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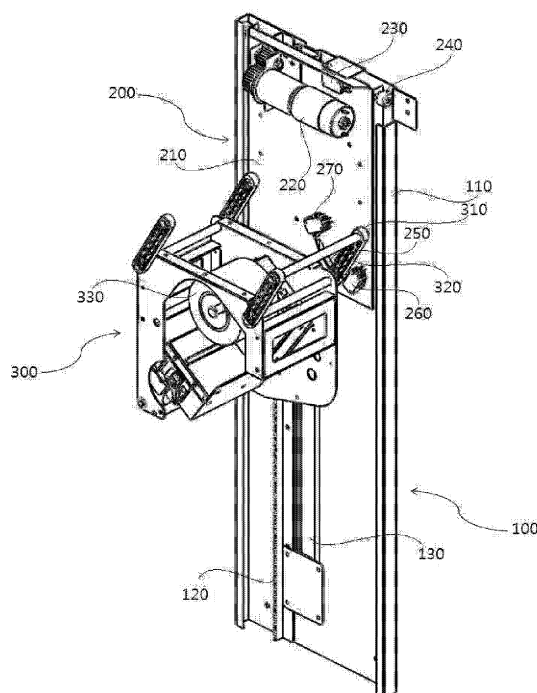
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(54) **AUTOMATIC POSTAGE LABEL ATTACHMENT DEVICE**

(57) An automatic postage label attachment device includes: a support unit; a power generating unit mounted on the support unit to descend when the postal matter, to which the label is to be attached, is placed at a specified location and ascend when the attaching of the label starts; and a label attaching unit horizontally movably hinge-coupled to the power generating unit, wherein the label attaching unit is moved backward by a predetermined distance while the power generating unit ascends after being horizontally moved to attach the label. Since the automatic postage label attachment device has a simple structure with one or less joint, the purchasing costs thereof are low and the repair thereof is easy in the event of failure.

Fig. 1



Description

Technical Field

[0001] The present invention relates to an automatic postage label attachment device, and more particularly, to an automatic postage label attachment device which automatically attaches a sticker-type stamp (hereinafter, referred to as a label) including a postage stamp to a corresponding postal matter when a user corresponding to a postal matter sender or a postal clerk places the corresponding postal matter at a designated location after paying for a stamp or postage stamp cost upon receipt of the postal matter.

Background Art

[0002] In general, the existing automatic postage label attachment device is manually operated. Although automatic attachment is carried out, the automatic postage label attachment device has a complicated structure with at least two joints. Thus, purchasing costs are high and repair is difficult in the event of failure.

[0003] That is, the conventional label attachment device requires a vertical motion structure and a mechanical parallel motion structure for the label attachment and thus is complicated in structure.

SUMMARY OF INVENTION

Technical Problem

[0004] Therefore, in order to solve the above-mentioned problems, the present invention is directed to provide an automatic postage label attachment device which has a simple structure such that a label is automatically attached by detecting a postal matter when a user places the postal matter at a designated location after paying for a stamp or postage stamp cost upon receipt of the postal matter and allowing a distal end of a device for attaching the stamp through only vertical motion to contact the corresponding postal matter.

[0005] In particular, in order to solve the above-mentioned problems, the present invention is directed to provide an automatic postage label attachment device which has a simple structure because parallel motion is performed through a simple hinge structure instead of a conventional complicated mechanical parallel motion structure.

Solution to Problem

[0006] To achieve the foregoing objects, an automatic postage label attachment device according to the present invention includes: a support unit; a power generating unit mounted on the support unit to descend when the postal matter, to which the label is to be attached, is placed at a specified location and ascend when the at-

taching of the label starts; and a label attaching unit horizontally movably hinge-coupled to the power generating unit, wherein the label attaching unit is moved backward by a predetermined distance while the power generating unit ascends after being horizontally moved to attach the label.

[0007] Preferably, in order to achieve the foregoing objects, the support unit of the automatic postage label attachment device according to the present invention includes: a guide rail disposed on a side surface of the support unit to guide the movement of the power generating unit; and a vertical rail comprising a rack gear disposed on a front surface of the support unit to cooperate with a gear of the power generating unit.

