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(71) Applicants:
- **Genic Co., Ltd.**
  Seocho-gu, Seoul 137-889 (KR)
- **Finecom Elect's., Inc.**
  Jangseong-gun, Jeollanam-do 515-882 (KR)

(72) Inventors:
- **KANG, Chang-Young**
  Daejeon 305-313 (KR)
- **KIM, Tae-Jun**
  Hwaseong-si
  Gyeonggi-do 445-752 (KR)
- **KANG, Chae-O**
  Gwangju 506-306 (KR)
- **KIM, Hyo-Jun**
  Gwangju 500-180 (KR)
- **CHOI, Yeong-Tag**
  Gwangju 506-307 (KR)
- **SHIN, Sun-Ok**
  Gwangju 506-010 (KR)

(74) Representative: **Vidon Brevets & Stratégie**
Boîte Postale 90333
Technopôle Atalante
16B, rue de Jouanet
35703 Rennes Cedex 7 (FR)

(54) APPARATUS FOR AUTOMATICALLY PACKAGING SHEET MASK

(57) The present invention relates to an apparatus for automatically packaging a sheet mask, and more particularly, comprises: a housing having an aperture with a predetermined shape, at the upper part, for withdrawing a sheet mask; a sheet mask supply portion, provided to one side of the housing, for supplying a layered sheet mask by entering the lower part of the aperture; a sheet mask folding portion, provided at the upper part of the housing, for folding the sheet mask into a predetermined shape, a sheet mask attachment/detachment portion ascending and descending through the aperture, adhering the sheet masks sequentially supplied by the sheet mask portion entering the lower part of the aperture, and withdrawing the sheet mask to the upper part of the housing so as to move and provide the sheet mask to the upper part of the mask folding portion; a pouch supply portion provided at the lower part of the sheet mask folding portion and supplying a pouch for accommodating a folded sheet mask; and a sheet mask insertion portion provided at the upper part of the sheet mask folding portion and inserting the folded sheet mask into the pouch.

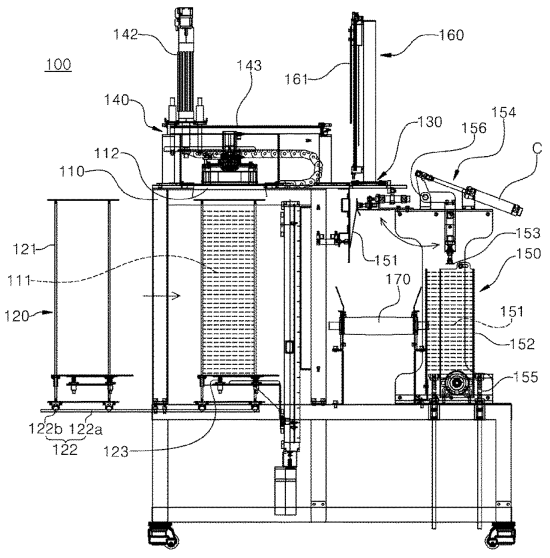

FIG. 1

EP 2 993 136 A1

Description

[Technical Field]

[0001] The present disclosure relates to an apparatus for automatically packaging a sheet mask, and more particularly, to an apparatus for automatically packaging a sheet mask to increase production efficiency, reduce manufacturing costs, and resultantly strengthen market competitiveness by automating a process of packaging a sheet mask which has been manually performed in the related art.

[Background Art]

[0002] As national income levels and standards of living have improved, people of all ages and both sexes have become increasingly interested in personal care.

[0003] Such interest has led to a variety of beauty products, in particular, beauty products allowing people to manage their skin to be supple and clean, and among such beauty products are pack products able to be easily purchased and used by anyone.

[0004] Packs include a nose pack for getting rid of blackheads of the nose and a sheet mask for supplying sufficient nourishment or moisture to the skin of the face.

[0005] In the case of the sheet mask as an example of a beauty product, conventionally, every manufacturing process thereof has been manually performed, resulting in lowered production efficiency and increased product costs due to the manual operation causing an increase in product manufacturing costs.

[0006] Also, since the sheet mask is brought into direct contact with human skin, when the sheet mask is manufactured through a manual operation, there is a high possibility of contamination of the sheet mask, which may cause secondary damage such as a skin ailment of a sheet mask user.

[0007] In addition, in the case of the related art method through the manual operations, manufactured products cannot be ensured to have same quality and human and material damage may be caused due to an increased defect rate.

[Disclosure]

[Technical Problem]

[0008] An aspect of the present disclosure provides an apparatus for automatically packaging a sheet mask, capable of shortening a time for manufacturing products, reducing personal expenses, and decreasing frequency of the occurrence of defective products by automating a process of manufacturing a sheet mask which has been manually performed in the related art.

