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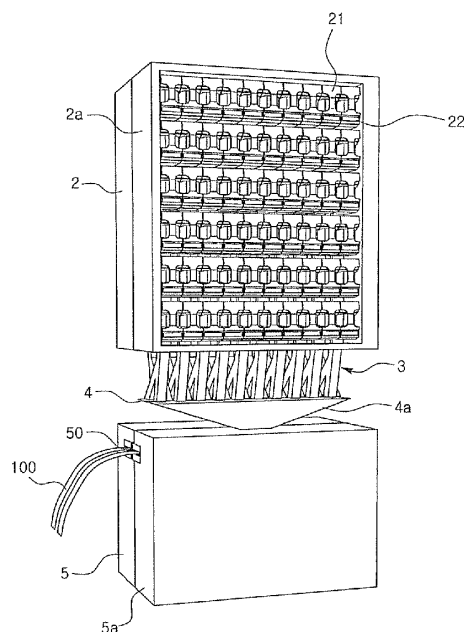
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(54) **AUTOMATIC TABLET DISPENSING AND PACKAGING DEVICE**

(57) Disclosed is an automatic tablet dispensing and packaging device to simultaneously and automatically package tablets corresponding to a plurality of prescriptions by one device without additionally purchasing a plurality of automatic tablet dispensing and packaging devices for the prescriptions. The automatic tablet dispensing and packaging device includes a plurality of sliding racks, each of which including a plurality of tablet cassettes provided therein, and a plurality of discharge passages are provided between the tablet cassettes, a plurality of packaging units provided under the sliding racks corresponding to the sliding racks, and a transferring unit coupling the sliding racks to the packaging units to guide the tablets discharged from the sliding racks such that the tablets are transferred to corresponding packaging units in cross each other.

【Fig. 2】



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Description

[Technical Field]

[0001] The present invention relates to an automatic tablet dispensing and packaging device, and more particularly to an automatic tablet dispensing and packaging device capable of simultaneously and automatically packaging tablets corresponding to a plurality of prescriptions by one device without additionally purchasing a plurality of automatic tablet dispensing and packaging devices for the prescriptions.

[Background Art]

[0002] In general, an automatic tablet dispensing and packaging device automatically discharges or collects tablets according to a prescription input into a computer by a doctor or a pharmacist in a hospital or a pharmacy, and the collected tablets are packaged in the unit of a dosage.

[0003] Regarding the structure of the automatic tablet dispensing and packaging device, a sliding rack mounted therein with a plurality of tablet cassettes is provided at an upper portion of the automatic tablet dispensing and packaging device, a hopper is provided under the sliding rack to collect tablets discharged in the unit of a dosage according to the prescription, and a packaging unit is provided under the hopper to pack the tablets collected in the hopper with a wrapping paper printed with an administration method and the name of a patient and to seal the pack.

[0004] A plurality of tablet cassettes are mounted on cassette supports arranged in the sliding rack. If the prescription is input, a control unit drives a motor embedded in each cassette support to discharge tablets provided in a relevant tablet cassette, and the discharged tablets are collected in the hopper through a discharge passage formed between tablet cassettes provided in the sliding rack.

[0005] The automatic tablet dispensing and packaging device according to the related art is configured to automatically pack tablets for only one prescription, which is input, sequentially.

[0006] Therefore, the automatic tablet dispensing and packaging device must be additionally purchased in order to treat a plurality of prescriptions, and the installation space of the automatic tablet dispensing and packaging device, which is additionally purchased, is required. Accordingly, an economical effect may be degraded due to cost burden, and the efficiency of space use may be lowered due to the difficulty in ensuring the installation space.

[0007] In addition, if the number of waiting patients is increased without the additional installation of the device, time to pack tablets according to a prescription is delayed, so that a patient must wait for receiving tablet packs for a long time.

