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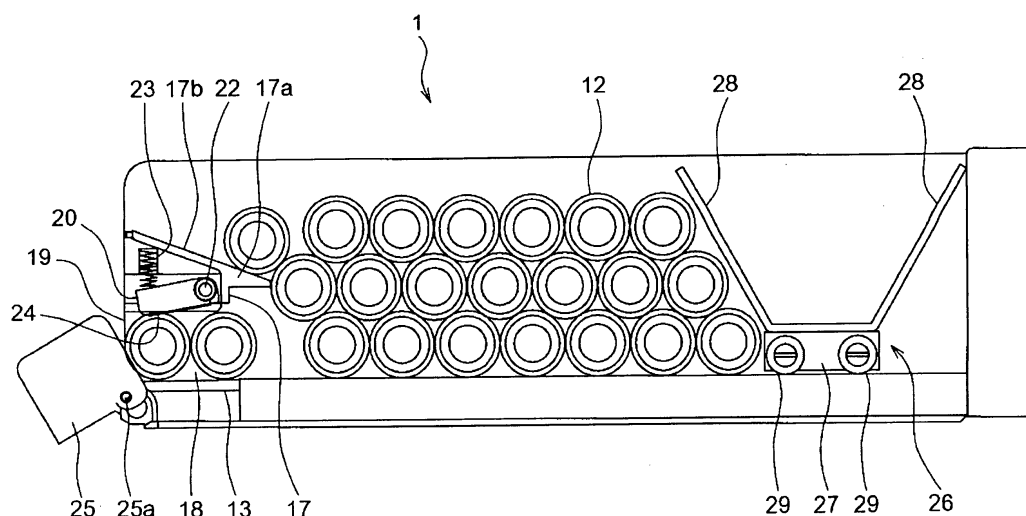
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(54) **AMPULE CONTAINER**

(57) There is provided an ampule container, which can smoothly dispense an ampule without causing a breakage of the neck of the ampule and a change in orientation of the ampule. The ampule container 1 stacks a plurality of ampules 12 on a belt conveyor 13 transversely to a dispensing direction and dispenses the am-

pules 12 one by one. The ampule container 1 has an ampule holding member 26 including: a carriage 27 movable on the belt conveyor 13 as rolling along the dispensing direction; and a holding portion 28 contacting a rear-most ampule of the ampules 12 stacked on the belt conveyor.

FIG. 7



Description

TECHNICAL FIELD

[0001] The present invention relates to an ampule container.

BACKGROUND ART

[0002] As to known ampule containers used for automatically supplying ampules, Patent Document 1 suggests that ampules vertically stacked within an ampule container are dispensed by rotating a C-sectioned rotor provided at a lower end.

[0003] Further, Patent Document 2 discloses that a plurality of ampules are stacked and accommodated in a cassette, and that a movable inclined bottom plate slides to dispense the ampules one by one through a discharging outlet provided in the movable inclined bottom plate.

[0004] Furthermore, Patent Document 3 suggests that ampules are stacked on a belt conveyor provided on a bottom of a container, and that the belt conveyor is driven to dispense the ampules one by one through an ample passage provided at a front side of the container in a dispensing direction.

Patent Document 1: Japanese Patent Application Laid-Open No. (Hei)7-285674 (Japanese Patent No. 3170579)

Patent Document 2: Japanese Patent Application Laid-Open No. (Hei) 10-192369

Patent Document 3: Japanese Patent Application Laid-Open No. 2003-230619

SUMMARY OF THE INVENTION

[0005] According to the device disclosed in Patent Document 1, since the ampules are vertically stacked in a row, the ampules descend one at a time along with a dispensing operation as arranged in a row. Further, according to the device disclosed in Patent Document 2, since the movable bottom plate is inclined, the ampules move alongside the inclination of the movable bottom plate along with the dispensing operation. According to the device disclosed in Patent Document 3, when the conveyor moves to dispense the ampules, the ampules in an upper layer fall down. In such a case, a neck of the ampule may break off. Further, in particular, there is a problem in that as a remaining quantity of the ampules decreases, the ampule may change in terms of orientation when the ampule is dispensed by the conveyor.

[0006] Thus, it is an object of the present invention to provide an ampule container, which can smoothly dispense an ampule without causing a breakage of the neck of the ampule and a change in orientation of the ampule.

[0007] In order to solve the foregoing problems, there is provided a first means for regulating ampules so that

the ampules in a backward side cannot fall down. That is, there is provided an ampule container for stacking a plurality of ampules on a belt conveyor transversely to a dispensing direction and dispensing the ampules one by one. The ampule container includes an ampule holding member including: a carriage that is movable on the belt conveyor as rolling along the dispensing direction; and a holding portion for holding a rearmost ampule of the ampules stacked on the belt conveyor.

[0008] Preferably, the holding portion may be upwardly inclined at an angle of 60 degrees forwardly of the dispensing direction from the carriage. Further, the holding portion may be vertically upright on the carriage. Furthermore, the holding portion may be upwardly inclined at an angle of 60 degrees backwardly of the dispensing direction from the carriage.

[0009] Preferably, the holding portion may be symmetrically provided at a front side and a back side of the carriage along the dispensing direction.

[0010] Further, there is provided a second means for always positioning a body of an ampule to be low. That is, there is provided an ampule container for stacking a plurality of ampules on a belt conveyor transversely to a dispensing direction and dispensing the ampule one by one, wherein an upper belt of the belt conveyor is inclined relative to a horizontal direction orthogonal to the dispensing direction.

[0011] Preferably, the belt conveyor may be inclined such that a body section of the ampule is low and a neck section of the ampule is high.

[0012] The ampule container may preferably include an inclining member for inclining the upper belt below the upper belt of the belt conveyor.

[0013] The ampule container may preferably include a guiding member for guiding both ends of the ampule at both lateral sides of the belt conveyor.

[0014] Further, there is provided a third means comprising the first means and the second means. That is, there is provided an ampule container for stacking a plurality of ampules on a belt conveyor transversely to a dispensing direction and dispensing the ampules one by one, which includes an ampule holding member having: a carriage that is movable on the belt conveyor as rolling along the dispensing direction; and a holding portion for holding a rearmost ampule of the ampules stacked on the belt conveyor, wherein an upper belt of the belt conveyor is inclined relative to a horizontal direction orthogonal to the dispensing direction.

[0015] According to the invention associated with the first means, when the belt conveyor is driven, the ampule holding member moves to contact the ampule located in the backward side in the dispensing direction. Thus, the ampules located in the backward side are not permitted to fall down. Also, the breakage of the neck section of the ampule or the change in orientation of the ampule can be prevented. In particular, even if the remaining quantity of the ampules becomes low or the remaining quantity of the ampules decreases, the ampules are al-

lowed to be arranged with suitable contact forces therebetween. Thus, the change in orientation of the ampule can be prevented when the belt conveyor is driven, and the ampules can be smoothly dispensed.

[0016] According to the invention associated with the second means, the belt conveyor is inclined relative to the horizontal direction orthogonal to the dispensing direction. Thus, the ampule is allowed to fall down on its body section from an upper layer to a lower layer. Thus, the breakage of the neck section or the change in orientation of the ampule can be prevented, and the ampules can be smoothly dispensed.

[0017] According to the invention associated with the third means comprising the first and second means, the breakage of the neck section or the change in orientation of the ampule can be prevented, and the ampules can be smoothly dispensed.

BRIEF DESCRIPTION OF THE DRAWINGS

[0018]

FIG. 1 is a front view of a medicine dispensing device including an ampule container according to the present invention.

FIG. 2 is a perspective view of the ampule container.

FIG. 3 is a partially cutaway perspective view of the ampule container.

FIG. 4 is a sectional view of the ampule container.

FIG. 5 is a plan view of the ampule container with a belt conveyor removed.

FIG. 6 is a sectional view of the ampule container shown in FIG. 5.

FIG. 7 is a longitudinal sectional view of the ampule container.

FIGS. 8(a), 8(b) and 8(c) are a plan view, a side elevational view and a front view of an ampule holding member, respectively.

FIG. 9 is a side elevational view of the ampule container and a medicine supplying part.

FIG. 10 is a sectional view showing dispensing ampules in the ampule container in sequence.

FIG. 11 is a sectional view illustrating movements of ampules when the ampule holding member is absent.

FIG. 12 is a sectional view illustrating an operation of the ampule holding member in sequence.

FIG. 13 is a sectional view illustrating an operation of the ampule holding member in sequence.

FIG. 14 is a sectional view of an ampule container including a variant ampule holding member.

FIG. 15 is a side elevational view of an additional variant ampule holding member.

FIG. 16 is a side elevational view of another variant ampule holding member.

FIG. 17 is a side elevational view of yet another variant ampule holding member.

FIG. 18 is a side elevational view of yet still another

variant ampule holding member.

Description of reference numerals

5 [0019]

1 ... Ampule container

12 ... Ampule

13 ... Belt conveyor

10 14 ... Inclined plate

16a, 16b ... Guide plate

26 ... Ampule holding member

27 ... Carriage

15 28 ... Aligning plate

DETAILED DESCRIPTION

[0020] Embodiments of the present invention will be described with reference to the accompanying drawings.

20 **[0021]** A medicine dispensing device 2 including an ampule container 1 according to the present invention will be described with reference to FIG. 1. The medicine dispensing device 2 includes the following: detachable ampule containers 1 according to the present invention that are arranged horizontally and vertically in front of the device; a medicine supplying part 3 (see FIG. 9) provided at a rear side of each of the ampule containers 1; a lifter (not shown) positioned in rear of the medicine supplying parts 3 for receiving and putting down the ampule supplied from the medicine supplying part 3; a belt conveyor 5 positioned below the medicine supplying part 3 for conveying a tray 4 receiving the ampule from the lifter; and a medicine bag/paper feeding part 6. A bucket stocker 8, which stocks buckets 7 and supplies the bucket to the medicine dispensing device 3, is disposed at one side of the medicine dispensing device 3. The medicine bag/paper feeding part 6 includes: a medicine bag roll 9; a paper roll 10; and a printer 11 for printing a patient's name, etc. on the medicine bag fed from the medicine bag roll 9 and a prescription information on the paper fed from the paper roll 10. The medicine bag/paper feeding part feeds the printed medicine bag and the printed paper to the bucket 7.

