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(54) **FILLING AND PACKAGING MACHINE**

ABFÜLL- UND VERPACKUNGSMASCHINE

MACHINE DE REMPLISSAGE ET D'EMBALLAGE

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• **Hosho, Akira**

Ishikawa, 920-0172 (JP)

• **Imaoka, Norio**

Ishikawa, 920-0172 (JP)

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(74) Representative: **Hoffmann Eitle**

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Arabellastraße 30

81925 München (DE)

(73) Proprietor: **Shibuya Packaging System**
Corporation

Kanazawa-shi, Ishikawa 920-8681 (JP)

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(72) Inventors:

• **Sawada, Kiyoshi**

Ishikawa, 920-0172 (JP)

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Description

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0001] The present invention relates to a rotary-type filling and packaging machine that produces bags by feeding out a beltlike web, folding the web in half and then side-sealing the folded web at a predetermined interval, wherein contents, such as a packing bag, is filled into each bag from above.

2. Description of the Related Art

[0002] A rotary-type filling and packaging machine folds a drawn out beltlike web upward in half and entrains the web on heat sealers that are provided along the periphery of a rotary body at a predetermined interval, whereby the web runs on the heat sealers. The heat sealers sandwich the web to produce bags out of the web through heat sealing. Hoppers arranged along the periphery of the rotary body are inserted into each of the bags, so that contents are filled into the bags through the hoppers.

[0003] In the case where the web is provided with printing, it is necessary to maintain in place the position of the printing on the web and the position (side-seal position) of a bag formed from the web entrained on the rotary body. However, due to either a load induced as the web is fed out, a manufacturing error of the web or the like, a deviation may occur between the printing position on the web and the side-seal position on the rotary body.

For such a problem, there is known Japanese Patent No. 4855856 that discloses a configuration for adjusting a deviation between a long film (a web) and the rotary body by detecting the deviation amount by monitoring detection marks, which are provided on the long film at regular intervals along the longitudinal direction, and controlling the feed-out speed of the long film using a powder brake while providing a deformable portion on the cylindrical lower part of a filling hopper shoot, which is inserted in the bag. The deformable portion is positioned inside a bag when filling the bag and is deformable from the outside toward the inside according to the tension acting on the bag.

SUMMARY OF THE INVENTION

[0004] However, since the deformable portion is attached to the outer surface of the filling hopper shoot, the structure becomes complicated, and the back side of the deformation portion is difficult to clean, which can cause sanitary conditions to deteriorate.

[0005] Therefore, a primary aspect of the present invention is to provide a filling and packaging machine capable of adjusting the positional deviation of the web while maintaining a high level of sanitation.

[0006] According to a first aspect of the present invention, a filling and packaging machine is provided according to claim 1.

[0007] According to a second aspect of the present invention, the filling and packaging machine may further comprise a biasing member for biasing the hopper shoot toward the direction crossing the web-conveying direction of the web, which is held by the side-sealers, with respect to the support member.

[0008] According to a third aspect of the invention, the filling and packaging machine may further comprise an actuator for rotating the hopper shoot toward the direction crossing the web-conveying direction of the web, which is held by the side-sealers, with respect to the support member.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009]

Fig. 1 is a perspective view of a filling and packaging machine according to one embodiment of the present invention;

Fig. 2 is a plan view of the filling and packaging machine of Fig. 1;

Fig. 3 is a control block diagram of a feed-out motor with a mark-detecting sensor detecting marks on the web and an encoder of a filling wheel;

Fig. 4 is a side elevational view of the filling wheel;

Fig. 5 is an enlarged side view illustrating a configuration around a hopper shoot and a support member;

Fig. 6 is a horizontal sectional view illustrating an arrangement between the bottom end portion of the hopper shoot inserted inside the bag portion and the web; and

Figs. 7 is a horizontal sectional view illustrating an arrangement between the bottom end portion of the hopper shoot inserted inside the bag portion and the web.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0010] The present invention is described below with reference to an embodiment shown in the drawings. Fig. 1 is a perspective view of a filling and packaging machine of the present embodiment. Fig. 2 is a plan view of the filling and packaging machine illustrated in Fig. 1.

[0011] The filling and packaging machine 10 of the present embodiment includes a web-feeding machine (a web folding means and a web feeding means) 12 and a filling wheel 14. The web-feeding machine feeds out a web (a long beltlike film) W while folding it in half with the opening facing upward. The drawn-out web W is entrained around the filling wheel 14 and side seals are applied at predetermined intervals along the traveling direction to form the bag portion B, and the filling material is discharged from the upper opening of the bag portion

B. The web, which is drawn out from the filling machine, is fed out via a guide roller 16 to a top sealer 18 that seals the upper edge of the opening. Further, the web W that has passed through the top sealer 18 is fed to a cutter 19 and the web is cut at the side-sealed portion S1, thereby separating the bag portion B from the web W. Incidentally, the top sealer 18 preheats the top-seal portion S2 of the web W with the top-seal preheater 18A and in turn seals the top-sealed portion S2 with the thermocompression bonding roller 18B.

[0012] The web W is drawn out from an original roll 12A via a feed-out roller 12C rotated by a feed-out motor 12B. The web W, for example, is oriented horizontally through a plurality of guide rollers 12D and folded upward in half along the longitudinal direction and in turn fed to the filling wheel 14. The filling wheel 14 is rotated about a vertical axis and the filling wheel 14 is provided with a plurality of side sealers (a side-seal means) 20 along the periphery of a rotary body at predetermined intervals. The web, which has been folded upwards in half, is routed around the side sealers 20 provided along the periphery of the filling wheel 14 that is rotated at a predetermined speed. On the downstream side, the web W separates from the filling wheel 14 via the guide roller 16 and is fed to the top sealer 18. The filling wheel 14 is rotated by a motor (not shown).