[0009] An aspect of the present disclosure also provides an apparatus for automatically packaging a sheet mask, allowing for the mass-production of cosmetics products and thus increasing price competitiveness of products by automating a process of the manufacturing thereof.

[0010] The technical subjects of the present disclosure are not limited to the above, and other technical subjects not described herein will be clearly understood by those skilled in the art from the exemplary embodiments to be described hereinafter.

[Technical Solution]

[0011] According to an aspect of the present disclosure, there is provided an apparatus for automatically packaging a sheet mask, including: a housing having an aperture formed in an upper portion thereof and having a predetermined shape allowing a sheet mask to be drawn out therethrough; a sheet mask supply portion provided on one side of the housing and led in to a lower side of the aperture to supply a stacked sheet mask; a sheet mask folding portion provided above the housing and folding a sheet mask to have a predetermined shape; a sheet mask attachment/detachment portion lifted and lowered through the aperture, attaching the sheet mask supplied by the sheet mask supply portion led in to the lower side of the aperture thereto sequentially, drawing the sheet mask out to an upper side of the housing, and moving and mounting the sheet mask on the sheet mask folding portion; a pouch supply portion provided below the sheet mask folding portion and supplying a pouch for receiving a folded sheet mask; and a sheet mask insertion portion provided above the sheet mask folding portion and inserting the folded sheet mask into the pouch.

[0012] Preferably, the apparatus for automatically packaging a sheet mask may further include a transfer conveyer provided below the sheet mask folding portion and moving the sheet mask inserted into the pouch to a predetermined location.

[0013] Preferably, the sheet mask supply portion may include: a sheet mask cartridge in which a plurality of sheet masks are inserted in a stacked manner; a moving carriage provided below the sheet mask cartridge and moving the sheet mask cartridge in which the sheet mask is stacked from one side of the housing to a lower side of the aperture; and a first pressing portion provided below the sheet mask cartridge and pushing the stacked sheet mask up toward the aperture.

[0014] Preferably, the sheet mask attachment/detachment portion may include: an attachment/detachment plate lifted and lowered through the aperture, attaching the sheet mask thereto sequentially, and releasing the attached sheet mask; a lifting portion lifting or lowering the attachment/detachment plate; and a transfer portion moving and mounting the sheet mask-attached attachment/detachment plate on the sheet mask folding portion, wherein the sheet mask is moved to an upper side of the sheet mask folding portion by the transfer portion, released from the attachment/detachment plate, and subsequently mounted on an upper surface of the sheet

mask folding portion.

[0015] Preferably, the sheet mask folding portion may include: a base plate fixed to an upper portion of the housing; and foldable plates provided on both sides of the base plate and folded to an upper surface of the base plate, wherein a through hole is formed to penetrate through predetermined portions of the housing, the base plate, and the foldable plates in order to discharge the folded sheet mask to a lower side of the housing therethrough.

[0016] Preferably, the pouch supply portion may include: a pouch cartridge provided below the housing, allowing a plurality of pouches to be stacked therein, and supplying the plurality of stacked pouches; a pouch transfer portion having an adsorption pad for transferring the plurality of pouches stacked in the pouch cartridge to a lower side of the through hole; and a second pressing portion pushing the plurality of pouches stacked in the pouch cartridge upwardly.

[0017] Preferably, the sheet mask insertion portion may be provided in the form of a plate bar lifted and lowered through the through hole, and when the sheet mask insertion portion is lowered, the sheet mask folded by the sheet mask folding portion may be inserted into the pouch together with the sheet mask insertion portion through the through hole.

[Advantageous Effects]

[0018] The present disclosure has the following excellent effects.

[0019] First, since the process of manufacturing a sheet mask, which has been manually performed in the related art, is automated, a time for manufacturing products may be shortened, personal expanses may be reduced, and the frequency of the occurrence of defective products may be decreased.

[0020] In addition, since the process of manufacturing products is automated, cosmetics products may be mass-produced, and thus, price competitiveness of products may be increased.

[Description of Drawings]

[0021]

FIG. 1 is a side view illustrating an overall configuration of an apparatus for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure.

FIG. 2 is a plan view of a sheet mask folding portion illustrated in FIG. 1.

FIG. 3 is a view illustrating an operational state of the sheet mask folding portion.

FIG. 4 is a side view of a sheet mask attachment/detachment portion illustrated in FIG. 1.

FIG. 5 is a side view illustrating a pouch supply portion illustrated in FIG. 1.

[Best Mode]

[0022] The terms used in this specification were selected to include current, widely-used, general terms. However, in certain cases, a term may be one that was arbitrarily established by the applicant. In such cases, the meaning of the term will be defined in the relevant portion of the detailed description. As such, the terms used in the specification are not to be defined simply by the name of the terms but are to be defined based on the meanings of the terms as well as the overall description of the present disclosure.