35 **[0022]** FIG. 2 illustrates an ampule container 1 according to the present embodiment. The ampule container 1 generally has a box shape with its top open. The ampule container accommodates the ampules 12 transversely to a dispensing direction A.

40 **[0023]** As shown in FIG. 3, the ampule container 1 includes a belt conveyor 13 at a central section of its bottom. As shown in FIG. 4, an inclined plate 14, which is inclined relative to a horizontal direction orthogonal to the dispensing direction, is provided between an upper belt 13a and a lower belt 13b of the belt conveyor 13. As shown in FIGS. 5 and 6, the inclined plate 14 is disposed on a support plate 15 so as to extend along the dispensing direction of the belt conveyor 13, thereby allowing the upper belt 13a to incline along the inclined plate 14. Guide

plates 16a, 16b perpendicular to the inclined upper belt 13a are provided at both lateral sides of the belt conveyor 13. As shown in FIG. 4, the ampule 12 is accommodated such that its neck section is placed on an upper side of the inclined upper belt 13a, while its body section is placed on a lower side of the inclined upper belt.

[0024] An ampule regulating member 17, which has a shelf shape and projects inward, is provided on a front wall of the ampule container 1 in the ampule dispensing direction. The ampule regulating member 17 defines an ample passage 18 having a gap, which allows only one ampule 12 to pass therethrough, between the upper belt 13a of the belt conveyor 13 and the ampule regulating member 17. The ample passage 18 communicates with an outlet 19 of the ampule container 1. A pressing member 20 is provided at the ample regulating member 17. A stopper 21 (see FIG. 2) is provided near the outlet 19.

[0025] The pressing member 20 generally has a plate shape. The pressing member is pivotably attached to a backward end of a bottom side of the ampule regulating member 17 in the dispensing direction of the ampule 12 via a pin 22. An elastic member 23 that comprises a spring biases the pressing member 20 toward the ampule 12 in a direction of pressing the ampule. A friction member 24, which comprises an urethane rubber (a poly-urethane), a nitrile rubber (a butadiene acrylonitrile co-polymer), a silicon rubber (an organic polysiloxane), a cork, a felt, etc., is attached to a bottom of the pressing member 20. The pressing member 20 is brought into pressure contact with a periphery of the ampule 12. This prevents the ampule 12 from being unintentionally dispensed through the ample passage 18 when the belt conveyor 13 stops. This further prevents the ampules 12 from being unintentionally dispensed continuously during the dispensing operation.

[0026] As shown in FIG. 2, the stopper 21 includes a plate-shape object provided at a lateral side of the outlet 19. The stopper contacts a head of the ampule 12 dispensed by the belt conveyor 13 to turn the ampule toward a longitudinal direction.

[0027] A door 25 configured to cover the outlet 19 for the ampule 12 is provided at a front end side of the ampule container 1 in the ampule dispensing direction so as to pivot about a hinge shaft 25a. The door is biased in a closing direction by a spring (not shown).

[0028] As shown in FIG. 7, an ampule holding member 26 for arranging the ampules 12 is placed on the belt conveyor 13 of the ampule container 1. The ampule holding member 26 includes a carriage 27 and a holding portion 28, as shown in FIG. 8. The carriage 27 has rollers 29, which roll and move on the belt conveyor 13 along the dispensing direction. The holding portion 28 generally has a plate shape. The holding portion is upwardly inclined at an angle of 60 degrees from a front end of the carriage 27 forwardly of the dispensing direction. The holding portion is configured to contact a rearmost ampule 12 among the ampules 12 stacked on the belt conveyor 13. The holding portion 28 is provided at a front side and

a back side of the carriage 27 in the dispensing direction to be symmetrical about the carriage 27.

[0029] FIG. 9 shows the medicine supplying part 3 provided in the rear of the ampule container 1. The medicine supplying part 3 includes a medicine guiding container 30 and a rotor 31 disposed in the medicine guiding container 30.

[0030] The medicine guiding container 30 generally has a box shape with an open top and is inclined obliquely downward of the dispensing direction A of the ampule container 1. The ampule 2 dispensed into the medicine guiding container 30 is detected by an ampule detecting sensor 32 provided at a side wall. The rotor 31 has an approximate cylindrical shape and defines a plurality of holding recesses (not shown) at certain pitches on its periphery.

[0031] Operations of the above-described medicine dispensing device 2 will now be described below.

[0032] To supply the ampule 12, a sensor (not shown) detects whether the ampule 12 exists in the holding recess of the rotor 31 stopping in a proper position. If it is detected that the ampule 12 exists in the holding recess, then the rotor 31 rotates to supply the very ampule 12. If not detected, then it is detected whether the ampule 12 exists in the medicine guiding container 30 based on detection signals from the ampule detecting sensor 32.

[0033] If it is detected that the ampule 12 exists in the medicine guiding container 30, then the rotor 31 rotates to hold the ampule 12 in the holding recess and supply the same.

[0034] On the contrary, if the ampule 12 is not detected, then the belt conveyor 13 of the ampule container 1 is driven. The belt conveyor 13 is driven in such a manner that it travels in a normal direction for 5 seconds and then travels in a reverse direction for 1 second. Further, the belt conveyor repeats such drive. The ampule 12 in the ampule container 1 is dispensed towards the ample passage 18 by driving of the belt conveyor 13.

[0035] More specifically, as shown in FIG. 10(a), if the ampules 12 in the first layer are moved along the ample dispensing direction (toward a left side in FIG. 10(a)) by the belt conveyor 13, then the ampules 12 in the second layer are also moved in the same direction. Further, as shown in FIG. 10(b), if the ampule 12 of No. 5 lying foremost in the second layer contacts a protrusion 17a of a lower end of the ampule regulating member 17, then the ampule 12 of No. 5 is pushed downward and then put between the ampules 12 of No. 3 and No. 4 in the first layer. In such a case, as shown in FIG. 10(c), the ampule 12 of No. 5 may be sandwiched between the protrusion 17a and the ampule 12 in the first layer. However, as described above, the belt conveyor 13 repeats the normal-directional traveling for 5 seconds and then the reverse-directional traveling for 1 second. Thus, when the belt conveyor 13 travels in the reverse direction, the ampule 12 of No. 5 falls onto the belt conveyor 13 as shown in FIG. 10(d). Subsequently, the ampule 12 rolling down on an inclined surface 17b of an ampule regulating plate

or the ampule 12 in the third layer is put into an empty space in the second layer. In this way, the ampules 12 are reliably dispensed without any jam.

[0036] Operations of the ampule holding member 26 of the ampule container 1 will now be described. In case the ampule holding member 26 is absent, as shown in FIG. 11, an ampule 12n, which is not stacked in order, but rather put into between a wall of the ampule container 1 and a rearmost ampule 12n-1 in the second layer, falls toward an ampule 12n-2 and reaches a bottom, as the belt conveyor 13 moves. Impact occurring at this case may break off the neck section of the ampule 12n. Further, a small-diameter section from the neck section of the ampule 12 to a tip end thereof may be put into any gap between the ampules 12 in a lowermost layer to thereby disturb arrangement of the ampules. Furthermore, when the remaining quantity of the ampules 12 decreases, the movement of the belt conveyor 13 sets the ampule 12 from a transverse orientation orthogonal to the dispensing direction into an oblique orientation or a longitudinal orientation or sets the neck section in a reverse orientation, thereby making the dispensing operation difficult.

[0037] According to this embodiment, however, the ampule holding member 26 lies on the belt conveyor 13, thereby preventing the breakage or the change in orientation of the ampule 12.

[0038] That is, as shown in FIG. 12, since the holding portion 28 of the ampule holding member 26 is inclined at an angle of 60 degrees, the ampules 12 may be properly stacked in the ampule container 1 when accommodated in the ampule container. As shown in FIG. 12(a), in case a space S exists between the holding portion 28 of the ampule holding member 26 and the ampules 12 stacked in the ampule container 1, the ampule holding member 26 placed on the belt conveyor 13 moves as the belt conveyor 13 travels in a direction of an arrow. Then, as shown in FIG. 12(b), the ampule holding member 26 stops when the holding portion 28 contacts the ampules 12. In such a case, even if the belt conveyor 13 further travels, the ampule holding member 26 stays stationary as only the roller 29 idles. As such, the space between the ampules 12 and the holding portion 28 of the ampule holding member 26 exists no longer, and thus, the even stack of the ampules 12 maintains as it is. Thus, the ampules 12 in the upper layer do not fall down and the breakage of the neck section is prevented.

[0039] Further, as shown in FIG. 13(a), before gaps between the ampules 12 are formed due to the decrease of the remaining quantity of the ampules 12 in the ampule container 1, the ampule holding member 26 placed on the belt conveyor 13 moves as the belt conveyor 13 travels in a direction of an arrow. Then, as shown in FIG. 13(b), the holding portion 28 arranges the ampule 12 and stops. Thus, the change in orientation of the ampules 12 is prevented.

[0040] Moreover, according to this embodiment, as shown in FIG. 4, the upper belt 13a of the belt conveyor

13 is inclined relative to the horizontal direction orthogonal to the dispensing direction. Further, the body section of the ampule 12 is placed at a lower side alongside its inclination. Thus, when the ampule 12 in the upper layer falls downward, the body section always falls down first, thereby preventing the neck section of the ampule from breaking off.

[0041] As such, the ampule regulating member 17 allows the ampule 12 directly stacked on the belt conveyor 13 to pass through the ampule passage 18. As shown in FIG. 2, since the stopper 21 contacts the head section of the ampule 12 at the outlet 19 in front of the ampule passage 18, the ampule 12 continues to move while turning around. Then, the ampule 12 is dispensed to the medicine guiding container 30 shown in FIG. 9 as rotated by about 90 degrees to have the body section to lie longitudinally in a traveling direction.

[0042] The ampule 12 dispensed to the medicine guiding container 30 is detected by the ampule detecting sensor 32. If the sensor 32 detects the ampule 12, then the belt conveyor 13 stops. If the ampule 12 in the rotor 31 is dispensed, then the belt conveyor 13 is driven again in the same cycle.