[0013] As illustrated in a block diagram of Fig. 3, the web W is provided with marks M for detecting its position, as an identifying portion, along the longitudinal direction at predetermined intervals. A sensor 22 for detecting the transition of the marks M on the transported web is provided on the web-feeding machine 12. The sensor 22 is arranged at a predetermined position along the conveyance path of the web W from the feed-out roller 12C to the farthest downstream guide roller 12D. Furthermore, the filling wheel 14 may be provided with an encoder 24 for detecting its rotational speed. A mark detection signal from the sensor 22 and a signal from the encoder 24 are input to a controller 26. The controller 26 controls the operation of the feed-out motor 12B in a later described position deviation adjustment operation on the basis of the mark detection signals from the sensor 22 and the signals from the encoder 24.

[0014] Next, with reference to Fig. 1, Fig. 2 and a side sectional view of the filling wheel 14 in Fig. 4, the configuration of the filling wheel 14 is described in detail.

[0015] The rotary body of the filling wheel 14 includes a disk-shaped base plate 140. The base plate 140 is rotatably attached to a fixed shaft 142 via a bearing 141. The base plate 140 is rotated at a predetermined speed by a drive mechanism (not shown). The plurality of side-sealers 20, around which the folded web W for the inner bags is routed, is arranged along the periphery of the base plate 140 at the predetermined intervals.

[0016] The side-sealers 20 include a fixed seal bar 20A and a swing seal bar 20B. The fixed seal bar 20A stands upright from the base plate 140. The swing seal bar 20B is arranged outside the fixed bar 20A and its base end

is journaled to the outer periphery of the base plate 140. The swing seal bar 20B is swingable between a lying state in which its tip end is directed radially outward and an upright state in which it is lifted up and pressed against the fixed seal bar 20A. The rotation of the swing seal bar 20B about the base end is controlled by the engagement of a cam follower 28A, which is provided on the tip end of a swing lever 26 for rotating the swing seal bar 20B, with a cam groove 28B.

[0017] The folded web W runs in a state bearing on the fixed seal bar 20A. When the swing seal bar 20B is swung upward and pressed against the fixed seal bar 20A, the folded web W is sandwiched between the seal bars 20A and 20B, which side seals the folded web W by welding it between the fixed seal bar 20A and the swing seal bar 20B. In Fig. 4, the swing seal bar 20B is illustrated in a prone position on the left side and the swing seal bar 20B is illustrated in a standing position on the right side.

[0018] A hopper shoot 30 is arranged above each sealer 20 between two side-sealers 20. Each hopper shoot 30 is supported by a shoot-operating mechanism (a lift means) 32 that lifts up/down and rotates about a vertical axis. A shoot-operating mechanism 32 is provided along the periphery of the base plate 140 for each of the hopper shoots 30. The shoot-operating mechanism 32 includes a vertically extended rod 32A that is liftable and rotatably supported with respect to the base plate 140. A support member (a support means) 32B is integrally provided on the top end of the rod 32A. The hopper shoot 30 is pivotably supported about a vertical axis at the tip end of the support member 32B.

[0019] A lift cam follower 34A is provided on the bottom end of a rod 32A via a rotating member 33 pivotal about the rod 32A. Each of the lift cam followers 34A engages with a lift cam 34B provided along the circumference of the filling wheel 14 so that each of the lift cam followers 34A is lifted, respectively. Furthermore, a lever support 35 is in spline engagement with the rod 32A and a lever 36A for rotating the rod 32A is attached to the lever support 35. A swing cam follower is provided on the tip end of the lever 36A and the swing cam engages with a swing cam 36C provided along the circumference of the filling wheel 14.

[0020] When the filling wheel 14, i.e., the base plate 140, is rotated around the fixed shaft 142, each of the rods 32A is integrally moved along the circumference of the filling wheel 14 so that the lift cam follower 34A engaged with the lift cam 34B and the swing cam follower 36B engaged with the swing cam 36C are moved along each of the cam surfaces. Thereby, the rod 32A is lifted and/or rotated in accordance with the profiles of the lift cam 34B and the swing cam 36C. Namely, the hopper shoot 30 attached to the tip end of the support member 32B is lowered or lifted with the rod 32A while rotated about the rod 32A when passing through a predetermined section whereby the hopper shoot 30 is inserted into or retracted from the folded web W. A state when

the hopper shoot 30 is lifted (a retracted position) is illustrated on the left side of Fig. 4 and a state when the hopper shoot 30 is lowered (an inserted position) is illustrated on the right side of Fig. 4. The hopper shoot 30 lifted to the retracted position is positioned above the web W that is tensioned between two side-sealers, and a bottom end portion 30A of the hopper shoot 30 lowered to the insert position is inserted into a bag portion B formed from the web W.

[0021] Fig. 5 is an enlarged side elevational view showing the structure of the hopper shoot 30 and the support member 32B. A block 40A for supporting the hopper shoot 30 is attached on the side face of the hopper shoot 30. The block 40A is rotatably supported at the tip end of the support member 32B via a pivot shaft 40B. A torsion spring (a biasing member) 40C is wound around the pivot shaft 40B. One end of the torsion spring 40C is engaged with the block 40A and the other end is engaged with the support member 32B. The torsion spring 40C rotatably biases the hopper shoot 30 about the pivot shaft 40B. The rotation of the hopper shoot 30 induced by this rotating biasing force is restricted within a predetermined range by an engagement with a stopper 40D provided on the support member 32B. Although in the present embodiment, the hopper shoot 30 is biased in the clockwise direction when viewed from the top, the hopper shoot 30 may also be biased in the counterclockwise direction.

[0022] Above the hopper shoot 30 is positioned a tank 38 in which material to be filled into the bags B is stored. Beneath the base of the tank 38, a plurality of filling nozzles 38A is provided. Each filling nozzle 38A guides the material inside the tank 38 to the corresponding hopper shoot 30. The bags B are formed in a sealing section A1 of Fig. 2 by the sidesealer 20 (welded at the both side sealing ends). A filling operation is performed in a subsequent filling section A2.

