

(19)



(11)

EP 3 594 135 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
15.01.2020 Bulletin 2020/03

(51) Int Cl.:
B65B 25/06 (2006.01) **B65B 51/30** (2006.01)
B65B 61/18 (2006.01) **B65B 9/06** (2012.01)
B65B 41/16 (2006.01) **B65B 51/26** (2006.01)
B65D 75/58 (2006.01)

(21) Application number: **18209396.3**

(22) Date of filing: **30.11.2018**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
 Designated Extension States:
BA ME
 Designated Validation States:
KH MA MD TN

(71) Applicant: **Omori Machinery Co., Ltd.**
Koshigaya-shi, Saitama 343-0822 (JP)

(72) Inventor: **Mulder, Jeroen Herman Hubertus**
7524 AD Enschede (NL)

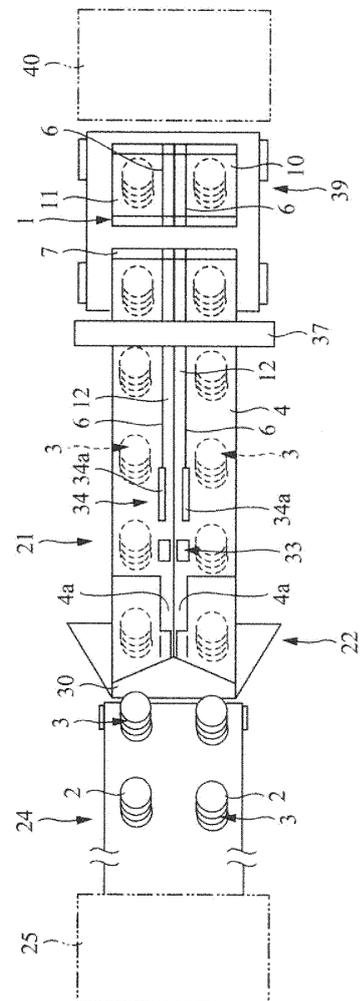
(74) Representative: **Kilian Kilian & Partner**
Aidenbachstraße 54
81379 München (DE)

(30) Priority: **09.07.2018 JP 2018130094**

(54) **PACKAGING MACHINE AND PACKAGE**

(57) Both side end portions of a packaging film 4 are folded to sandwich products 2 in a state that end parts 4a thereof are positioned near a center of the packaging film. Each end part is sealed onto film part opposite thereto to form a first sealed portion 6, and two side edges adjacent to the end part are sealed to form second sealed portions 7. Two airtight spaces become product storage portions 10, 11, each surrounded with the first sealed portion, the two second sealed portions and a folded edge part 8. The products can be consumed by opening the product storage portions one by one. The first sealed portion is positioned away from a distal edge of the end part to form a non-sealed portion 12 between the first sealed portion and the distal edge. The product storage portion can be easily opened by pulling the non-sealed portion.

FIG.3



EP 3 594 135 A1

Description**TECHNICAL FIELD**

[0001] The present invention relates to a packaging machine and a package.

BACKGROUND ART

[0002] A product obtained by stacking a plurality of, for example, sliced hams, is packaged by using, for example, a deep-drawing packaging machine. The deep-drawing packaging machine includes a conveying device of continuously conveying a belt-shaped lower film, a forming device of forming a pocket protruding downwardly in midway of conveyance, a product supplying device of supplying the product into the pocket while stacking the plurality of sliced hams, a film supplying device, which is disposed downstream of the product supplying device, of supplying a belt-shaped upper film to cover the lower film, a sealing device of heat-sealing film portions of the lower film and the upper film existing around the pocket, and a cutting device of cutting off the film portions sealed with the sealing device to be separated from the lower film and the upper film.

[0003] Since the upper film is supplied so as to cover the lower film, in a supplied state it also covers the pocket storing the product from above, and the lower film and the upper film come into contact or come close to each other in an area surrounding the pocket. Then, the sealing device heat-seals the film portions of the lower film and the upper film to airtightly seal an inner space of the pocket. Some of the sealing devices have a function of sucking and removing the air in the pocket. A deep-drawing packaging machine in this kind is disclosed in Patent Literature 1, for example.

[0004] A user who has purchased the above-mentioned package storing a plurality of sliced hams peels off the upper film from the lower film to open the package and takes out one or more sliced ham(s) in the pocket for consumption. Once the package is opened, it is desirable to consume a plurality of sliced hams stored in the pocket at once since an airtight state is released.

[0005] There is, on the other hand, a demand for consuming sliced hams little by little by not reducing a number to be stored in one package but reducing the number of sheets to be consumed at one time. In response to such a demand, for example, known is a package which is manufactured by first supplying a small number of sliced hams into a pocket made up of a lower film, covering the sliced hams with an intermediate film, covering an additional small number of sliced hams supplied on the intermediate film with an upper film, and sealing and cutting the upper film, the intermediate film and the lower film.

[0006] In the package manufactured in this manner, when the upper film is peeled off first, the slice hams on the intermediate film are exposed. Since the intermediate

film and the lower film are still sealed in this state, the sliced hams on the lower film are kept airtight. As a result, the user can open the package as much as necessary to consume the stored slice hams little by little.