[0023] Hereinafter, technical configurations of the present disclosure will be described in detail with reference to the exemplary embodiments illustrated in the accompanying drawings.

[0024] FIG. 1 is a side view illustrating an overall configuration of an apparatus for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure, FIG. 2 is a plan view of a sheet mask folding portion illustrated in FIG. 1, FIG. 3 is a view illustrating an operational state of the sheet mask folding portion, FIG. 4 is a side view of a sheet mask attachment/detachment portion illustrated in FIG. 1, and FIG. 5 is a side view illustrating a pouch supply portion illustrated in FIG. 1.

[0025] Referring to FIGS. 1 through 5, an apparatus 100 for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure includes a housing 110 having a predetermined shape.

[0026] The housing 110 serves as a support supporting technical components as described hereinafter, and in particular, an aperture 112 having a predetermined shape for drawing a sheet mask 111 is formed above the housing 110.

[0027] The aperture 112 may have various shapes, and in an exemplary embodiment of the present disclosure, the aperture 112 has a circular shape the same as that of the sheet mask 111.

[0028] Meanwhile, a band (not shown), formed of synthetic fiber including non-woven fabric or natural fibers, is provided on the edge of the aperture 112.

[0029] The provision of the band on the edge of the aperture 112 will be described hereinafter.

[0030] A sheet mask supply portion 120 for supplying a sheet mask 111 led to a lower portion of the aperture 112 and stacked is provided at one side of the housing.

[0031] As illustrated in FIG. 1, the sheet mask supply portion 120 includes a sheet mask cartridge 121 in which a plurality of sheet masks 111 are inserted in a stacked manner, a moving carriage 122 provided below the sheet mask cartridge 121 and moving the cartridge 121 in which the sheet mask 111 are insertedly stacked from one side of the housing 110 to a lower side of the aperture 112, and a first pressing portion 123 provided below the sheet mask cartridge 121 and pushing the stacked sheet mask 111 up toward the aperture 112.

[0032] Here, the moving carriage 122 according to an

exemplary embodiment of the present disclosure may include a guide rail 122 provided from one side of the housing 110 toward the aperture 112 and wheels 122b moving along the guide rail 122a. However, the moving carriage 122 is not limited thereto, and various moving carriages may be used.

[0033] As the first pressing portion 123, various pressing portions able to push the sheet mask 111 up toward the aperture 112, for example, an elastic spring or a hydraulic cylinder, may be used without being particularly limited.

[0034] As a result, after the sheet masks 111 are stacked in the sheet mask cartridge 121 of the aforementioned sheet mask supply portion 120 on one side of the housing 110, the sheet mask supply portion 120 on the moving carriage 122 is led to a lower side of the housing 110, specifically, to a lower side of the aperture 112, and the stacked sheet masks 112 are sequentially drawn out upwardly from the housing 110 by a sheet mask attachment/detachment portion 140 (to be described hereinafter).

[0035] The sheet mask 111 drawn out upwardly from the housing 110 as described above is folded by a sheet mask folding portion 130 provided above the housing 110 to have a predetermined shape.

[0036] Hereinafter, the sheet mask folding portion 130 will be described in detail with reference to FIGS. 2 and 3.

[0037] First, the sheet mask folding portion 130 according to an exemplary embodiment of the present disclosure includes a base plate 131 fixed to an upper portion of the housing 110 and foldable plates 132 folded toward an upper surface of the base plate 131.

[0038] Here, the foldable plates 132 are connected to hydraulic or pneumatic cylinder C and folded toward an upper surface of the base plate 131, thus serving to fold portions on both sides of the sheet mask 111 mounted on the sheet mask folding portion 130.

[0039] As illustrated in FIG. 2, in a state in which the foldable plates 132 are folded on the upper surface of the base plate 131 in the sheet mask folding portion 130, a through hole 133 is formed to penetrate through the base plate 131, the foldable plates 132, and the housing 110.

[0040] The through hole 133 may have various shapes, and in an exemplary embodiment of the present disclosure, the through hole 133 may have a circular shape extending in a single direction.

[0041] The reason for forming the through hole 133 is as follows: In a state in which portions on both sides of the sheet mask 111 are folded, a sheet mask insertion portion 160 (to be described hereinafter) provided above the sheet mask folding portion 130 is lowered and passes through the through hole, and here, the sheet mask 111, together with the sheet mask insertion portion 160, is discharged to a lower side of the housing 110.

[0042] As a result, in a state in which portions on both sides of the sheet mask 111 are folded by the foldable plates 132, a middle portion of the sheet mask 111 is folded again as the sheet mask insertion portion 160 is lowered.

[0043] Here, the folded sheet mask 111, having passed through the through hole 133, together with the sheet mask insertion portion 160, is discharged to a lower side of the sheet mask folding portion 130, and is inserted into a previously prepared pouch 151.

