

⑫ **EUROPEAN PATENT SPECIFICATION**

- ⑬ Date of publication of patent specification: **17.07.85**      ⑮ Int. Cl.<sup>4</sup>: **D 06 F 37/04, D 06 F 37/28**  
⑰ Application number: **81201174.0**  
⑱ Date of filing: **21.10.81**

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⑳ **Apparatus for treating textiles, such as laundry.**

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㉑ Priority: **21.10.80 NL 8005788**

㉒ Date of publication of application:  
**28.04.82 Bulletin 82/17**

㉓ Publication of the grant of the patent:  
**17.07.85 Bulletin 85/29**

㉔ Designated Contracting States:  
**DE FR NL**

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**EP 0 050 395 B1**

## Description

The invention relates to a laundry device for treating textile ware, such as laundry, mainly comprising a housing having a lower opening closable by a door, a drum assembly disposed within said housing and comprising opposed perforate drum sections, a horizontal shaft and guide means for slidably supporting a drum section axially through said lower opening.

Such drum machines of the kind set forth are known in many embodiments for domestic and industrial use. The invention, however, relates in particular to machines of the industrial type, which can deal with comparatively large quantities of textile ware, such as is disclosed in US—A—2,817,501.

The industrial machines constitute part of a whole process for treating textiles and one of the problems involved is the supply and delivery of the quantity of textiles in the machine or the drum respectively. It is known from US—A—2,817,501 in a laundry machine to slip out a section through an opening in the housing for introducing or removing the textiles. In this machine the drum is not divided into compartments so that the delivery of washings cannot be automaticated. Moreover, high speeds for centrifuging cannot be obtained.

The invention has for its object to improve a device of the kind set forth to an extent such that the above mentioned drawbacks are obviated.

The device according to the invention is distinguished in that said shaft is provided with a wing-like carrier having said guide means for slidably supporting each drum section and for isolating said drum sections from each other whereby each drum section forms with the wing-like carrier a separate compartment for containing laundry, whereas said housing is also provided with an upper opening closable by a door, so that any drum section may be filled by sliding a section through said lower opening and emptied by sliding a section through said upper opening.

The use of a carrier fastened to the shaft has the advantage that a very robust construction is obtained, which can resist very high rotary speeds as occur in centrifuging. The carrier provides furthermore the advantage that the drum can be easily divided into two or more compartments so that washings of different kinds can be simultaneously washed. Moreover, one of the compartments can now be disposed so that, when it is slid out, the washings automatically drop out of the compartment.

A stable slide guide is ensured by arranging the guide for each drum section along the end rims of the drum jacket.

In order to enlighten the actuation the guide is preferably provided with a roller element for reducing frictional resistance. Instead a synthetic resin lining may be provided as an alternative. This lining provides, in addition, an improved distribution of forces.

In order to ensure a firm connection between

the drum sections and the shaft during the treatment of the textiles tensioning means are provided to clamp each drum section. These tensioning means are preferably formed by an inflatable body by which each drum section is moved away from the wing carrier.

In one embodiment the or each door for closing the inlet or outlet opening respectively of the housing is slidably guided parallel to the rotary shaft of the drum, the door being provided with means for coupling with a drum section. In this way the weight of the drum and the textiles contained therein is partly absorbed by the guide of the drum itself and partly by the guide of the door.

In a further embodiment each door is constructed in the form of a swing door, whilst the drive for sliding the drum forward is formed by a cylinder engaging the roller or sliding element between the drum sections.

The above-mentioned and further features of the invention will be explained more fully in the following description of the Figures of two embodiments.

The drawing shows in:

Figure 1 a schematic side elevation of a first embodiment of the device in accordance with the invention,

Figure 2 a perspective view of the device of Figure 1,

Figure 3 a front view of a detail of the sliding guide indicated by the arrow III in Figure 2,

Figure 4 an elevational view like Figure 1 of a detail of the device,

Figure 5 a side elevation of a second embodiment of the invention,

Figure 6 a sectional view of a detail of the guide of the drum section with respect to the impeller carrier used in the embodiment of Figure 5,

Figure 7 a plan view taken on the line VII—VII in Figure 6,

Figure 8 a schematic plan view of the drive and the guide respectively of a drum section with respect to the carrier.

The device shown in Figures 1 to 4 mainly comprises a closed housing 1, in which a drum 3 is rotatably driven around a horizontal shaft 2. To this end the shaft 2 is prolonged on the right-hand side in Figure 1 to beyond the housing 1, on which prolongation a pulley of a rope transmission 4 is fastened. The rope transmission 4 is driven by a motor 5 (not further described) which is disposed on top of the housing 1.

The housing 1 is provided on one side with a door 5 for introducing the textiles and on the other side with a door 6 located at a higher level for delivering the textiles. The operation of the doors will be described more fully hereinafter.

The two doors 5 and 6 are provided with sealing means such that in the closed state the housing 1 may contain a detergent across which the drum 3 is rotated.

According to a main aspect of the invention the drum is divided into sections and in the embodiment shown every two diametrically opposite, identical sections 7 (see Figure 2) can be slid out

of the openings 5 and 6 respectively.

Each drum section comprises a circular jacket wall 8 connected on the head side with two end walls 9.

The shaft 2 is provided with two diametrically opposite wings 10 consisting of a hollow construction (see Figure 3), the axial length of which corresponds with that of each drum section 7 and the radial length of which corresponds to the distance between the end rims of the jacket surface 8.

The drum sections 7 are slidably connected in an axial sense with the wings 10 by means of a sliding guide 11 shown in detail in the sectional view of Figure 3.

The sliding guide comprises two T-shaped, thickened longitudinal strips 12 connected with the wing 10 and the drum section 7 respectively, about which grips a U-shaped intermediate piece 13 on the outer and inner sides of the drum. Between the U-shaped parts rollers 14 are arranged to roll along the head side of the T-shaped strip part 12. Such a roller guide reduces considerably the frictional resistance. During the axial displacement of each drum section 7 the intermediate piece 11 will each time slide along over half the distance (see Figures 2 and 4). To this end the intermediate piece 11 is provided on both sides with a freely rotatable roller along which a cable is passed. Each cable is fastened at one end to the displaceable drum section 7 and at the other end to the wing 10.