[0007] However, the deep-drawing packaging machine of manufacturing the above-mentioned package becomes longer in the total length of the machine. Further, the deep-drawing packaging machine is difficult to supply sliced hams. Furthermore, the deep-drawing packaging machine needs a line to supply sliced hams on the lower film and a line to supply sliced hams on the intermediate film, resulting in structural complexity.

[0008] Additionally, a slicer to produce the above-mentioned sliced hams is configured to sequentially slice a ham block from its tip at a predetermined thickness using a rotating cutter blade. As one type of such a slicer, known is a slicer in which two ham blocks are arranged side by side. Since the slicer produces and carries out sliced hams in a dual line, sliced hams are supplied to the deep-drawing packaging machine after rearranged from a dual line to a single line. Because of a process of rearranging to a single line, the above-described problems are further increased.

[0009] Although the above-mentioned problems have been described taking sliced hams as an example, similar problems are raised in foods or the like other than sliced hams.

[0010] The above-mentioned problems are described as being independent from each other, so the present invention not necessarily solve all of the above-mentioned problems but may solve at least one problem. Also, the Applicant has an intention to individually obtain the right on each feature for solving these problems through divisional application/amendment etc., when necessity arises.

Citation List**Patent Literature**

[0011] Patent Literature 1: Japanese Unexamined Patent Application Publication No. H07-329910

SUMMARY OF INVENTION**Technical Problem**

[0012] The present invention has been made in view of the background described above, it is intended to provide a package capable of being easily opened one by one as required to consume an appropriate number of products and a packaging machine of manufacturing the package.

Solution to Problem

[0013]

(1) To solve the above problems, a packaging machine in accordance with a first aspect of the present invention includes: a bag making device of making a belt-shaped packaging film into a bag through inwardly folding both side end portions thereof into tubular shape; a feeding means of feeding a dual line of product groups made up of a plurality of products into the folded packaging film; a side sealing device disposed downstream of the bag making device, of sealing end parts, while leaving distal edges thereof respectively, of the folded both side end portions of the packaging film along a transporting direction; and a top sealing device disposed downstream of the side sealing device, of seal-cutting an area between the product groups arranged in front and behind with respect to the packaging film in a direction orthogonal to the transporting direction so as to manufacture a package having two product storage portions arranged in the direction orthogonal to the transporting direction.

(2) The packaging machine may further include a processing device disposed downstream of the top sealing device, of making the two product storage portions folded into two therebetween to be overlapped with each other.

(3) A package in accordance with a second aspect of the present invention includes: two product storage portions formed by: folding both side end portions of a packaging film; sandwiching products in a state that end parts of the both side end portions thereof are positioned near a center of the packaging film, respectively; sealing the end parts of the both side end portions thereof onto film parts of the packaging film opposite to the end parts, respectively; and sealing two side edges extending adjacent to each end part, wherein each end part has a sealed portion formed by sealing the end part at a position away from a distal edge of the end part and a non-sealed portion between the sealed portion and the distal edge.

(4) The two product storage portions may be folded at a connection part therebetween and overlapped with each other, and both folded edge parts opposite to the connection part of the two product storage portions as overlapped are adhesively fixed with a fixing member.

(5) The fixing member may be preferably a re-closable member capable of re-adhering.

Advantageous Effects of Invention

[0014] The present invention may provide a package capable of being easily opened one by one as required to consume an appropriate number of products and a packaging machine of manufacturing the package.

BRIEF DESCRIPTION OF DRAWINGS

[0015]

5 FIGS. 1A to 1E are views showing a preferred embodiment of a package according to the present invention, wherein: FIG. 1A is a perspective view showing a package in a first posture; FIG. 1B is a side view showing a package in the first posture; FIG. 1C is a perspective view showing a package in a second posture; FIG. 1D is a side view showing a package in the second posture; and FIG. 1E is a perspective view showing a package in the second posture in process of being opened; FIG. 2 is a front view showing a preferred embodiment of a packaging machine according to the present invention; and FIG. 3 is a plan view showing a preferred embodiment of a packaging machine according to the present invention.

DESCRIPTION OF EMBODIMENTS

[0016] Hereinafter, preferred embodiments of the present invention are described in detail with reference to the figures. It should be noted that the present invention is not to be interpreted as being limited to these embodiments, but various changes, modifications and improvements can be made based on knowledge of those skilled in the art without departing from the scope of the present invention.

[0017] FIGS. 1A to 1E show a preferred embodiment of a package according to the present invention. As shown in the figures, a package 1 is formed by airtightly packaging product groups 3, in which a plurality of products 2 are stacked, with a packaging film 4. The products 2 are, for example, sliced hams.

[0018] In the package 1, in a state that both side end portions of one sheet of the packaging film 4 are respectively folded and end parts 4a of the both side end portions are positioned near a center of the packaging film 4, the end parts 4a are heat-sealed onto film parts of the packaging film 4 opposite to the end parts and also two side edges adjacent to each end part 4a are heat-sealed. Thereby, an airtight space is made to be surrounded by four sides including a first sealed portion 6 formed by sealing the end part 4a, two second sealed portions 7 formed by sealing the side edges, and a folded edge part 8 of the packaging film 4.

