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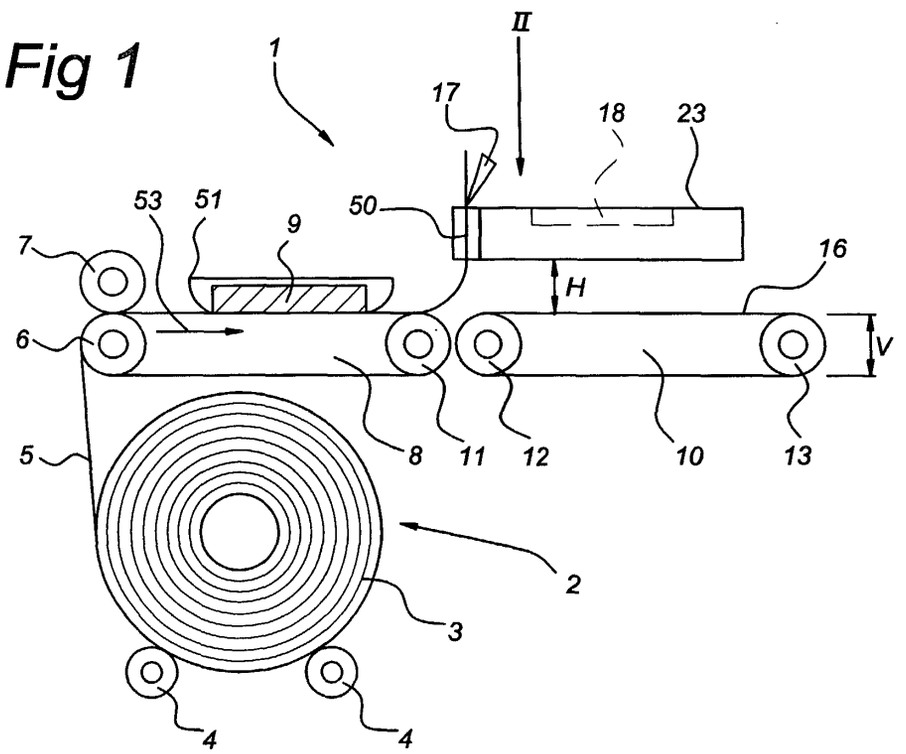
(54) **Method and device for packing a product, such as one or more slices of a cheese or meat product, in film material**

(57) The invention relates to a method and device for packing a product, such as one or more slices of a cheese or meat product, in film material. In the method, the leading end of the strip (5) is gripped by a gripper (17) and held at a height above the support surface (53) over which the film strip runs up to the gripper. Meat or cheese to be packed is placed on the strip of film material running over the support surface. The strip of film material with, lying on it, the product (9) to be packed is fed through beneath the leading edge secured by the gripping means, whereupon in the film material a fold-like curve (20) is formed, which travels along the strip of film material, feeding the material through as it does so. As soon as the product to be packed has been fed far enough through beneath the gripping means, the sandwich of lowermost film strip (22), products to be packed, uppermost film strip (21) is clamped together between two pressure members (14) to create a mutual seal between the lowermost and uppermost film strip.

Fig 1



EP 1 281 617 A1

Description

[0001] The present invention relates, on the one hand, to a method and, on the other hand, to a device for packing a product, such as one or more slices of a cheese or meat product, cake, biscuit, a filled bread roll, etc. in film.

[0002] Devices of this kind are known.

[0003] NL-1,012,956 discloses a device in which two film rolls are employed. The one film roll provides the film part on the bottom side of the packaging and the other roll the film part on the top side thereof. Close to a front edge of the strips emanating from the two film rolls, these strips are clamped together, the material to be packed is placed on the lowermost strip and then the whole is pulled beneath a sealing station by gripping of the front edges, lying one upon the other, of the two strips, after which two pressure members, a lowermost and an uppermost with the whole to be packed therebetween, are pressed one against the other and, under the influence of heat, a fusion weld is placed round about the product to be packed, which fusion weld joins together the lowermost and uppermost film parts.