[0023] The hopper shoot 30 is lowered to the insert position before reaching a contact position P1 where the web W, which is folded in half, makes contact with the first sidesealer 20 and the web W is pinched between the fixed seal bar 20A and the swing seal bar 20B. Namely, the hopper shoot 30 is inserted through the upper opening of the folding web W before the web W is completely folded in half. Incidentally, the hopper shoot 30 is radially pushed outward by a rotation of the rod 32A so that the long axis of the hopper shoot 30 follows the web W that travels along the tangential direction of the filling wheel 14 in this section where the hopper shoot 30 is inserted.

[0024] The sealing section A1 starts from the position where the folded web W is sandwiched by the sidesealer 20 on the trailing end side of the hopper shoot 30, of which the tip end is inserted between the web W. Both side-sealed portions S1 of the web W at the leading and trailing edges of the bottom end portion 30A of the hopper shoot 30 are heat-sealed by the sidesealer 20 in this sealing section A1. In the filling section A1, the content is supplied from the tank 38 to the filling nozzles 38A and

falls through the hopper shoot 30 into a bag portion B. The filling operation completes within the filling section A2 and the hopper shoot 30 is lifted toward the retracted position after it passes through the filling section A2. The hopper shoot 30 is retracted from the web W to the original position, which is above the web W, before it reaches a separating position P2 (see Fig. 2) where the web W separates from the sidesealer 20.

[0025] Next, with reference to Fig. 6 and Fig. 7, the position deviation-adjusting operation of the present embodiment and the movement of the hopper shoot 30 are described. Note that, Fig. 6 and Fig. 7 are horizontal sectional views indicating the relationship between the hopper shoot 30 inserted in the bag portion B and the position of the web W.

[0026] As illustrated in Fig. 6 and Fig. 7, the bottom end portion 30A of the hopper shoot 30 is configured as a tubular member having an elongated horizontal section; in this embodiment an oval or stadium shape. When the hopper shoot 30 is in the retracted position, where the bottom end portion 30A of the hopper shoot 30 is not in contact with the web W, the hopper shoot 30 is biased clockwise by a rotational biasing force of the torsion spring 40C, whereby the block 40A rotates until it engages the stopper 40D. At this moment, the hopper shoot 30 is pivoted at a tilt angle α , which is formed between the long axis X of the oval of the bottom end portion 30A and a tangential direction (a transfer direction of the web retained by the sidesealers) T of the filling wheel 14, becomes a maximum angle θ . Incidentally, the tilt angle α is a crossing angle of the line X with the line T in the horizontal plane. In Fig. 6 and Fig. 7, a center line of the filling wheel 14 is represented as a segment R.

[0027] In Fig. 6, the bottom end portion 30A of the hopper shoot 30 is swung about the pivot shaft 40B by the rotational biasing force (torque) Qs of the torsion spring 40C and in turn the block 40A is engaged with the stopper 40D. Namely, the long axis X is tilted from the tangential direction T such that $\alpha = \theta$. The bottom end portion 30A of the hopper shoot 30 is inserted into the web W, which is folded in half, from the upper side at this posture in which the long axis X forms angle θ from the tangential direction T. As the filling wheel 14 rotates, a rotational force (a counterclockwise force in Fig. 6) Qt resisting the biasing force of the torsion spring 40C is applied to the block 40A by a tension F of the web W. Thereby, the bottom end portion 30A of the hopper shoot 30 is rotated in a direction (the counterclockwise direction) decreasing the tilt angle α whereby the rotational force Qt and the rotational biasing force Qs counterbalance each other.

[0028] If the timing of the marks M of the web W detected by the sensor 22 and the rotational speed of the filling wheel 14 detected by the encoder 24 coincide, the web W is fed out from the web-feeding machine 12 at a standard speed and at a standard feeding quantity (length) toward the filling wheel 14 rotating at the standard speed. The bottom end portion 30A of the hopper shoot 30, which is inserted between the folded web W

from above at the maximum tilt angle θ , is rotated in the counterclockwise direction until the tilt angle α reaches a standard angle θ_0 ($0 < \theta_0 < \theta$) and this state is maintained until a bag portion B is formed by the side-sealers 20. The tension F of the web W is kept at a standard tension F_0 ($F \approx F_0$).

[0029] On the other hand, if the timing of the marks M of the web W, which is detected by the sensor 22, is advanced compared to the normal rotational speed of the filling wheel 14, which is detected by the encoder 24, the feed-out motor 12B is decelerated by the controller 26 (see Fig. 3) and in turn the quantity (length) of web W fed out from the web-feeding machine 12 is decreased, as previously mentioned. When the feed-out quantity of the web W is less than the standard feed-out quantity (length), the length of the web W between the web-feeding machine 12 and the contact position P1 is reduced. Therefore, the bottom end portion 30A of the hopper shoot 30, which is inserted between the folded web W from above at the maximum tilt angle θ , is rotated in the counterclockwise direction until the tilt angle α reaches an angle θA ($\alpha = \theta A$, $0 < \theta A < \theta_0$) and this state is maintained until a bag portion B is formed by the side-sealers 20, so that the length of the web W between two side-sealers 20 is shortened. Thereby, the deficit of the web W, which is fed out at a quantity (length) less than the standard feed-out quantity, is absorbed by the rotation of the bottom end portion 30A of the hopper shoot 30 so that the position of the mark M is adjusted in place and the tension F of the web W is kept at a standard tension F_0 ($F \approx F_0$).