[0019] As described above, since the airtight spaces are formed by folding the both side end portions of the packaging film 4, respectively, the package 1 of the present embodiment includes two product storage portions (a first product storage portion 10, a second product storage portion 11), each having the airtight space. The product group 3 in which a small number of products 2 are stacked is stored in the first product storage portion 10 and the second product storage portion 11, respec-

tively. In the present embodiment, a small number is four sheets, for example. The first sealed portion 6 is formed at a position slightly away from a distal edge of the end part 4a. As a result, a non-sealed portion 12 is formed on the distal edge side of the first sealed portion 6.

[0020] The package 1 of the present embodiment is folded at a connection part between the first product storage portion 10 and the second product storage portion 11 to come into a posture where the first product storage portion 10 and the second product storage portion 11 are overlapped. Then, the first product storage portion 10 and the second product storage portion 11 are fixed by affixing an adhesive tape 13 across the both folded edge parts opposite to the connection part (see FIGS. 1A and 1B). A re-closable tape capable of re-adhering, for example, may be used as the adhesive tape 13 of the present embodiment.

[0021] In this manner, in a state that the both folded edge parts of the first product storage portion 10 and the second product storage portion 11 are fixed with the adhesive tape 13, the first product storage portion 10 and the second product storage portion 11 are kept in a first posture as shown in FIGS. 1A and 1B without being separated from each other. The package 1 is shipped in the first posture where the first product storage portion 10 and the second product storage portion 11 are fixed with the adhesive tape 13, and then is displayed in shops or the like. Since the first posture is maintained by effect of the adhesive tape 13, it is suppressed to change from the first posture of folded to a second posture of opened (see FIGS. 1C and 1D) before the package 1 is presented to final users such as at the time of shipment/display.

[0022] Since the package 1 in the first posture is in a state that the first product storage portion 10 and the second product storage portion 11 are overlapped, an area in planar view as viewed from overlapping direction becomes small. Further, since the product groups 3 stored in the first product storage section 10 and the second product storage section 11 are made up of a small number of sliced hams respectively, each product storage portion is thin in thickness and thus the package 1 in the first posture is also suppressed in thickness to be made compact as a whole.

[0023] The product 2 is taken out from each product storage portion 10, 11 in a manner as follows. First, the adhesive tape 13 of the package 1 in the first posture is peeled off to release fixing of the first product storage portion 10 and the second product storage portion 11, and thus both product storage portions 10, 11 are opened to a second posture (See FIGS. 1C and 1D). In this state, the user holds the non-sealed portion 12 provided on the distal edge side of the first sealed portion 6 of one product storage portion, for example, the second product storage portion 11, and pulls the non-sealed portion 12 in a direction to separate it from the film part opposite to the non-sealed portion 12. Then, the first sealed portion 6 and a part of the second sealed portion 7 connected to the first sealed portion 6 are peeled off to make the sec-

ond product storage portion 11 opened (see FIG. 1E). Thereby, the user may take out and consume a small number of the products 2 stored in the second product storage portion 11. In this state, since the first product storage portion 10 is airtight as the first sealed portion 6 and the second sealed portion 7 thereof remain sealed, the products 2 in the first product storage portion 10 are kept fresh.

[0024] The user may, at proper timing thereafter, pull the non-sealed portion 12 of the first product storage portion 10 to make the first product storage portion 10 opened so that the user may take out the products 2 stored in the first product storage portion 10.

[0025] Further, for example, when the package 1 is housed after opening one of the product storage portions (the second product storage portion 11 in the above example) and taking out a small number of the products 2, the second posture is bad in appearance and becomes unhygienic as the second product storage portion 11 is flapping or fluttering. In the present embodiment, since the adhesive tape 13 is a re-closable tape, the package 1 is returned back to the first posture by folding again the first product storage portion 10 and the second product storage portion 11 after opening one of the product storage portions and taking out the products 2, so that the end parts of the first product storage portion 10 and the second product storage portion 11 are fixed with the adhesive tape 13. In this manner, when the package 1 is housed after taking out the products from one of the product storage portions, the first posture of folded is possibly and preferably maintained resulting in compact and beautiful appearance.

[0026] In addition, since the package 1 may hold the first posture with the adhesive tape 13 by folding the first product storage portion 10 and the second product storage portion 11, as described above, it is possible to simply seal the once opened product storage portion in which the products 2 are left due to not fully consumed. That is, the remaining products 2 are sandwiched within film part corresponding to the once opened product storage portion, and the first product storage portion 10 and the second product storage portion 11 are folded and fixed with the adhesive tape 13. As a result, airtightness and preservability of the first posture are better than completely opened state, and it is preferable since the products 2 may be favorably stored in the product storage portion. In the present embodiment, the products 2 stored in each product storage portion are set in a small number. Assuming that, for example, four sheets are stored and one or two sheet(s) is(are) consumed by one person, the products are consumed at once in case for three to four persons, but a little is left in case for one person. Also, in such a case, it is preferable since the once opened product storage portion is simply sealed as described above.

[0027] In addition, perforations or the like may be provided at a boundary portion between the first product storage portion 10 and the second product storage por-

tion 11 to make the boundary portion separable. In this manner, it is preferable since the first product storage portion 10 and the second product storage portion 11 may be easily separated from each other along the perforations after taking out all of a small of number of the products 2 from one of the product storage portions.