Parallel to the hollow wing 10 is arranged a loose wall 15, below which a blowing body 16 is arranged. The wall 15 is guided in a U-shaped guide 17 secured to the wing 10. Between the upper flange of the guide 17 and the wall 15, which can move up and down, extends the flange of a protective wall 18 of the drum section 7. The arrangement is such that an axial displacement of the drum section 7 is ensured whilst nevertheless adequate protection of the sliding guide 11 with respect to the textiles contained in the drum section 7 is obtained.

In the industrial treating device of high capacity shown in the Figures the sliding guide 11 does not suffice to absorb the weight of the drum section 7 with the textiles contained therein, as is shown in the position of Figure 2. Therefore, a head wall 9 of each drum section is provided with coupling means for connecting the door 5 and 6 respectively with the head wall 9. The coupling means shown are formed by two brackets 20 into which can grip a latch 21. The latch is connected with a lever 22 pivotably connected with the inner side of the door, a pneumatic ram 23 being arranged between every two of them.

The door itself is supported by a telescopic sliding guide 24 of a size such that high bending stress in a vertical sense can be absorbed. The telescopic sliding guide 24 comprises a pneumatic ram 25, by which the door can be moved into the open and closed positions. Moreover a synchronous mechanism ensures a smooth opening and closing of the telescopic guide 24 on both

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sides of the door. A pinion 28 journaled in a telescopic part rolls along a toothed rack connected with the door. A torsional rod 26 rotatably journaled in the door is provided on both sides with a pinion rigidly secured thereto, along which is passed a chain which drives the pinion 28.

Although this is not shown in detail, the construction for the upper door 6 is the same as for the door 5 on the rear side of the device in Figure 2. This door is also connected by corresponding coupling means with the head wall 9 of each drum section 7.

The device described above operates as follows.

In order to fill the drum 3 it has to be turned so that the hollow wings 10 are in a substantially horizontal position so that a head wall 9 of a drum section 7 can be clamped by means of the latches 21, which drop in the brackets 20 after the ram 23 is energized. Subsequently the ram 25 can be energized so that the door 5 is slid out, carrying along the drum section 7, which slides outwards by means of the sliding guide 11 in an axial sense with respect to the wing-shaped carrier 10. Owing to this construction a large space is formed for filling the lower section of the drum (see Figures 1 and 2). Filling can be performed by means of a feeding conveyor 30, but as an alternative, as well by means of gutters, catching means or even by hand. After a sufficient quantity of textiles is deposited in the drum section 7, the ram 25 is energized in the reverse sense so that the door slides inwards, carrying along the drum section 7. Subsequently, the inflatable body 16 can be charged with a pressure medium so that the wall 15 is urged downwards until the T-shaped ends of the end strips 12 are firmly clamped in the U-shaped elements 13 of the intermediate element. Thus a firm connection is established between the drum section 7 and the hollow wing 10.

After disengagement of the latches 21 from the brackets 20 the drum can be turned through 180°, as a result of which the upper, empty drum section turns into the lowermost position, after which the cycle described above can be repeated.

For completely filling the drum the normal process of treatment can be carried out, for which purpose the detergent or cleaning fluid can be introduced through orifices (not shown) and dosing members falling beyond the scope of this invention. The motor 5 rotates in a conventional manner via the rope transmission 4 the drum with the desired speed.

After the treating cycle is accomplished, the drum can be emptied, for which purpose first the hollow wing 10 is turned into a horizontal position so that the upper drum section with the brackets 20 fastened thereto and the other head wall are located at the latches 21 of the coupling means in the door 6. When the inflatable body 16 is discharged, sufficient play is formed in the sliding guide 11. After the ram 25 associated with the door 6 is energized, this door is pushed outwards, carrying along the upper drum section. The textiles of this section are urged over and across the

wall 15 by the rear head wall 9 and along the horizontal guide plate 31 the goods arrive at the delivery conveyor 32 (see Figure 1).

The second drum section can be emptied in a similar manner after the drum is turned through 180°.

From the foregoing it will be obvious that the drum sections can be very readily filled and emptied, whilst large amounts of textiles can be simultaneously treated. Owing to the doors arranged on both sides the device may, in addition, be used as a "hygienic" treating device by disposing it at the height of a wall 33 (see Figure 1) so that the supply is separated from the delivery. Such a disposition is, for example, suitable for use in hospitals.

Figures 5 to 8 show an alternative embodiment of the washing device in accordance with the invention.

The same parts are designated by the same reference numerals. The difference from the preceding embodiment resides in that the doors closing the openings of the housing 1 are constructed herein as swing doors 51 adapted to turn outwardly around the hinge 50. The outward swing of each door is performed by means of pneumatic rams 52, which are arranged in the housing 1 and the connecting rods of which engage a bracket 53 fastened to the door 51.

Each section is supported in the extreme position fully by an intermediate element in the form of the sliding guide 11, which is shown in detail in the cross-sectional view of Figure 6. The sliding guide comprises a H-shaped piece provided on the inner side with nylon lining 55, which accommodate the T-shaped ends 12 of the drum sections. In contrast to the preceding embodiment the intermediate rollers are failing here and guiding is fully performed by the synthetic resin lining 55. This lining has the advantage that the load is evenly distributed along the full length of the T-shaped end parts 12 and respectively the flanges of the H-shaped intermediate piece 11 so that this construction can hold very heavy loads as occurring, for example, in the centrifuging phase of the machine, in which forces of 300 gs (gravity) have to be taken into account. It should furthermore be noted that the T-shaped elements 12 are at right angles to the top wall of the carrier 10, in contrast to the inclined position of the wall in Figure 3.

