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**Method and apparatus for sequentially feeding sliver to drawing frame from fresh full can in continuous spinning system.**

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## Description

The present invention relates to a method and apparatus for sequentially feeding a fresh sliver in a can delivered to a feed roller means of a drawing frame.

In the conventional system of this kind, such as disclosed in JP-A-3 927 913, when a front end of a fresh sliver in a full can delivered from a first drawing frame is fed to a second drawing frame, the end of the sliver is carried above a conveyor for the second drawing frame by a nipping element of a rotating arm, then released from the catch of the nipping element. The sliver dropping on the conveyor is pressed onto the conveyor, whereby the sliver is forwarded with the running conveyor and finally is sucked by a suction nozzle. On the other hand, when a detector detects that a tail end of a sliver in a exhausting can drops down from the conveyor and arrives in the vicinity of the above suction nozzle, a signal is generated from the detector, whereby the front end of the fresh sliver held in the suction nozzle is cut, which front end is forwarded together with the tail end of the preceding sliver to a feed roller means of the second drawing frame.

According to the above system there is a serious problem of increased waste since the front end of the fresh sliver is held in the suction nozzle until the tail end of the preceding sliver arrives thereat. Further, there is needed a complicated device for handling the sucked sliver as well as difficult steps of cutting the front end of the fresh sliver and of matching the phase thereof with the tail end of the exhausting sliver. As a result, a sliver delivered from the second drawing frame is liable to vary in thickness.

In a first aspect of the present invention, there is provided a method as defined in accompanying claim 1.

In a second aspect of the present invention, there is provided an apparatus as defined in accompanying claim 4.

Other preferred features of the invention are defined in the dependent claims.

Some embodiments of the present invention will now be described, by way of example only, with reference to the accompanying diagrammatic drawings, in which:

Fig. 1 is a plan view of an apparatus according to the present invention;

Fig. 2 is a side view of the apparatus shown in Fig. 1;

Fig. 3 is a sectional view of a suction nozzle utilized in the above apparatus;

Fig. 4 is a sectional view of turning and swinging mechanisms utilized in the above apparatus;

Fig. 5 is a plan view of the mechanisms shown in Fig. 4;

Fig. 6 is a partially enlarged plan view of Fig. 1, illustrating the main parts of the apparatus;

Fig. 7 is a side view of the part shown in Fig. 6; and

Fig. 8 is an enlarged view of a nip roller mean of another embodiment of the present invention.

With reference to Figs. 1 and 2, a first drawing frame 1 of one head and one delivery type is arranged upstream of a second drawing frame 2 of the same type at a suitable distance therebetween. Between the two drawing frames 1 and 2, an automatic can-exchanger 4 having an oval can path 3 is arranged. The second drawing frame 2 is provided with an auto-leveler (not shown) for leveling a thickness unevenness of sliver of both short and long periods. This type of auto-leveler is well-known in the art, such as disclosed in JP-B-6 012 447 and, therefore, the description thereof is eliminated in this specification. On the can path 3 on the side near the first drawing frame 1, a can 5 deposited at a delivery position A and now accommodating a sliver delivered from the first drawing frame 1, an empty can 6 deposited at a waiting position I for the next can exchange, and a full can 7 pushed out from the delivery position A to a push-out position B are arranged along a semi-circular path. On the can path 3 on the side near the second drawing frame, a predetermined number of supply cans 8 are deposited at supply positions C through G and at least one empty can 9 is disposed at a reserve position H prior to the waiting position I. The number of the supply cans 8 at the supply positions C through G corresponds to a doubling number of slivers processed in the second drawing frame 2. Since the amounts of sliver stored in the supply cans 8 initially differ from each other in such a manner that the last can 8 at the position C closest to the full can 7 is 100 % full of sliver and the top can 8 at the position G has the least amount of sliver while the middle cans 8 at the positions D through G have, in order, a gradually decreased amount of sliver so that a so-called "tapered operation" can be carried out, the content in the supply can 8 occupying the position G is exhausted one by one as the sliver processing in the second drawing frame 2 is continued, if the respective can 8 is forwarded to the succeeding position in the clockwise direction in Fig. 1 when one of the supply cans 8 is exhausted.

A plurality of can-exchanging arms 10 are provided in front of the can 5 at the delivery position A of the first drawing frame 1, each of which arms 10 is rotatable in the clockwise direction at a predetermined angle when the can 5 is full with sliver so as to push the empty can 6 at the waiting position I in to the delivery position A and push out the full can 5 to the push-out position B, which, in turn, causes the preceding full can 7 to displace from the push-out position B where search of a sliver end is carried out, as stated later, to the supply position C, as well as causes a newly generated empty can 9 to back toward the first drawing frame 1 to a reserve position H. A positively driven roller-conveyor 11 is arranged in a region of the can path 3 near the supply position C. With cooperation of the roller-conveyor 11 and the can-exchanging arms 10, the

supply can 8 is successively forwarded in the direction shown by an arrow at a time when the can 5 at the delivery position A has been full.

A turn-table 12 is arranged at the push-out position B of the preceding doffed full can 7, which is slowly rotatable in the arrowed direction in accordance with a signal indicating the completion of the doffing operation of the first drawing frame 1. The search for a free end of a sliver dropping down from the periphery of the can 7 is carried out with the cooperation of a detecting means 50, such as a photoelectric tube, attached to a suction nozzle 17 of a suction arm 13 (see Fig. 3) while the can 7 is rotated by means of the turning table 12, whereby the sliver end is positioned at a predetermined suction position.

The suction arm 13 movable up and down is provided so as to face the front side of the full can 7, which position and withdraws the sliver from the can 7 while sucking the sliver end thereby. The root portion of the suction nozzle 13 connected to a suction source (not shown) is related to a turning mechanism 15 and a swinging mechanism 16 mounted on a base 14. The suction arm 13 is turnable at a predetermined angle substantially in the horizontal plane passing through an upper position thereof by means of the turning mechanism 15. Further, the suction arm 13 is swingable at a predetermined angle substantially in the vertical plane between the lower position corresponding to the suction position and the upper position. More specifically, as illustrated in Figs. 4 and 5, the turning mechanism 15 comprises a disc 101 rotatably mounted on a stand 22 and a motor 104 for driving the disc 101 through gears 102 and 103. The swinging mechanism 16 comprises a shaft 106 rotatably held by a pair of supports 105, 105 and a motor 109 for driving the shaft 106 through gears 107 and 108, on which shaft 106 is fixedly secured the root of the suction arm 13.

As shown in Fig. 3, a suction nozzle 17 is pivoted at the tip end of the suction nozzle 13 and rotatable axially by means of a motor 53. A mouth of the suction nozzle 17 is covered with a wire mesh 52, on which the sliver end is held by suction and lifted to a sliver-transferring position disposed above the supply position C.