[0028] As above, in the package 1 in accordance with the above embodiment, even if one of the product storage portions 10, 11 is opened to take out the product 2 stored therein, the other of the product storage portions 10, 11 can be kept in an unopened state. Therefore, even if the product 2 is, for example, foods or the like requiring freshness, it is possible to keep freshness in the unopened portion. That is, it is possible to take out fresh items little by little from the respective product storage portions 10, 11. In addition, since the non-sealed portion 12 is formed on a side of the distal end, it is possible to peel off and easily open the sealed portion 6 provided near a boundary between the product storage portions 10, 11 by holding and pulling the non-sealed portion 12 in a direction away from the film portion opposite to the non-sealed portion 12.

[0029] Further, it is possible to keep the package 1 in a state that the two product storage portions 10, 11 are overlapped. Therefore, for example, when transported or displayed in a shop or the like, it is preferable since the package 1 is kept in a compact posture without opening the two product storage portions 10, 11. The fixing member corresponds to the adhesive tape 13 in an embodiment. The fixing member may be a member to be adhesively fixed, such as an adhesive tape or a seal.

[0030] Further, the fixing member is re-adherable even once it is peeled off. After one of the product storage portions 10, 11 has been opened to take out a part or all of the stored products 2, it is possible to fix the two product storage portions 10, 11 with the fixing member in a state that the two product storage portions 10, 11 are again folded and overlapped. Thereby, it is possible to house the package 1 in compact and in beautiful appearance.

[0031] FIGs. 2 and 3 show a preferred embodiment of a packaging machine of manufacturing the package configured as described above. There are provided with a packaging machine main body 21, a film supplying device 22 of continuously supplying the belt-shaped packaging film 4 to the packaging machine main body 21, a conveying/feeding device 24, which is disposed upstream of the packaging machine main body 21, of feeding the product group 3 at predetermined intervals to the packaging machine main body 21.

[0032] The film supplying device 22 transmits output of a driving motor (a speed-controllable motor such as a servomotor or the like), which is omitted in the figures, with respect to a raw film roll 26 obtained by winding the belt-shaped packaging film 4 into a roll form, and then supplies the packaging film 4 to the packaging machine main body 21 at a constant speed while appropriately controlling rotational speed of the raw film roll 26. Various rollers 27 (one is drawn as a representative in the figures)

are disposed at predetermined positions from the raw film roll 26 to the packaging machine main body 21. and the belt-shaped packaging film 4 supplied from the raw film roll 26 is extended around the rollers 27 to be guided to the packaging machine main body 21 through a predetermined path. In the present invention, it is not necessarily to connect the driving motor to the raw film roll 26, but a feeding roller may be provided on a conveyance path of the packaging film to draw out the packaging film.

[0033] The conveying/feeding device 24 (a feeding means) constituted by, for example, a belt conveyor device conveys the product groups 3 discharged from a slicer 25. which is arranged upstream, of producing sliced hams in a state of being arranged in two lateral lines, and feeds two product groups 3 to the packaging machine main body 21 of the next stage at the same time.

[0034] Although not specifically shown, the slicer 25 is set in a state that two ham blocks are laterally arranged, and it has a function to produce sliced hams by sequentially slicing two ham blocks from their tips at a predetermined thickness using rotating cutter blades. Each time slicing is performed with the rotating cutter blades, the slicer 25 has a function to advance sliced hams dropped and supplied on a carry-out line by a predetermined distance, and thus the product group 3 is produced and carried out in a condition that predetermined numbers (four sheets in the present embodiment) of sliced hams (the products 2) are stacked as gradually shifted along a carrying direction.

[0035] The packaging machine main body 21 is provided with a bag making device 30 which makes the belt-shaped packaging film 4 to be supplied upstream of the packaging machine main body 21 into a bag in tubular shape. The packaging film 4 is made into a bag in flat and tubular shape by folding inwardly the both side end portions thereof along the bag making device 30 during passing through the bag making device 30. At this time, the end parts 4a of the both side end portions of the packaging film 4 are positioned over a central side, respectively, and set to be in noncontact with and in close to each other. That is, while end parts of both side end portions of a packaging film formed into tubular shape are overlapped in sealable surfaces thereof with each other in case of an ordinary pillow packaging machine, the end parts 4a are opposite to the central part of the packaging film 4 which is made into a bag in tubular shape in the present embodiment, respectively. Further, the conveying/feeding device 24 sequentially supplies the product groups 3 to be conveyed in a dual line to the bag making device 30. As a result, the folded both side end portions of the packaging film 4 cover the product groups 3 from above, respectively.

[0036] A transport path 32 constituting a transport surface of the packaging film 4 in tubular shape storing the product groups 3 is disposed downstream of the bag making device 30. A pinch roller 33 and a side sealing device 34 are arranged as viewed from upstream at appropriate positions in midway of the transport path 32.

The pinch roller 33 includes a pair of upper and lower rollers and sandwiches the end parts 4a of the both side end portions of the packaging film 4 made into a bag in tubular shape and the central part of the packaging film 4 opposite thereto at predetermined pressure from above and below to apply transporting force to the packaging film 4 made into a bag in tubular shape.