From Figure 6 it is furthermore apparent that the inflatable body 16 is arranged here between two salient parts 56 of the closing plates 15 of the drum section. The closing plates 15 are drawn to one another in the rest position by springs 57 so that, when the drum section is slid out, they are released from the rim of the section and do not produce frictional resistance. The inflatable body 16 has the same function as in the preceding embodiment and via the plates 15 it will urge the whole drum section upwards so that the T-shaped end pieces 12 are firmly pressed against the flanges of the intermediate piece 11. Therefore, during the washing run the whole drum remains a

rigid unit. It will be obvious that this construction guarantees a uniform load of the drum sections so that the inflatable body 16 can be replaced in a simple manner.

5 In the embodiment shown in Figures 5 to 8, in contrast to the preceding embodiment, each section can be slid outwards by means of a pneumatic ram 60 located on the outer side of the housing 1 (see Figures 6 and 7). For each section such a pneumatic ram 60 is provided at both ends of the housing 1 and each of them engages an intermediate piece 11 by means of the cam 61 which falls in between two cams 62 of the intermediate piece 11. From Figure 7 it will be apparent that when the piston rod 63 of the ram 60 is slid to the right the right-hand cam 62 engages the cam 61 of the piston rod so that the intermediate piece 11 is shifted to the right in Figure 7. Upon withdrawal the left-hand cam 62' is engaged and the intermediate piece is returned to the initial position. The piston 64 on the piston rod 63 can thus occupy the extreme left-hand position in the ram 60, whilst the intermediate piece 11 gets into the correct position centrally between the drum sections. The auxiliary ram 65 which is arranged coaxially with the main ram 60 will urge, when charged, the piston 64 over a predetermined distance to the right into the zero position so that the cam 61 gets exactly in between the cam 62 and the cam 62' so that it remains free thereof. Thus the drum can be rotated without the cams 62 coming into contact with the cam 61.

35 In order to avoid untrue running of the drum sections with respect to the sliding guides 11 a cable system like that of the preceding embodiment is arranged for each intermediate piece 11 so that the systems on both sides of each drum section are interconnected (see Figure 8). One cable 80 is connected with the cable 80' on the other side of the drum section 7, whereas the cable 81 is connected with the cable 81'. This is obtained by means of a cable part which is freely displaceable via guide wheels 82 at the corners of the drum section along a head end of the drum section 7. This driving system has the advantage that the rams 60 on both sides of the drum section 7 can arbitrarily move relatively to one another. When one intermediate piece 11 is slid forwards the cable 80, 81 will be carried along so that the drum is displaced over a given distance. When subsequently the other intermediate piece 11' is displaced the drum is again displaced over a given distance so that finally the drum covers twice the distance of the intermediate pieces. The cables are free to move along the head ends of the drum and they will load it only in the direction indicated by the arrow  $P_2$  with the exception of slight frictional losses. Thus any form of an untrue run is avoided and by the cable evening system obtained the rams 60 can move forwards and backwards independently of one another.

As a matter of course the invention is not limited to the two embodiments described above.

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**Claims**

1. A laundry device for treating textile ware, such as laundry, mainly comprising a housing (1) having a lower opening (5) closable by a door, a drum assembly (3) disposed within said housing (1) and comprising opposed perforate drum sections (7), a horizontal shaft (2) and guide means (11) for slidably supporting a drum section (7) axially through said lower opening (5) characterized in that said shaft (2) is provided with a wing-like carrier (10) having said guide means (11) for slidably supporting each drum section (7) and for isolating said drum sections (7) from each other whereby each drum section (7) forms with the wing-like carrier (10) a separate compartment for containing laundry, whereas said housing (1) is also provided with an upper opening (6) closable by a door, so that any drum section (7) may be filled by sliding a section through said lower opening (5) and emptied by sliding a section through said upper opening (6).

2. A device as claimed in claim 1 characterized in that the sliding guide (11) for the drum section (7) is arranged along the end rims of the drum jacket.

3. A device as claimed in claims 1 to 2 characterized in that the sliding guide (11) is provided with a sliding or rolling element between the drum section rim (12) and the wing (10).

4. A device as claimed in claim 3 characterized in that the sliding guide (11) is provided with synthetic resin lining covering the full length thereof.

5. A device as claimed in claims 1 to 4 characterized in that the sliding or rolling element is provided on both sides with a freely rotatable roller, along each of which is passed a cable connected at one end with the drum section (7) and at the other end with the wing-shaped carrier (10).

6. A device as claimed in claim 5 characterized in that every two cables on both sides of each drum section (7) are interconnected and freely slidable along the head sides thereof.

7. A device as claimed in claim 6 characterized in that the carrier (10) is provided with means for clamping the drum section.

8. A device as claimed in claim 7 characterized in that the clamping means are formed by an inflatable body (16) for moving the drum section (7) away from the wing carrier (10).

9. A device as claimed in claim 8 characterized in that the inflatable body (16) is arranged between the wing carrier (10) and a plate wall (15) capable of closing the inner opening of the drum section (7).

10. A device as claimed in claim 8 characterized in that the inflatable body (16) arranged in the carrier is directly arranged between two opposite plate walls (15) of the opposite drum sections (7).

11. A device as claimed in any one of the preceding claims characterized in that the sliding or rolling element is reciprocatedly driven by means of a ram (60).

12. A device as claimed in claim 11, charac-

terized in that each ram (60) for the sliding or rolling element is provided with a zero setting member (65).

13. A device as claimed in claim 11 characterized in that the zero setting member (65) is a ram coaxial with the main ram (60), the plunger rod thereof urging, in the end position, the plunger of the main ram (60) into the zero position.

14. A device as claimed in any one of the preceding claims 1 to 10 characterized in that each door (5, 6) for the opening to be closed in the housing is slidably guided parallel to the rotary axis (2) and is provided with means for coupling with a drum section (7).