A sliver nipping and supplying device 18 for receiving a fresh sliver 31 withdrawn from the full can 7 and supplying the same to the second drawing frame 2 is provided immediately upstream of a pair of feed rollers 20a, 20b and a screw guide 21, both of which are secured on a frame of a sliver conveyor 19 extending backward from the back side of the second drawing frame 2. The sliver nipping and supplying device 18 is mounted on a stand 22 installed on a basement 14 in the central region of the can-exchanger 4. Inside of the upper portion of the stand 22, a swing arm 24 is pivoted and rotated back and forth, by a motor 23, at a predetermined angle in a vertical plane. A nip roller 25 of a fixed position is rotatably secured at the upper end of the swing arm 24. To an opposite end of a shaft of

the nip roller 25 is integrally fixed a friction roller 26 which, in turn, is engageable with another friction roller 27 fixedly mounted to an output shaft of a motor M1 when the swing arm 24 is in the sliver nip position shown in Fig. 2. This nip roller 25 is mated with a displaceable nip roller 28 rotatably mounted at the end of a swing lever 29 pivoted on the swing arm 24 as stated before. The swing lever 29 is made to reversibly rotate at a predetermined angle about a pivot thereof by a motor (not shown) connected thereto, whereby the displaceable nip roller 28 is engageable with and disengageable from the nip roller 25 of the fixed position.

A detector 30 such as a photoelectric tube is provided for detecting the front end of the sliver 31 lifted up from the full can 7 by the suction arm 13 on the stand 22 at a position above the nip roller 25 when the swing arm 24 occupies the sliver transferring position as shown in Fig. 2. On the upper surface of the stand 22, a V-shaped guide 32 is secured for smoothly guiding the sliver 31 during the reversing operation thereof to the can 7. A receiving plate (not shown) for the sliver 31 which is released from the suction arm 13 may be provided between the V-shaped guide 32 and the suction arm 13. As illustrated in Fig. 1, a friction roller 33 is arranged immediately upstream of the pair of feed rollers 20a, 20b provided on the rear side of the second drawing frame 2 and is driven by the feed roller 20a through the conventional pulley and belt means. The sliver 31 nipped by the pair of nip rollers 25 and 28 is forwarded by the normal rotation of the latter with the friction roller 26 coaxially fixed with the nip roller 25 being pressed onto the friction roller 33 when the nip roller 25 is moved to the sliver feeding position shown by an imaginary line in Fig. 2 according to rotation of the swing arm 24. On the other hand, the screw guide 21 is connected to a motor M2 through the conventional pulley and belt means so that the screw guide 21 makes one rotation as the fresh sliver 31 is supplied between the feed rollers 20a, 20b, whereby the old slivers precedingly supplied to the feed roller 20a, 20b are transversely shifted by one pitch of the screw guide 21.

The operation of the aforesaid apparatus of the present invention will be described below.

When a full can signal is generated from an autounter (not shown), the first drawing frame 1 is made to stop. Thereafter, the can-exchanging arm 10 and the roller conveyor 11 start to rotate at substantially the same time, whereby the doffing operation of the full can 5 at the delivery position A and the donning operation of the empty can 6 at the waiting position I are carried out. Simultaneously therewith, the pushing-out operation of the preceding full can 7 from the push-out position B and the pushing-in operation of the empty can 9 from the reserve position H to the waiting position I are also completed. After the completion of can-exchanging, the searching operation for the sliver end is carried out on the as-doffed can 7 deposited on the turn table 12.

That is, according to a signal indicating the completion of the can-exchanging operation from a limit switch (not shown), the turning mechanism 15 is operated so that the suction arm 13 waiting at a waiting position shown by a solid line in Fig. 1 turns counter-clockwise to an operating position shown by an imaginary line in Fig. 1. Then, the suction arm 13 is lowered down from an upper position to a lower position shown by an imaginary line in Fig. 2 by means of the swinging mechanism 16. When the suction nozzle 17 of the suction arm 13 reaches the vicinity of the periphery of the can 7 at the push-out position B, suction of the suction nozzle 17 is commenced. When the suction arm 13 arrives at the lower position to operate a limit switch (not shown), the turn-table 12 is made to turn, which, in turn, rotates the full can 7 in the arrowed direction so that the front end of the sliver dropping down from the periphery of the can 7 is sucked and held on a wire mesh 52 covering a mouth of the suction nozzle 17. Upon the detection of the sliver end by a detector 50 incorporated in the suction nozzle 17, the turn-table 12 is made to stop, and, simultaneously therewith, the swinging mechanism 16 is operated so that the suction arm 13 is displaced from the lower position to the upper position, whereby the sliver 31 is withdrawn from the full can 7. When the suction arm 13 reaches the upper position, the turning mechanism 15 is again operated to make the suction arm 13 rotate in the clockwise direction in Fig. 1 and retreat to the position of a solid line. According to this operation, the sliver 31 lifted up from the can 7 can be introduced between the pair of nip rollers 25 and 28 of the sliver nipping and supplying device 18 waiting with both the rollers 25, 28 being separated from each other to form an opening therebetween, as shown in Fig. 2. Next, when a detector 30 such as a photoelectric tube detects the sliver 31 introduced between the nip rollers 25 and 28, a signal is generated therefrom to start a motor (not shown) to displace the nip roller 28 in the clockwise direction as shown in Fig. 2, whereby the rollers 25 and 28 engage with each other and nip the sliver 31 therebetween. Upon the completion of the nipping of the sliver by the nip rollers 25, 28, suction transmitted to the suction nozzle 17 is interrupted, and the end portion of the sliver 31 lifted by the suction nozzle 17 is dropped down on the protector (not shown). After releasing of the sliver end from the suction nozzle, the motor M1 is made to start to cause the reversing of the nip rollers 25, 28 through the friction rollers 27 and 26, whereby the sliver 31 is backed to the full can 7. The motor M1 is made to stop immediately before the sliver end passes through the nip zone between the nip rollers 25, 28 by the action of the detector 30. According to this reversing of the nip rollers 25, 28, a length of the free end of the sliver 31 extending out from the nip zone of the nip rollers 25, 28 becomes very short. The sliver nipping and supplying device 18 is maintained in the state with the nip

rollers 25, 28 holding the sliver end until the next doffing of the first drawing frame 1 and the next can supply for the second drawing frame 2 are completed.

When the supply can 8 in the most preceding position G has become nearly empty and a tail end of the sliver is close to the feed rollers 20a and 20b, a signal is generated from a detector (not shown) for supplying a fresh sliver. According to this signal, the motor 23 is made to start to cause the swing arm 24 together with the nip rollers 25, 28 to displace forward from above said nip position to a feed position. Because the length of the sliver end projected out from the nip rollers 25, 28 is very short, this portion of the sliver is kept straight without bending during the displacement. Upon arrival of the nip rollers 25, 28 at the sliver-feeding position, the friction roller 26 coaxially fixed with the nip roller 25 is pressed onto the rotating friction roller 33, whereby the nip rollers 25, 28 are rotated in the normal direction so that the front end of the fresh sliver 31 held thereby is forwarded between the feed rollers 20a, 20b. As the fresh sliver 31 is nipped between the feed rollers 20a, 20b, the screw guide 21 arranged upstream thereof is caused to make one rotation by means of the motor M2 so that the older slivers now being processed are transversely displaced by one pitch of the screw guide 21.