[0043] The above-described operation is repeated until a predetermined amount of the ampules 12 is supplied. If the predetermined amount of the ampule 12 is supplied, then the belt conveyor 13 stops. Since the pressing member 20 prevents the ampule 12 in the ampule passage 18 from being unintentionally dispensed, superfluous ampules 12 are not permitted to be dispensed when the belt conveyor 13 stops.

[0044] The ampule 12 supplied from the rotor 31 of the medicine guiding container 30 is lowered down to the tray 4 on the belt conveyor 5 positioned at the bottom of the medicine dispensing device 2 shown in FIG. 1 by means of the lifter (not shown) positioned in the rear of the medicine supplying portion 3. The tray 4 is conveyed by the belt conveyor 5 while receiving another medicine from each of the medicine supplying parts 3 in the same manner. The medicine in the tray 4 is accommodated in the bucket 7 supplied from the bucket stocker 8. The medicine bag and the paper fed from the medicine bag/paper feeding part 6 are accommodated in the bucket 7. The bucket 7, in which the medicine, the medicine bag and the paper are accommodated, is dispensed outward of the medicine dispensing device 2.

[0045] In the above-described embodiment, the holding portion 28 of the ampule holding member 26 is provided in two places, i.e., at the front side and the back side in the dispensing direction, so that it can be utilized whether it is placed toward any one of the two directions. However, as shown in FIG. 14, the holding portion 28 may be provided only at the front side. If it is configured as such, the back side is not provided with the holding portion 28, thereby increasing a capacity of the ampule container 1.

[0046] Hereinafter, other embodiments of an ampule holding member will be described. For ease of descrip-

tion, like reference numerals are denoted to like portions that implement the same operation.

[0047] The holding portion 28 of the ampule holding member 26 is not limited to the above-described flat plate shape. As shown in FIG. 15(a), a triangular projection 28a, which can put between the ampules 12, may be provided on a side for contacting the ampules 12. The triangular projection 28a may be integrally formed with the holding portion 28. Further, the triangular projection may be configured to be detachable as shown by two-dot chain lines such that it may vary in size to correspond to any diameter of the ampule 12. Also, as shown in FIG. 15(b), the holding portion 28 may be configured in a step-wise shape for holding the ampule 12 on both vertical and horizontal surfaces.

[0048] Further, the holding portion 28 of the ampule holding member 26 is not limited to the inclination inclined at an angle of 60 degrees forwardly of the dispensing direction. As shown in FIG. 16(a), the holding portion 28 may be vertically provided. Moreover, as shown in FIG. 16(b), the holding portion 28 may be inclined at an angle of 60 degrees backwardly of the dispensing direction. In case of FIG. 16(b), the weight of the ampules 12 is applied to the holding portion 28. Accordingly, as shown in FIG. 16(b), another holding portion 28 may be provided symmetrically to the holding portion 28 to form a triangular shape.

[0049] Further, the holding portion 28 of the ampule holding member 26 is not limited to the plate shape. The holding portion 28 may have a shape of a wire frame shown in FIG. 17 or a rod shown in FIG. 18.

Claims

1. An ampule container for stacking a plurality of ampules on a belt conveyor transversely to a dispensing direction and dispensing the ampules one by one, the ampule container including an ampule holding member including:

a carriage movable on the belt conveyor as rolling along the dispensing direction; and
a holding portion for holding a rearmost ampule of the ampules stacked on the belt conveyor.

2. The ampule container of Claim 1, wherein the holding portion is upwardly inclined at an angle of 60 degrees forwardly of the dispensing direction from the carriage.
3. The ampule container of Claim 1, wherein the holding portion is vertically upright on the carriage.
4. The ampule container of Claim 1, wherein the holding portion is upwardly inclined at an angle of 60 degrees backwardly of the dispensing direction from the carriage.

5. The ampule container of any one of Claims 1 to 4, wherein the holding portion is symmetrically provided at a front side and a back side of the carriage along the dispensing direction.

6. An ampule container for stacking a plurality of ampules on a belt conveyor transversely to a dispensing direction and dispensing the ampules one by one, wherein an upper belt of the belt conveyor is inclined relative to a horizontal direction orthogonal to the dispensing direction.

7. The ampule container of Claim 6, wherein the belt conveyor is inclined such that a body section of the ampule is low and a neck section of the ampule is high.

8. The ampule container of Claim 4 or 5, including an inclining member for inclining the upper belt below the upper belt of the belt conveyor.

9. The ampule container of any one of Claims 6 to 8, including a guiding member for guiding both ends of the ampule at both lateral sides of the belt conveyor.

10. An ampule container for stacking a plurality of ampules on a belt conveyor transversely to a dispensing direction and dispensing the ampules one by one, the ampule container including an ampule holding member including:

a carriage movable on the belt conveyor as rolling along the dispensing direction; and
a holding portion for holding a rearmost ampule of the ampules stacked on the belt conveyor,

wherein an upper belt of the belt conveyor is inclined relative to a horizontal direction orthogonal to the dispensing direction.