[0008] More preferably, in order to achieve the foregoing objects, the power generating unit of the automatic postage label attachment device according to the present invention includes: a base part; a motor mounted on the base part to generate rotating power; a height detecting sensor installed on an upper end of the power generating unit to adjust a vertical moving path by controlling the motor through height measurement; a wheel disposed on a side surface of the base part and moved along the guide rail; a rotatable part moving path guiding and assisting the horizontal movement of the label attaching unit; a label output sensor transmitting a label output signal to the label attaching unit; and a motor reversing sensor reversely controlling a driving direction of the motor.

[0009] More preferably, in order to achieve the foregoing objects, the label attaching unit of the automatic postage label attachment device according to the present invention includes: a hinge coupling part coupled to the power generating unit; a rotatable part constituted by a plurality of parts, each of which has one end is coupled to a hinge of the hinge coupling part and the other end disposed on the rotatable part moving path, wherein the rotatable part is rotated about the hinge coupling part along the rotatable part moving path; a label supply part supplying the label after being horizontally moved while coming contact with the postal matter in a state in which the label is wound in a roll type; and a thick paper winding part winding and collecting a thick paper, which is attached to a rear surface to protect an adhesion portion of the label, in a roll type.

Advantageous Effects of Invention

[0010] Since the automatic postage label attachment device according to the present invention may have a simple structure with one or less joint, the purchasing costs thereof may be low and the repair thereof may be easy in the event of failure.

Brief Description of Drawings

[0011]

FIG. 1 is a perspective view of an automatic postage

label attachment device according to the present invention,

FIG. 2 is a perspective view illustrating a state in which a label attaching unit 300 of the automatic postage label attachment device is moved downward according to the present invention,

FIG. 3 is a front view illustrating a state in which the label attaching unit of the automatic postage label attachment device comes into contact with the postal matter according to the present invention, and

FIG. 4 is a front view illustrating a state in which the label attaching unit of the automatic postage label attachment device is horizontally moved in the state in which the label attaching unit comes into contact with the postal matter according to the present invention.

Description of Embodiments

[0012] Hereinafter, embodiments of the present invention will be described in more detail with reference to the accompanying drawings. The terms used in the following description and claims are not limited to their dictionary meanings, but are merely used to enable clear and consistent understanding of the invention. Accordingly, it should be apparent to those skilled in the art that the following description of embodiments of the present invention is provided for illustration purpose only and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

[0013] Therefore, embodiments and drawings described herein are simply exemplary and not exhaustive, and it will be understood that various modifications and equivalents may be made to take the place of the embodiments.

[0014] FIG. 1 is a perspective view of an automatic postage label attachment device according to the present invention.

[0015] As illustrated in FIG. 1, the automatic postage label attachment device according to the present invention includes a support unit 100, a power generating unit 200, and a label attaching unit 300.

[0016] The support unit 100 stands up to allow the power generating unit 200 to be mounted thereon. As a result, the support unit 100 is a unit for supporting the automatic postage label attachment device according to the present invention. A guide rail 110 for allowing the power generating unit 200 to be vertically moved is disposed on each of both side surfaces of the support unit 100 in a longitudinal direction.

[0017] Also, the support unit 100 includes a rack gear 120 disposed on a front surface thereof to move the power generating unit 200 and further includes a vertical rail 130 for facilitating the vertical movement of the power generating unit 200.

[0018] The power generating unit 200 generating power required for the automatic postage label attachment device according to the present invention includes a base

part 210, a motor 220, a height detecting sensor 230, a wheel 240, a rotatable part moving path 250, a label output sensor 260, and a motor reversing sensor 270.

[0019] The base part 210 is a part on which the motor 220, the height detecting sensor 230, and the wheel 240 are mounted.

[0020] The motor 220 is mounted on a front surface of the base part 210 to generate rotating power by receiving power so that the power generating unit 200 and the label attaching unit are vertically moved along the rack gear 120 on the support unit 100.

[0021] The height detecting sensor 230 detects a height to control driving of the motor 220 so that each of the power generating unit 200 and the label attaching unit 300 is stopped at a predetermined position when the power generating unit 200 and the label attaching unit 300 are vertically moved.

[0022] The wheel 240 is disposed on a side surface of the base part 210 and moved along the guide rail 110 disposed on the support unit 100, thereby facilitating the vertical movement of the power generating unit 200 and the label attaching unit 300.

[0023] The label output sensor 260 outputs a label from a label supply part 330, which will be described later, of the label attaching unit 300 when the label attaching unit 300 comes into contact with the postal matter.

[0024] When the label attachment is completed, the motor reversing sensor 270 reversely controls the driving direction of the motor 220 to allow the label attaching unit 300 to be moved upward.