Generally speaking, since it is difficult to precisely match the front end of the fresh sliver with the tail end of the exhausting sliver, there may be a small gap or a lap between the two ends during the above operation, whereby the resultant sliver delivered from the second drawing frame 2 is liable to include a thicker or thinner portion corresponding to the lapped ends or the gap in the case of the conventional system. Such unevenness of the resultant sliver, however, can be avoided due to the provision of the auto-leveler.

Once the sliver 31 is caught between the nip of the feed rollers of 20a and 20b, the sliver 31 is released from the nip zone between the nip rollers 25 and 28 through the backward swing motion of the swing lever 29 caused by the motor (not shown), because this motion of the lever 29 causes, in turn, the disengagement of the nip roller 28 from the nip roller 25. Thus, the fresh sliver 31 is continuously supplied to a space of the screw guide 21 prepared by the transverse displacement of the older slivers.

After the release of the fresh sliver 31 from the nip rollers 25, 28, the swing arm 24 together with the nip rollers 25 and 28 is made to reverse from the feed position to the nip position through the action of the motor 23 and maintained in the latter position while the nip rollers 25 and 28 are separated from each other until the next sliver supply is needed.

The abovesaid operations are repeated as the doffing of the full can from the first drawing frame is completed and one of the supply can for the second drawing frame is exhausted.

In Fig. 8, another embodiment of the sliver nipping and feeding device 18 is illustrated, in which, instead of a pair of simple nip rollers 25 and 28 of the above embodiment, a pair of nip rollers with aprons 25A and 28A, such as a tensor bar type, are utilized. Because the nip zone of the aproned nip rollers 25A and 28A is longer than that of the former embodiment, the sliver end waiting in the nip position while held between the pair of rollers can be perfectly concealed within the nip zone of the aproned nip rollers 25A and 28A so as not to damage the sliver end.

Also, instead of the motor M1 and the friction roller 27 for the reversing of the nip roller 25, and the friction roller 26 associated with the nip roller 25 and the friction roller 33 provided on the second drawing frame for the forwarding of the nip roller 25, it may be possible to provide a reversible motor (not shown) on the swing arm 24, by which the nip rollers 25 and 28 are rotatable in both of the normal and reverse directions through the usual pulley and belt means. Further, an element movable in a straight path may be utilized for carrying the nip rollers in place of the swing arm 24 of the preceding embodiment.

As described above, since the front end of the fresh sliver is held between the nip rollers in such a state that the end is projected as short as possible from the nip zone, the bending of the sliver end is avoidable during the displacement thereof from the nip position to the feed position, whereby the sliver end is smoothly supplied to the feed system of the second drawing frame, which, in turn, eliminates the thickness variance of the resultant sliver and the blockage of a trumpet provided on a coiler motion of the second drawing frame. In addition, since the step for breaking the front end of the sliver is eliminated during the feeding operation, means for collecting the waste sliver, such as a filter box, is unnecessary, and, of course, waste is decreased to a great extent. Provision of the auto-leveler improves the variance of the sliver thickness even though the front end of the fresh sliver and the tail end of the exhausting sliver is somewhat separated from or lapped with each other.

## Claims

1. A method for sequentially feeding a fresh sliver (31) in a can (7) delivered to a feed roller means (20a, 20b) of a drawing frame (2), the method comprising the steps of:

- searching for a front end of a fresh sliver;
- holding a first portion of a front end of a fresh sliver up from a full can ;
- nipping a second portion of the end of the sliver by means of a pair of nip rollers (25, 28; 25A, 28A), where the second portion is downstream of the first portion;
- rotating the nip rollers (25, 28, 25A, 28A) in

one sense to deliver back the sliver towards the can after releasing the holding of the sliver at the first portion so that an end of the sliver projected out from a nip zone of the nip rollers is shortened;

- moving the nip rollers towards a sliver feeding position; and

- rotating the nip rollers (25, 28, 25A, 28A) in the opposite sense to forward the sliver towards the drawing frame, while directing the front end of the sliver to a feed roller means (20a, 20b) of the drawing frame.

2. A method as claimed in claim 1, wherein an auto-lever is employed to equalize the lapped lengths of an old sliver and a front end of the fresh sliver.

3. A method as claimed in claim 1 or 2, wherein the fresh can (7) is delivered from a first drawing frame (1) and the fresh can (7) is delivered by means of an automatic can exchanger (4) which carries a full can from a delivery position of the first drawing frame (1) to the second drawing frame (2) and, in turn, brings back an empty can from a supply position of the second drawing frame (2) to the first drawing frame (1).

4. An apparatus for sequentially feeding a fresh sliver (31) in a can (7) to a feed roller means (20a, 20b) of a drawing frame (2), the apparatus comprising:

- a turn-table (12) arranged in a path for conveying a can (7) to the supply position of the drawing frame (2);

- a suction nozzle (17) for holding a front end of the fresh sliver (31) dropping down from a periphery of the can (7) and for moving the end to a sliver-transferring position;

- a pair of nip rollers (25, 28, 25A, 28A) displaceable between the sliver-transferring position and a sliver-feeding position immediately upstream of the feed roller means (20a, 20b) of the drawing frame (2) one (28, 28A) of the nip rollers being movable away from and close to the other for releaseably nipping the front end of the fresh sliver (31);

- first driving means (M1, 27, 26) for rotating the nip rollers in one sense to deliver back the sliver towards the can (7);

- second driving means (33) for rotating the nip rollers in the other sense to forward the sliver towards the feed roller means (20a, 20b); and

- means (30) for detecting the front end of the sliver (31).

5. An apparatus as claimed in claim 4, wherein the nip rollers comprise a first roller (25, 25A) rotatably mounted directly at an end of a swing arm (24) pivoted on a stand (22) and a second roller (28, 28A) mounted at an end of a swing lever (29) pivoted on the swing arm (24); the swing arm (24) being rotatable so that the first roller (25, 25A) is displaceable between the sliver-transferring position and the sliver-feeding position, and the swing lever (29) being rotatable relative to the swing arm (24) so that the second roller (28, 28A) is displaceable between a position engageable with the first roller (25, 25A) and a

position releasable from the same; and the first driving means (M1, 27, 26) for rotating the first roller (25, 25A) is provided on the stand (22) so that first roller (25, 25A) is driven when the same is in the sliver-transferring position.

6. An apparatus as claimed in claim 5, wherein the first and second driving means for rotating the nip rollers (25, 28, 25A, 28A) are a common reversible motor provided on the swingable arm (29).