[0037] The side sealing device 34 is disposed downstream of the bag making device 30 and has a function to sandwich and heat-seal predetermined parts of the packaging film 4 from above and below. Specifically, for example, there are provided with a side sealer 34a in disc shape with a larger diameter, which is disposed above the packaging film 4 made into a bag in tubular shape, and two pressing rollers 34b (arranged at front and behind) in disc shape with a smaller diameter, which is disposed below the packaging film 4 made into a bag in tubular shape. The side sealer 34a and the pressing rollers 34b as disposed above and below sandwich the end part 4a of the packaging film 4 made into a bag in tubular shape and the opposite central part of the packaging film 4 at predetermined pressure from above and below and heat them at predetermined temperature. As a result, both of the end parts 4a are heat-sealed to the opposite film parts, respectively, and such sealed portions become the first sealed portions 6.

[0038] The side sealer 34a and the pressing rollers 34b are prepared in two sets on right and left, and the side sealer 34a and the pressing rollers 34b of each set seal a predetermined position of the end part 4a, respectively. This position to be sealed is located slightly away from the distal edge of the end part 4a. As a result, the side sealer 34a and the pressing rollers 34b are not in contact with an area between the first sealed portion 6 and the distal edge, resulting in that the area becomes the non-sealed portion 12.

[0039] A top sealing device 37 seals and cuts the packaging film 4 in tubular shape in a direction orthogonal to a transporting direction, that is, in a direction traversing the film. A film part to be sealed/cut is located at a predetermined position between the product groups 3 in front and behind, and the second sealed portion 7 is formed in such a film part. As a result, during passing through the top sealing device 37, a leading top of the packaging film 4 in tubular shape is separated from a subsequent series thereof, so that the package 1 is manufactured in the second posture where the first product storage portion 10 and the second product storage portion 11 are laterally arranged. The package 1 as manufactured is carried out by a carry-out conveyor 39.

[0040] A processing device 40 is provided downstream of the carry-out conveyor 39. The processing device 40 includes a mechanism of folding the first product storage portion 10 and the second product storage portion 11 therebetween into two so as to be overlapped with each other, and a mechanism of affixing the adhesive tape 13 as extended across the both folded edge parts 8 of the first product storage portion 10 and the second product

storage portion 11. As a result, the processing device 40 manufactures and delivers the package 1 in the first posture as shown in FIGs. 1A and 1B.

[0041] As above, in the packaging machine in accordance with the above embodiment, it is possible to easily manufacture a package 1 having two product storage portions 10, 11. Moreover, since each of the product storage portions 10, 11 has the non-sealed portion 12 on a side of the distal end of the sealed portion 6, the product storage portion 10, 11 can be easily opened by holding and pulling the non-sealed portion 12. Therefore, the packaging machine of the embodiment is capable of manufacturing the package 1 in which the product storage portions 10, 11 can be opened one by one as required to consume the products 2 little by little, and further opened easily.

[0042] Further, it is possible to automatically and easily manufacture the package 1 in a compact form.

[0043] In the above-described embodiment, the processing device 40 is provided to automatically perform a process of folding the first product storage portion 10 and the second product storage portion 11 and a process of affixing the adhesive tape, but the present invention is not limited thereto, for example, it may be configured to manually perform a part or the whole of their processes. However, it is preferable to automatically perform the whole as in the embodiment because of high processing speed.

[0044] In the above-described embodiment, the slicer is provided to set two ham blocks therein and carry out the product groups 3 in a dual line, but the present invention is not limited thereto, for example, it may be configured to set one ham block and carry out the product group 3 in a single line. In this case, it is advisable to appropriately provide a line increasing device to increase a single line of the product group 3 to a dual line thereof in midway during transportation and subsequently to supply the product groups 3 to the packaging machine main body 21.

[0045] In the above-described embodiment, the product group 3 is configured by stacking a plurality of products 2 with being gradually shifted, but a form of the product group 3 is selectable, for example, it may be configured by stacking them without being gradually shifted or arranging them dispersedly. Further, in the above-described embodiment, sliced ham is exemplified as the product 2 to be stored as it is, but the present invention is not limited thereto, for example, it may be applicable to various kinds of foods such as bacon and other meats or sliced cheese. In addition, known is a package in which sliced cheeses are stored in a state that each sliced cheese is simply covered with a film one by one and stacked in several numbers. The product like this in which individual product is not exposed is included in the product for which the present invention is intended. However, the product is desirably consumed up once the package is opened, so foods to be consumed little by little are suitable for the product. From this point of view, sliced

meats such as sliced hams shown in the embodiment and bacons are most suitable.

[0046] Furthermore, in the above-described embodiment, the products 2 stored in the first product storage portion 10 and the second product storage portion 11, respectively, are the same in number, but they may be different. In addition, the products 2 stored in the first product storage portion 10 and the second product storage portion 11, respectively, may be different in kind.

[0047] It may be possible to work the above-described embodiments and modifications in appropriate combination. Further, it may be possible to appropriately combine some of elements described in one aspect with elements in one or more different aspect(s).

[0048] While various aspects of the present invention have been described with reference to embodiments and modifications, it is noted that these embodiments including explanations are not intended to limit the scope of the present invention, and they are presented to make contribution to understanding of the present invention. The scope of the present invention is not limited to the configurations and the manufacturing methods explicitly described in the description, but also the scope includes combinations of various aspects of the present invention disclosed in the description. The configurations to be intended to obtain a patent within the present invention are specified in the claims as appended, but it is stated by way of precaution that there is in future a possibility of claiming up configurations which are not specified in the present claims but disclosed in the description.