[Disclosure]

[Technical Problem]

[0008] The present invention is made keeping in mind the problems occurring in the related art, and an object of the present invention is to provide an automatic tablet dispensing and packaging device, capable of simultaneously and automatically packaging tablets corresponding to a plurality of prescriptions by one device without additionally purchasing a plurality of automatic tablet dispensing and packaging devices for the prescriptions.

[Technical Solution]

[0009] In order to accomplish the above object, according to the automatic tablet dispensing and packaging device, tablets according to a plurality of prescriptions may be simultaneously packaged by one packaging device.

[0010] The automatic tablet dispensing and packaging device is provided at an upper portion thereof with a plurality of sliding racks, and a plurality of packaging units are provided under the sliding racks.

[0011] Each sliding rack includes a plurality of tablet cassettes provided therein, and a plurality of discharge passages are provided between the tablet cassettes. The automatic tablet dispensing and packaging device further includes a transferring unit coupling the sliding rack to the packaging unit, to guide the tablets discharged from the sliding racks such that the tablets are transferred to corresponding packaging units in cross with each other.

[0012] The transferring unit comprises a plurality of hoppers installed above the packaging units, respectively, and a transfer guide to couple a lower portion of one of the sliding racks to upper portions of the hoppers.

[0013] In addition, the transfer guide includes a vertical passage to couple the sliding rack to the hopper installed under the sliding rack in a vertical direction, and a branching passage to couple the upper portion of the hopper, which is provided in opposition to the hopper coupled to a lower end portion of the vertical passage, to the vertical passage, such that the tablets discharged from the sliding racks are transferred in cross with each other and guided to the hoppers through the vertical passage and the branching passage.

[0014] Further, the transfer guide further comprises a shutter interposed between the vertical passage and the branching passage, and the shutter is rotated about a rotational shaft clockwise or counterclockwise according to a control signal to selectively open and close the vertical passage and the branching passage.

[0015] In addition, a plurality of transfer guides are arranged alternately with each other along the discharge passages formed in the sliding racks.

[Advantageous Effects]

[0016] As described above, according to the present

invention, the plural packaging units are provided corresponding to the plural sliding racks. The plural hoppers and the plural transferring guides are provided corresponding to the packaging units, respectively while the plural transferring guides are arranged alternately with each other.

[0017] Each transfer guide has the plural passages, and each passage is selectively opened and closed by the shutter. Accordingly, tablets for the plural prescriptions can be simultaneously and automatically packaged by one automatic tablet dispensing and packaging device.

[0018] Therefore, according to the present invention, the efficiency of the space use can be more increased without the difficulty in ensuring an interior space. In addition, it is unnecessary to additionally purchase the automatic tablet dispensing and packaging device in order to automatically package tablets for the prescriptions. Accordingly, the economical effects can be ensured, and the packaging speed is multiplied, so that the rapidity and the efficiency of the packaging work can be more increased.

[Description of Drawings]

[0019]

FIG. 1 is a perspective view showing an outer appearance of an automatic tablet dispensing and packaging device according to the present invention. FIG. 2 is a view showing the internal structure of the automatic tablet dispensing and packaging device according to the present invention having no device body of FIG. 1.

FIG. 3 is a front sectional view showing the internal structure of FIG. 1.

FIG. 4 is a plan sectional view of FIG. 3.

FIG. 5 is a perspective view showing a guide member according to the present invention.

FIGS. 6(a) and 6(b) are sectional views showing the internal structure and the operating state of FIG. 5.

[Best Mode]

[Mode for Invention]

[0020] Hereinafter, the structure according to the embodiment of the present invention will be described in detail with reference to accompanying drawings.

[0021] FIG. 1 is a perspective view showing an outer appearance of an automatic tablet dispensing and packaging device according to the present invention.

[0022] Accordingly, as shown in drawings, according to the present invention, a device body 1 is provided in a substantially rectangular box structure having a length longer than a width in order to minimize the space occupation. The device body 1 is provided at an upper portion thereof with a plurality of sliding racks, and two sliding

racks of first and second sliding racks 2 and 2a are illustrated herein.