7. An apparatus as claimed in any one of claims 4 to 6, further comprising an auto-leveler to equalize the lapped lengths of an old sliver and a front end of the fresh sliver.

### Patentansprüche

1. Verfahren zum aufeinanderfolgenden Zuführen eines neuen Faserbandes (31) in einer zu einer Zuführwalzeneinrichtung (20a, 20b) eines Streckwerks (2) überführten Spinnkanne (7, wobei das Verfahren folgende Schritte umfaßt:

- Aufsuchen eines Vorderendes eines neuen Faserbandes;

- Hochhalten eines ersten Abschnitts eines Vorderendes eines neuen Faserbandes aus einer vollen Spinnkanne;

- Klemmerfassen eines zweiten Abschnitts des Faserbandes mittels eines Paares von Quetschwalzen (25, 28; 25A, 28A), wobei der zweite Abschnitt dem ersten Abschnitt nachgeordnet ist;

- Drehen der Quetschwalzen (25, 28, 25A, 28A) in einer Richtung zum Zurückfördern des Faserbandes zu der Spinnkanne nach Lösen des Klemmangriffs des Faserbands am ersten Abschnitt so daß ein aus der Quetschzone der Quetschwalzen heraustretendes Ende des Faserbandes verkürzt wird;

- Bewegen der Quetschwalzen in Richtung auf eine Faserband-Zuführstellung; und

- Drehen der Quetschwalzen (25, 28, 25A, 28A) in die entgegengesetzte Richtung zum Überstellen des Faserbandes zu dem Streckwerk, während das Vorderende des Faserbandes an eine Zuführrolleneinrichtung (20a, 20b) des Streckwerks gelenkt wird.

2. Verfahren nach Anspruch 1 bei dem eine Regelstrecke zum Ausgleichen der überstehenden Längen eines alten Faserbandes und eines Vorderendes des neuen Faserbandes eingesetzt wird.

3. Verfahren nach Anspruch 1 oder 2, bei dem die neue Spinnkanne (7) von einem ersten Streckwerk (1) angeliefert bzw. überführt wird, und bei dem die neue Spinnkanne (7) mittels eines selbsttätigen Spinnkannenwechslers (7) überführt wird, der eine volle Spinnkanne von einer Überführstellung des ersten Streckwerks (1) zu dem zweiten Streckwerk (2) liefert und umgekehrt eine leere Spinnkanne von einer Beschickungstellung des zweiten Streckwerks (2) zum ersten Streckwerk (1) zurückliefert.

4. Vorrichtung zum aufeinanderfolgenden Zuführen eines Faserbandes (31) in einer Spinnkanne (7) zu einer Zuführwalzeneinrichtung (20a, 20b) eines Streckwerks (2), wobei die Vorrichtung umfaßt:

- einen Drehtisch (12), der auf einer Strecke zum Fördern einer Spinnkanne (7) zu der Beschickungsstellung des Streckwerks (2) angeordnet ist;

- eine Saugdüse (17) zum Ergreifen bzw. Halten eines Vorderendes eines neuen Faserbandes (31), das von einer Peripherie der Spinnkanne (7) herunterfällt bzw. -hängt sowie zum Bewegen des Endes in eine Faserband-Oberführstellung;

- ein Paar von Quetschwalzen (25, 28, 25A, 28A) die zwischen der Faserband-Oberführstellung und einer Faserband-Zuführstellung verstellbar sind, welche der Zuführwalzeneinrichtung (20a, 20b) des Streckwerks (2) unmittelbar vorgeordnet ist, wobei eine (28, 28A) der Quetschwalzen zum lösbaren Quetscherfassen des Vorderendes des neuen Faserbandes (31) von der der anderen weg und unmittelbar auf zu diese hin bewegbar ist;

- eine erste Antriebseinrichtung (M1, 27, 26) zum Drehantreiben der Quetschwalzen einer Richtung zum Zurückfördern des Faserbandes zu der Spinnkanne (7);

- eine zweite Antriebseinrichtung (33) zum Drehantreiben der Quetschwalzen in die entgegengesetzte Richtung zum Zuführen des Faserbandes zu der Zuführwalzeneinrichtung (20a, 20b); und

- eine Einrichtung (30) zum Erkennen des Vorderendes des Faserbandes (31).

5. Vorrichtung nach Anspruch 4, bei der die Quetschwalzen eine erste Walze (25, 25A) umfassen, die drehbar direkt an einem Ende eines Schwingarms (24) angebracht ist, der an einem Gestell (22) schwenkbar angelenkt ist sowie eine zweite Walze (28, 28A) die an einem Ende eines Schwinghebels (29) angebracht ist, der an dem Schwingarm (24) angelenkt ist; wobei der Schwingarm (24) so drehbar ist, daß die erste Walze (25, 25A) zwischen der Faserband-Überführstellung und der Faserband-Zuführstellung verstellbar ist; und wobei der Schwinghebel (29) mit Bezug auf den Schwingarm (24) so drehbar ist, daß die zweite Walze (28, 28A) zwischen einer Eingriffstellung mit der ersten Walze (25, 25A) und einer Stellung, in welcher diese Eingriffstellung aufgehoben wird, verstellbar ist; und wobei die erste Antriebseinrichtung (M1, 27, 26) zum Drehantreiben der ersten Walze (25, 25A) mit einem Gestell so versehen ist, daß die erste Walze (25, 25A) in der Faserband-Überführstellung angetrieben wird.

6. Vorrichtung nach Anspruch 5, bei der die erste und die zweite Antriebseinrichtung zum Drehantreiben der Quetschwalzen (25, 28, 25A, 28A) ein gemeinsamer, bezüglich seines Drehsinns umkehrbarer Motor ist, der an dem Schwingarm (29) vorgesehen ist.

7. Vorrichtung nach einem der Ansprüche 4 bis 6 mit einer Regelstrecke zum Ausgleichen der überstehenden Längen eines alten Faserbandes

und eines Vorderendes des neuen Faserbandes.

## Revendications

1. Procédé pour approvisionner consécutivement une mèche nouvelle (31) d'un pot de filature (7) et l'amener vers des moyens (20a, 20b) formant rouleaux d'introduction dans un banc d'étréage (2), ce procédé comportant les opérations qui consistent à :

- rechercher une extrémité avant d'une mèche nouvelle;

- maintenir une première partie de l'extrémité avant d'une mèche nouvelle en la soulevant d'un pot de filature plein;

- pincer une seconde partie de l'extrémité de la mèche au moyen d'une paire de galets de pincement (25, 28; 25A, 28A), la seconde partie étant à l'aval de la première partie;

- faire tourner les galets de pincement (25, 28; 25A, 28A) dans un premier sens de façon à ramener la mèche en direction du pot de filature après avoir relâché la prise sur la mèche au droit de la première partie de manière à raccourcir une extrémité de la mèche qui dépasse de la zone de pincement des galets de pincement;

- déplacer les galets de pincement vers une position d'introduction de mèche; et

- faire tourner les galets de pincement (25, 28; 25A, 28A) dans le sens opposé de façon à faire avancer la mèche en direction du banc d'étréage (2), tout en dirigeant l'extrémité avant de la mèche vers des moyens (20a, 20b) formant rouleaux d'introduction dans ce banc d'étréage.