[0025] The automatic postage label attachment device according to the present invention further includes a camera (not shown) for confirming the postal matter. When the postal matter is placed at a specified location so as to attach the label, the camera may detect the postal matter, and thus, the motor 220 is driven in a forward direction to move the label attaching unit 300 downward.

[0026] The rotatable part moving path 250 is a configuration corresponding to a path through which the rotatable part 320 disposed on the label attaching unit 300 is moved by an adjustment angle.

[0027] The label attaching unit 300 includes a hinge coupling part 310, a rotatable part 320, the label supply part 330, and a thick paper winding part 340.

[0028] The hinge coupling part 310 couples the base part 210 of the power generating unit 200 to the label attaching unit 300.

[0029] The rotatable part 320 is constituted by total four parts. Here, two pairs of four parts are respectively disposed at inner and outer portions thereof. The inner rotatable parts 320 are connected to the outer rotatable parts 320 by a connection bar.

[0030] Particularly, one of the inner rotatable parts 320 has one end coupled to the hinge of the hinge coupling part 310 and the other end disposed in the rotatable part moving path 250. Thus, when the label attaching unit 300 comes into contact with the postal matter, the inner rotatable part 320 is rotated about the hinge coupling part

310.

[0031] Here, as the rotatable part 320 is rotated, the label attaching unit 300 ascends by a predetermined height, and simultaneously, advances by a predetermined distance to come into contact with the postal matter.

[0032] The label supply part 330 supplies a label when the label attaching unit 300 ascends by a predetermined height and simultaneously advances by a predetermined distance in a state in which the label is wound in a roll type to come into contact with the postal matter.

[0033] The thick paper winding part 340 winds and collects a thick paper, which is attached to a rear surface of the label to protect an adhesion portion of the label, in a roll type.

[0034] An operation of the automatic postage label attachment device, which includes the above-described constitutions, according to the present invention will be described with reference to FIGS. 1, 2, 3, and 4.

[0035] As illustrated in FIG. 1, when the postal matter is placed at a specified location so as to attach the label, the camera may detect the postal matter, and thus, the motor 220 is driven to move the label attaching unit 300 disposed on the upper portion of the support unit 100 to a lower portion of the support unit 100.

[0036] For reference, FIG. 2 is a perspective view illustrating a state in which the label attaching unit 300 of the automatic postage label attachment device is moved downward according to the present invention.

[0037] Thereafter, in the state in which the label attaching unit 300 comes into with contact with a surface of the postal matter as illustrated in FIG. 3, the label attaching unit 300 ascends by a predetermined height and simultaneously advances by a predetermined distance as illustrated in FIG. 4 because descending force is applied to the label attaching unit 300 due to continuous driving of the motor 220.

[0038] That is, as a distal end of the rotatable part 320 of the label attaching unit 300 is moved along the rotatable part moving path 250, the label attaching unit 300 ascends by a predetermined height and simultaneously advances by a predetermined distance.

[0039] For reference, FIG. 3 is a front view illustrating a state in which the label attaching unit of the automatic postage label attachment device comes into contact with the postal matter according to the present invention, and FIG. 4 is a front view illustrating a state in which the label attaching unit of the automatic postage label attachment device is horizontally moved in the state in which the label attaching unit comes into contact with the postal matter according to the present invention.

[0040] Thereafter, when the rotatable part 320 of the label attaching unit 300 is moved along the rotatable part moving path 250 to reach an end point of the rotatable part moving path 250, the motor reversing sensor 270 detects the rotatable part 320 to allow the motor 220 to be driven in a reverse direction. As a result, the power generating unit 200 ascends.

[0041] Here, the label attaching unit 300 that ascends by a predetermined height and simultaneously advances by a predetermined distance may also descend by a predetermined height and simultaneously is moved backward by a predetermined distance due to the ascending of the power generating unit 200 to attach the label.

[0042] More particularly, as illustrated in FIG. 3, the label attaching unit 300 advances by the hinge of the hinge coupling part 310, i.e., is horizontally moved in an arrow direction in the state of coming into contact with the postal matter due to the descending of the power generating unit 200 to become the same state as FIG. 4. On the other hand, in the same state as FIG. 4, since the motor is driven in the reverse direction to allow the power generating unit 200 to ascend, the label attaching unit 300 is horizontally moved backward in the arrow direction while attaching the label to become the same state as FIG. 3.