[0030] Furthermore, if the timing of the marks M on the web W detected by the sensor 22 is delayed from the normal rotational speed of the filling wheel 14, which is detected by the encoder 24, the feed-out motor 12B is accelerated by the controller 26 (see Fig. 3) and in turn the quantity (length) of web W fed out from the web-feeding machine 12 is increased. When the feed-out quantity of the web W is greater than the standard feed-out quantity (length), the length of the web W between the web-feeding machine 12 and the contact position P1 is increased. Therefore, the bottom end portion 30A of the hopper shoot 30, which is inserted between the folded web W from above at the maximum tilt angle θ , is rotated in the counterclockwise direction until the tilt angle α reaches an angle θB ($\alpha = \theta B$, $\theta_0 < \theta B < \theta$) and this state is maintained until a bag portion B is formed by the side-sealers 20, so that the length of the W between two side-sealers 20 is increased. Thereby, the surplus of the web W, which is fed out at a quantity (length) greater than the standard feed-out quantity, is absorbed by the rotation of the bottom end portion 30A of the hopper shoot 30 so that the position of the mark M is adjusted in place and the tension F of the web W is kept at a standard tension F_0 ($F \approx F_0$).

[0031] As described above, according to the present embodiment, the misregistration of the web is compensated without providing any mechanical deformable portion on an external surface of the hopper shoot so that a

filling and packaging machine can be provided with improved washability and sanitation.

[0032] In the present embodiment, the sectional profile of the bottom end portion of the hopper shoot has an oval or stadium shape. However, the sectional profile is not limited to the oval or stadium shape and an ellipse, rectangle, triangle shape and the like may also be applied as long as the length of the web between two neighboring side-sealers can be adjusted by rotating the hopper shoot with respect to the support member.

[0033] In the present embodiment, the deviation between the web and the filling wheel is adjusted by absorbing the variation of the web feed-out quantity (length) by applying the rotational biasing force to the hopper shoot using the torsion spring. However, the deviation may also be eliminated by rotating the hopper shoot with an actuator such as a servo motor and the like to compensate for the detected deviation.

[0034] Although the embodiments of the present invention have been described herein with reference to the accompanying drawings, obviously many modifications and changes may be made by those skilled in this art without departing from the scope of the invention as defined by the claims.

Claims

1. A filling and packaging machine (10) comprising

- a web feeding means (12) for feeding out a belt-like web (W) having marks (M) at predetermined intervals;
 - a web folding means for folding the fed-out web (W) in half with an opening facing upward;
 - a plurality of side sealing means (20) provided around the circumference of a rotary body (14) for sealing the web (W) at predetermined intervals in a web-conveying direction to form bags by sandwiching the web (W), wherein the side sealing means (20) are configured to hold the web (W);
 - a support member (32B);
 - a hopper shoot (30) attached to the support member (32B) and said hopper shoot (30) having a horizontally elongated section in a lower area;
 - a lift means (32) for lifting and lowering the support member (32B);
 - a mark detector for detecting the marks (M); and
 - a controller (26) for controlling the web-feeding means (12) on the basis of a signal from the mark detector;
- wherein the hopper shoot (30) is configured such that contents may be filled into the bag while the horizontally elongated section is inserted into the bag;
- characterised in that** the hopper shoot (30) is

pivotaly attached to the support member (32B) so that the hopper shoot (30) is rotatable toward a direction crossing the web-conveying direction of the web (W) between two side sealing means (20);

wherein

a tilt angle is formed between a long axis (X) of the horizontally elongated section of the hopper shoot (30) and the web-conveying direction of the web between the side sealing means (20); wherein the filling and packaging machine (10) is configured such that the tilt angle can be varied in response to a variation in the feed-out quantity of the web (W) from the web-feeding means (12) during a period from the point when the horizontally elongated section of the hopper shoot (30) being inserted through the upper opening into the folded-in-half web (W) until the point when the bag being formed by the side sealing means .

2. A filling and packaging machine (10) according to claim 1, further comprising a biasing member for biasing the hopper shoot (30) toward the direction crossing the web-conveying direction of the web (W) held by the side sealing means (20) with respect to the support member (32B).
3. A filling and packaging machine (10) according to claim 1, further comprising an actuator for rotating the hopper shoot (30) toward the direction crossing the web-conveying direction of the web (W) held by the side sealing means (20) with respect to the support member (32B).

Patentansprüche

1. Füll- und Verpackungsmaschine (10), umfassend

ein Bahnzuführmittel (12) zum Zuführen einer gurtähnlichen Bahn (W), die Markierungen (M) in vorbestimmten Abständen aufweist;
 ein Bahnfaltmittel zum Falten in zwei Hälften der zugeführten Bahn (W) mit einer Öffnung, die nach oben gewandt ist;
 eine Vielzahl von Seitenversiegelungsmitteln (20), die um den Umfang eines Drehkörpers (14) zum Versiegeln der Bahn (W) in vorbestimmten Abständen in eine Bahnförderrichtung bereitgestellt sind, um Beutel zu bilden, indem die Bahn (W) ins Sandwich genommen wird, wobei die Seitenversiegelungsmittel (20) dazu ausgelegt sind, die Bahn (W) zu halten;
 ein Stützelement (32B);
 eine Bunkerrutsche (30), die an dem Stützelement (32B) angebracht ist, und wobei die Bunkerrutsche (30) einen horizontal gestreckten

Teilabschnitt in einem unteren Bereich aufweist; ein Hubmittel (32) zum Heben und Senken des Stützelements (32B);

einen Markierungsdetektor zum Erfassen der Markierungen (M);

und eine Steuereinheit (26) zum Steuern der Bahnzuführmittel (12) auf der Basis eines Signals von dem Markierungsdetektor;

wobei die Bunkerrutsche (30) derart ausgelegt ist, dass Inhalte in den Beutel gefüllt werden kann, während der horizontal gestreckte Teilabschnitt in den Beutel eingesetzt ist;

dadurch gekennzeichnet, dass die Bunkerrutsche (30) schwenkbar an dem Stützelement (32B) angebracht ist, sodass die Bunkerrutsche (30) zu einer Richtung drehbar ist, die die Bahnförderrichtung der Bahn (W) zwischen zwei Seitenversiegelungsmitteln (20) kreuzt;

wobei ein Kippwinkel zwischen einer Längsachse (X) des horizontal gestreckten Abschnitts der Bunkerrutsche (30) und der Bahnförderrichtung der Bahn zwischen den Seitenversiegelungsmitteln (20) gebildet ist;

wobei die Füll- und Verpackungsmaschine (10) derart ausgelegt ist, dass der Kippwinkel als Reaktion auf eine Variation der Zufuhrmenge der Bahn (W) aus den Bahnzuführmitteln (12) während einer Zeitspanne von dem Zeitpunkt, in dem der horizontal gestreckte Abschnitt der Bunkerrutsche (30), der durch die obere Öffnung in die in zwei Hälften gefaltete Bahn (W) eingesetzt ist, bis zu dem Zeitpunkt, in dem der Beutel von den Seitenversiegelungsmitteln gebildet wird, variiert werden kann.