[0023] In addition, the device body 1 is provided at a lower portion thereof with a plurality of packaging units, that is, first and second packaging units 5 and 5a corresponding to the first and second sliding racks 2 and 2a, and each of the first and second packaging units 5 and 5a further includes a drug pack outlet 50, and a drug pack 100, which has been completely packaged, is discharged through the drug pack outlet 50.

[0024] A transferring unit 3 is installed between the first and second sliding racks 2 and 2a and the first and second packaging units 5 and 5a, so that tablets discharged from the first and second sliding racks 2 and 2a are transferred to the first and second packaging units 5 and 5a in cross with each other.

[0025] FIG. 2 is a view showing the internal structure of the automatic tablet dispensing and packaging device according to the present invention having no device body of FIG. 1.

[0026] As shown in FIG. 2, the first and second sliding racks 2 and 2a have a plurality of cassette supports 22 are vertically arranged in the first and second sliding racks 2 and 2a as generally known to those skilled in the art, and a plurality of tablet cassettes 21 are mounted on each cassette support 22.

[0027] In addition, the transferring unit 3 includes first and second hoppers 4 and 4a installed above the first and second packaging units 5 and 5a including a drug pack outlet 50, and first and second transfer guides 3a and 3b to couple the first and second sliding racks 2 and 2a to the first and second hoppers 4 and 4a, respectively.

[0028] The first and second transfer guides 3a and 3b are provided in the form of branch pipes to couple a lower portion of one of first and second sliding racks 2 and 2a to upper portions of the first and second hoppers 4 and 4a. A plurality of first and second transfer guides 3a and 3b are arranged alternately with each other (that is, offset from each other) along a plurality of discharge passages (not shown) interposed between the tablet cassettes 21 in the first and second sliding racks 2 and 2a. Reference numeral 100 represents a drug pack herein.

[0029] FIG. 3 is a front sectional view showing the internal structure of FIG. 1.

[0030] As shown in drawings, the first and second sliding racks 2 and 2a provided in the device body 1 include first and second discharge passages 23 and 24, respectively, between the tablet cassettes 21 mounted on the cassette support 22.

[0031] The first transfer guide 3a of the transferring unit 3 couples the lower portion of the second discharge passage 24 to the upper portions of the first and second hoppers 4 and 4a, and the second transfer guide 3b couples the lower portion of the first discharge passage 23 to the upper portions of the first and second hoppers 4 and 4a. In addition, the first hopper 4 is coupled to the first packaging unit 5 having the drug pack outlet 50 and the second hopper 4a is coupled to the second packaging

unit 5a having the drug pack outlet 50.

[0032] FIG. 4 is a plan sectional view of FIG. 3.

[0033] As described above, each of the first and second sliding racks 2 and 2a provided in the device body 1 has a plurality of tablet cassettes 21 provided at both sides, and each of the first and second discharge passages 23 and 24 is interposed between the tablet cassettes 21.

[0034] A plurality of first discharge passages 23 and a plurality of second discharge passages 24 are provided in longitudinal directions of the first sliding rack 2 and the second sliding rack 2a, respectively, corresponding to the tablet cassettes 21. When viewed in a plan view, the first and second discharge passages 23 and 24 have hollowed and square sectional structures, but the present invention is not limited thereto. In other words, the first and second discharge passages 23 and 24 may have various structures sufficient to serve as passages to discharge tablets fed in the tablet cassette 21.

[0035] FIG. 5 is a perspective view showing a guide member according to the present invention.

[0036] As shown in drawings, the transferring unit 3 according to the present invention has a lower portion provided in a branch tube structure and has the form of a tube provided in a square sectional structure. In other words, the transferring unit includes a vertical passage 32 having upper and lower portions vertically communicating with each other and a hollowed and square tube structure, and a branching passage 33 has a square tube structure branching from one side of the upper portion of the vertical passage 32 to communicate with the vertical passage 32.