15. A device as claimed in claim 9 characterized in that on both sides of the housing (1) is arranged a door guide (24) with the associated driving means (25), synchronizing means (26, 28) being operative between the two guides (24).

16. A device as claimed in any one of the preceding claims characterized in that the driving means (25) for the door (5, 6), the tensioning means (16) at the wing carrier (10) and/or the coupling means (20, 23) at each door (5, 6) are pneumatically controlled.

**Patentansprüche**

1. Wäschereimaschine zum Behandeln von Textilerzeugnissen, wie Wäsche, hauptsächlich enthaltend ein Gehäuse (1) mit einer unteren Öffnung (5), die mittels einer Tür verschließbar ist, eine Trommelanordnung (3), die in dem Gehäuse (1) angeordnet ist und aus einander gegenüberstehenden, mit Löchern versehenen Trommelteilen (7) besteht, eine horizontale Welle (2) und Führungseinrichtungen (11), um ein Trommelteil (7) axial durch die untere Öffnung (5) gleitend zu tragen, dadurch gekennzeichnet, daß die Welle (2) mit einem flügelartigen Träger (10) versehen ist, der Führungseinrichtungen (11) aufweist, um jedes Trommelteil (7) verschiebbar zu tragen und die Trommelteile (7) voneinander zu trennen, wodurch jedes Trommelteil (7) mit dem flügelartigen Träger (10) ein getrenntes Abteil zur Aufnahme von Wäsche bildet, während das Gehäuse (1) außerdem mit einer oberen Öffnung (6) versehen ist, die mittels einer Tür verschließbar ist, sodaß jedes Trommelteil (7) dadurch gefüllt werden kann, daß man ein Teil durch die untere Öffnung (5) schiebt, und geleert werden kann, in dem man ein Teil durch die obere Öffnung (6) schiebt.

2. Maschine nach Anspruch 1, dadurch gekennzeichnet, daß die Gleitführung (11) für das Trommelteil (7) längs der Endränder des Trommelmantels angeordnet ist.

3. Maschine nach den Ansprüchen 1 und 2, dadurch gekennzeichnet, daß die Gleitführung (11) mit einem gleitenden oder rollenden Element zwischen dem Trommelteilrand (12) und dem Flügel (10) versehen ist.

4. Maschine nach Anspruch 3, dadurch gekennzeichnet, daß die Gleitführung (11) mit einer

Kunstharzbeschichtung versehen ist, die ihre gesamte Länge bedeckt.

5. Maschine nach den Ansprüchen 1 bis 4, dadurch gekennzeichnet, daß das gleitende oder rollende Element an beiden Seiten mit einer frei drehbaren Rolle versehen ist, längs jeder von ihnen ein Draht vorbeiläuft, der am einen Ende mit dem Trommelteil (7) und am anderen Ende mit dem flügel förmigen Träger (10) verbunden ist.

6. Maschine nach Anspruch 5, dadurch gekennzeichnet, daß jeweils zwei Drähte an beiden Seiten jedes Trommelteils (7) miteinander verbunden sind und längs der Kopfseiten derselben frei verschiebbar sind.

7. Maschine nach Anspruch 6, dadurch gekennzeichnet, daß der Träger (10) mit Einrichtungen zum Festklemmen des Trommelteils versehen ist.

8. Maschine nach Anspruch 7, dadurch gekennzeichnet, daß die Festklemmeinrichtung aus einem aufblasbaren Körper (16) gebildet ist, um das Trommelteil (7) von dem Flügelträger (10) wegzubewegen.

9. Maschine nach Anspruch 8, dadurch gekennzeichnet, daß der aufblasbare Körper (16) zwischen dem Flügelträger (10) und einer ebenen Wand (15) angeordnet ist, die in der Lage ist, die innere Öffnung des Trommelteils (7) zu verschließen.

10. Maschine nach Anspruch 8, dadurch gekennzeichnet, daß der aufblasbare Körper (16), der in dem Träger angeordnet ist, direkt zwischen zwei gegenüberstehenden ebenen Wänden (15) der gegenüberstehenden Trommelteile (7) angeordnet ist.

11. Maschine nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß das gleitende oder rollende Element mittels einer Kolben-/Zylinder-Einheit (60) hin- und hergehend angetrieben ist.

12. Maschine nach Anspruch 11, dadurch gekennzeichnet, daß jede Kolben-/Zylinder-Einheit (60) für das gleitende oder rollende Element mit einer Nulleinstellvorrichtung (65) versehen ist.

13. Maschine nach Anspruch 11, dadurch gekennzeichnet, daß die Nulleinstellvorrichtung (65) eine Kolben-/Zylinder-Einheit ist, die koaxial zur Haupt-Kolben-/Zylinder-Einheit (60) angeordnet ist und deren Kolbenstange in der Endstellung den Kolben der Haupt-Kolben-/Zylinder-Einheit (60) in die Nullstellung drückt.

14. Maschine nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß jede Tür (5, 6) für die zu verschließende Gehäuseöffnung parallel zur Drehachse (2) verschiebbar geführt ist und mit Einrichtungen zum Kuppeln mit einem Trommelteil (7) zu versehen ist.

15. Maschine nach Anspruch 9, dadurch gekennzeichnet, daß auf beiden Seiten des Gehäuses (1) eine Türführung (24) mit den zugehörigen Antriebseinrichtungen (25) angeordnet ist, bei Synchronisierungseinrichtungen (26, 28) zwischen den zwei Führungen (24) wirksam sind.

16. Maschine nach einem der vorhergehenden Ansprüche, dadurch gekennzeichnet, daß die

Antriebseinrichtungen (25) für die Tür (5, 6), die Spanneinrichtungen (16) am Flügelträger (10) und/oder die Kupplungseinrichtungen (20, 23) an jeder Tür (5, 6) pneumatisch gesteuert sind.