2. Füll- und Verpackungsmaschine (10) nach Anspruch 1, die weiter ein Vorspannelement zum Vorspannen der Bunkerrutsche (30) zu der Richtung umfasst, die die Bahnförderrichtung der Bahn (W), die von den Seitenversiegelungsmitteln (20) gehalten wird, in Bezug zu dem Stützelement (32B) kreuzt.

3. Füll- und Verpackungsmaschine (10) nach Anspruch 1, die weiter einen Aktuator zum Drehen der Bunkerrutsche (30) zu der Richtung umfasst, die die Bahnförderrichtung der Bahn (W), die von den Seitenversiegelungsmitteln (20) gehalten wird, in Bezug zu dem Stützelement (32B) kreuzt.

Revendications

1. Machine de remplissage et d'emballage (10) comprenant

un moyen d'alimentation en bande (12) pour l'alimentation d'une bande de type courroie (W) présentant des marques (M) à des intervalles

prédéterminés ;
 un moyen de pliage de bande pour le pliage en deux de la bande (W) alimentée avec une ouverture faisant face vers le haut ;
 une pluralité de moyens de scellage latéraux (20) prévus autour de la circonférence d'un corps rotatif (14) pour sceller la bande (W) à des intervalles prédéterminés dans une direction de transport de bande pour former des sachets par mise en sandwich de la bande (W), dans laquelle les moyens de scellage latéraux (20) sont configurés pour maintenir la bande (W) ;
 un élément de support (32B) ;
 une goulotte de trémie (30) attachée à l'élément de support (32B) et ladite goulotte de trémie (30) présentant une section allongée horizontalement dans une zone inférieure ;
 un moyen de levage (32) pour le levage et l'abaissement de l'élément de support (32B) ;
 un détecteur de marque pour la détection des marques (M) ; et
 un dispositif de commande (26) pour la commande des moyens d'alimentation en bande (12) sur la base d'un signal provenant du détecteur de marque ;
 dans laquelle la goulotte de trémie (30) est configurée de sorte que des contenus peuvent être introduits dans le sachet alors que la section allongée horizontalement est insérée dans le sachet ;
caractérisée en ce que la goulotte de trémie (30) est attachée de manière pivotante à l'élément de support (32B) de sorte que la goulotte de trémie (30) est rotative vers une direction croisant la direction de transport de bande de la bande (W) entre deux moyens de scellage latéraux (20) ;
 dans laquelle
 un angle d'inclinaison est formé entre un axe long (X) de la section allongée horizontalement de la goulotte de trémie (30) et la direction de transport de bande de la bande entre les moyens de scellage latéraux (20) ;
 dans laquelle la machine de remplissage et d'emballage (10) est configurée de sorte que l'angle d'inclinaison peut varier en réponse à une variation de la quantité d'alimentation en bande (12) pendant une période depuis le moment où la section allongée horizontalement de la goulotte de trémie (30) est insérée à travers l'ouverture supérieure dans la bande (W) pliée en deux jusqu'au moment où le sachet est formé par les moyens de scellage latéraux.

2. Machine de remplissage et d'emballage (10) selon la revendication 1, comprenant en outre un élément d'inclinaison pour l'inclinaison de la goulotte de trémie

mie (30) vers la direction croisant la direction de transport de bande de la bande (W) maintenue par les moyens de scellage latéraux (20) par rapport à l'élément de support (32B).

3. Machine de remplissage et d'emballage (10) selon la revendication 1, comprenant en outre un actionneur pour la rotation de la goulotte de trémie (30) vers la direction croisant la direction de transport de bande de la bande (W) maintenue par les moyens de scellage latéraux (20) par rapport à l'élément de support (32B).