[0037] In addition, the vertical passage 32 is provided at upper and lower end portions thereof with an inlet 31, which communicates with the first and second discharge passages (not shown) of the first and second sliding racks, and an outlet 32a communicating with the upper portions of the first and second hoppers (not shown), respectively, and the branching passage 33 is provided at a lower end portion thereof with an outlet 33a communicating with the upper portions of the first and second hoppers.

[0038] FIGS. 6(a) and 6(b) are sectional views showing the internal structure and the operating state of FIG. 5.

[0039] As described above, the transferring unit 3 according to the present invention includes the vertical passage 32 having the upper and lower portions vertically communicating with each other and a hollowed tube structure, and the branching passage 33 having the tube structure branching from one side of the upper portion of the vertical passage 32 to communicate with the vertical passage 32.

[0040] In addition, a shutter 34 is interposed between the vertical passage 32 and the branching passage 33. The shutter 34 is rotated about a rotational shaft 34a clockwise or counterclockwise according to a control signal while selectively opening/closing the vertical passage 32 and the branching passage 33. In this case, the driving

of the shutter 34 may be realized by coupling general mechanical driving devices, such as a motor or a gear, to the rotational shaft 34a.

[0041] In addition, the vertical passage 32 of the first transfer guide 3a is coupled to the upper portion of the second hopper 4a, and the branching passage 33 of the first transfer guide 3a is coupled to the upper portion of the first hopper 4. In addition, the vertical passage 32 of the second transfer guide 3b is coupled to the upper portion of the first hopper 4, and the branching passage 33 of the second transfer guide 3b is coupled to the upper portion of the second hopper 4a. As described above, a plurality of the first and second transfer guides 3a and 3b are alternately arranged, that is, offset from each other along the first and second discharge passages 23 and 24 of the first and second sliding racks.

[0042] Hereinafter, the operating state of the present invention having the above structure will be described in detail with reference to accompanying drawings.

[0043] As shown in FIG. 6(a), if the shutter 34 is rotated clockwise about the rotational shaft 34a, the vertical passage 32 of the first transfer guide 3a and the branching passage 33 of the second transfer guide 3b are closed, and the branching passage 33 of the first transfer guide 3a and the vertical passage 32 of the second transfer guide 3b are open, so that tables discharged from the first and second sliding racks 2 and 2a are collected in the first hopper 4 through the branching passage 33 of the first transfer guide 3a and the vertical passage 32 of the second transfer guide 3b.

[0044] As shown in FIG. 6(b), if the shutter 34 is rotated counterclockwise about the rotational shaft 34a, the branching passage 33 of the first transfer guide 3a and the vertical passage 32 of the second transfer guide 3b are closed, and the vertical passage 32 of the first transfer guide 3a and the branching passage 33 of the second transfer guide 3b are open, so that tables discharged from the first and second sliding racks 2 and 2a are collected in the second hopper 4a through the vertical passage 32 of the first transfer guide 3a and the branching passage 33 of the second transfer guide 3b.

[0045] As described above, according to the present invention, a plurality of packaging units are provided corresponding to a plurality of sliding racks. A plurality of hoppers and a plurality of transfer guides are provided corresponding to each packaging unit while the transfer guides are arranged alternately with each other. The transfer guide has a plurality of passages and each passage is closed or open by a shutter. Accordingly, tablets for a plurality of prescriptions can be automatically and simultaneously packaged by one automatic tablet dispensing and packaging device.