## Revendications

1. Un dispositif de blanchisserie pour traiter des articles textiles, tels que du linge à blanchir, qui comprend essentiellement un carter (1) ayant une ouverture inférieure (5) susceptible d'être fermée par une porte, un ensemble (3) de tambour disposé à l'intérieur dudit carter (1) et comprenant des parties de tambour perforées opposées (7), un arbre horizontal (2) et des moyens de guidage (11) pour porter à coulissement axial une partie (7) de tambour à travers ladite ouverture inférieure (5), caractérisé en ce que ledit arbre (2) est muni d'un support (10) en forme d'aile qui comporte lesdits moyens de guidage (11) servant à porter à coulissement chaque partie (7) de tambour et à isoler l'une de l'autre lesdites parties (7) de tambour de telle sorte que chaque partie (7) de tambour forme avec le support (10) en forme d'aile un compartiment séparé pour contenir du linge à blanchir tandis que ledit carter (1) est également muni d'une ouverture supérieure (6) susceptible d'être fermée par une porte de sorte qu'une partie de tambour quelconque (7) peut être remplie par coulissement d'une partie à travers ladite ouverture inférieure (5) et vidée par coulissement d'une partie à travers ladite ouverture supérieure (6).

2. Un dispositif tel que revendiqué dans la revendication 1, caractérisé en ce que le guide (11) coulissant pour la partie (7) de tambour est agencé le long des bords d'extrémité de l'enveloppe du tambour.

3. Un dispositif tel que revendiqué dans les revendications 1 et 2, caractérisé en ce que le guide (11) coulissant est muni d'un élément de glissement ou de roulement disposé entre le bord (12) de la partie de tambour et l'aile (10).

4. Un dispositif tel que revendiqué dans la revendication 3, caractérisé en ce que le guide (11) coulissant est muni d'un revêtement de résine synthétique qui le recouvre sur toute sa longueur.

5. Un dispositif tel que revendiqué dans les revendications 1 à 4, caractérisé en ce que l'élément de glissement ou de roulement est muni des deux côtés d'un galet monté à rotation libre autour de chacun desquels passe un câble fixé, à une extrémité, à la partie (7) de tambour et, à l'autre extrémité, au support (10) en forme d'aile.

6. Un dispositif tel que revendiqué dans la revendication 5, caractérisé en ce que les deux câbles montés de part et d'autre de la partie (7) de tambour sont reliés entre eux et peuvent librement coulisser le long des côtés de face de ladite partie.

7. Un dispositif tel que revendiqué dans la revendication 6, caractérisé en ce que le support (10) est muni de moyens pour serrer la partie de tambour.

8. Un dispositif tel que revendiqué dans la revendication 7, caractérisé en ce que les moyens de serrage sont constitués par un corps gonflable (16) servant à déplacer la partie (7) de tambour en éloignement du support (10) en forme d'aile.

9. Un dispositif tel que revendiqué dans la revendication 8, caractérisé en ce que le corps gonflable (16) est monté entre le support (10) en forme d'aile et une paroi (15) en forme de plaque capable de fermer l'ouverture intérieure de la partie (7) de tambour.

10. Un dispositif tel que revendiqué dans la revendication 8, caractérisé en ce que le corps gonflable (16) monté dans le support est directement monté entre deux parois en forme de plaque opposées (15) des parties de tambour opposées (7).

11. Un dispositif tel que revendiqué dans l'une quelconque des revendications précédentes, caractérisé en ce que l'élément de glissement ou de roulement est entraîné en va-et-vient au moyen d'un vérin (60).

12. Un dispositif tel que revendiqué dans la revendication 11, caractérisé en ce que chaque vérin (60) d'actionnement d'élément de glissement ou de roulement est muni d'un organe (65) de mise à zéro.

13. Un dispositif tel que revendiqué dans la revendication 11, caractérisé en ce que l'organe (65) de mise à zéro est un vérin coaxial avec le vérin principal (60), sa tige de piston repoussant, dans la position d'extrémité, le piston du vérin principal (60) dans la position zéro.

14. Un dispositif tel que revendiqué dans l'une quelconque des revendications précédentes 1 à 10, caractérisé en ce que chaque porte (5, 6) de l'ouverture à fermer du carter est guidée en coulissement parallèlement à l'axe de rotation (2) et est munie de moyens pour l'accoupler à une partie (7) de tambour.

15. Un dispositif tel que revendiqué dans la revendication 9, caractérisé en ce qu'un guide de porte (24) est disposé de chaque côté du carter (1) avec les moyens d'entraînement associés (25), des moyens de synchronisation (26, 28) agissant entre les deux guides (24).

16. Un dispositif tel que revendiqué dans l'une quelconque des revendications précédentes, caractérisé en ce que les moyens d'entraînement (25) de la porte (5, 6), les moyens de tension (16) prévus au niveau du support (10) en forme d'aile et/ou les moyens d'accouplement (20, 23) prévus au niveau de chaque porte (5, 6) sont commandés pneumatiquement.