FIG. 1

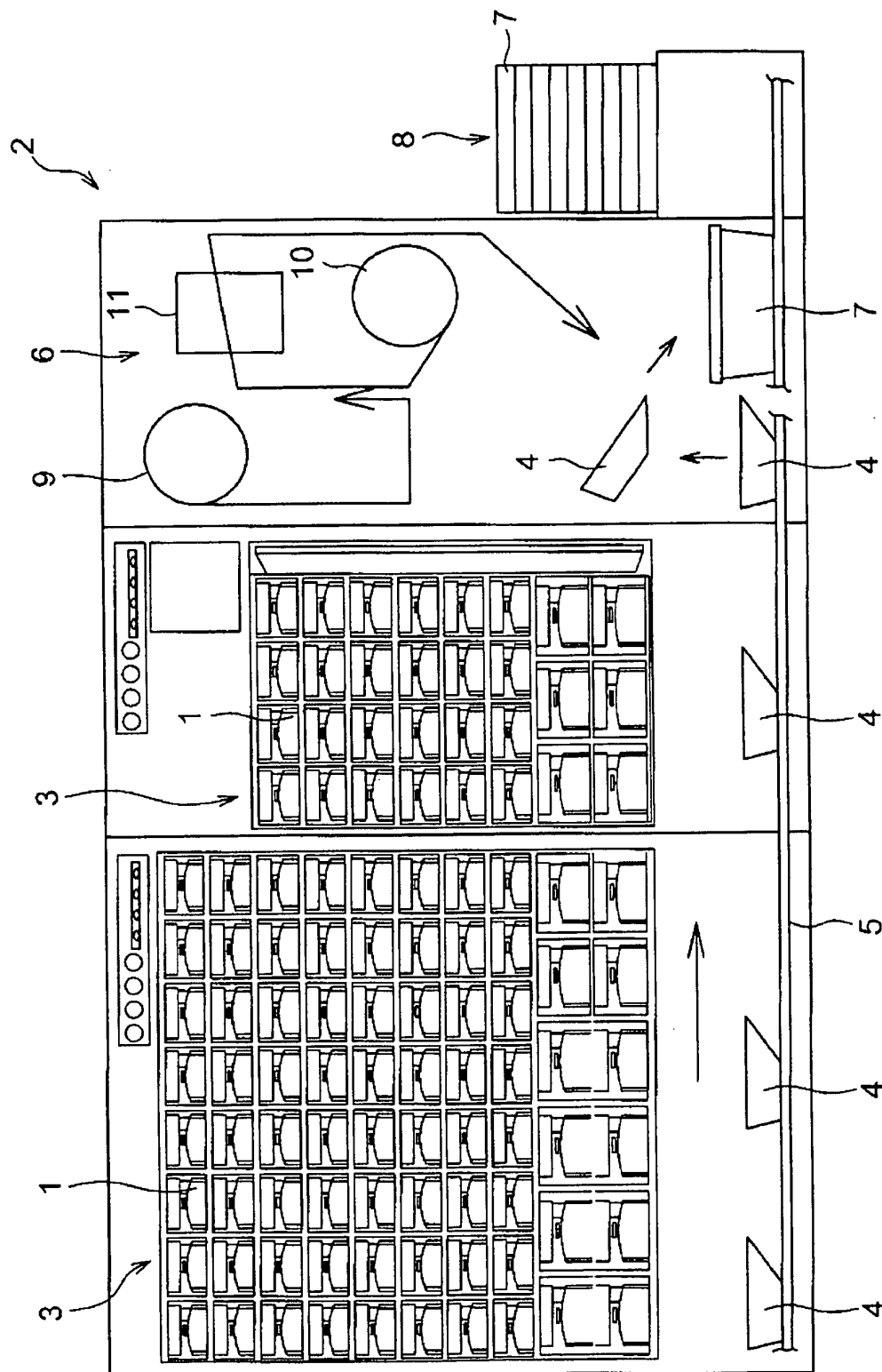


FIG. 2

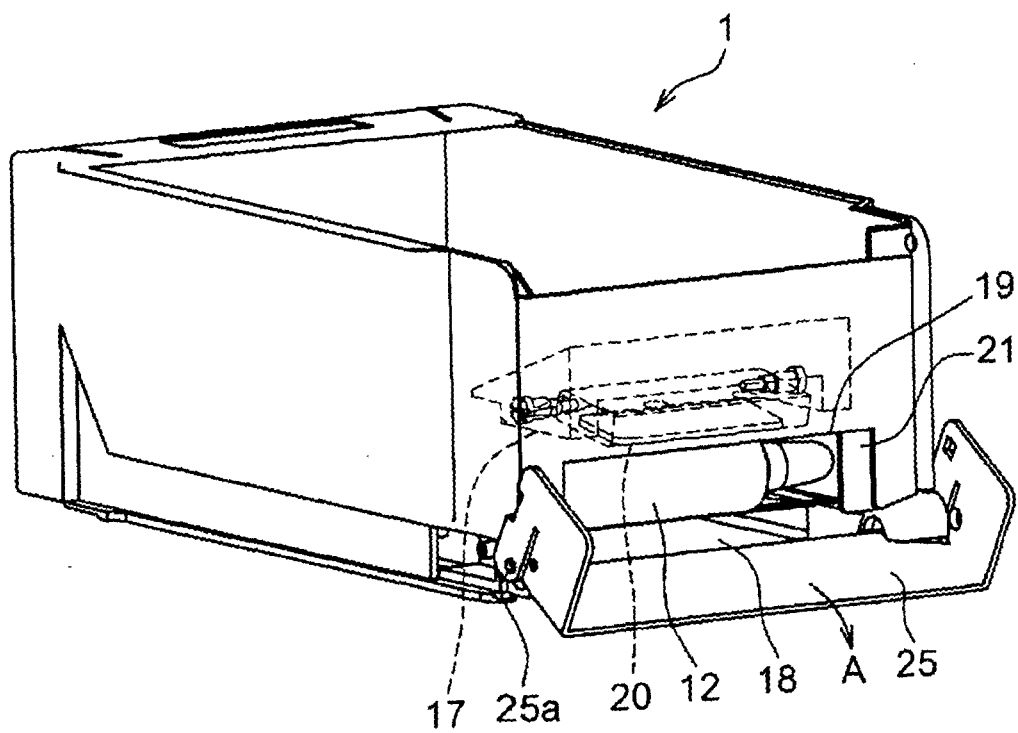


FIG. 3

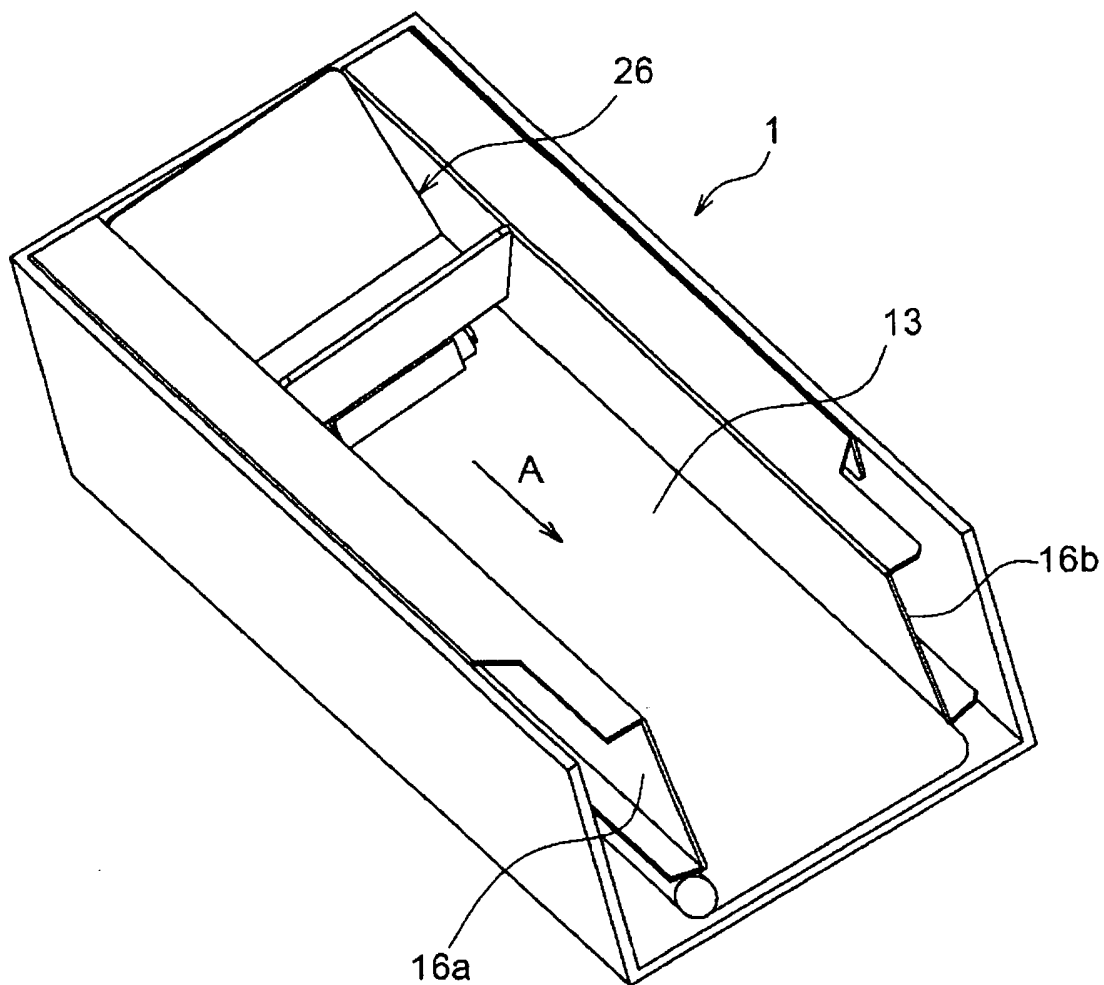


FIG. 4

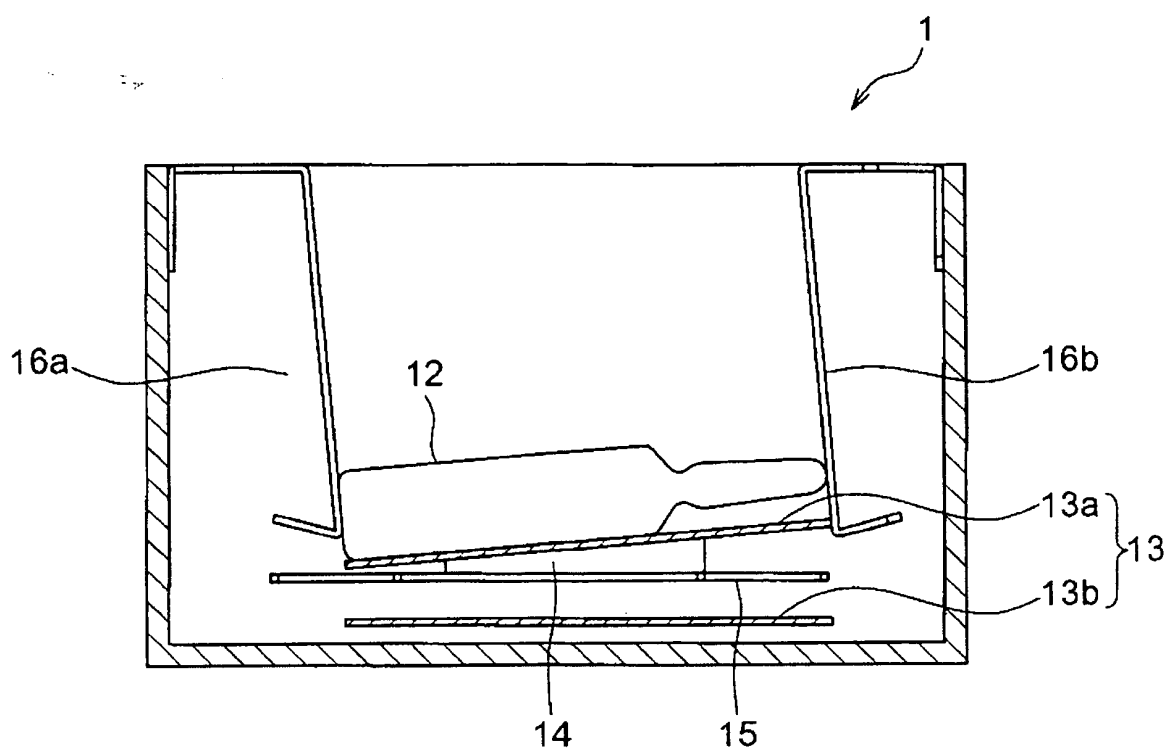