2. Procédé selon la revendication 1, dans lequel un auto-niveleur est employé pour égaliser les longueurs de recouvrement d'une mèche ancienne et de l'extrémité avant d'une mèche nouvelle.

3. Procédé selon la revendication 1 ou la revendication 2, dans lequel le pot de filature nouveau (7) est livré à partir d'un premier banc d'étréage (1) et le pot nouveau (7) est amené au moyen d'un échangeur de pots automatique (4) qui porte un pot de filature plein depuis une position de livraison du premier banc d'étréage (1) jusqu'au second banc d'étréage (2) et, cycliquement, ramène un pot de filature vide depuis une position d'alimentation du second banc d'étréage (2) jusqu'au premier banc d'étréage (1).

4. Dispositif destiné à amener consécutivement une mèche nouvelle (31) d'un pot de filature (7) vers des moyens (20a, 20b) formant rouleaux d'introduction dans un banc d'étréage (2), ce dispositif comportant:

- une table tournante (12) disposée dans un circuit destiné à transporter un pot de filature (7) jusqu'à la position d'alimentation du banc d'étréage (2);

- un ajutage d'aspiration (17) destiné à maintenir l'extrémité avant de la mèche nouvelle (31) tombant de la périphérie du pot de filature (7) et à déplacer cette extrémité jusqu'à une position

de transfert de mèche;

- une paire de galets de pincement (25, 28; 25A, 28A) mobiles entre la position de transfert de mèche et une position d'approvisionnement de mèche située immédiatement en amont des moyens (20a, 20b) formant rouleaux d'introduction dans le banc d'étréage (2), l'un (28; 28A) des galets de pincement étant apte à s'éloigner et se rapprocher de l'autre pour pincer l'extrémité avant de la mèche nouvelle (31) avec la faculté de la libérer;

- des premiers moyens d'entraînement (M1, 27, 26) destinés à faire tourner dans un premier sens les galets de pincement de manière à ramener la mèche en direction du pot de filature (7);

- des second moyens d'entraînement (33) destinés à faire tourner les galets de pincement dans l'autre sens pour faire avancer la mèche vers les moyens (20a, 20b) formant rouleaux d'introduction; et

- un moyen (30) pour détecter l'extrémité avant de la mèche (31).

5. Dispositif selon la revendication 4, dans lequel les galets de pincement comportent un premier galet (25; 25A) directement monté en rotation sur une extrémité d'un bras oscillant (24; 24A) articulé sur un support (22) et un second galet (28; 28A) monté sur une extrémité d'un levier oscillant (29; 29A) articulé sur le bras oscillant (24; 24A); le bras oscillant (24; 24A) étant susceptible de tourner de manière à permettre au premier galet (25; 25A) de se déplacer entre la position de transfert de mèche et la position d'approvisionnement de mèche, et le levier oscillant (29; 29A) étant susceptible de tourner par rapport au bras oscillant (24; 24A) de manière à permettre au second galet (28; 28A) de se déplacer entre une position en contact avec le premier galet (25; 25A) et une position libre de ce contact; et les premiers moyens d'entraînement (M1, 27, 26) destinés à faire tourner le premier galet (25; 25A) sont disposés sur le support (22) de manière telle que le premier galet (25; 25A) est entraîné lorsque ce dernier est dans la position de transfert de mèche.

6. Dispositif selon la revendication 5, dans lequel les premiers et les seconds moyens d'entraînement destinés à faire tourner les galets de pincement (25, 28; 25A, 28A) sont constitués par un moteur commun à deux sens de marche disposé sur le bras oscillant (24; 24A).

7. Dispositif selon l'une quelconque des revendications 4 à 6, comportant en outre un auto-niveleur destiné à égaliser les longueurs de chevauchement d'une mèche ancienne et de l'extrémité avant d'une mèche nouvelle.

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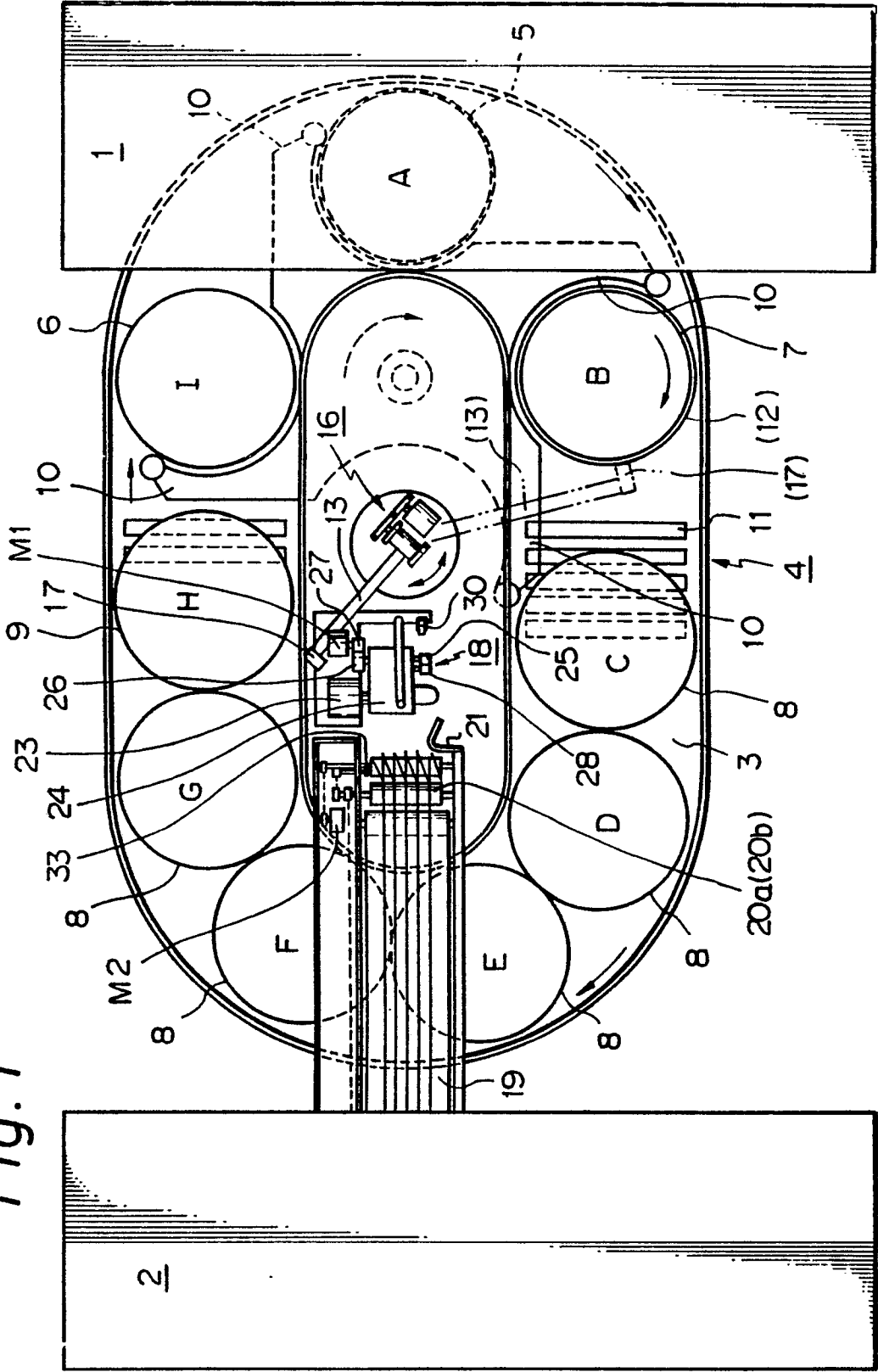
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Fig. 1