[0004] Systems are also known (see, for example, US 3,016,673) in which a film strip is drawn off from a roll over a length of at least twice that of the packaging, which drawn-off portion is divided into two zones, into a downstream zone situated close to the end edge and an adjoining upstream zone, the material to be packed being deposited on the upstream zone, after which the downstream zone is folded over the upstream zone so as then, through seals round about the product to be packed, to obtain a closed packaging. This creates a positionally fixed fold between the lowermost and uppermost film parts, which fold is located at the transition between the downstream and upstream zones. Round about this fold, the two parts are laid one over the other.

[0005] Systems also exist in which it is not so much a roll which is employed, but loose sheets. In this connection, reference is made to NL 1,006,324, for example, as well as to the substantially earlier publication DE 29,500,342, bearing a very strong resemblance thereto, both originating from the same applicant. Both publications involve a depositing zone, in which meat products originating from a cutting machine are deposited on a previously deposited film sheet, after which the product to be packed is covered by a further film sheet and the whole, in a sealing device round about, is tightly sealed by mutually welding through the film sheets with a weld joint.

[0006] The aforementioned constructions all have the drawback that they contain a relatively large number of moving parts, including moving arms and gripping members. This makes these constructions technically relatively complex, relatively maintenance-prone and susceptible to wear. Furthermore, these moving parts demand the additional space which is necessary. For example, when a final film strip is folded double by folding over, this calls for the necessary swinging space for the folding over. The use of pre-cut sheets of film material, which are subsequently joined together by welding, means that the dimensions of the sheets dictate the dimensions given to the packaging and, to change the dimensioning of the packaging, the sheet dimensions have to be altered. This generally requires the device to be reset and components to be replaced, in so far as the sealing station allows this at all.

[0007] The object of the present invention is to provide an improved method and to provide an improved device for packing a product, such as one or more slices of a cheese or meat product, cake, biscuit, a filled bread roll, etc. in film material. A particular object of the present invention is to provide a device and a method by which packagings of variable dimensions can be easily produced. A further object of the invention is to provide a method which can be realized with a constructionally simple device, as well as to provide a constructionally simple device.

[0008] The aforementioned object is achieved by the provision of a method according to Claim 1, as well as the provision of a device according to Claim 8 and a device according to Claim 9.

[0009] By gripping the leading edge of the film strip and bringing it to or holding it at a certain height above the support surface (for example, if this height were already present) and, material to be packed having been placed on the film strip located on the support surface, by drawing the product to be packed, complete with film strip et al, through beneath the gripped leading edge, this has the simple effect that the product to be packed comes to be enclosed between two layers of film and is then confined in between there following treatment in the sealing station. There is relatively little space required for moving parts. The drawing-through beneath the gripped leading edge can be realized, for example, with a moving pulling member, by, at the height of the gripped leading edge and from both sides of the film strip, sticking two pin-like members above the film strip and pulling these pin-like members together in the downstream direction through beneath the leading edge, whereupon two film strips, lying one over the other, are then formed, with a fold at the site of these pins, which fold will travel along the film strip as the pins move forwards. The space required for such moving pins is scarcely more than the space required for the actual packaging. By making one or more of these pins of hollow construction, they can, moreover, also be used to wrap the packed product in a vacuum or gas. The packaging is then closed in the sealing station, whilst the hollow pin(s) remain(s) inserted in the packaging so as then to close off the passage(s) for these pins following the vacuum-wrapping or gas-wrapping. With the method and device according to the invention, it is also very easy to adapt the dimensions of the packaging to the dimensions of the product to be packed. The film strip simply has to be fed a greater or lesser distance through be-