[0046] Although an automatic tablet dispensing and packaging device according to the present invention have been described in detail, the best exemplary embodiment of the present invention is disclosed. It is understood that the present invention should not be limited to these exemplary embodiments but various changes

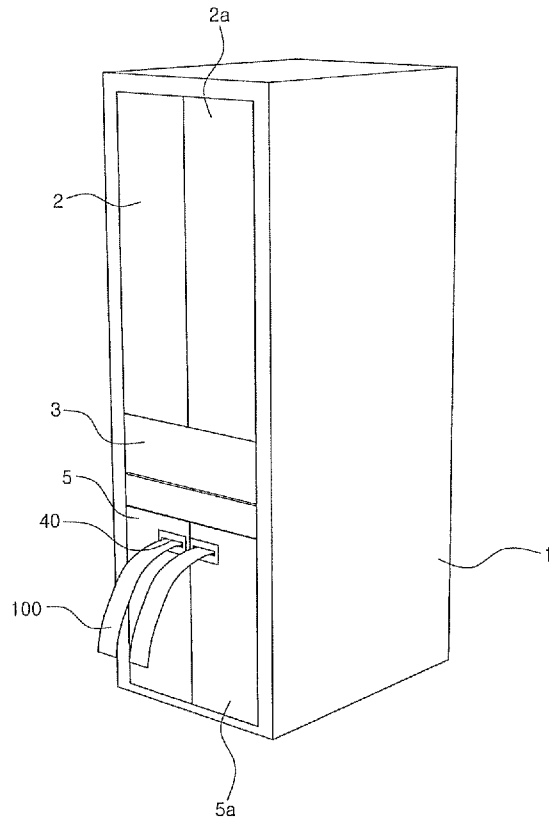
and modifications can be made by one ordinary skilled in the art within the spirit and scope of the present invention as hereinafter claimed.

Claims

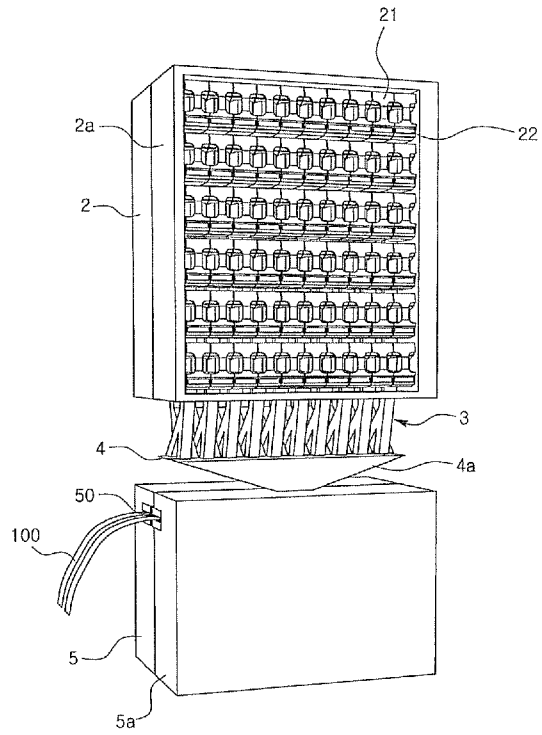
1. An automatic tablet dispensing and packaging device to simultaneously package tablets according to a plurality of prescriptions by one packaging device. 10
2. The automatic tablet dispensing and packaging device of claim 1, further comprising:
 - a plurality of sliding racks provided at an upper portion of the packaging device; and 15
 - a plurality of packaging units provided under the sliding racks.
3. The automatic tablet dispensing and packaging device of claim 2, wherein each sliding rack comprises a plurality of tablet cassettes provided therein, and a plurality of discharge passages are provided between the tablet cassettes, and wherein the automatic tablet dispensing and packaging device further comprises a transferring unit to guide the tablets discharged from the sliding racks such that the tablets are transferred to corresponding packaging units in cross with each other. 20 25 30
4. The automatic tablet dispensing and packaging device of claim 3, wherein the transferring unit comprises a plurality of hoppers installed above the packaging units, respectively, and a transfer guide to couple a lower portion of one of the sliding racks to upper portions of the hoppers. 35
5. The automatic tablet dispensing and packaging device of claim 4, wherein the transfer guide includes a vertical passage to couple the sliding rack to the hopper installed under the sliding rack in a vertical direction, and a branching passage to couple the upper portion of the hopper, which is provided in opposition to the hopper coupled to a lower end portion of the vertical passage, to the vertical passage, such that the tablets discharged from the sliding rack are transferred in cross with each other and guided to the hoppers through the vertical passage and the branching passage. 40 45 50
6. The automatic tablet dispensing and packaging device of claim 5, wherein the transfer guide further comprises a shutter interposed between the vertical passage and the branching passage, and the shutter is rotated about a rotational shaft clockwise or counterclockwise according to a control signal to selectively open and close the vertical passage and the branching passage. 55