[0043] When the ascending of the power generating unit 200 starts, the label output sensor 260 also detects the ascending of the power generating unit 200 to output a signal so that the label supply part 330 supplies the label to the postal matter disposed on the bottom surface thereof.

[0044] That is, as the thick paper of the label is collected to the thick paper winding part 340, the label supply part 330 presses the adhesion portion of the label to the postal matter after attaching the label to the postal matter to supply the label.

[0045] While the embodiments of the present invention have been described with reference to the specific embodiments, it will be apparent to those skilled in the art that various changes and modifications may be made without departing from the spirit and scope of the invention as defined in the following claims.

Industrial Applicability

[0046] The present invention relates to an automatic postage label attachment device, and more particularly, to an automatic postage label attachment device which automatically attaches a sticker-type stamp (hereinafter, referred to as a label) including a postage stamp to a corresponding postal matter when a user corresponding to a postal matter sender or a postal clerk places the corresponding postal matter at a designated location after paying for a stamp or postage stamp cost upon receipt of the postal matter.

[0047] Since the automatic postage label attachment device according to the present invention may have a simple structure with one or less joint, the purchasing costs thereof may be low and the repair thereof may be easy in the event of failure.

Claims

1. An automatic postage label attachment device com-

prising:

- a support unit (100);
 a power generating unit (200) mounted on the support unit (100) to descend when the postal matter, to which the label is to be attached, is placed at a specified location and ascend when the attaching of the label starts; and
 a label attaching unit (300) horizontally movably hinge-coupled to the power generating unit (200), wherein the label attaching unit (300) is moved backward by a predetermined distance while the power generating unit (200) ascends after being horizontally moved to attach the label.
2. The automatic postage label attachment device of claim 1, wherein the support unit (100) comprises:
- a guide rail (110) disposed on a side surface of the support unit (100) to guide the movement of the power generating unit (200); and
 a vertical rail (130) comprising a rack gear disposed on a front surface of the support unit (100) to cooperate with a gear of the power generating unit (200).
3. The automatic postage label attachment device of claim 2, wherein the power generating unit (200) comprises:
- a base part (210);
 a motor mounted on the base part (210) to generate rotating power;
 a height detecting sensor (230) installed on an upper end of the power generating unit (200) to adjust a vertical moving path by controlling the motor (220) through height measurement;
 a wheel (240) disposed on a side surface of the base part (210) and moved along the guide rail (110);
 a rotatable part moving path (250) guiding and assisting the horizontal movement of the label attaching unit (300);
 a label output sensor (260) transmitting a label output signal to the label attaching unit (300); and
 a motor reversing sensor (270) reversely controlling a driving direction of the motor (220).
4. The automatic postage label attachment device of claim 3, wherein the label attaching unit (300) comprises:
- a hinge coupling part (310) coupled to the power generating unit (200);
 a rotatable part (320) constituted by a plurality of parts, each of which has one end is coupled
- to a hinge of the hinge coupling part (310) and the other end disposed on the rotatable part moving path (250), wherein the rotatable part (320) is rotated about the hinge coupling part (310) along the rotatable part moving path (250);
 a label supply part (330) supplying the label after being horizontally moved while coming contact with the postal matter in a state in which the label is wound in a roll type; and
 a thick paper winding part (340) winding and collecting a thick paper, which is attached to a rear surface to protect an adhesion portion of the label, in a roll type.
5. The automatic postage label attachment device of claim 4, wherein, in a state in which the label attaching unit (300) comes into contact with a surface of the postal matter, the label attaching unit (300) ascends by a predetermined height and simultaneously advances by a predetermined distance because descending force is applied to the label attaching unit (300) due to continuous driving of the motor (220).
6. The automatic postage label attachment device of claim 4, wherein, when the rotatable part (320) of the label attaching unit (300) is moved along the rotatable part moving path (250) to reach an end point of the rotatable part moving path (250), the motor reversing sensor (270) detects the rotatable part (320) to allow the motor (220) to be driven in a reverse direction so that the power generating unit (200) ascends.
7. The automatic postage label attachment device of claim 4, wherein, when the rotatable part (320) of the label attaching unit (300) is moved along the rotatable part moving path (250) to reach an end point of the rotatable part moving path (250), the motor reversing sensor (270) detects the rotatable part (320) to allow the motor (220) to be driven in a reverse direction so that the label attaching unit (300) ascends.