neath the gripped leading edge. Also added to this is the fact that, viewed in the longitudinal direction of the film strip, the dimensioning of the packaging, including in terms of the sealing station, is variable without any changing of components or alteration of the setting. For, in the downstream direction the sealing of the packaging is determined by the fold and in the upstream direction by the connecting part between the U-shaped hold-down members. An additional advantage is also the position-correction of the product to be packed, when this product to be packed is placed on a tray to be jointly packed between the film or possibly on a special underlay sheet made of, for example, absorbent material or ordinary film material. If this tray or that underlay sheet is, namely, crookedly positioned and ends up at an angle to the fold travelling along the film strip as the film is fed through beneath the gripped leading edge, this fold will straighten the tray or the underlay sheet in the sense that the latter comes to bear with a longitudinal side against the fold. In the event, also, of slices of sausage or cheese, for example, being placed directly onto the film strip and not being accurately positioned, the effect is that the packaging can nevertheless remain within predefined dimensions, since such slices, if they will not, through sticking, slide over the film strip, are then folded over by the actual advancing fold. Though the packed product which is thereby obtained, depending on the requirements which might be placed upon it, might look somewhat less attractive when a slice has been folded over, the device according to the invention or a device in which the method according to the invention is applied will suffer no breakdowns in working resulting from incorrect positioning of the deposited slices.

[0010] According to the device according to Claim 9, use is not so much made of pins which pull the film through beneath the gripped leading edge as of continuous conveyor means on which the strip of film material lies and on which the film strip, under the influence of the product to be packed, has sufficient grip to be reliably fed through beneath the gripped leading edge.

[0011] In order that a packed product is separate or is separated from the film strip, it is preferable according to the invention if the method further provides a step in which the lowermost film strip part is cut through along the leading edge of the uppermost film strip part or if, in the device according to the invention, cutting means are provided. The terms cutting-through and cutting means should here be interpreted in a broad sense. The use of knives or knife-like members can herein be envisaged, but also the application of laser or some other kind of heat source in order to obtain a through-cut.

[0012] In the method according to the invention, as well as a device in which this method is applied, it is of further advantage if, at the same time as the film material is fed through beneath the gripped front edge, a feed operation is conducted for the following packing cycle and if, around the moment of the cutting operation, the leading edge of the film strip for the following packing cycle is gripped. It should herein be noted that it is conceivable for this "leading edge" already to be gripped before the previous packaging has been separated from the film strip, in which case it is not, strictly speaking, a matter of gripping a leading edge, which, after all, will only be formed once the previous packaging has been separated from the film strip. It will certainly be clear to the person skilled in the art to what is here to be understood by "leading edge".

[0013] The method according to the invention and the device in which the method according to the invention is applied especially lend themselves to the cyclical packing of a large number of packagings.

[0014] As indicated earlier, it is preferable according to the invention if, for feeding film material through beneath the gripped leading edge of the film material, use is made of a continuous conveyor which, for this purpose, is actuated at appropriate moments. It is also preferable according to the invention if, also on the downstream side of the gripping means or, at least, of the gripped leading edge, a second continuous conveyor is provided, which, for the purpose of transporting away an obtained packaging, can be driven separately from the first conveyor.

[0015] It is especially preferable according to the invention if, during the so-called step e), the film material, by the product to be packed lying thereon, is pressed onto the first and/or second continuous conveyor in such a way that the first and second continuous conveyor effect step e) on their own. By "effect on their own" is meant, in particular, that that portion of the film strip which lies on the first and/or second continuous conveyor does not continue to be gripped by rollers or other gripping members in order to advance the transport but is simply fed through by the underlying conveyors. With a view to the unrolling of a roll of film material, it will be clear that immediately preceding the first continuous conveyor two driven transport rollers (at least one or both will be driven), the one pressing against the other, are arranged so as to unwind the roll of film material by pulling and to feed film material to the first continuous conveyor. Although this will also, of course, produce an upward thrust, the grip of the film strip, with packaging resting thereon, and the transporting action of the first and possibly second continuous conveyor are sufficient to prevent, in any event, creases in the film strip and displacements of the film strip. All this will imply that the transport speed of the first continuous conveyor and second continuous conveyor will be tuned to the unrolling speed at which the other unrolling instruments unroll the film strip. These speeds will preferably be mutually identical or possibly the transport speed of the first and second conveyor will be able to be greater than the unrolling speed of the roll (in this case involving slippage between film strip and conveyors).