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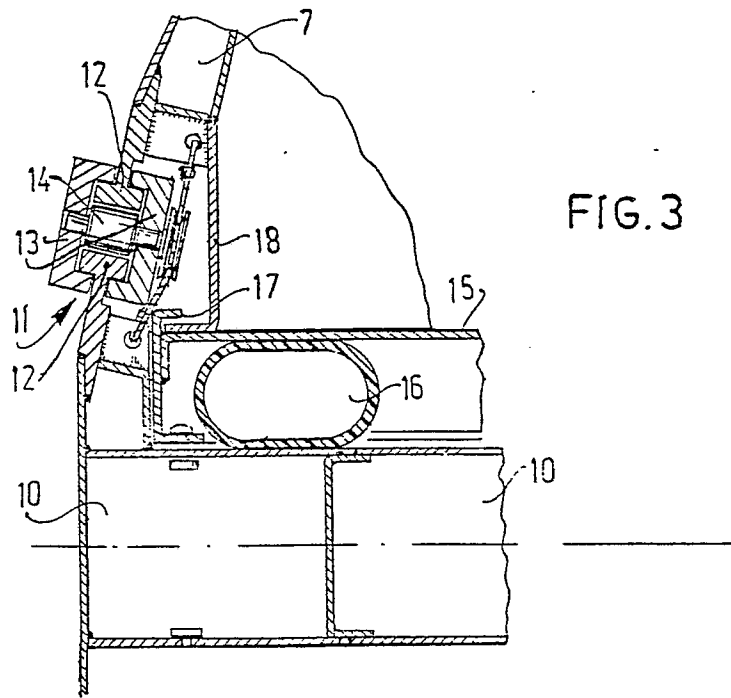
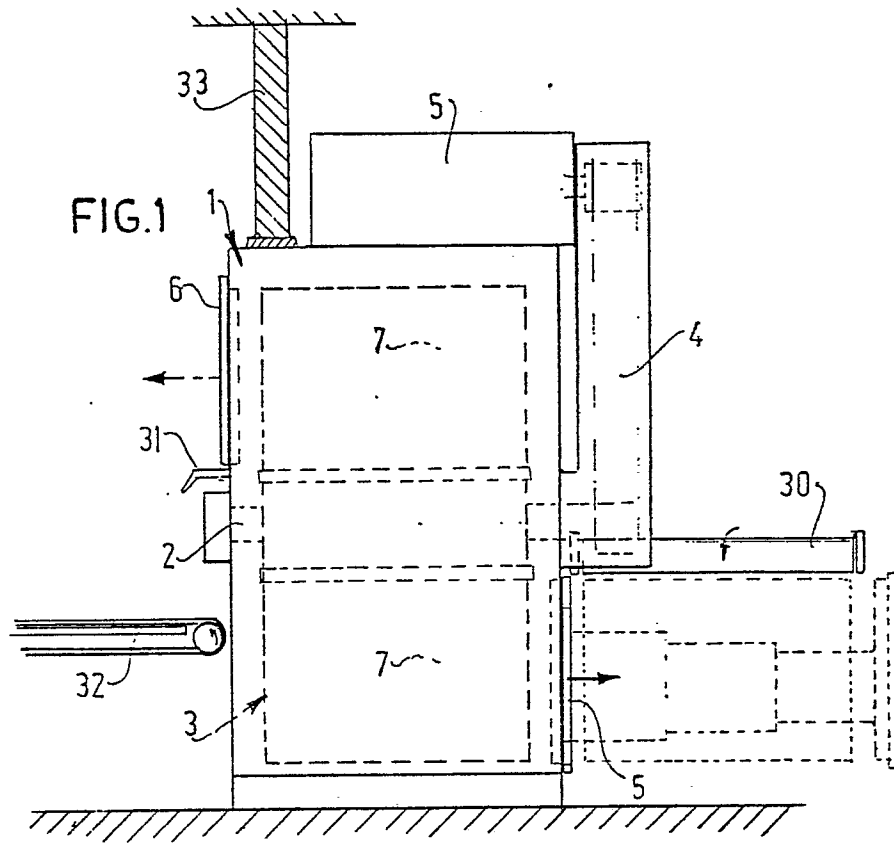