Fig. 1

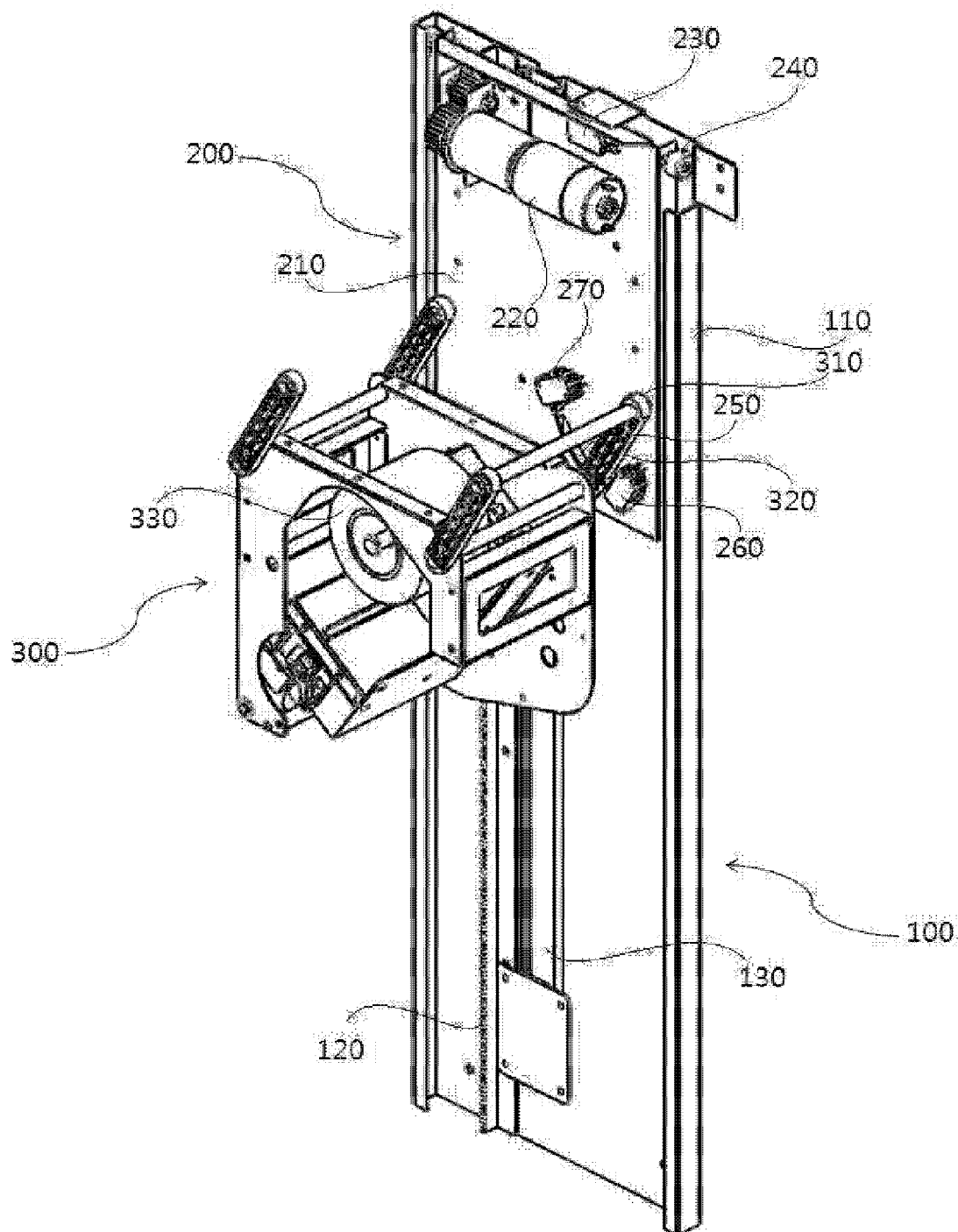


Fig. 2