[0016] As regards the so-called feed-through height at which the gripped leading edge lies or, at least, is held above the support surface, it should be noted that this,

to enable the packaging to be fed through beneath it, should be at least equal to the pack height plus twice the thickness of the film strip. Since the thickness of the film strip in this connection is negligible and jamming has to be prevented, it will already be sufficient in practice if the feed-through height is approximately 1.5 × the pack height or greater, for example measures 2 × the pack height.

[0017] Preferably, the device according to the invention is constructed for the purpose of being able to make the device operate fully automatically, this by means of suitable control means which, on the one hand, are actively connected to the operable components of the device according to the invention and, on the other hand, are set up to give, in the desired sequence, relevant control signals to these components. In this case, for example when the product to be packed is placed on the film wholly or partially by hand, the choice may be made to provide the device with an on-button which can be pressed by an operator to carry out a respective packing cycle. However, it is also readily conceivable for the initiation of a packing cycle also itself to be automated. This will be particularly applicable where the method and/or device according to the invention is applied in conjunction with a fully automatic or non-fully automatic cutting device for providing slices of the product to be packed or in conjunction with a feed device for advancing the product to be packed, such as one or more slices of a cheese or meat product, cake, biscuit, a filled bread roll, hamburgers, etc.

[0018] As regards the sealing station, it should be noted that use can here be made of many sealing techniques known from the prior art, including fusion-welding, pulsed current arc welding (a special embodiment of the so-called fusion welding, in which the hold-down members do not need to be permanently preheated), as well as of other sealing techniques. It is conceivable, for example, for the film strip, if pressed sufficiently firmly together, to effect a mutual seal by itself, for example through bonding agents or adhesives, or possibly mechanical interlocking means, provided for this purpose.

[0019] The present invention will be explained in greater detail below with reference to an illustrative embodiment represented diagrammatically in the drawing, in which:

> Figures 1 to 6 show, in a very diagrammatic side view, a number of phases in the method according to the invention, as well as, in correspondingly very diagrammatic representation, a device according to the invention in a number of different phases;
> Figure 2 shows a top view belonging to Figure 1;
> Figures 7 and 8 show a likewise very diagrammatic and perspective view of a device according to the invention in two different phases of the method according to the invention, the phases shown in Figures 6 and 7 conforming to the phases shown in Figures 1 and 4 respectively.

[0020] In the figures, a very diagrammatic representation is given of a device according to the invention, with which the method according to the invention can be applied. A device according to the invention is denoted by 1 in the figures. This device comprises a roll station 2 containing a roll 3 of film material, in particular transparent, printed or non-printed, coloured or non-coloured film material, which, for unrolling, is supported on two rollers 4 which, for the purpose of the unrolling, can be driven or can rotate freely. The film material might also possibly be non-transparent. From the roll 3, as it is unrolled, a strip 5 of film material is released, which, via a system of rollers 6 and 7 pressing one upon the other, of which at least one roller is drivable, is fed to a first conveyor 8 so as to lie on the top part thereof. The first conveyor 8 extends between two end reversing rollers 6 and 11, the first of which, as already indicated, interacts with roller 7 in order to clamp the film strip 5 therebetween and, when the roller 6 or 7 is driven, to be able to unwind the said film strip from the roll 3. On the downstream side (the edge of roller 11) of the first conveyor 8, gripping means 17 are provided for gripping the leading edge 50 of the film strip 5. In the illustrative embodiment, these gripping means 50 lie permanently at an elevation height H above the top part of the first conveyor 8.

[0021] In the extension of the first conveyor 8 there is a second conveyor 10, which extends between an upstream reversing roller 12 and a downstream reversing roller 13. In the shown illustrative embodiment, this second conveyor is movable to and fro, according to the arrow V, between a lowermost position shown in Figure 1 and an uppermost position shown in Figure 5. Although Figure 1 appears to suggest that the top parts of the first 8 and second 10 conveyor are at a selfsame height, it should be noted that the top parts of the second conveyor 10 can also lie lower, in particular can be set lower, than the top part of the first conveyor 8. This is particularly of interest in respect of relatively taller products, such as bread rolls, in order to procure sufficient space to lay the film thereover.