FIG. 5

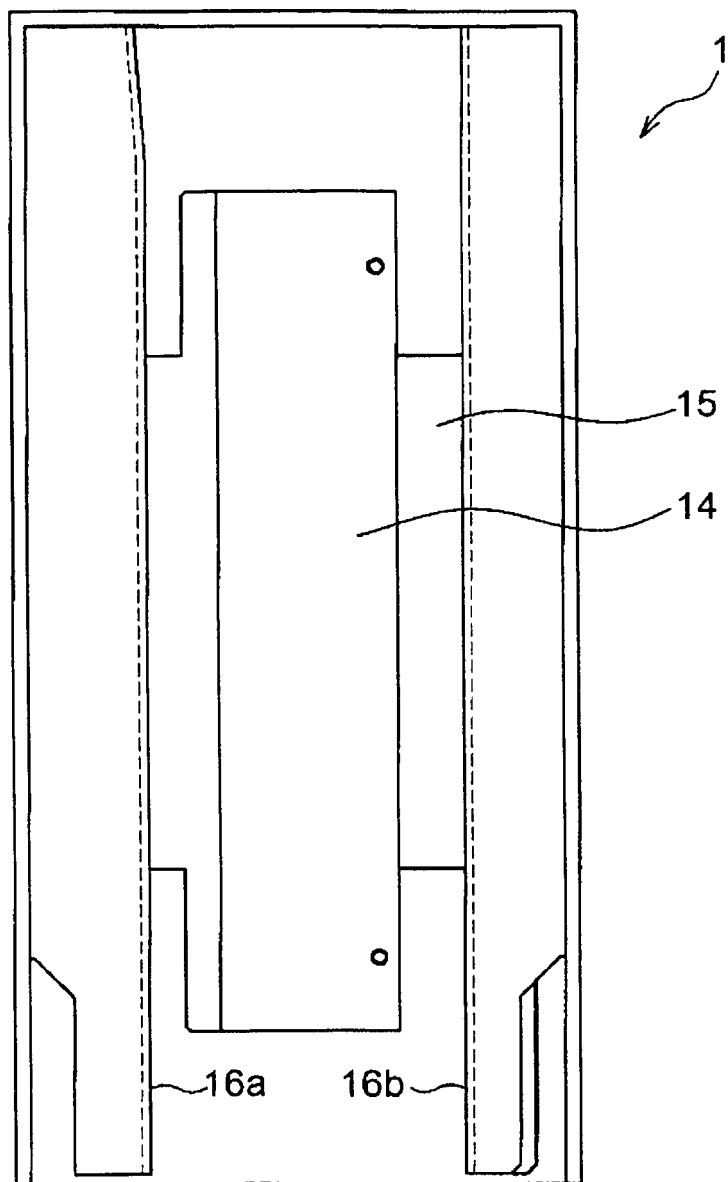


FIG. 6

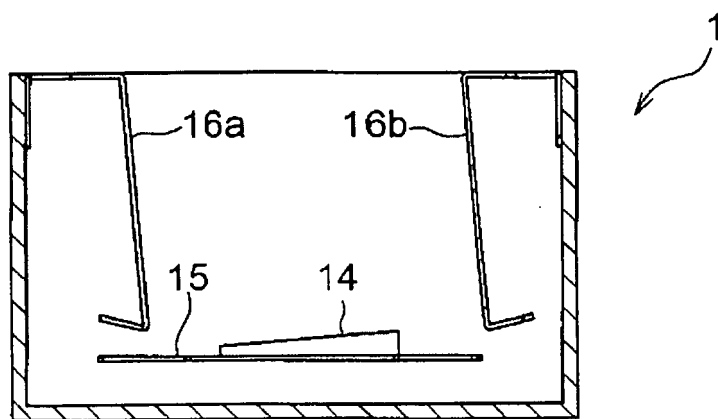


FIG. 7

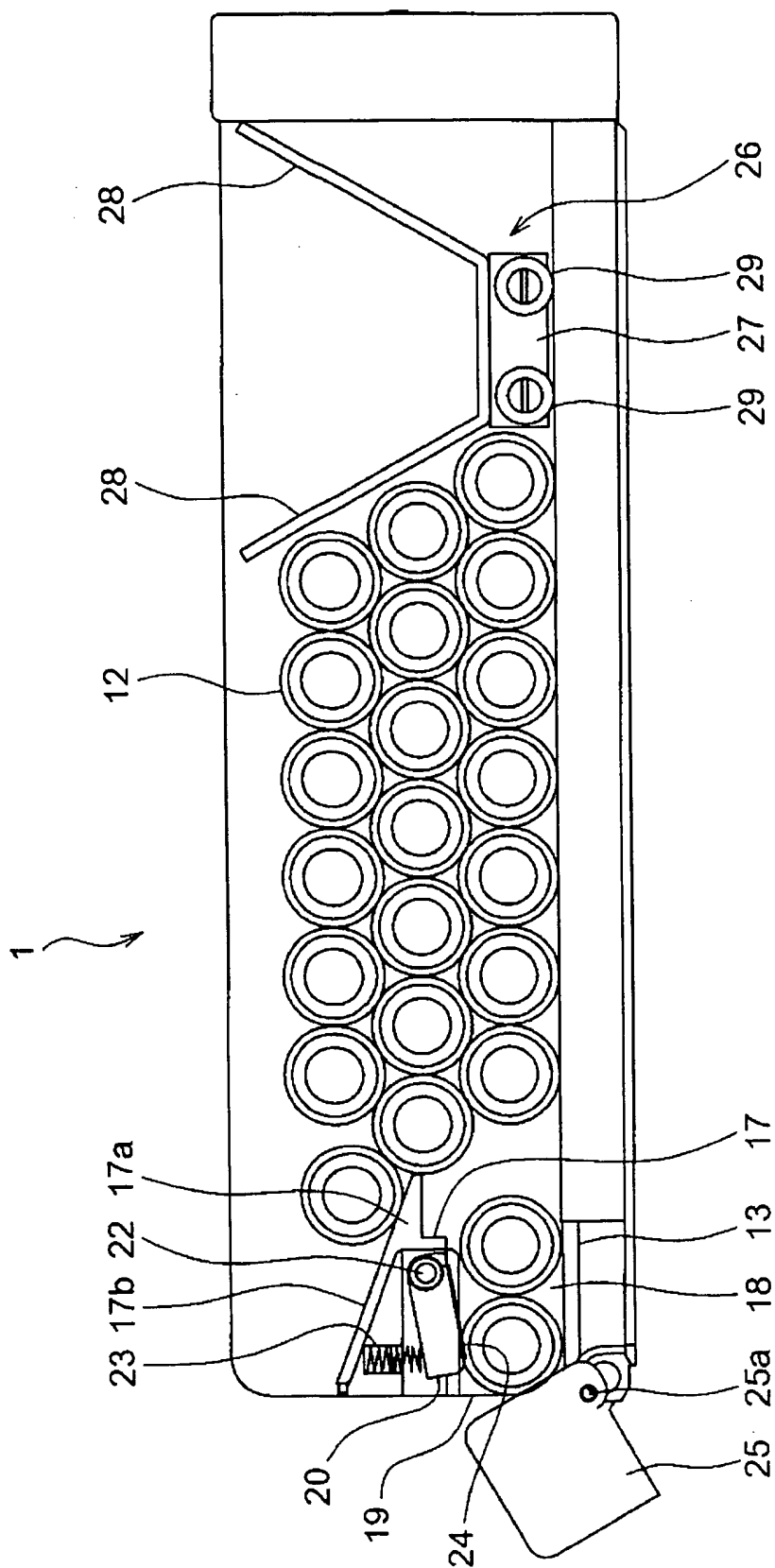


FIG. 8

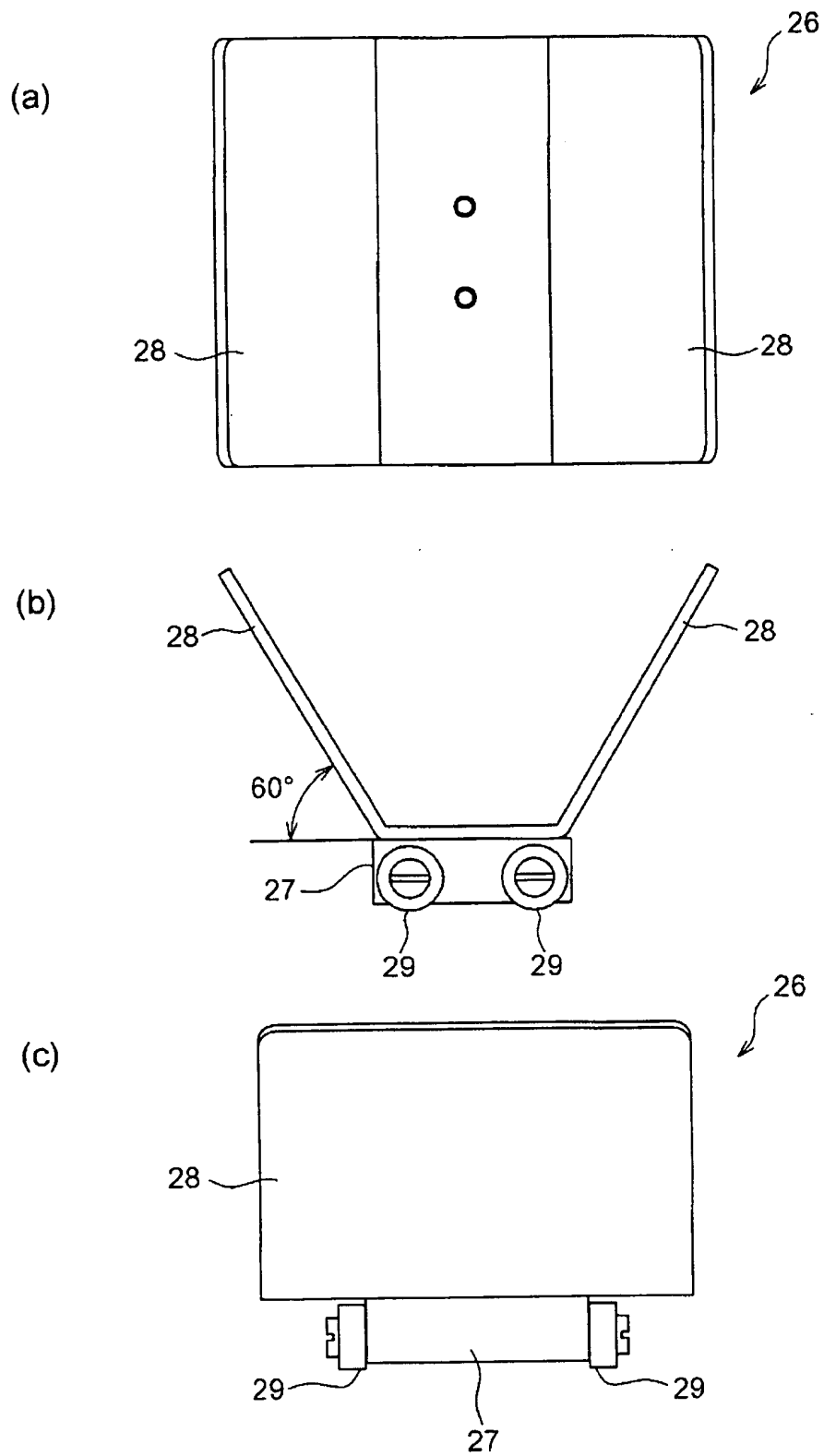