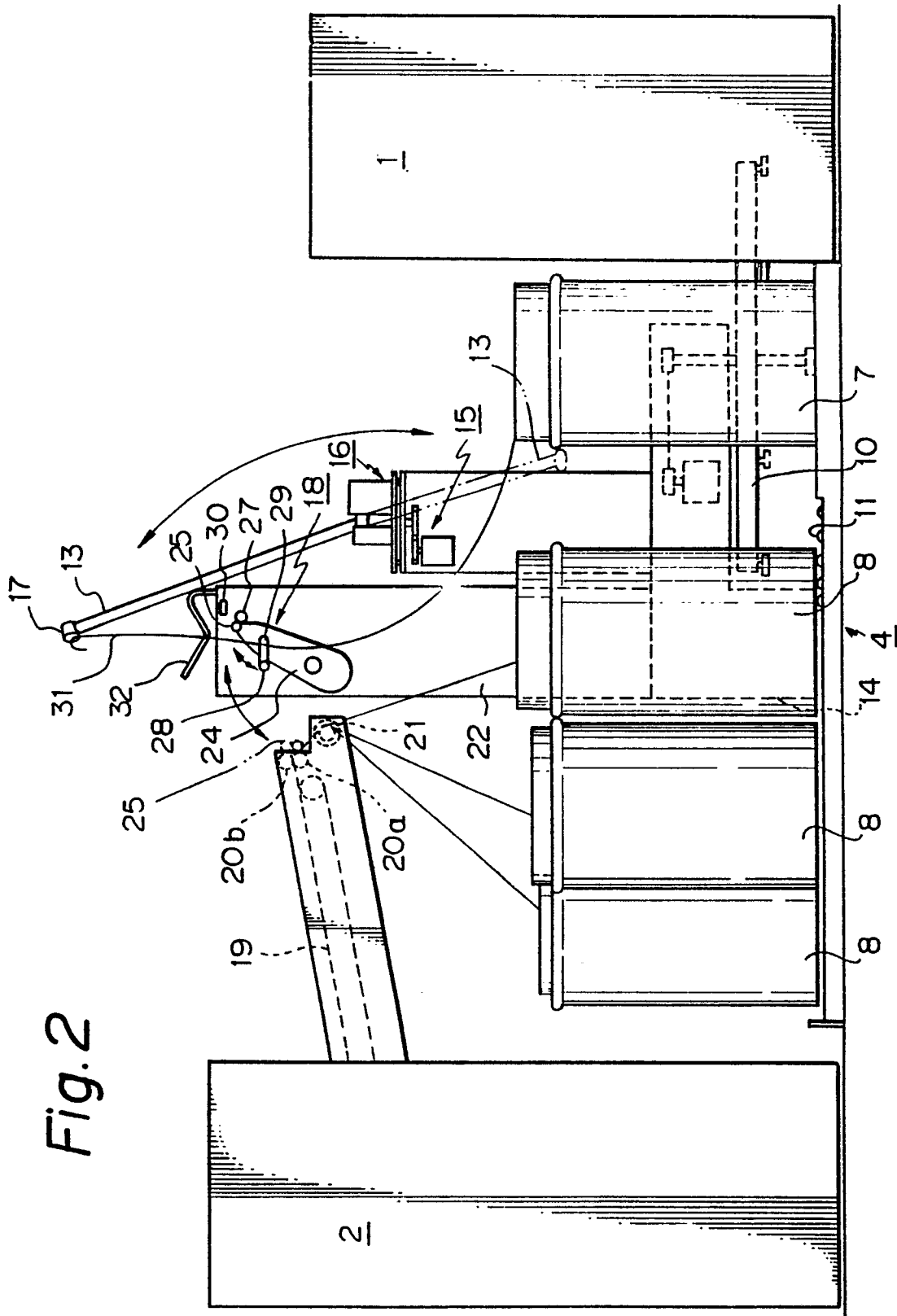


Fig. 2

*Fig. 3*

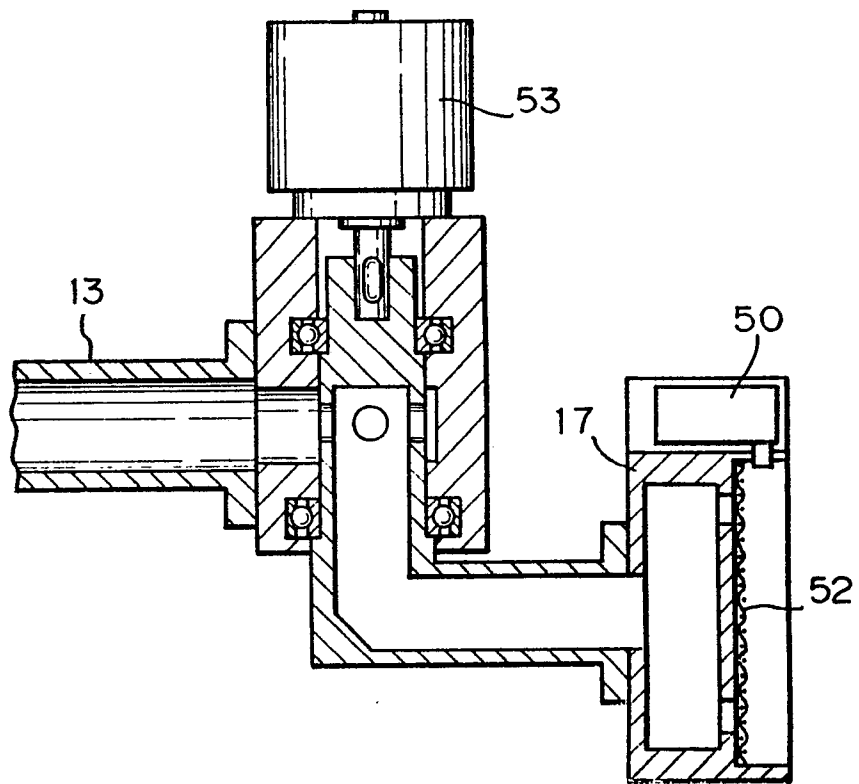