[0022] The first conveyor 8 can be constructed as a conveyor or, if so desired, as a belt conveyor having belts placed at distances apart. With reference to Figure 2, it can be seen that in the shown illustrative embodiment the first conveyor 8 is constructed as a band conveyor. This could, however, very well be a belt conveyor, as is the case with the second conveyor 10 according to this illustrative embodiment.

[0023] In the top view according to Figure 2, the unit 23, which is yet to be discussed and is represented in Figures 1 and 2-6, as well as the gripping means 17, are not represented.

[0024] In Figure 2 it can be seen that in the surface of the top part of the second conveyor 10 a U-shaped, lowermost pressure member 14 is fitted. This U-frame 14 is the lowermost pressure member of a sealing device. Running between the parallel legs of the U-frame there

are one (one is depicted in the shown example) or more belts 16, likewise also on the outside thereof. The belts 16 together tension the top surface of the second conveyor 10. It should be noted that the U-frames, close to the free ends of the legs, can also be closed by a respective closing part in order to obtain a rectangular U-frame and, upon the final packing, also by a rectangular stop seal round about the product. The closing parts can possibly be adjustable along the legs of the U-frames. The sides of the U-frames and the possible closing part will also, preferably, each be able to be switched individually on and off whenever this is required by a follow-on process.

[0025] Located above the second conveyor 10 is the uppermost pressure member (not represented), which in shape and dimensions conforms to the lowermost pressure member 14 such that these members can lie precisely one upon the other so as mutually to seal two intervening film strips lying one upon the other. This uppermost pressure member is accommodated in the unit 23. The lowermost pressure member 14 and uppermost pressure member can be of a so-called heat seal type, possibly of the pulse seal type very well suited to meat products, specifically. In the unit 23 there is also provided a pad 18, situated between and above the parallel legs of the uppermost pressure member.

[0026] With reference to Figures 1 to 6, the method according to the invention can be described as follows:

[0027] From the roll 3, a strip 5 of film material is fed along a support surface 53, formed by the top part of the first conveyor 8, for receiving the product to be packed. In the figures, this product to be packed is denoted by 9 and 51. 51 is a dish, a so-called tray, in which a meat or cheese product 9 is placed. In the case of a meat or cheese product 9, this will especially originate from a slicing machine, such as is known extensively in the prior art and in widely differing types, or will be deposited manually. Close to the downstream end of the support surface 53, the leading edge 50 of the strip of film material 5 is gripped by gripping means 17. The tray 51, containing the meat or cheese product 9, stands on that portion of the film strip 5 lying over the support surface 53. And the height of this product 51, 9 to be packed is less than the height H at which the gripping means 17 hold the leading edge 50 above the support surface 53.

[0028] As will be clear, the leading edge 50 will preferably be gripped first, before the product to be packed 9, 51 is deposited on the film strip. It might also be conceivable first to deposit the product to be packed 9, 51 on the film strip and only then to grip the leading edge 50.

[0029] In so far as the leading edge 50 is not already at the so-called feed-through height H above the support surface 53 - in the present example this will be the case, since the unit 23 and the support surface 53 are at a mutually fixed, possibly adjustable height difference H - the leading edge 50 will yet be brought to this feed-through height H before the film strip 5 and the product to be packed 51, 9 lying thereon are fed through beneath the gripped leading edge 50.

[0030] The first conveyor 8 and, preferably, also the second conveyor 10 will be actuated for transportation in the downstream direction (from left to right in the figures). The product to be packed 51, 9, placed on the film strip, will hereupon keep the film strip 5 pressed on the first and second conveyors 8, 10. An intermediate phase of feeding the packed product placed on the film strip through beneath the gripped leading edge 50 is shown in Figure 3. A following phase, in which the product to be packed 9, 51 has been fed fully through beneath the gripped leading edge 51, is shown in Figure 4. As revealed by Figures 3 and 4, as this feeding-through is realized beneath the gripped leading edge 50, a fold, or at least a curve 20, is formed in the film strip, the position of which fold or curve, during the feed-through, continues to travel along/over the film strip. That portion of the film strip 5 located above the second conveyor 10 is divided, for closer indication, into a lowermost film strip part 22 and an uppermost film strip part 21, mutually separated by the fold/curve 20. As can especially be seen in Figure 4, but is already suggested by Figure 3, the downstream side of the product to be packed, as it is fed through beneath the leading edge 50, comes into contact with the fold/curve 20 (at least, assuming that the product to be packed 9, 51 in Figure 1 is placed sufficiently close to the leading edge 50) and this fold/curve 20 will then be able to have a position-correcting effect upon the product to be packed, inasmuch as this fold/curve 20 can push the product to be packed to the right or even somewhat back (upstream).