FIG. 1

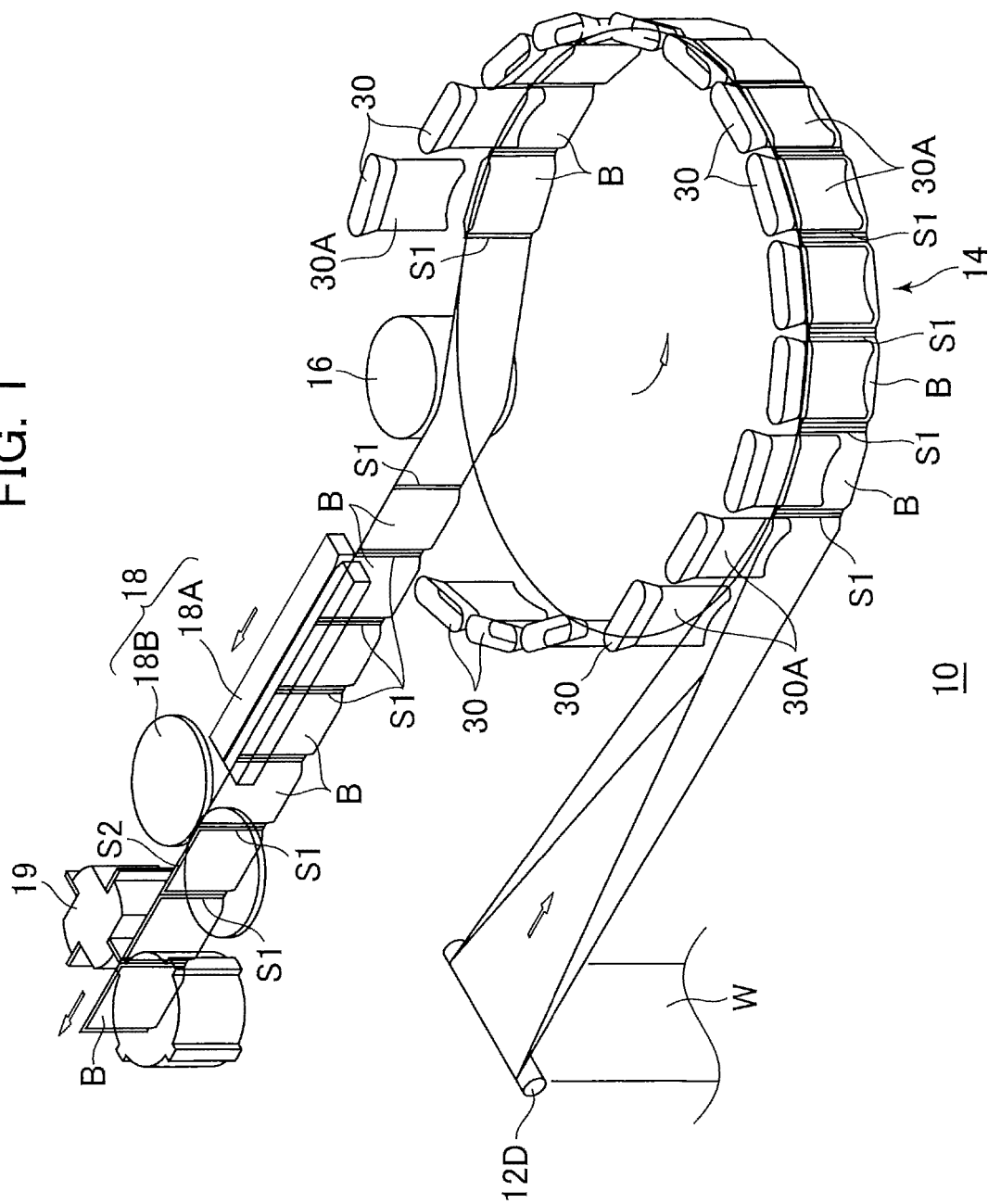


FIG. 2

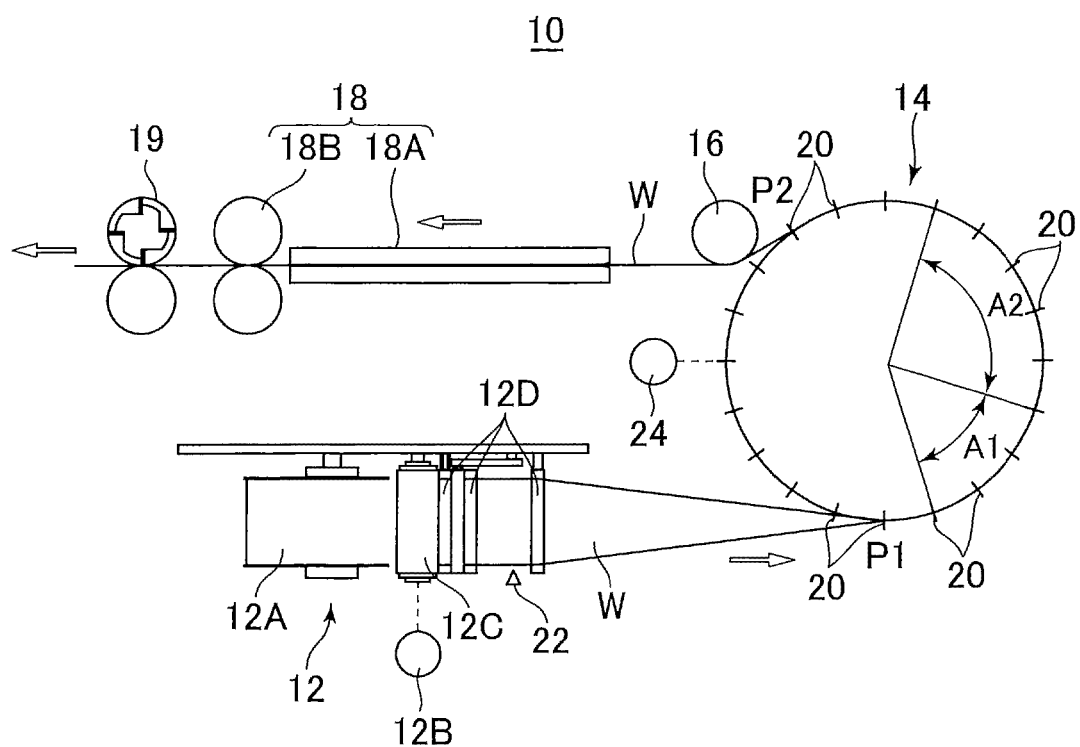