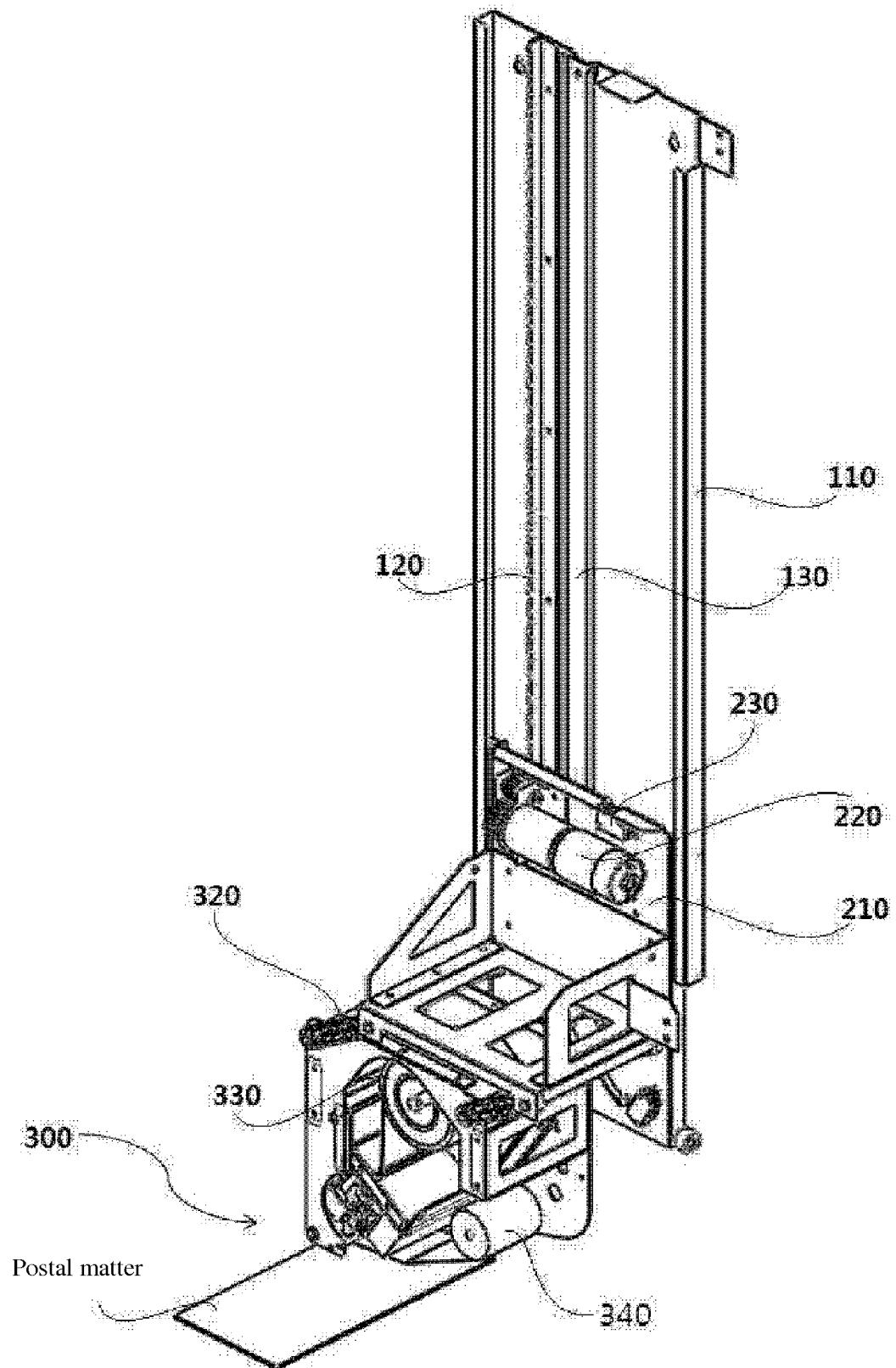


Fig. 3