FIG. 9

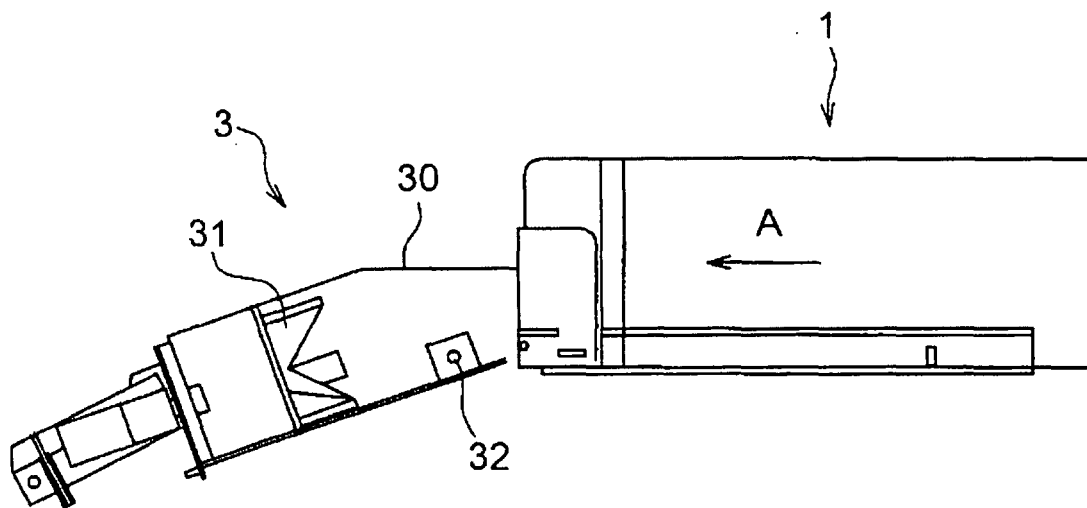


FIG. 10

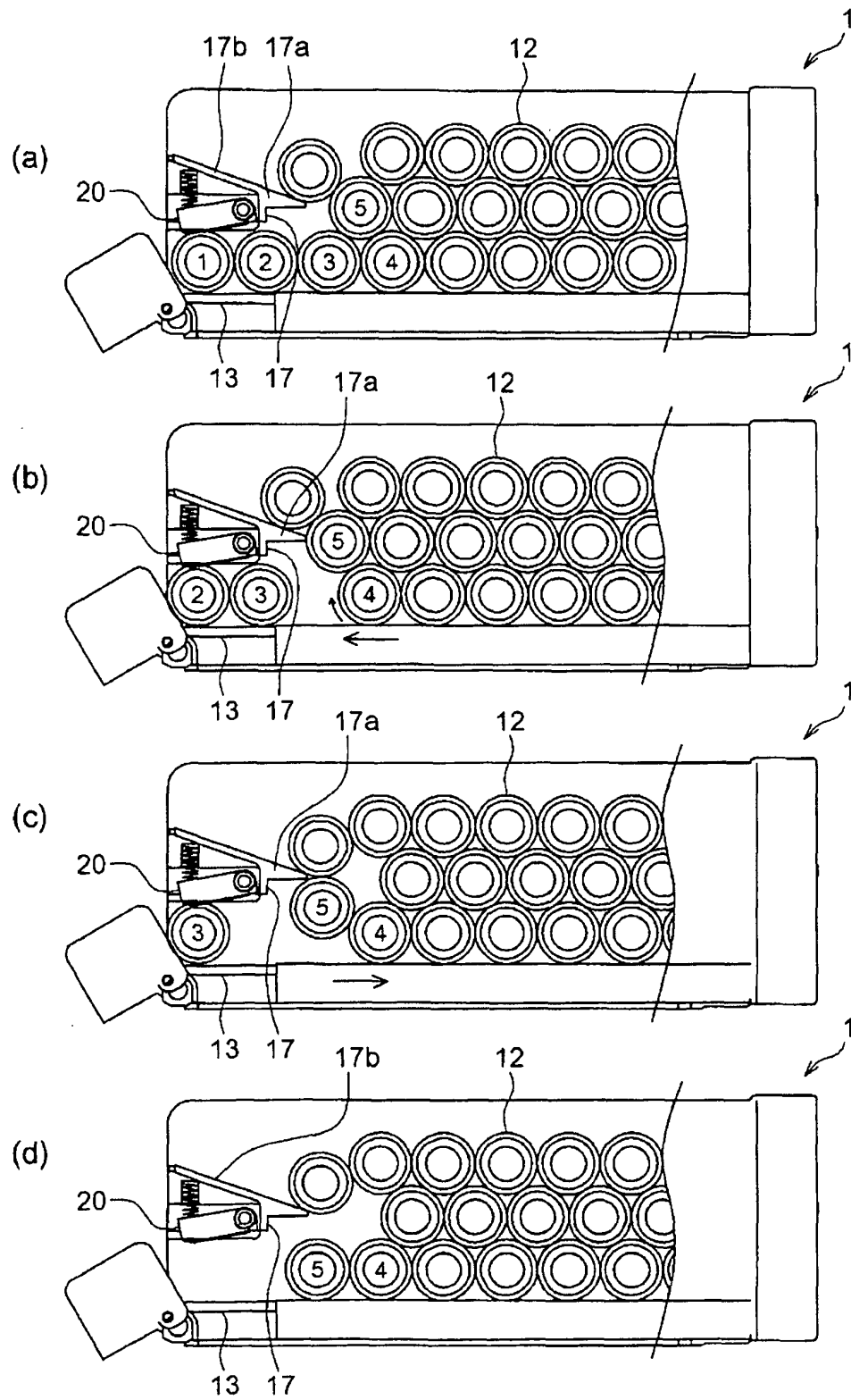


FIG. 11

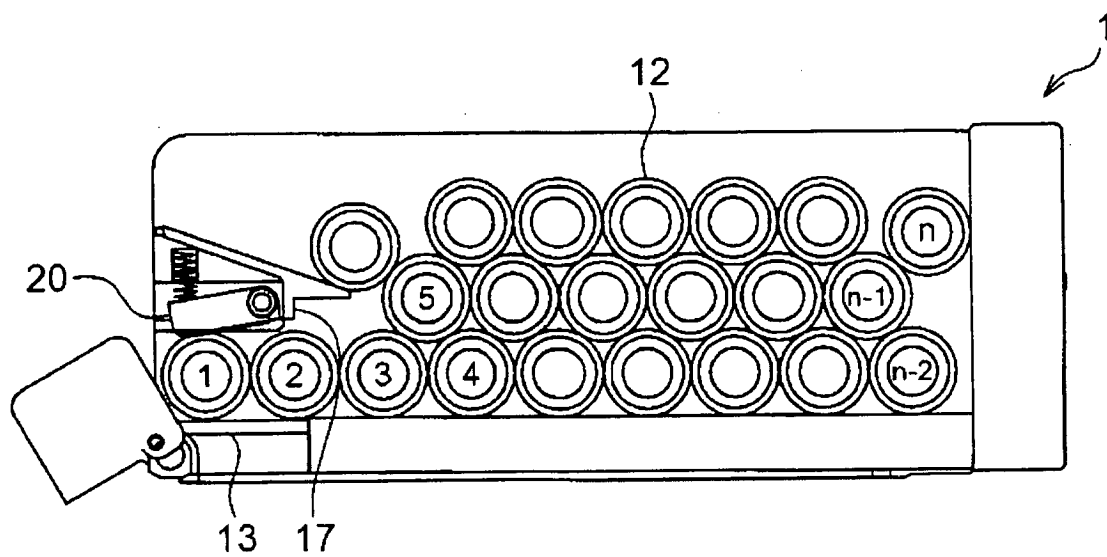


FIG. 12

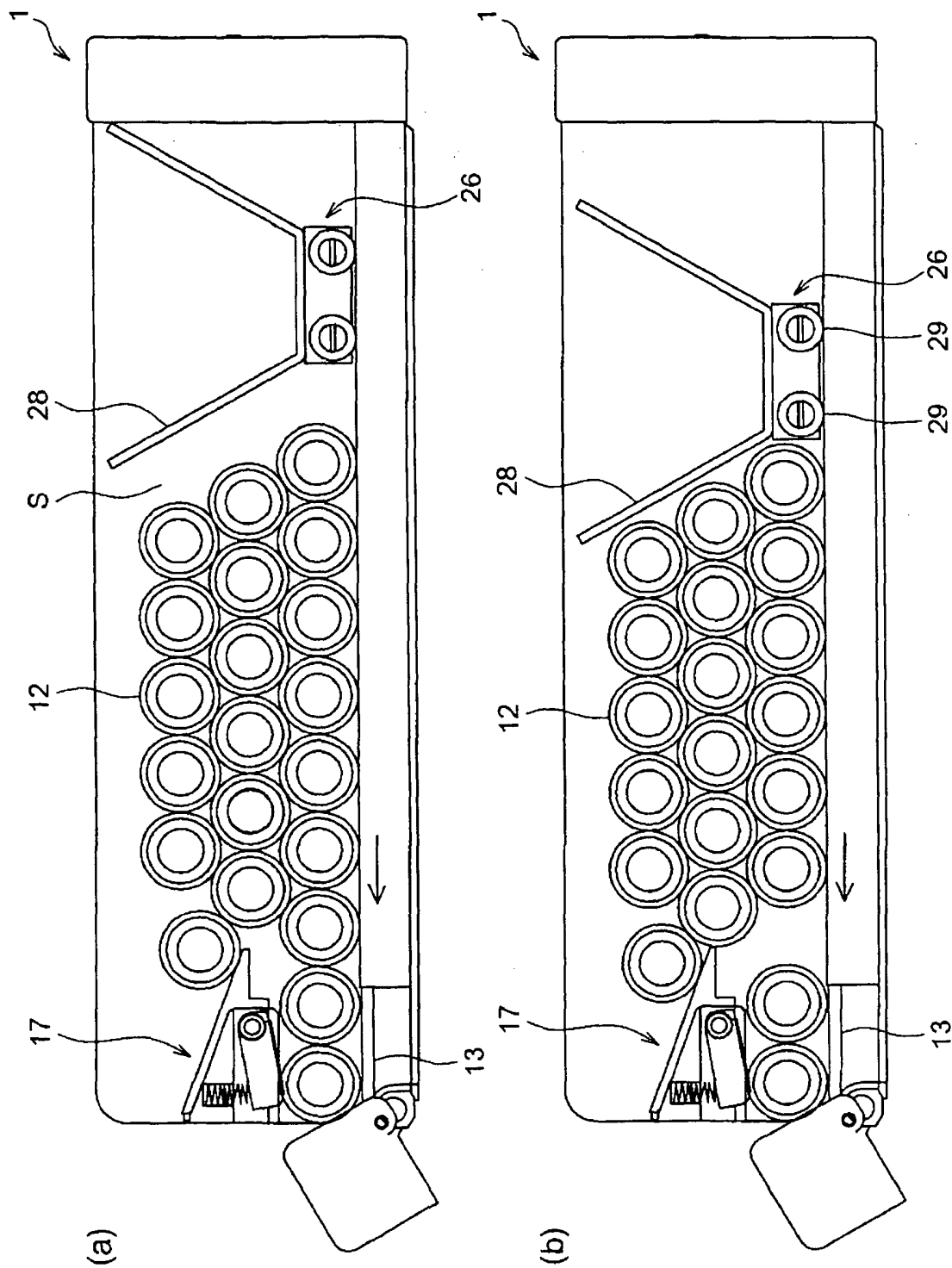