[0044] The apparatus 100 for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure includes a sheet mask attachment/detachment portion 140 which is lifted and lowered through the aperture 112, attaches the sheet mask 111 supplied by the sheet mask supply portion 120 drawn in below the aperture 112 sequentially, and is drawn out to an upper side of the housing 110 and moved to and mounted on the sheet mask folding portion 130.

[0045] The sheet mask attachment/detachment portion 140 will be described in detail with reference to FIGS. 1 through 4.

[0046] First, the sheet mask attachment/detachment portion 140 according to an exemplary embodiment of the present disclosure may include an attachment/detachment plate 141 lifted or lowered vertically through the aperture 112 to attach the sheet mask 111 sequentially or release the attached sheet mask 111.

[0047] The attachment/detachment plate 141 may be provided through various means. In an exemplary embodiment of the present disclosure, the attachment/detachment plate 141 may be configured as various types of adhesive tape, including Velcro, provided on a surface in contact with the sheet mask 111. Preferably, the attachment/detachment plate 141 may include an adhesive pad 144 with small aciculate protrusions 144a.

[0048] In general, the sheet mask 111 is formed of natural or synthetic fiber, and the adhesive pad 144 is inserted between plies (strands) of the sheet mask 111 so as to be attached to the mask 111. As mentioned above, one or more adhesive pads 144 may be provided, and in an exemplary embodiment of the present disclosure, a total of four adhesive pads 144 are provided at the same angle in relation to the center of the attachment/detachment plate 141.

[0049] The attachment/detachment plate 141 includes a separation frame 145 for releasing the attached sheet mask 111 from the sheet mask attachment/detachment portion 140.

[0050] The separation frame 145 is lifted and lowered in a vertical direction by a hydraulic or pneumatic cylinder, and as illustrated in FIG. 4, the sheet mask 111 attached to the adhesive pad 144 is pushed out by lowering the separation frame 145 to thus separate the sheet mask 111 from the adhesive pad 144.

[0051] The sheet mask attachment/detachment portion 140 according to an exemplary embodiment of the present disclosure includes a lifting portion 142 for lifting and lowering the attachment/detachment plate 141 in a vertical direction. As the lifting portion 142, various lifting portions 142 including hydraulic or pneumatic cylinder C

may be used, without being particularly limited.

[0052] The attachment/detachment plate 141 to which the sheet mask 111 is attached is moved to an upper side of the sheet mask folding portion 130 by a transfer portion 143 connected to the sheet mask attachment/detachment plate 141, and the moved sheet mask 111 is released from the attachment/detachment plate 141 by the separation frame 145 and mounted on an upper surface of the sheet mask folding portion 130.

[0053] The apparatus 100 for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure includes a pouch supply portion 150 provided below the sheet mask folding portion 130 and supplying a pouch 151 for receiving a folded sheet mask 111.

[0054] Referring to FIGS. 1 through 5, the pouch supply portion 150 includes a pouch cartridge 152 provided below the housing 110 stacking a plurality of pouches 151 therein to supply the same.

[0055] A second pressing portion 155 for pushing up the pouch 151 is provided below the pouch cartridge 152, and the second pressing portion 155 is the same as the first pressing portion 123 described above, and thus a description thereof will be omitted.

[0056] The pouch supply portion 150 includes a pouch transfer portion 154 having an adsorption pad 153 for transferring the pouches 151 stacked in the pouch cartridge 152 to a lower side of the through hole 133 sequentially.

[0057] The pouch transfer portion 154 may adsorb the pouch 151 stacked in the pouch cartridge 152 by the adsorption pad 153 and rotate the adsorption pad with the pouch 151 attached thereto by 90 degrees in a clockwise direction to transfer the pouch 151 to a lower side of the through hole 133, and the sheet mask 111 discharged through the through hole 133 is inserted into the transferred pouch 151.

[0058] The pouch transfer portion 154 is configured as a hydraulic or pneumatic cylinder C, and rotatably moves the pouch 151 centered on a hinge shaft 156 in the foregoing direction.

[0059] As illustrated in FIG. 5, the adsorption pad 153 is connected to a separately provided cylinder C and moved in a forward/backward direction.

[0060] Through the configuration, the pouch supply portion 150 according to an exemplary embodiment of the present disclosure is driven as follows.

[0061] The adsorption pad 153 moved upwardly from the pouch cartridge 153 by the pouch transfer portion 154 is moved toward the pouch 151 by the cylinder C connected to the adsorption pad 153, attached to the pouch 151, and rotated by the pouch transfer portion 154 by 90 degrees in the clockwise direction to move the pouch 151 to a lower side of the through hole 133 and continuously supply the pouch 151 for receiving the sheet mask 111.