[0031] In a following step, represented in Figure 5, the lowermost film strip part 22 and the uppermost film strip part 21 are mutually sealed. In the example shown, this is done by moving the second conveyor 10 upwards, so that the product to be packed 9, 51 comes up against the pad 18, which will then press down the uppermost film strip part 21. The lowermost pressure member 14, and the uppermost pressure member accommodated in the unit 23, will thereupon press the lowermost 22 and uppermost 21 film strip together and, under the influence of heat, fuse them together to form a U-shaped seal which connects to the fold 20 and thus, together with the fold 20, forms an all-round closed seal. As will readily be clear to the person skilled in the art, it is also possible, instead of moving the second conveyor 10 upwards, to move the unit 23 downwards towards the second conveyor 10. It is also conceivable to move the second conveyor 10 and the unit 23 closer together by moving them both.

[0032] Before, during or after the mutual sealing of the lowermost and uppermost film strip 22, 21, the film strip 5, during the phase shown in Figure 5, will be cut through by cutting means provided close to the gripping means 17, these cutting means (not shown) interacting with the gripping means 17 in such a way that the gripping means 17, as can be seen in Figure 6, will secure the new leading edge 50 acquired after the cutting.

[0033] After the steps described with reference to Figure 5, the lowermost and uppermost pressure member will be moved apart again, in the present example the second conveyor 10 will be moved back downwards until this precisely connects to the first conveyor 8. The second conveyor 10 can then subsequently be driven separately from the first conveyor 8 in order to transport away the acquired packaging 30, as represented in Figure 6, whilst a following product to be packed is deposited on the first conveyor 8, as indicated in Figure 6 by the vertical arrow.

[0034] Figures 7 and 8 show in a less diagrammatic form and in perspective view the previously described device according to the invention in the phases of Figures 1 and 4 respectively. The previously described components are in this case all accommodated in and on a housing 40. Figure 7 also indicates with dashed lines that on that housing 40 a further unit 41 can be placed, which, as likewise indicated diagrammatically by dashed lines, can lay out trays 50 on the support surface 53 by means of arms 43 and rams 42. A minor difference of detail is that, additionally in Figures 7 and 8, the hold-down roller 7 is represented on the bottom side of the first conveyor instead of on the top side of the first conveyor 8.

[0035] It should further be noted that many variants to the method and device, falling within the scope of the claims of the present application, might be conceived. Thus it is conceivable, for example, prior to the mutual sealing of the lowermost and uppermost film strip part, to stick a needle between these film strip parts so as, once the seal has been obtained, to be able to create further vacuum by suction or possibly add a shelf-life-enhancing gas, to subsequently extract this needle and, of course, seal the passage of the needle. It is also conceivable, even advantageous, to provide an adjustment facility in order to be able to adapt the quantity of film to be fed through beneath the gripped leading edge to the dimensions of the product to be packed. This can be realized, for example, by arranging the control means in such a way that they respectively lead the first and second conveyor onwards over a set, that is to say given, distance.

Claims

1. Method for packing a product, such as one or more slices of a cheese or meat product, in film material, comprising the following steps:

   a) the feeding of a strip of film material along a support surface for receiving the product to be packed on this strip of film material;
   b) the gripping of the film material, close to the downstream end of the support surface, by a leading edge of the film strip;
   c) the holding or bringing of the gripped leading edge at/to a feed-through height above the support surface, viewed at right angles to the downstream end of the support surface;
   d) the depositing of the product to be packed on that portion of the film strip which is located on the support surface;
   e) the feeding-through of film material, with the product to be packed lying thereon, in such a way beneath the gripped leading edge of the film strip, whilst the leading edge, viewed in the longitudinal direction of the support surface, remains in its place, that downstream of the leading edge two film strip parts, joined together by a fold and lying one upon the other, are formed, with the product to be packed therebetween;
   f) the procurement around the product of a U-shaped mutual sealing of the film strip parts, which seal, close to the open ends of the U-shape, connects to the fold.