FIG. 13

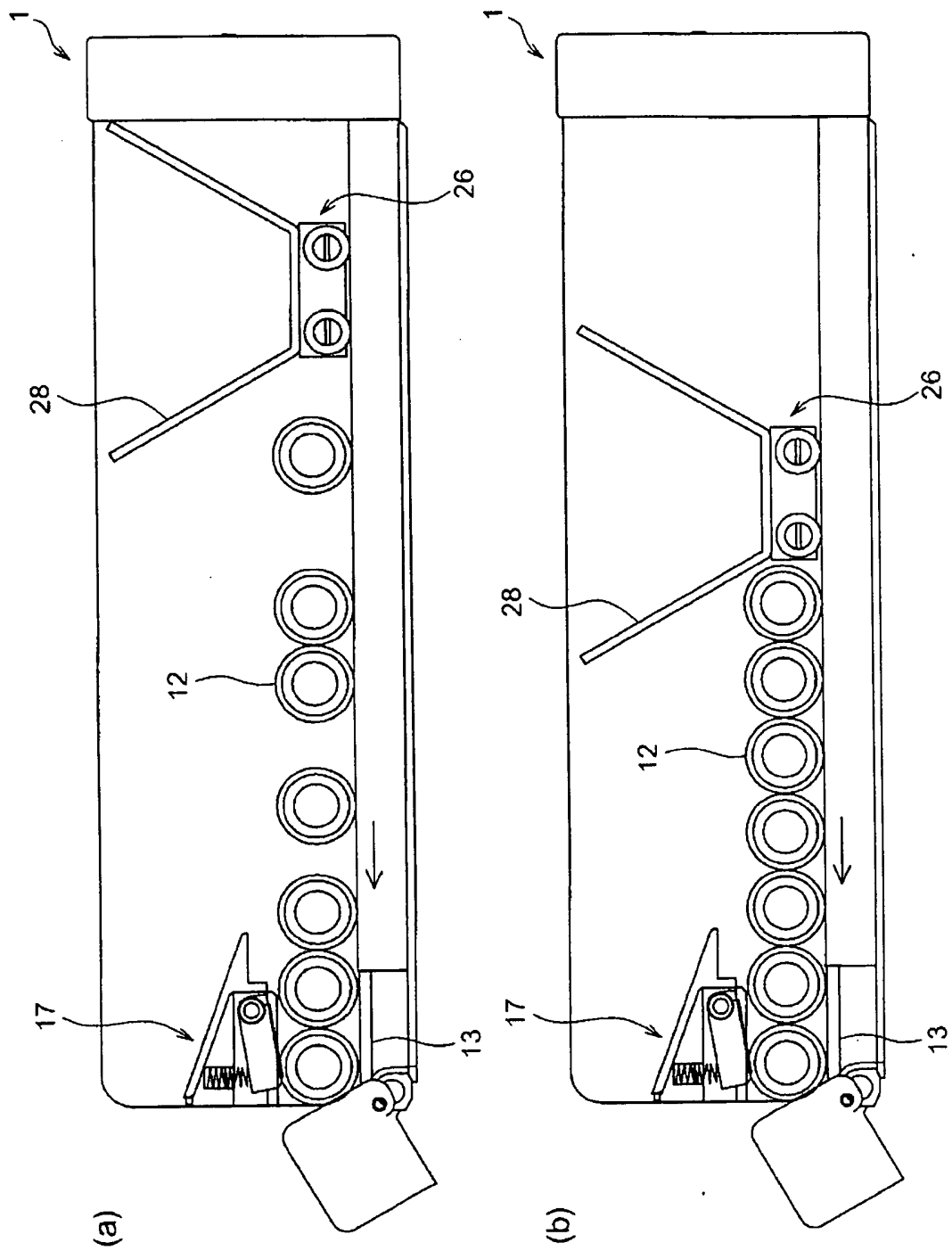


FIG. 14

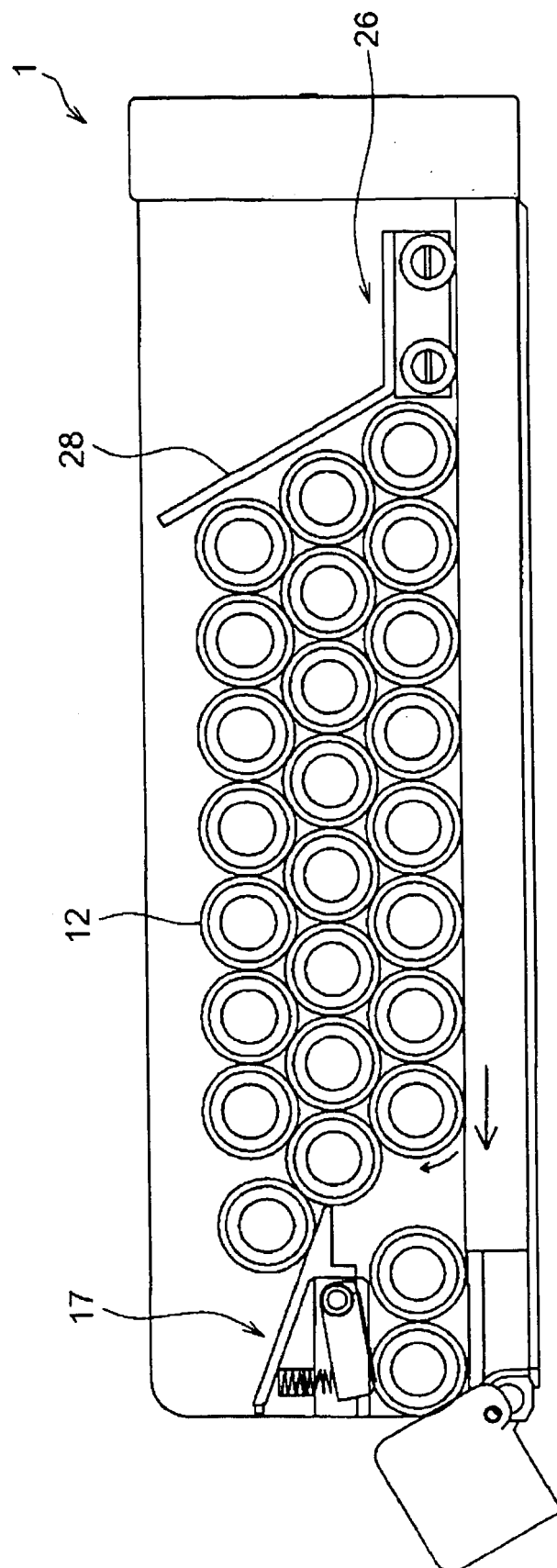


FIG. 15

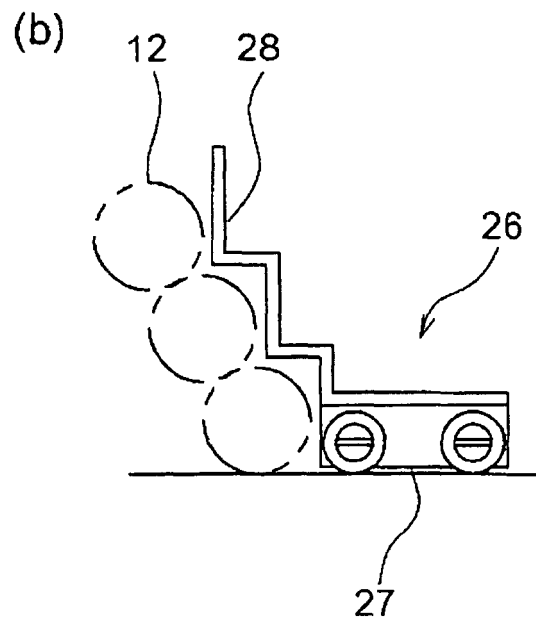
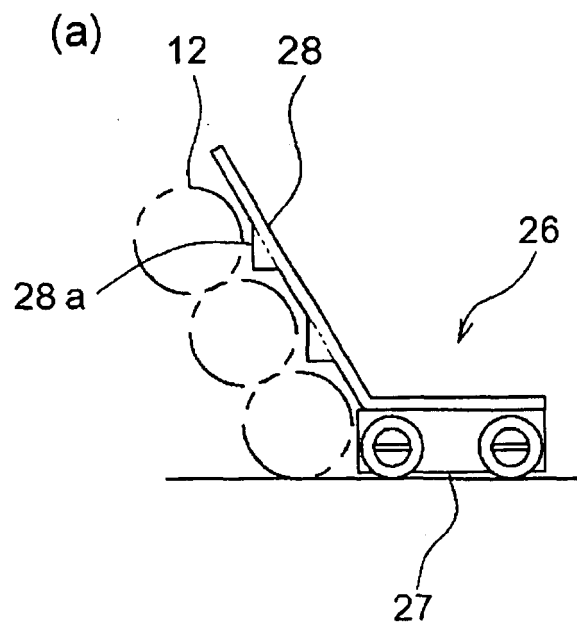