FIG. 3

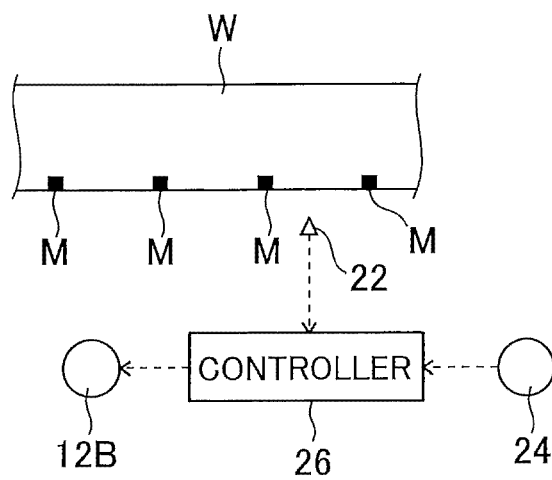
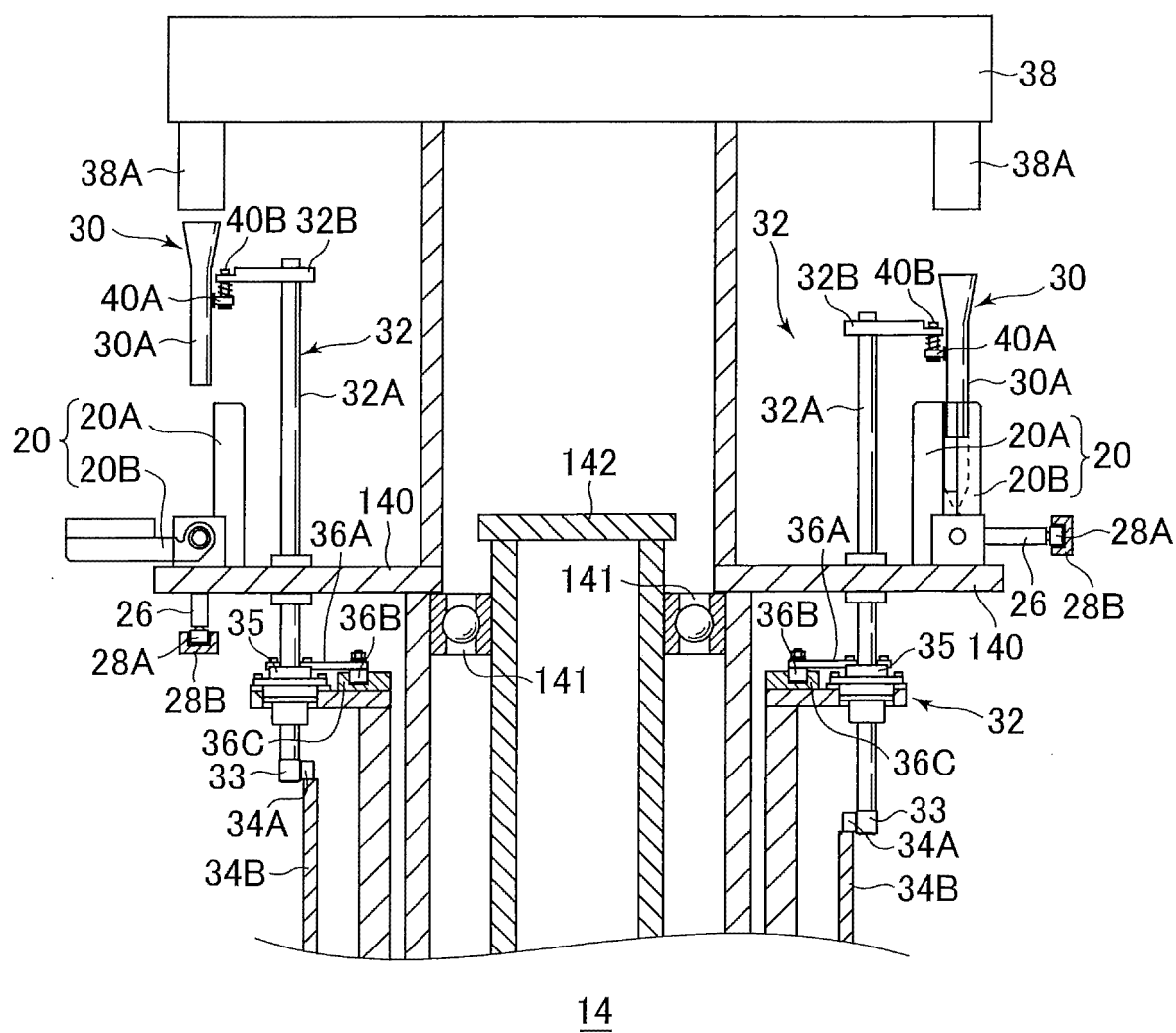