7. The automatic tablet dispensing and packaging device of claim 5 or 6, wherein a plurality of transfer guides are arranged alternately with each other along the discharge passages formed in the sliding racks. 5

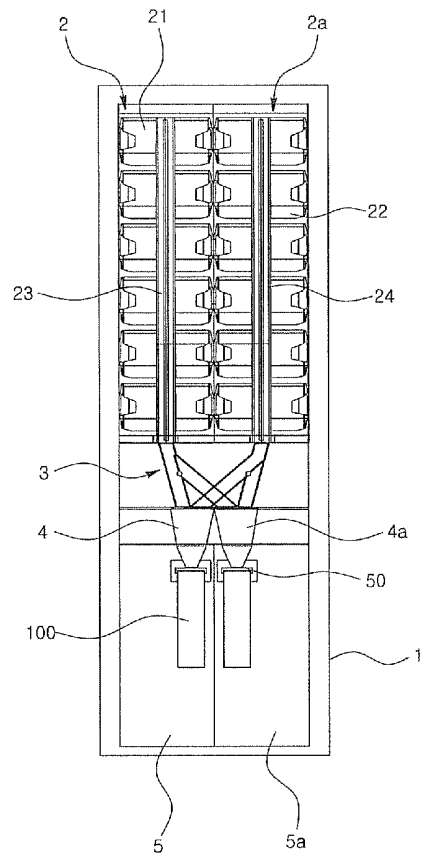
【Fig. 1】



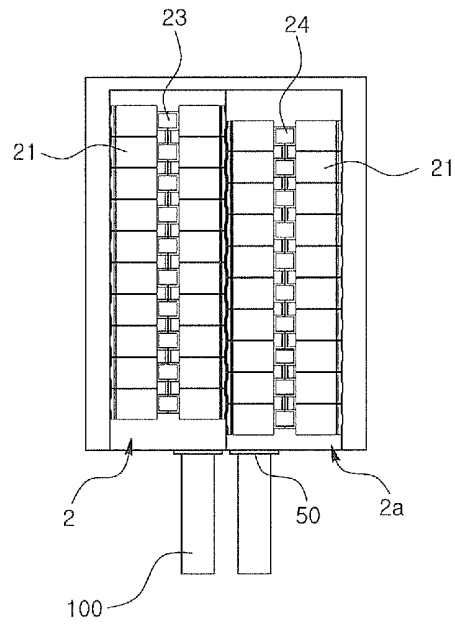
【Fig. 2】



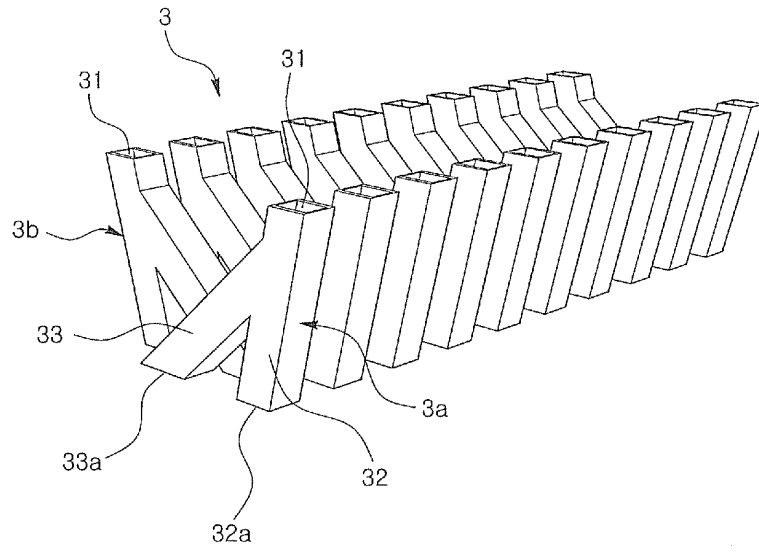
【Fig. 3】



【Fig. 4】

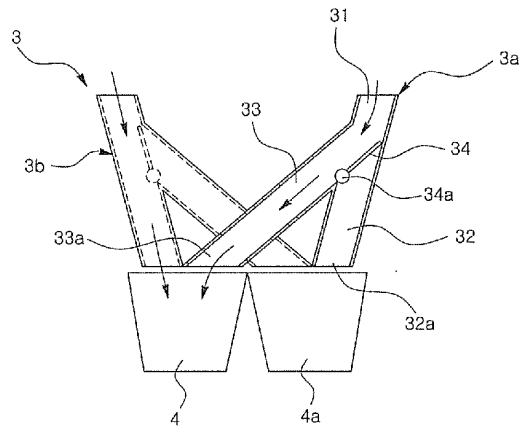


【Fig. 5】

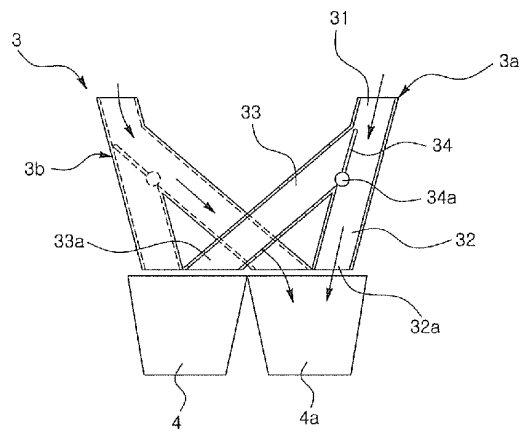


【Fig. 6】

(a)



(b)




INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2013/003680

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A. CLASSIFICATION OF SUBJECT MATTER	
B65B 1/30(2006.01)i, A61J 3/00(2006.01)i, B65B 57/06(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) B65B 1/30; A61J 3/00; B65B 1/04; B65H 35/06; B65B 57/06	
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Korean Utility models and applications for Utility models: IPC as above Japanese Utility models and applications for Utility models: IPC as above	
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) eKOMPASS (KIPO internal) & Keywords: refinement, chemicals, distribution, hopper, rack, pathway, intersection, rotation, shutter, cassette	
C. DOCUMENTS CONSIDERED TO BE RELEVANT	
Category*	Citation of document, with indication, where appropriate, of the relevant passages
X	KR 20-024355 Y1 (JVM. CO., LTD.) 04 May 2002 See abstract; pages 4-5, claim 1 and figures 1-5.
A	
A	KR 10-2012-0038676 A (JVM. CO., LTD.) 24 April 2012 See abstract; paragraphs 33-50 and figures 1-5.
A	KR 20-2011-0000267 U (CRETEM CO.,LTD) 10 January 2011 See abstract; paragraphs 17-21 and figures 1-4.
A	KR 20-0226721 Y1 (JVM. CO., LTD.) 15 June 2001 See abstract; claim 1 and figures 1-3.
A	KR 20-0383062 Y1 (KIM, Jae Won) 29 April 2005 See abstract; claim 1 and figures 1-3.
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> See patent family annex.	
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Date of the actual completion of the international search	Date of mailing of the international search report
10 JULY 2013 (10.07.2013)	11 JULY 2013 (11.07.2013)
Name and mailing address of the ISA/KR  Korean Intellectual Property Office Government Complex-Daejeon, 189 Seonsa-ro, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer Telephone No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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KR 20-0383062 Y1	29/04/2005	NONE	