FIG. 2

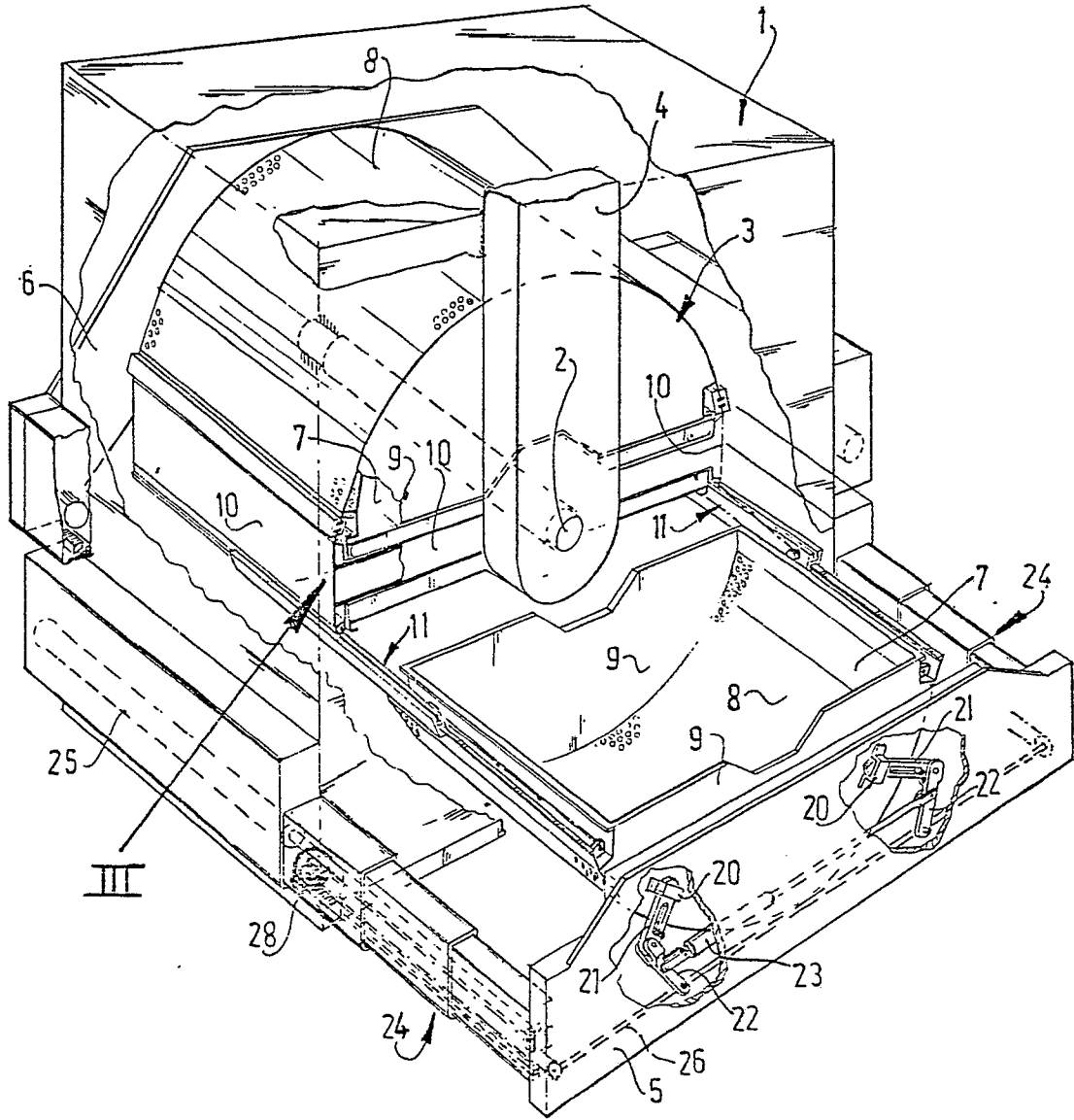
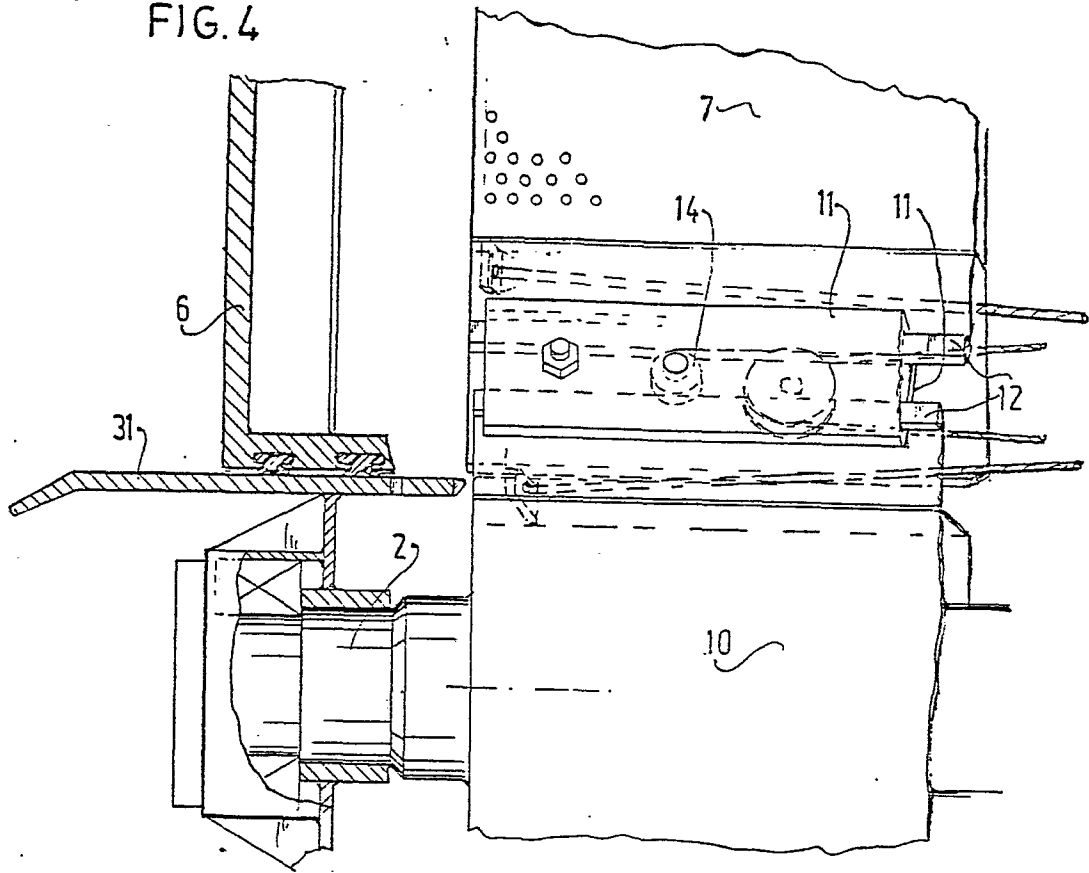