Fig. 4

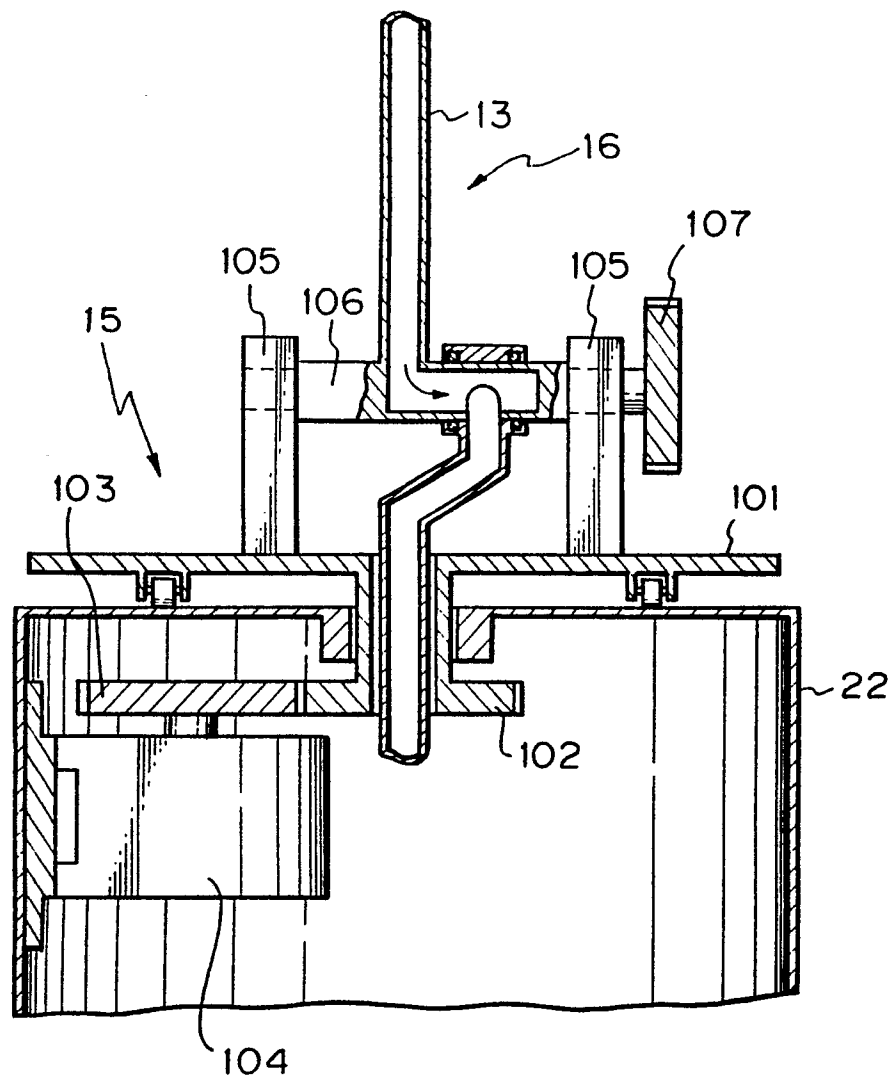


Fig. 5

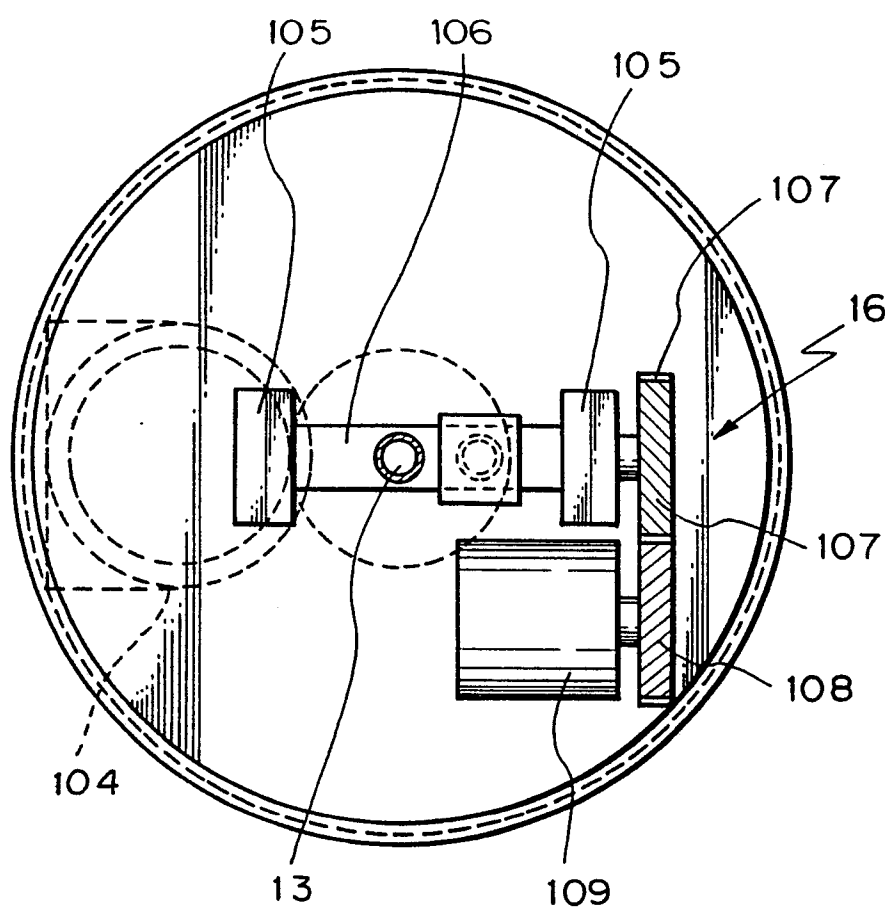


Fig. 6