[0062] The apparatus 100 for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure includes a sheet mask insertion portion 160 for inserting the sheet mask 111 folded by the sheet mask folding portion 130 into the pouch 151 supplied through the pouch supply portion 150.

[0063] As illustrated in FIG. 3, the sheet mask insertion portion 160 is provided in the form of a plate bar 161 lifted or lowered through the through hole 131, and when the sheet mask insertion portion 160 is lowered, the sheet mask 111 folded by the sheet mask folding portion 130 passes through the through hole 133 together with the sheet mask insertion portion 160 so as to be inserted into the pouch 151.

[0064] The sheet mask insertion portion 160 inserted into the pouch 151 is lifted upwardly from the sheet mask folding portion 130 and is subsequently held for insertion of a subsequent folded sheet mask 111.

[0065] The sheet mask insertion portion 160 may have various shapes. In an exemplary embodiment of the present disclosure, the sheet mask insertion portion 160 has the same shape as that of the through hole 133 and has a size smaller than that of the through hole 133 so as to pass through the through hole 133.

[0066] The apparatus 100 for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure further includes a transfer conveyer 170 provided below the sheet mask folding portion 130 and transferring the pouch 151 in which the sheet mask 111 is inserted to a predetermined location.

[0067] Here, the predetermined location may be an essence injection portion for injecting an essence into the sheet mask-inserted pouch 151 and a pouch sealing portion for sealing the essence-injected pouch.

[0068] Hereinafter, a driving method of the apparatus 100 for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure will be described with reference to FIG. 1.

[0069] First, when the sheet mask cartridge 121 with the sheet mask 111 stacked therein is led into a lower side of the aperture 112 formed in the housing 110, the attachment/detachment plate 141 of the sheet mask attachment/detachment portion 140 is lowered through the aperture 112 and attached to the sheet mask 111

[0070] Next, the attachment/detachment plate 141 with the sheet mask 111 attached thereto is lifted upwardly from the housing 110 through the aperture 112.

[0071] Here, two or more sheet masks 110 may be attached to the attachment/detachment plate 141 at a time, and in such a case, two or more sheet masks 111 may be inserted into a single pouch 151, which results in a defective product.

[0072] In order to prevent generation of a defective product in advance, in an exemplary embodiment of the present disclosure, a band formed of natural or synthetic fiber is provided on the edge of the aperture 112, and only a single sheet mask 111 is attached to the attachment/detachment plate 141 using frictional force between the band and the sheet mask 111.

[0073] The sheet mask 111 drawn out to an upper side

of the housing 110 is moved to an upper side of the sheet mask folding portion 130 by the transfer portion 143 of the sheet mask attachment/detachment portion 140, and as the separation frame 145 is lowered, the moved sheet mask 111 is released from the attachment/detachment plate 141 and mounted on an upper surface of the sheet mask folding portion 130.

[0074] The sheet mask 111 mounted on the sheet mask folding portion 130 are folded in predetermined portions on both sides thereof by the foldable plates 132.

[0075] Thereafter, the folded sheet mask 111 is folded again as the sheet mask insertion portion 160 is lowered, and simultaneously discharged to a lower side of the sheet mask folding portion 130 through the through hole 133. The discharged sheet mask 111 is inserted into the pouch 151 supplied by the pouch supply portion 150 together with the sheet mask insertion portion 160.

[0076] The sheet mask insertion portion 160 inserted into the pouch 151 is lifted and waits for insertion of a next sheet mask, and as a result, only the folded sheet mask 111 is inserted into the pouch 151.

[0077] In conclusion, the apparatus for automatically packaging a sheet mask according to an exemplary embodiment of the present disclosure automates a production process of a sheet mask, which has been performed through a manual operation in the related art, by the aforementioned technical configuration and driving method, reducing a manufacturing time of a product, reducing personal expenses, and reducing frequency of the occurrence of defective products.

[0078] In addition, since the production process of a product is automated, a cosmetics product may be mass-produced and price competitiveness of a product may be increased.

Claims

1. An apparatus for automatically packaging a sheet mask, the apparatus comprising:

   a housing having an aperture formed in an upper portion thereof and having a predetermined shape allowing a sheet mask to be drawn out therethrough;
   a sheet mask supply portion provided on one side of the housing and led in to a lower side of the aperture to supply a stacked sheet mask;
   a sheet mask folding portion provided above the housing and folding the sheet mask to have a predetermined shape;
   a sheet mask attachment/detachment portion lifted and lowered through the aperture, attaching the sheet mask supplied by the sheet mask supply portion led in to the lower side of the aperture thereto sequentially, drawing the sheet mask out to an upper side of the housing, and moving and mounting the sheet mask on the sheet mask folding portion;
   a pouch supply portion provided below the sheet mask folding portion and supplying a pouch for receiving a folded sheet mask; and
   a sheet mask insertion portion provided above the sheet mask folding portion and inserting the folded sheet mask into the pouch.