FIG. 4



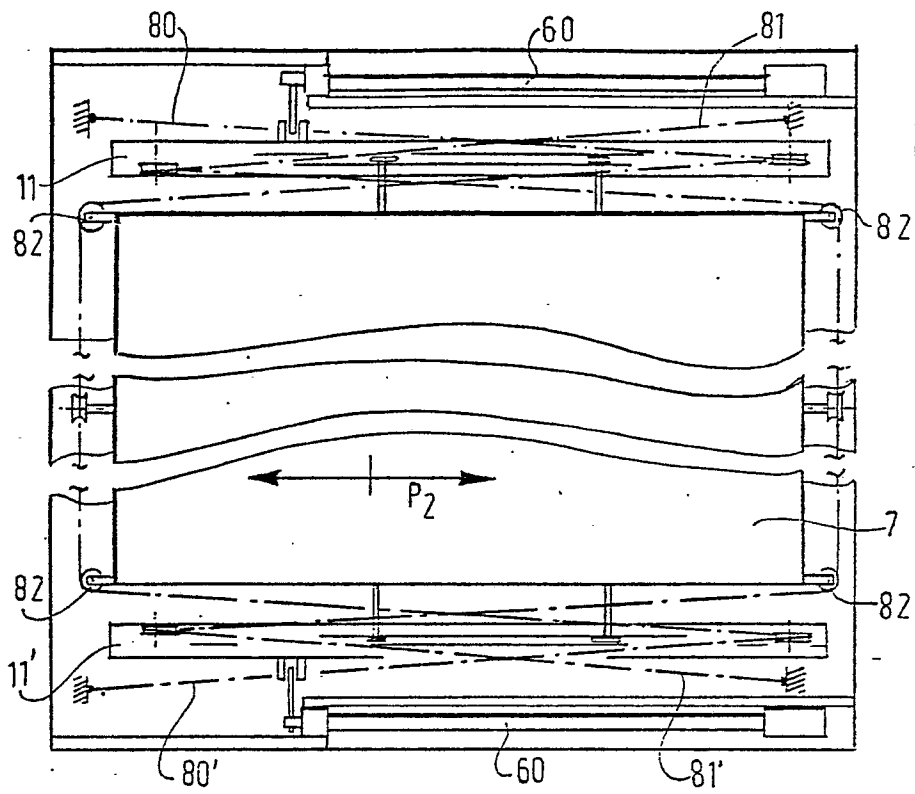


FIG. 8

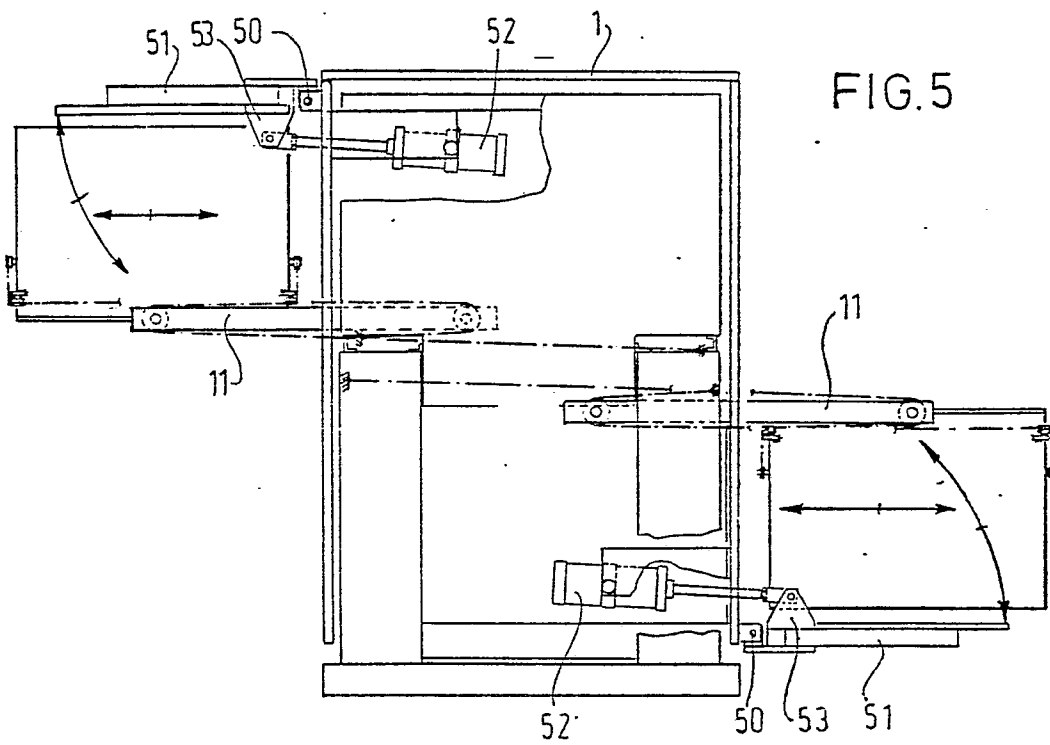


FIG. 5

FIG. 6

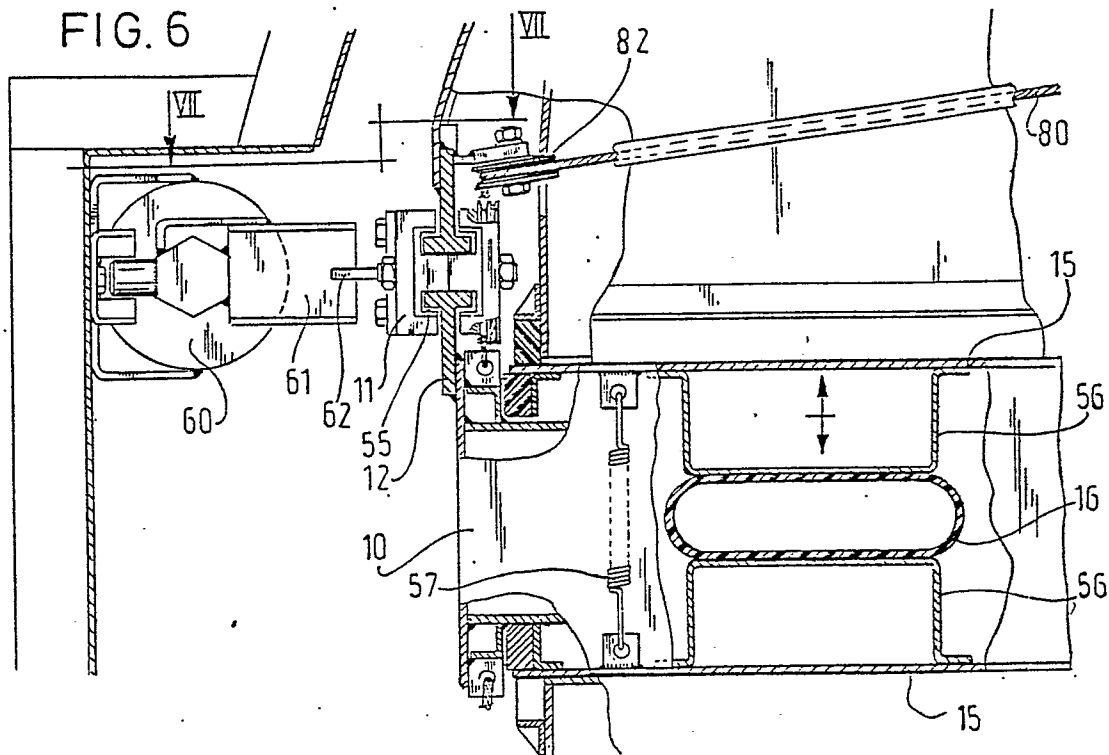


FIG. 7