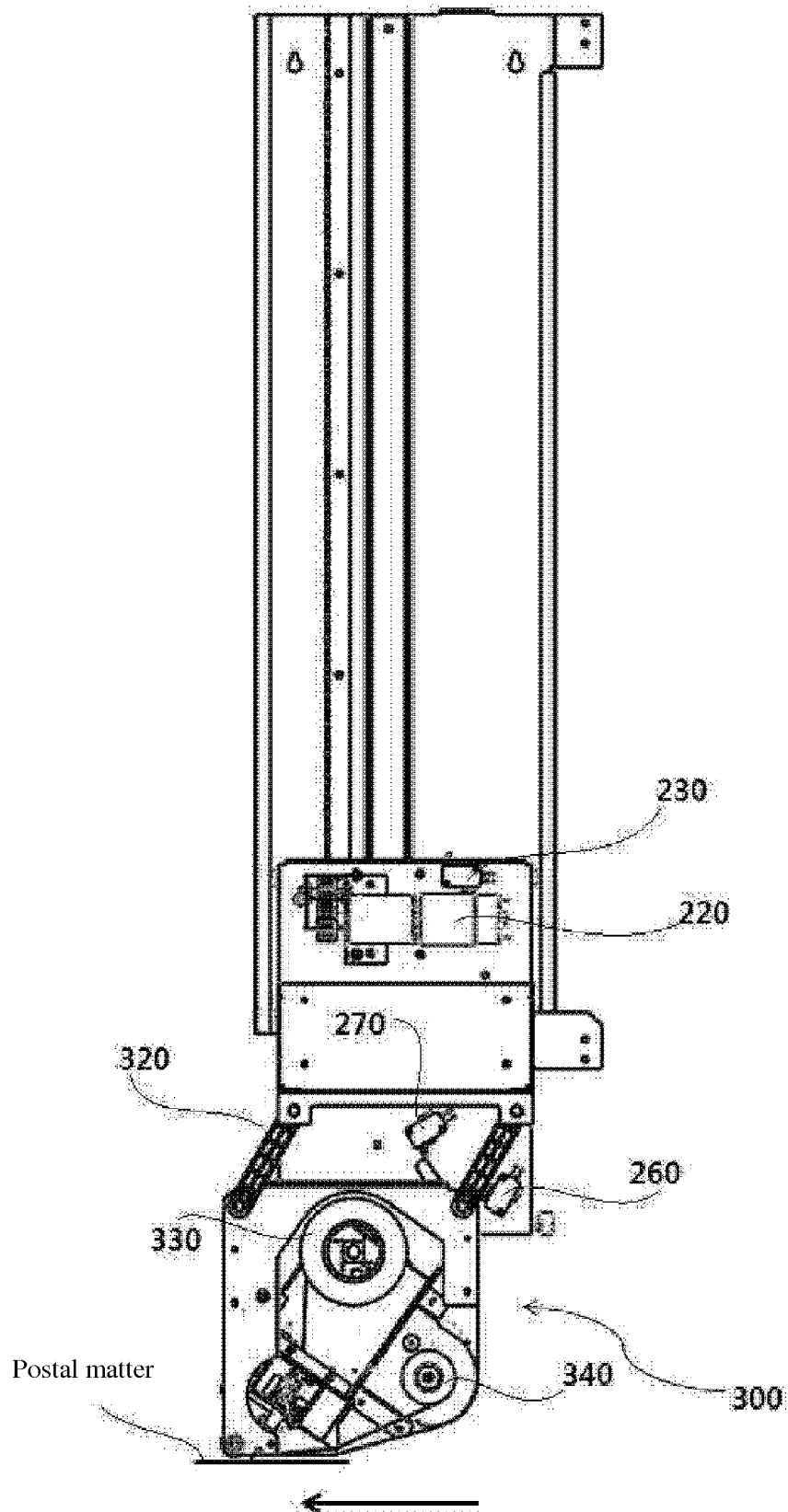
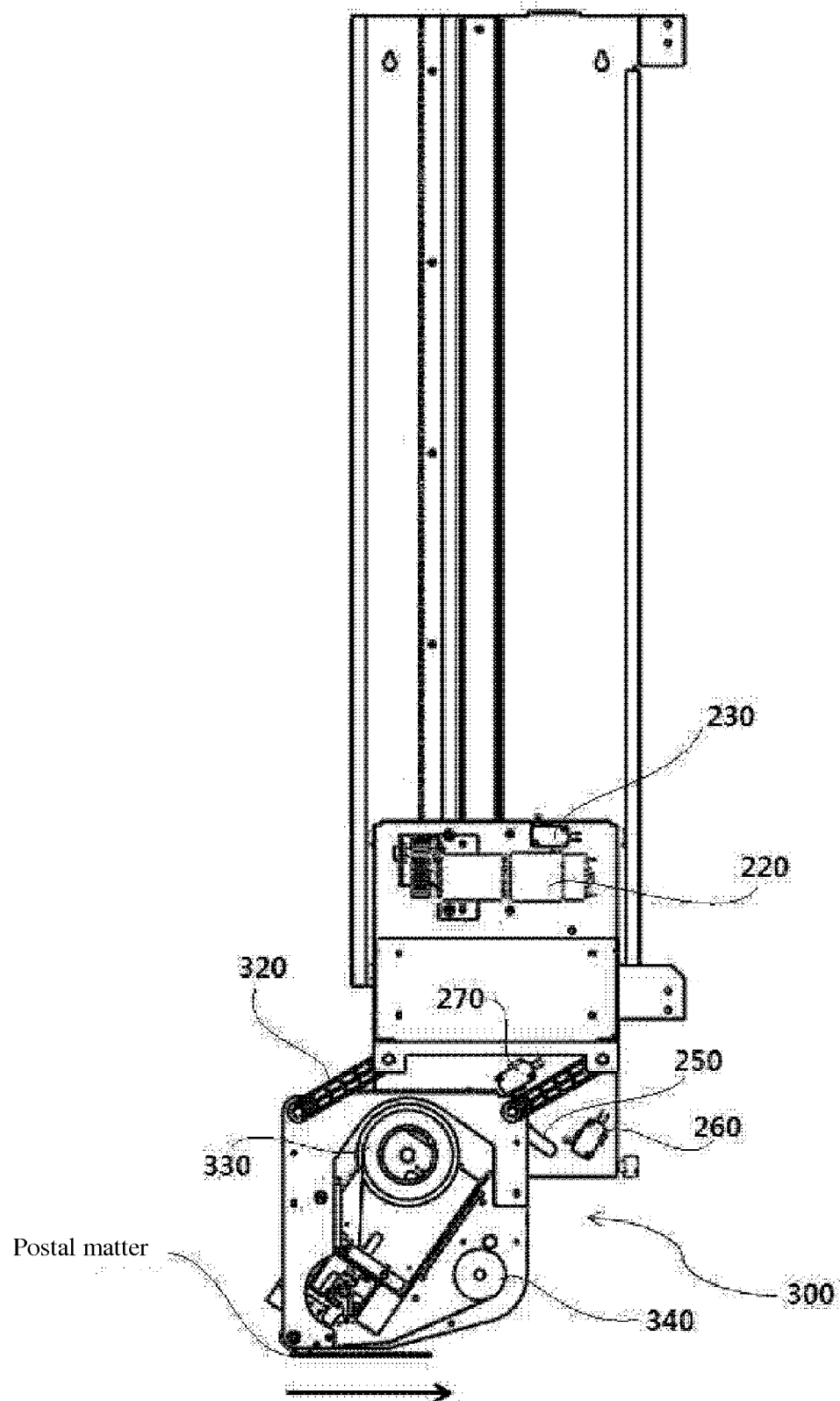