2. The apparatus of claim 1, further comprising a transfer conveyer provided below the sheet mask folding portion and moving the sheet mask inserted into the pouch to a predetermined location.

3. The apparatus of claim 1 or 2, wherein the sheet mask supply portion includes:

   a sheet mask cartridge in which a plurality of sheet masks are inserted in a stacked manner;
   a moving carriage provided below the sheet mask cartridge and moving the sheet mask cartridge in which the sheet mask is stacked from one side of the housing to a lower side of the aperture; and
   a first pressing portion provided below the sheet mask cartridge and pushing the stacked sheet mask up toward the aperture.

4. The apparatus of claim 1 or 2, wherein the sheet mask attachment/detachment portion includes:

   an attachment/detachment plate lifted and lowered through the aperture, attaching the sheet mask thereto sequentially, and releasing the attached sheet mask;
   a lifting portion lifting or lowering the attachment/detachment plate; and
   a transfer portion moving and mounting the sheet mask-attached attachment/detachment plate on the sheet mask folding portion,

   wherein the sheet mask is moved to an upper side of the sheet mask folding portion by the transfer portion, released from the attachment/detachment plate, and subsequently mounted on an upper surface of the sheet mask folding portion.

5. The apparatus of claim 1 or 2, wherein the sheet mask folding portion includes:

   a base plate fixed to an upper portion of the housing; and
   foldable plates provided on both sides of the base plate and folded to an upper surface of the base plate,
   wherein a through hole is formed to penetrate through predetermined portions of the housing, the base plate, and the foldable plates in order to discharge the folded sheet mask to a lower

side of the housing therethrough.

6. The apparatus of claim 5, wherein the pouch supply portion includes:

a pouch cartridge provided below the housing, allowing a plurality of pouches to be stacked therein, and supplying the plurality of stacked pouches;
a pouch transfer portion having an adsorption pad for transferring the plurality of pouches stacked in the pouch cartridge to a lower side of the through hole; and
a second pressing portion pushing the plurality of pouches stacked in the pouch cartridge upwardly.

7. The apparatus of claim 5, wherein the sheet mask insertion portion is provided in the form of a plate bar lifted and lowered through the through hole, and when the sheet mask insertion portion is lowered, the sheet mask folded by the sheet mask folding portion is inserted into the pouch together with the sheet mask insertion portion through the through hole.

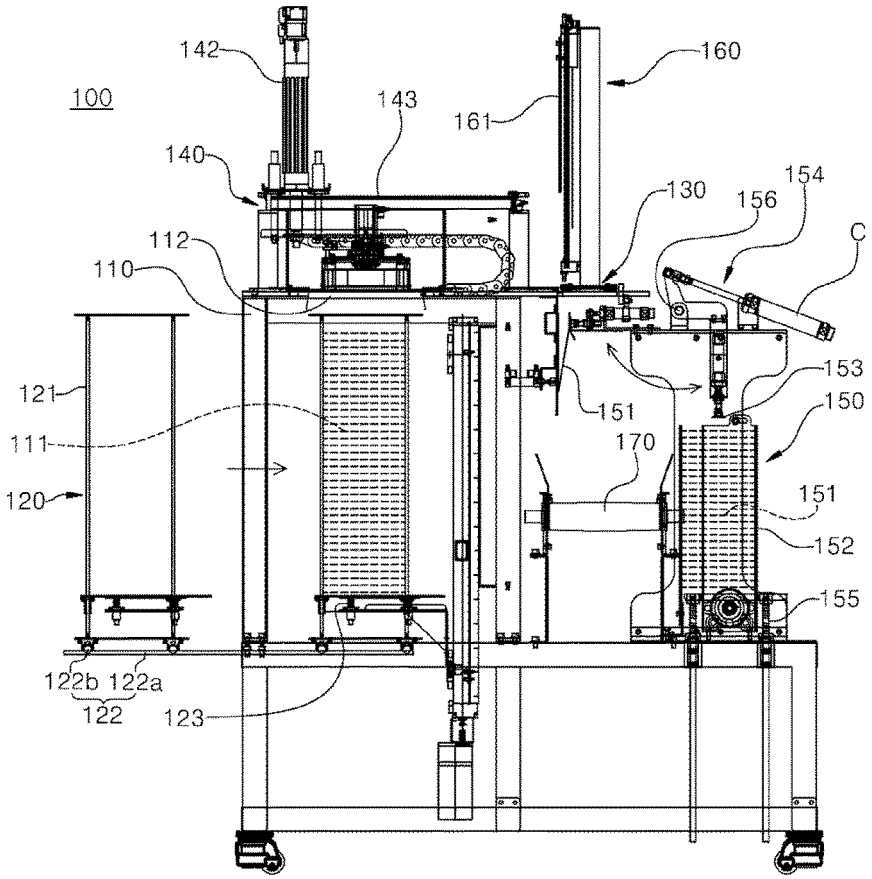
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FIG. 1