FIG. 16

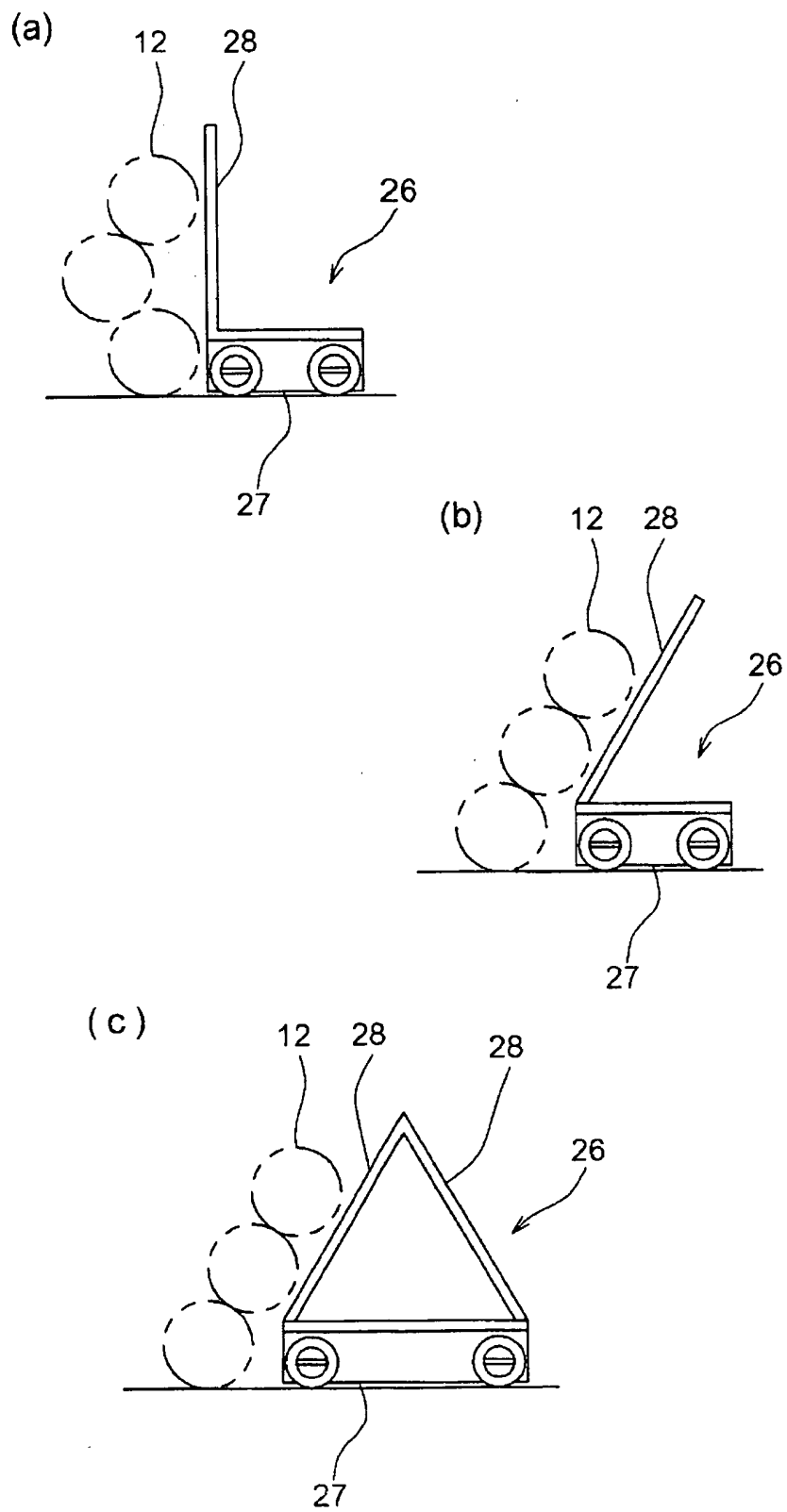


FIG. 17

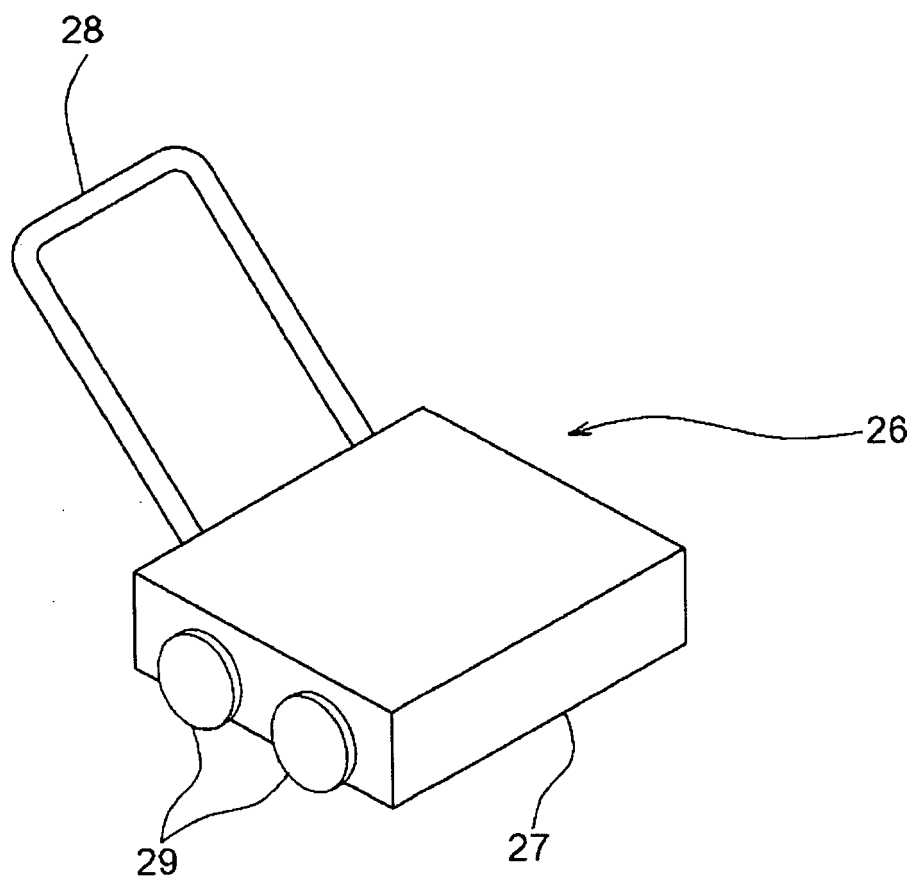
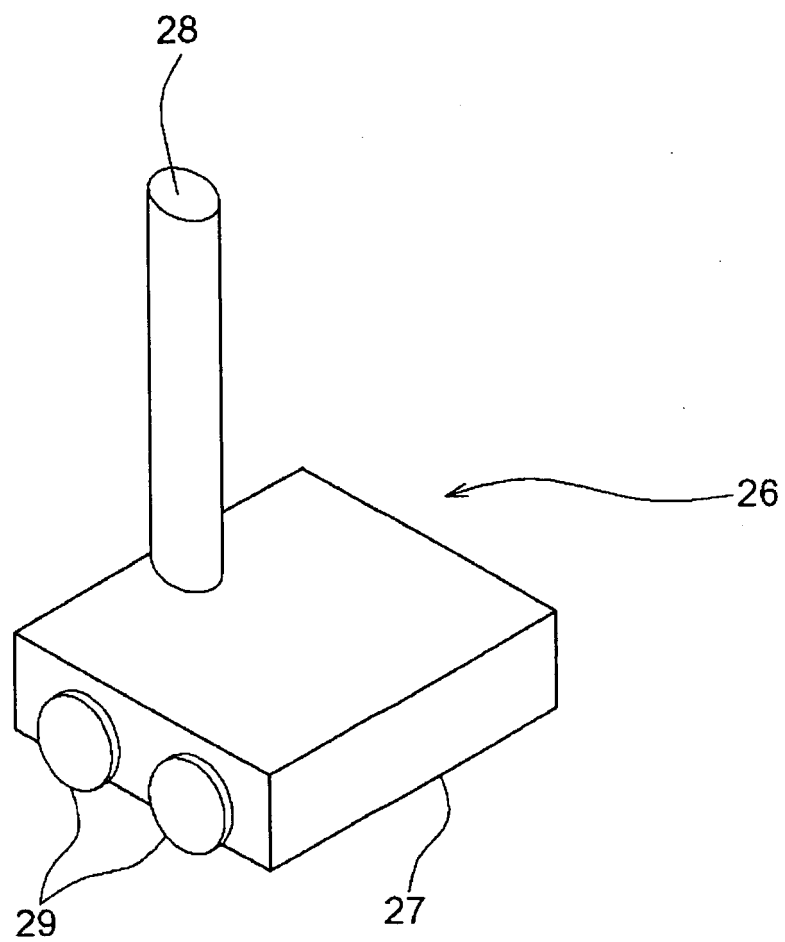


FIG. 18



INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/061870

A. CLASSIFICATION OF SUBJECT MATTER

A61J1/06(2006.01) i, A61J3/00(2006.01) i

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

A61J1/06, A61J3/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Jitsuyo Shinan Koho	1922-1996	Jitsuyo Shinan Toroku Koho	1996-2008
Kokai Jitsuyo Shinan Koho	1971-2008	Toroku Jitsuyo Shinan Koho	1994-2008

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2003-190256 A (Yuyama Mfg. Co., Ltd.), 08 July, 2003 (08.07.03), Par. Nos. [0011] to [0020], [0030]; Figs. 1 to 4, 7 & US 2003/0075553 A1 & CA 2408507 A1	1-10
Y	JP 2001-198194 A (Tosho, Inc.), 24 July, 2001 (24.07.01), Par. No. [0046]; Fig. 1 (Family: none)	1-5, 10
Y	JP 10-192369 A (Kabushiki Kaisha Tokyo Shokai), 28 July, 1998 (28.07.98), Par. No. [0022]; Figs. 1, 2 (Family: none)	6-10

☒ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search
01 September, 2008 (01.09.08)Date of mailing of the international search report
09 September, 2008 (09.09.08)Name and mailing address of the ISA/
Japanese Patent Office

Authorized officer

Facsimile No.

Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/061870

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JP 2003-230619 A (Yuyama Mfg. Co., Ltd.), 19 August, 2003 (19.08.03), Full text; all drawings & US 2003/0089085 A1 & CA 2411492 A1	1-10

Form PCT/ISA/210 (continuation of second sheet) (April 2007)

INTERNATIONAL SEARCH REPORT

International application No.

PCT/JP2008/061870

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

The inventions of claims 1-5, and 10 relate to an ampule container having an ampule holding member that is constructed from a carriage and a holding section.

The inventions of claims 6-9 relate to an ampule container in which an upper running belt of a belt conveyor is tilted relative to the horizontal direction that is normal to a dispensing direction.

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest
the

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/210 (continuation of first sheet (2)) (April 2007)

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- JP HEI7285674 B [0004]
- JP 3170579 B [0004]
- JP HEI10192369 B [0004]
- JP 2003230619 A [0004]