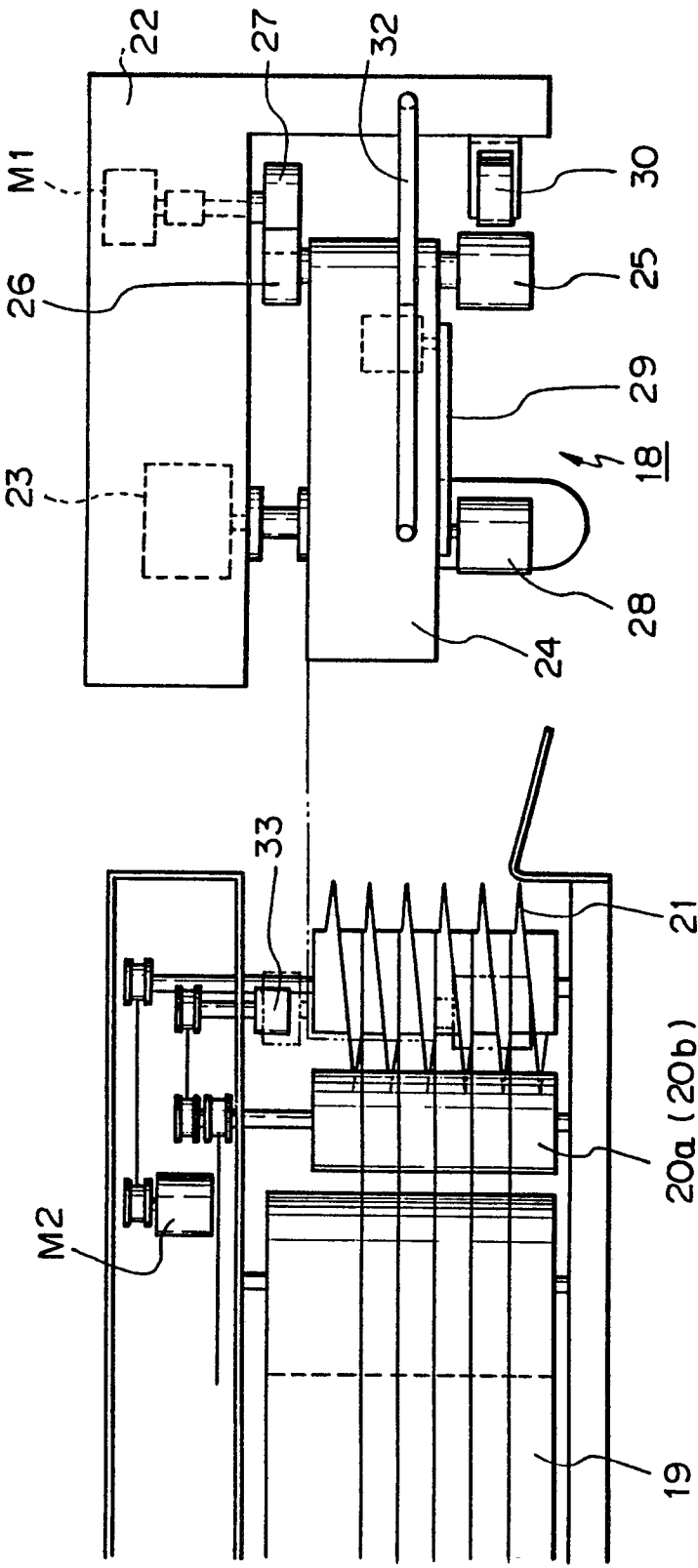


Fig. 7

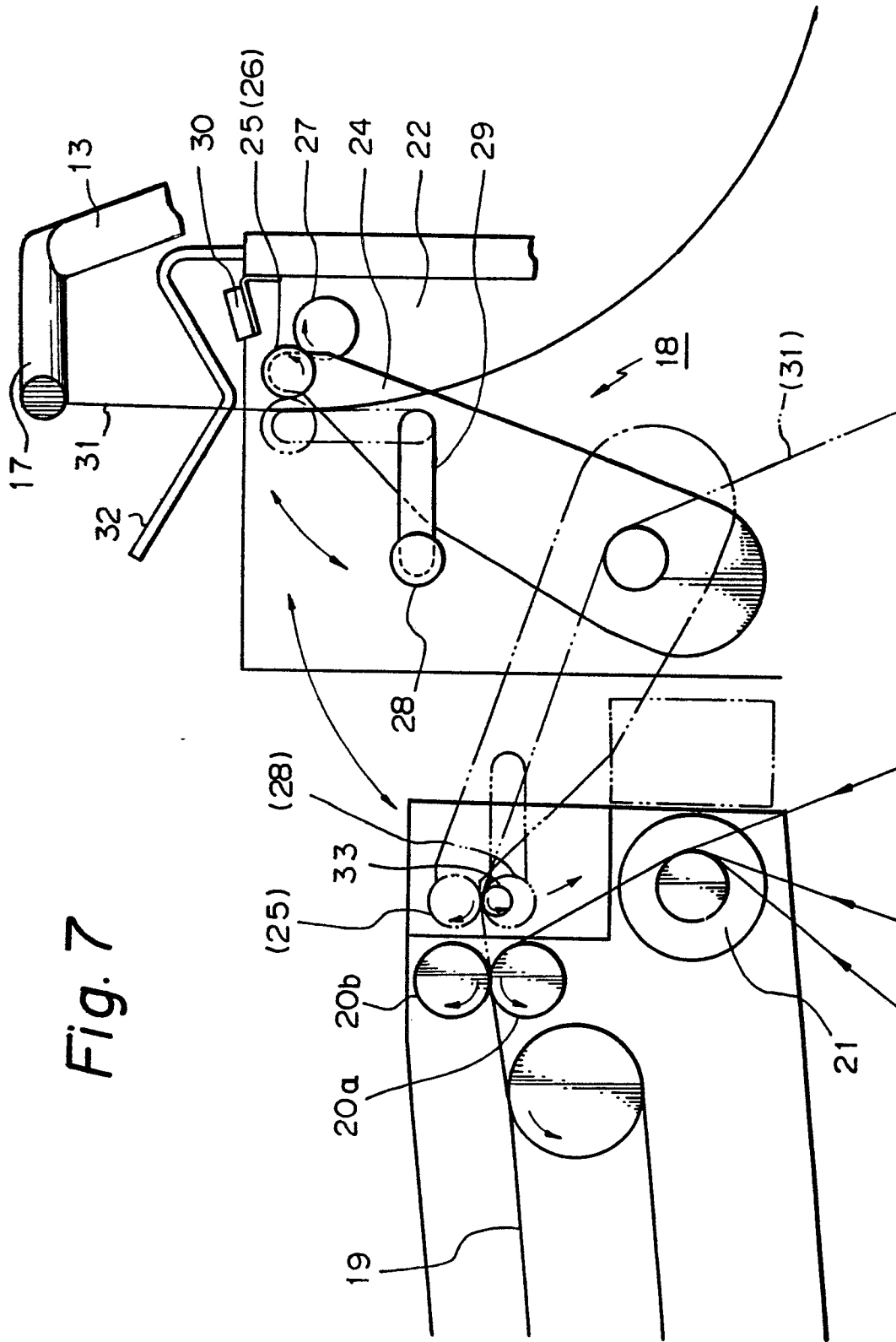


Fig. 8