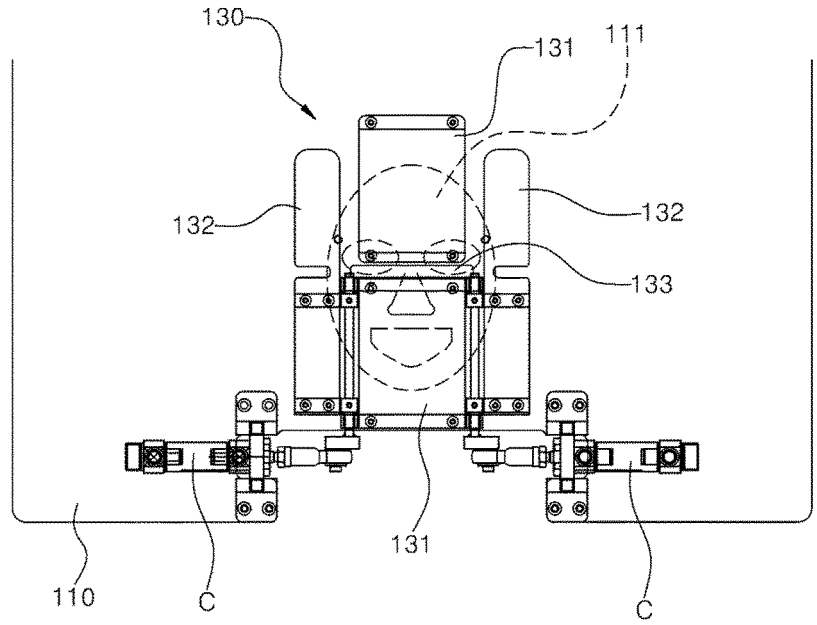

FIG. 2

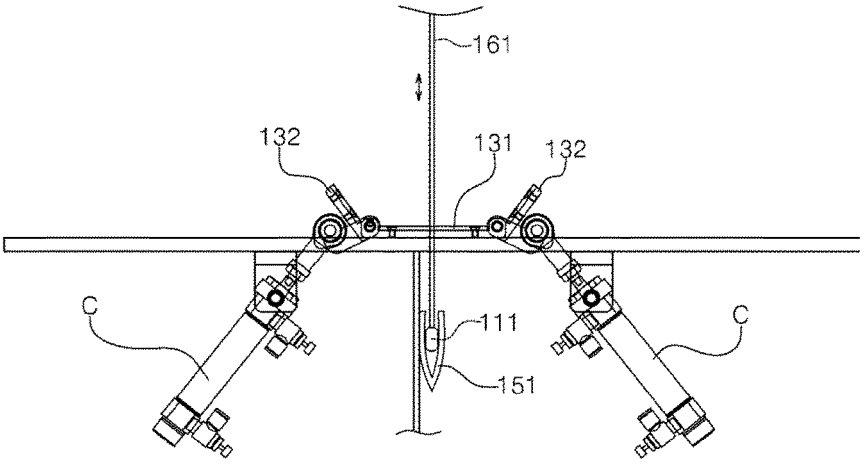

FIG. 3

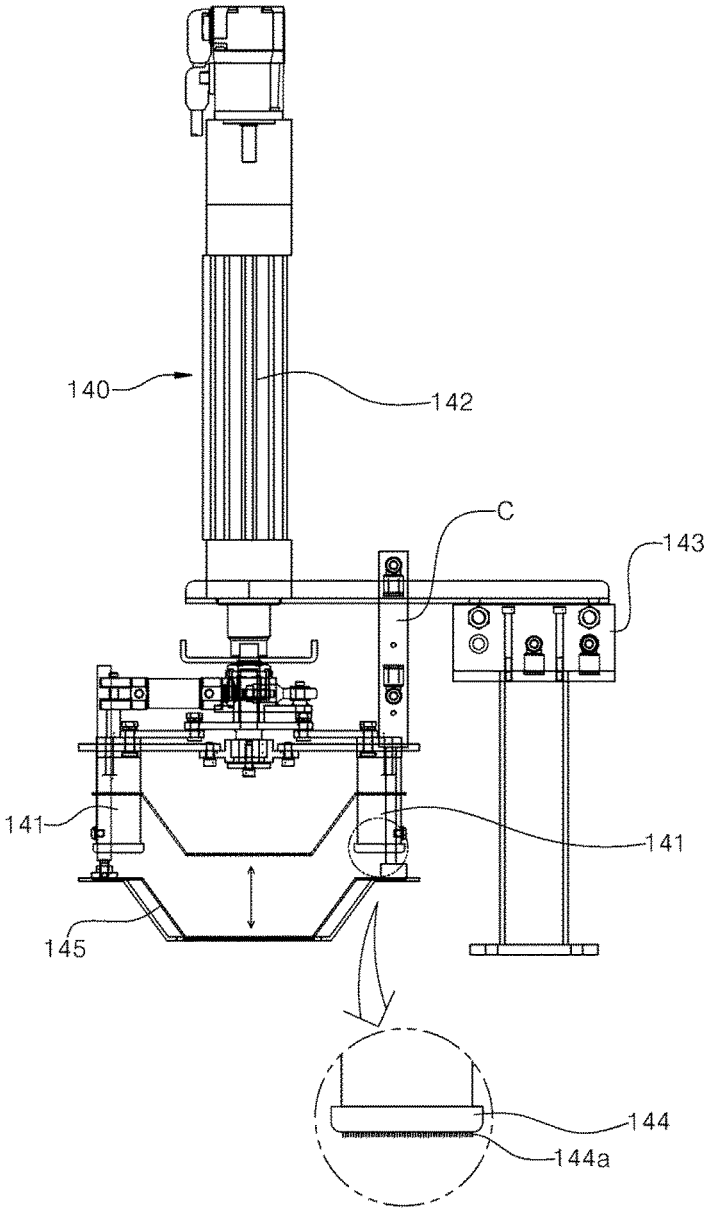

FIG. 4

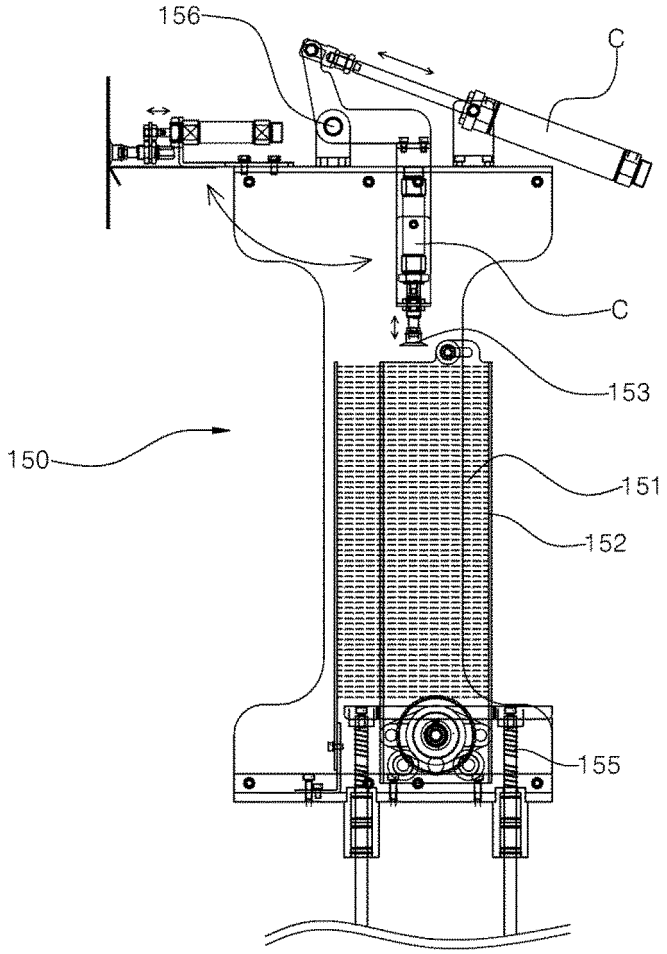

FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR2014/003467

A. CLASSIFICATION OF SUBJECT MATTER

B65B 25/14(2006.01)i, B65B 5/04(2006.01)i, B65B 35/02(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 25/14; G07F 11/70; G01G 13/04; B65B 55/10; H01M 10/052; B65B 43/42; A23L 1/20; G01G 13/06; B65B 5/04; B65B 35/02

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: sheet mask, autowrapping device, folding part

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 2007-200317 A (HSU, Chung-King) 09 August 2007 See claims 1 to 10, paragraphs [0001] to [0014], figures 1 to 4.	1-7
Y	KR 10-2012-0111087 A (LG CHEM, LTD.) 10 October 2012 See abstract, claims 1 to 13, paragraphs [0001] to [0056], figures 1 to 4.	1-7
Y	KR 20-0430247 Y1 (LEE, Jong Yeol) 13 November 2006 See abstract, claims 1 to 3, figures 1 to 14.	2-7
A	KR 10-2008-0007750 A (KIM, Geon Woo) 23 January 2008 See abstract, claims 1, 2, figures 1 to 10.	1-7

☐ 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	Date of mailing of the international search report
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