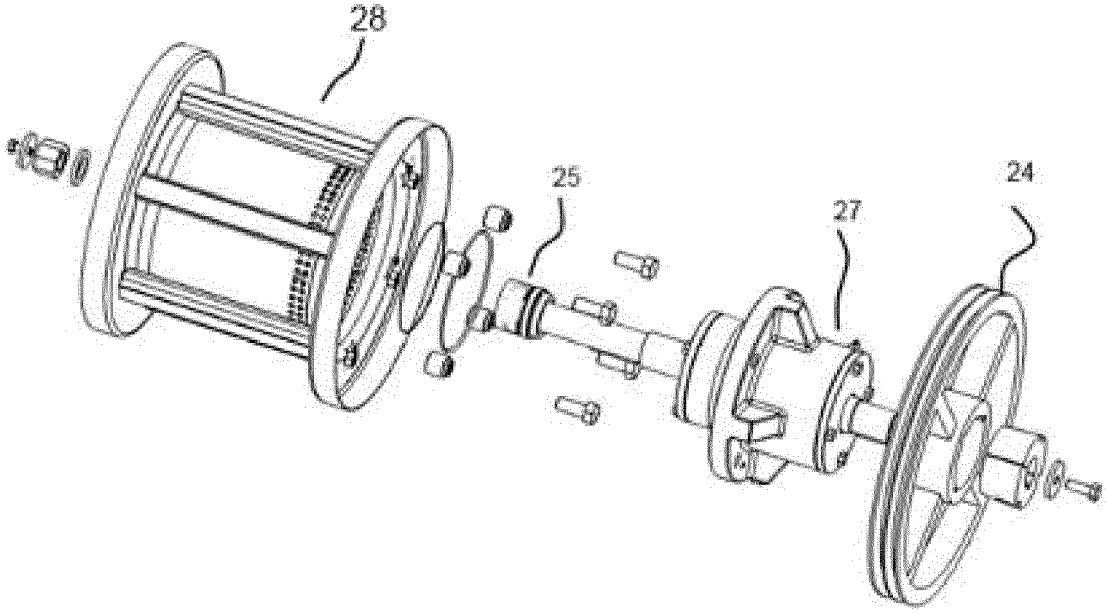

Fig. 19

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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