Reference Signs List

[0049]

- 1: package
- 2: product
- 3: product group
- 4: packaging film
- 4a: end part
- 6: first sealed portion
- 7: second sealed portion
- 10: first product storage portion
- 11: second product storage portion
- 12: non-sealed portion
- 13: adhesive tape
- 21: packaging machine main body
- 22: film supplying device
- 24: conveying/feeding device
- 25: slicer
- 26: raw film roll
- 30: bag making device
- 32: transport path
- 34: side sealing device
- 37: top sealing device
- 40: processing device

Claims

1. A packaging machine comprising:

5 a bag making device of making a belt-shaped packaging film into a bag through inwardly folding both side end portions thereof into tubular shape;

10 a feeding means of feeding a dual line of product groups made up of a plurality of products into the folded packaging film;

15 a side sealing device disposed downstream of the bag making device, of sealing the folded end parts, while leaving distal edges thereof respectively, of the both side end portions of the packaging film along a transporting direction; and a top sealing device disposed downstream of the side sealing device, of seal-cutting an area between the product groups arranged in front and behind with respect to the packaging film in a direction orthogonal to the transporting direction so as to manufacture a package having two product storage portions arranged in the direction orthogonal to the transporting direction.

2. The packaging machine according to claim 1, further comprising a processing device disposed downstream of the top sealing device, of making the two product storage portions folded into two therebetween to be overlapped with each other.

3. A package comprising two product storage portions formed by:

35 folding both side end portions of a packaging film;

40 sandwiching products in a state that end parts of the both side end portions thereof are positioned near a center of the packaging film, respectively;

45 sealing the end parts of the both side end portions thereof onto film parts of the packaging film opposite to the end parts, respectively; and sealing two side edges extending adjacent to each end part,

50 wherein each end part has a sealed portion formed by sealing the end part at a position away from a distal edge of the end part and a non-sealed portion between the sealed portion and the distal edge.

4. The package according to claim 3, wherein the two product storage portions are folded at a connection part therebetween and overlapped with each other, and both folded edge parts opposite to the connection part of the two product storage portions as overlapped are adhesively fixed with a fixing member.