FIG. 4



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FIG. 5

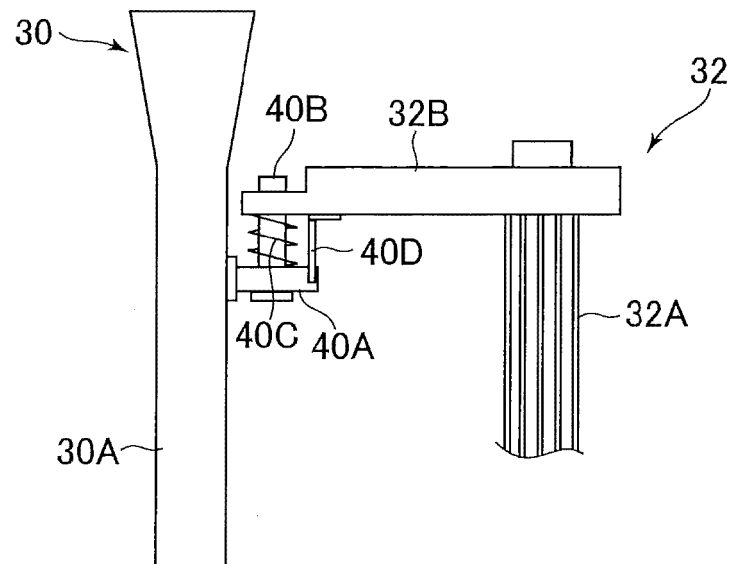


FIG. 6

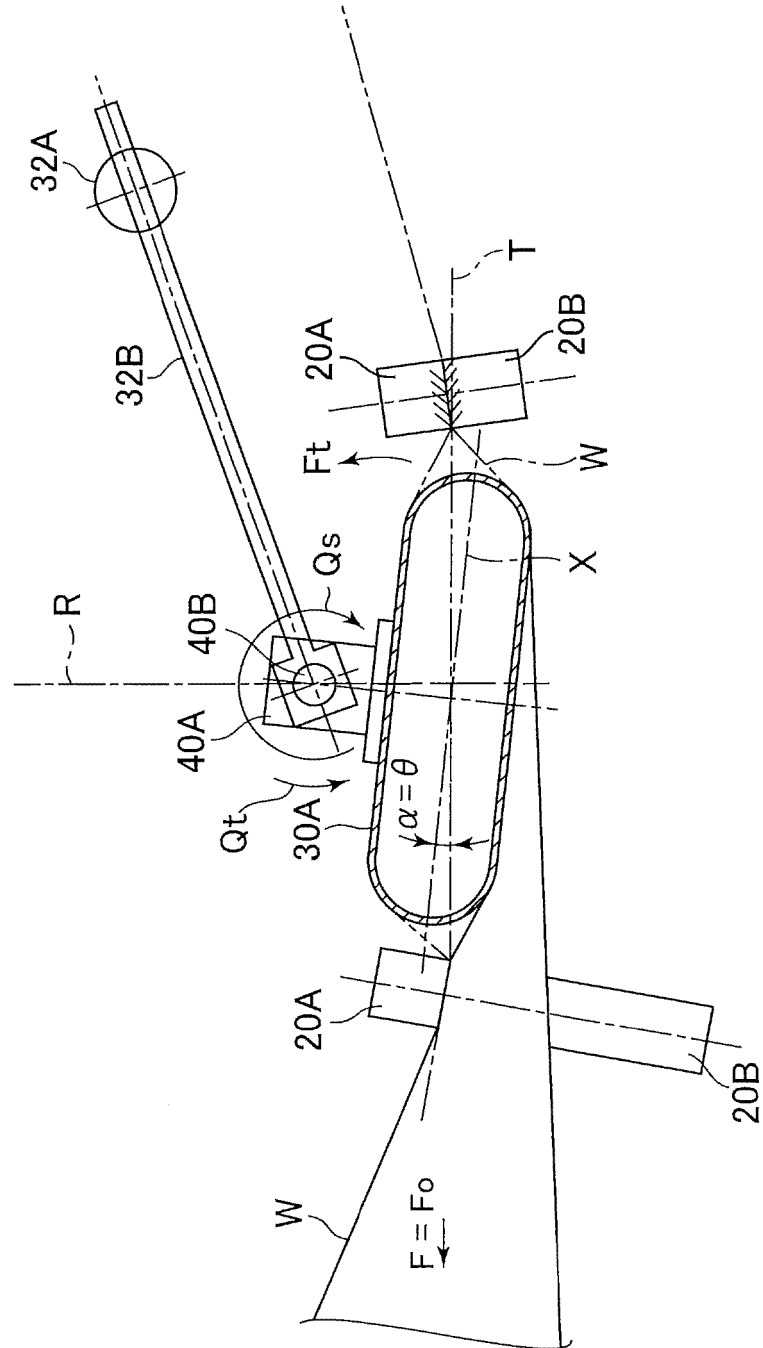
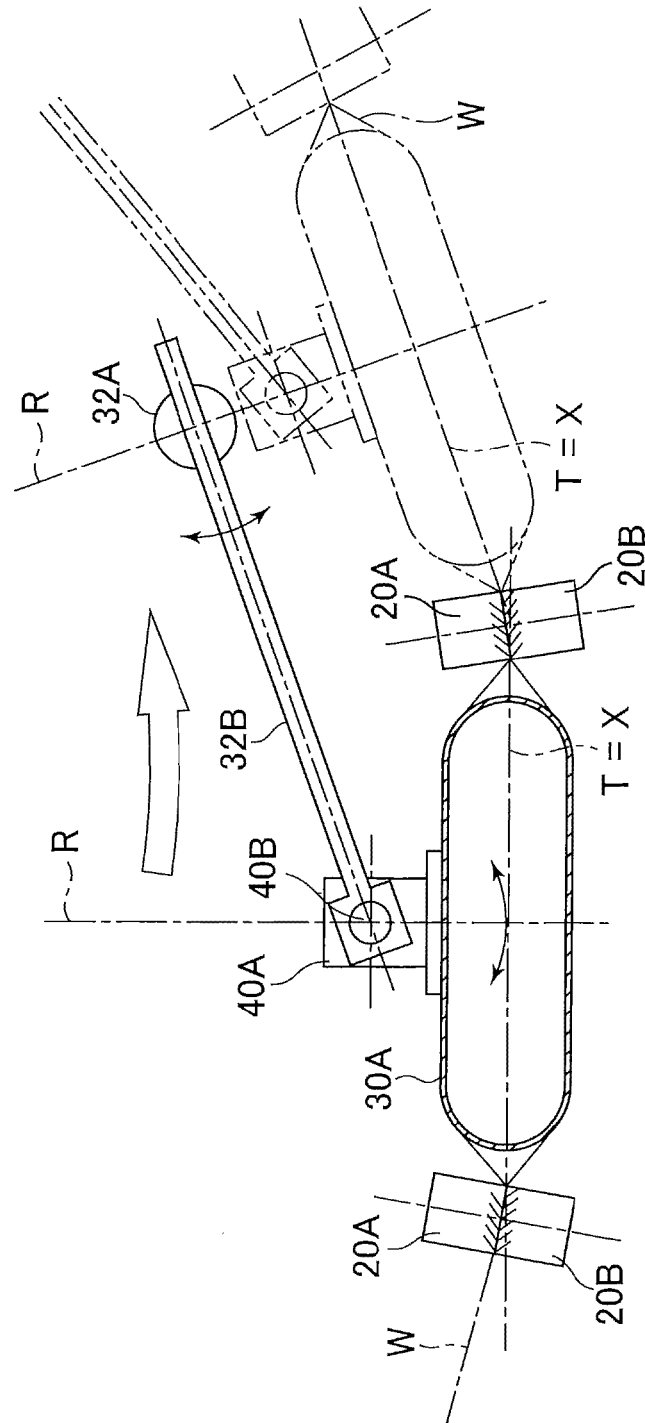


FIG. 7



REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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