Fig. 4



INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2015/007055

A. CLASSIFICATION OF SUBJECT MATTER

B65C 1/02(2006.01)i, B65C 9/18(2006.01)i, B65C 9/26(2006.01)i, B65C 9/42(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)

B65C 1/02; B65C 1/04; B65C 9/36; B65C 9/18; B65C 9/46; B65C 9/26; B65C 9/42

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: label, ascent and descent, horizontal movement, hinge

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 2005-193927 A (ISHIDA CO., LTD.) 21 July 2005	1,2
A	See paragraphs [0021]-[0037] and figures 1-4.	3-7
A	JP 2009-179387 A (SATO KNOWLEDGE & INTELLECTUAL PROPERTY INSTITUTE et al.) 13 August 2009	1-7
A	See paragraphs [0017]-[0028] and figures 1-6.	
A	JP 2007-223669 A (ISHIDA CO., LTD.) 06 September 2007	1-7
A	See paragraphs [0001]-[0050] and figures 1-6.	
A	JP 2006-044778 A (LINTEC CORP.) 16 February 2006	1-7
A	See paragraphs [0017]-[0036] and figures 1-6.	
A	JP 2008-273570 A (SUMITOMO RUBBER IND. LTD.) 13 November 2008	1-7
A	See paragraphs [0001]-[0043] and figures 1-5.	

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

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search

20 OCTOBER 2015 (20.10.2015)

Date of mailing of the international search report

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Name and mailing address of the ISA/KR


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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

PCT/KR2015/007055

Patent document cited in search report	Publication date	Patent family member	Publication date
JP 2005-193927 A	21/07/2005	NONE	
JP 2009-179387 A	13/08/2009	JP 5276333 B2	28/08/2013
JP 2007-223669 A	06/09/2007	NONE	
JP 2006-044778 A	16/02/2006	CN1733556 A	15/02/2006
		CN1733556 C	15/02/2006
		JP 04-745630B2	10/08/2011
		KR 10-2006-0050253 A	19/05/2006
		US 2006-0027304 A1	09/02/2006
		US 7632368 B2	15/12/2009
JP 2008-273570 A	13/11/2008	NONE	

Form PCT/ISA/210 (patent family annex) (July 2009)