5. The package according to claim 4, wherein the fixing member is a re-closable member capable of re-adhering.

5

10

15

20

25

30

35

40

45

50

55

8

FIG.1A

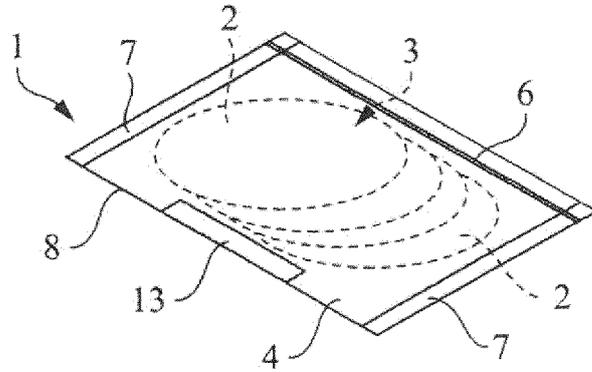


FIG.1B

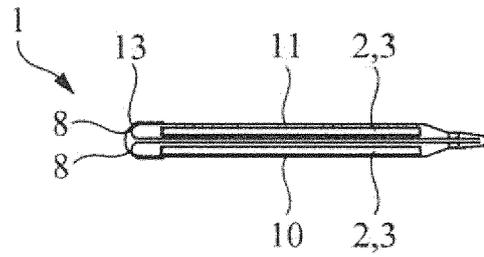


FIG.1C

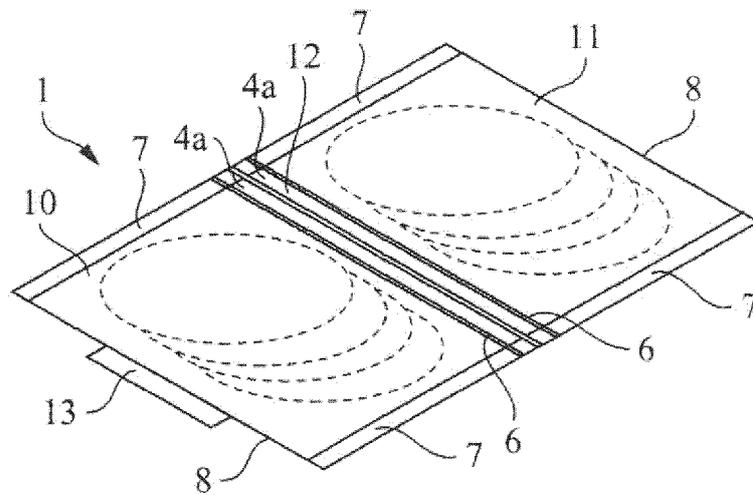


FIG. 1D

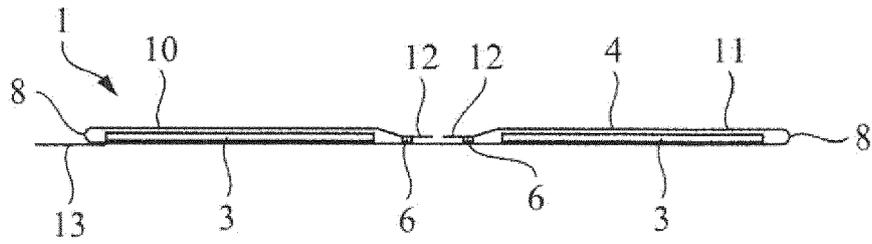


FIG. 1E

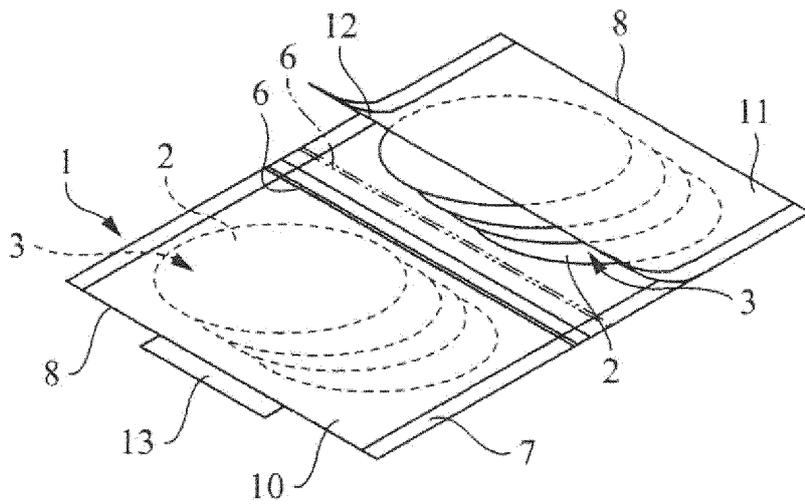


FIG.2

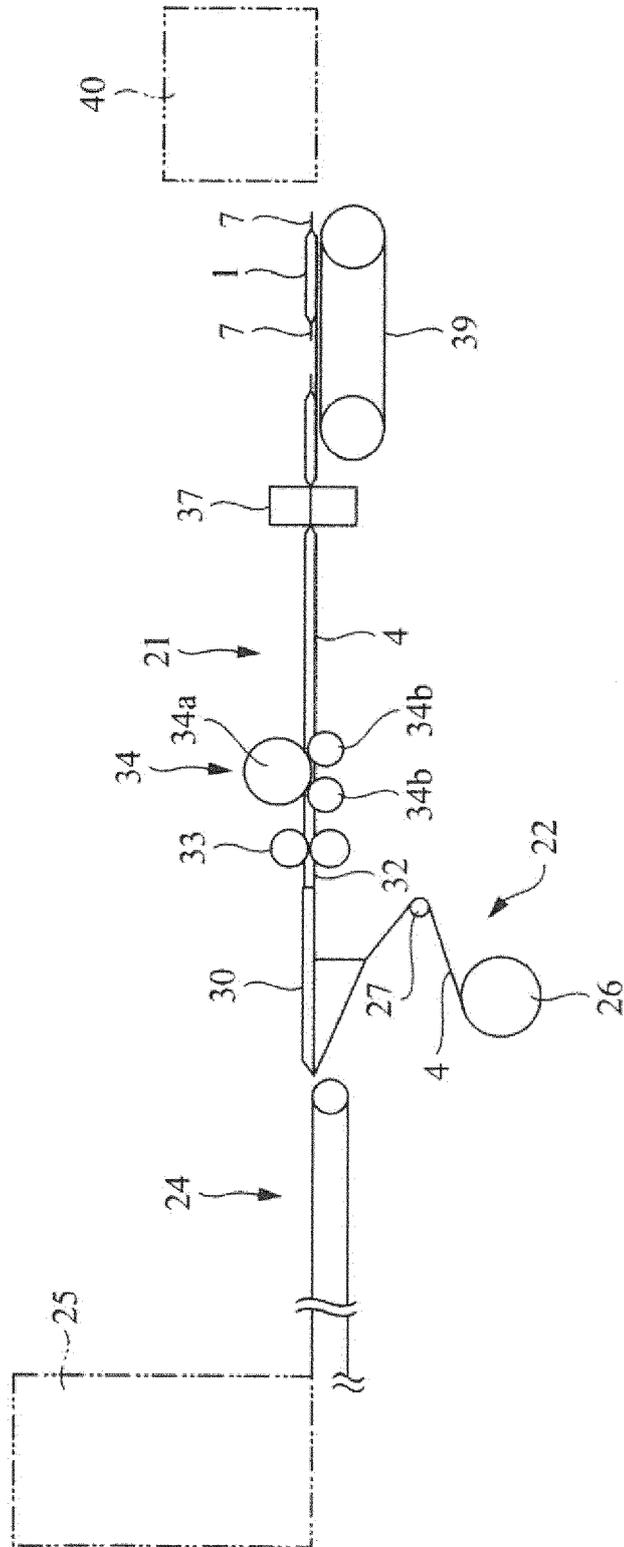
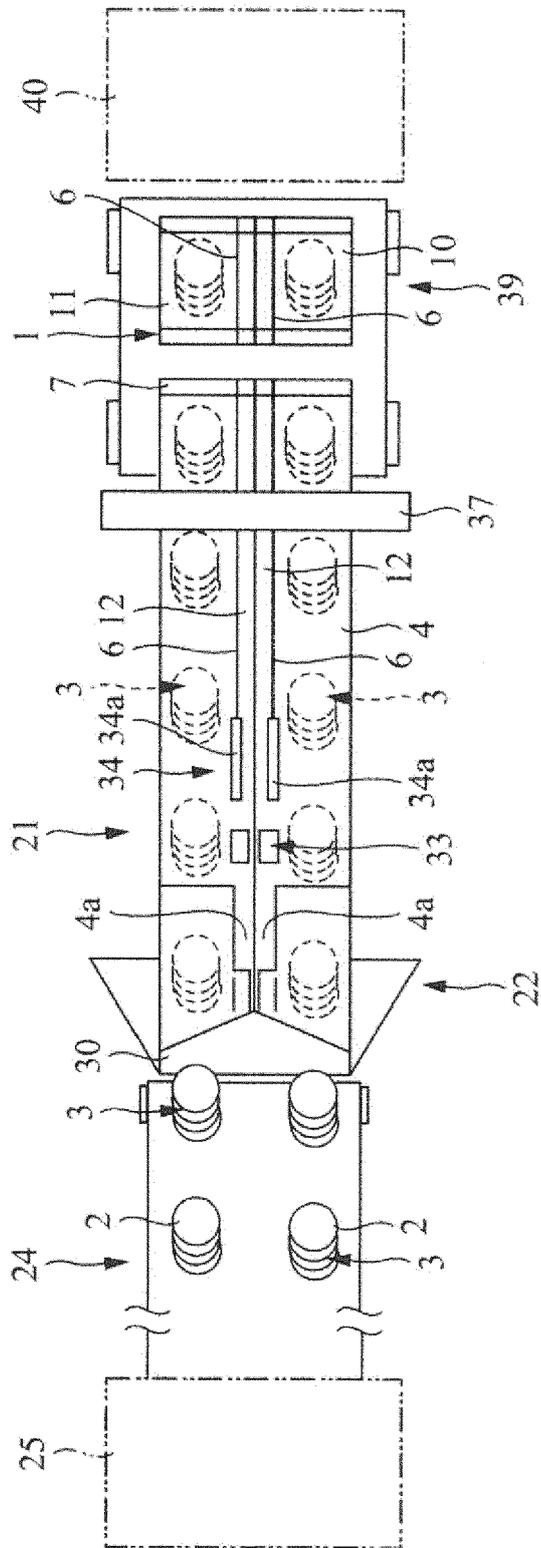


FIG.3





EUROPEAN SEARCH REPORT

Application Number
EP 18 20 9396

5

10

15

20

25

30

35

40

45

50

55

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	EP 1 188 670 A1 (FERAG AG [CH]) 20 March 2002 (2002-03-20)	1, 3	INV. B65B25/06 B65B51/30 B65B61/18 B65B9/06 B65B41/16 B65B51/26 B65D75/58
Y	* paragraphs [0012], [0015]; figures 1, 4a, 4b * * paragraph [0008] *	2	
A	DE 31 02 872 A1 (LESCH HANS [DE]) 26 August 1982 (1982-08-26) * page 8, lines 13-14; figures 3, 3a *	1	
Y	WO 2017/004163 A1 (WRIGLEY W M JUN CO [US]) 5 January 2017 (2017-01-05) * paragraphs [0028] - [0030], [0036], [0037]; figures 1-3 * * paragraph [0043]; figures 7-9 *	2	
X	EP 0 452 167 A1 (TABACS & ALLUMETTES IND [FR]) 16 October 1991 (1991-10-16) * figures 1-3 * * column 1, lines 44-50 - column 2, line 11 * * column 2, line 42 - column 3, line 7 *	3-5	
A	FR 1 487 955 A (DOW CHEMICAL CO) 7 July 1967 (1967-07-07) * column 2, line 34 - column 3, line 4 * * column 3, lines 41-50 * * figures 1-2 *	3-5	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC) B65B B31B
Place of search Munich		Date of completion of the search 8 October 2019	Examiner Dick, Birgit
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 18 20 9396

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

08-10-2019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 1188670 A1	20-03-2002	AT 284810 T	15-01-2005
		AU 781032 B2	28-04-2005
		CA 2357401 A1	18-03-2002
		DE 50104817 D1	20-01-2005
		DK 1188670 T3	24-01-2005
		EP 1188670 A1	20-03-2002
		US 2002095913 A1	25-07-2002
DE 3102872 A1	26-08-1982	CH 654537 A5	28-02-1986
		DE 3102872 A1	26-08-1982
WO 2017004163 A1	05-01-2017	CN 107709171 A	16-02-2018
		EP 3317187 A1	09-05-2018
		WO 2017004163 A1	05-01-2017
EP 0452167 A1	16-10-1991	AT 141134 T	15-08-1996
		DE 69121277 D1	19-09-1996
		EP 0452167 A1	16-10-1991
		FR 2659531 A1	20-09-1991
FR 1487955 A	07-07-1967	NONE	

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- JP H07329910 B [0011]