2. Method according to Claim 1, comprising a step g) in which the lowermost film strip part is cut through along the leading edge of the uppermost film strip part.

3. Method according to Claim 2, wherein, simultaneously with step e), the step a) of a following packing cycle takes place and wherein, before, simultaneously with or directly after step g), step b) of this following packing cycle takes place.

4. Method according to one of the preceding claims, wherein steps a)-f) are repeated several times.

5. Method according to one of the preceding claims, wherein running over the support surface is the top part of a first continuous conveyor and wherein this continuous conveyor is actuated in steps a) and e).

6. Method according to Claim 5, wherein the first continuous conveyor ends close to the downstream end of the support surface and a second continuous conveyor connects to the first continuous conveyor, both continuous conveyors being actuated in steps a) and e), and wherein, in a step h), the second continuous conveyor, after step g), is actuated in order to transport away the packed product whilst the first conveyor remains idle, and wherein, preferably, during step h), a step d) is already performed for a following cycle.

7. Method according to Claim 5, wherein, during step e), the film material, by the product to be packed lying thereon, is pressed onto the first and/or second conveyor in such a way that the first and second continuous conveyor respectively effect step e) on their own.

8. Device set up for application of the method according to one of the preceding claims.

9. Device for packing a product, such as one or more slices of a cheese or meat product, in film material to form a pack having a predefined maximum pack height, comprising a basic frame having:

* a roll station for a roll of film material;
* continuous conveyor means for transporting a strip of film material, comprising, or at least spanning, a support surface for receiving a product to be packed on a portion of this strip lying in that support surface;
* guide means for guiding the strip of film material from the roll station onto the continuous conveyor means;
* gripping means for gripping the leading edge of the strip, which gripping means, on the one hand, are provided at the downstream end of the support surface in a fixed position, viewed in the longitudinal direction of the conveyor means, relative to these conveyor means, and, on the other hand, are provided at, or at least can be brought to, a feed-through height, viewed at right angles to the downstream end of the support surface, above the support surface, which feed-through height is greater than the pack height, for example is 1.5 times this pack height or is even greater.
* a sealing station comprising an at least U-shaped, possibly rectangular, lowermost and an at least U-shaped, possibly rectangular, uppermost pressure member, which are located on that side of the gripping means facing away from the support surface and which with their open side are facing away from the gripping means, and which pressure members can be moved closer together in order to press together two intervening film strip parts lying one upon the other and can be moved farther apart in order to release a packaging located between them, and
* cutting means for detaching the packaging from the film strip.

10. Device according to Claim 9, comprising control means which, on the one hand, are actively connected to the continuous conveyor means, the gripping means, the sealing station, and the cutting means, as well as, preferably, the guide means, and, on the other hand, are set up to grip the leading edge of the film strip and hold this at feed-through height above the support surface in order to direct the conveyor means and, preferably, the guide means to feed the film strip through beneath the leading edge in such a way that downstream of the leading edge two film strip parts, joined together by a fold and lying one upon the other, are formed, so as to press the pressure members, with the film strip parts therebetween, one against the other to provide a U-shaped seal which, with the open side of the U-shape, connects to the fold so as to move the pressure members apart, after having been pressed together, and cause the cutting means to detach the packaging from the film strip.

11. Device according to Claim 9 or 10, wherein the continuous conveyor means comprise a first continuous conveyor running upstream of the gripping means and a second continuous conveyor running downstream of the gripping means.

12. Device according to Claim 11, wherein the control means are set up so as, after the packaging has been sealed tight and cut loose, to drive the second conveyor separately from the first conveyor in order to transport away the packaging in a direction away from the gripping means.

13. Device according to Claim 11 or 12, wherein the second conveyor comprises three mutually parallel conveyor sections with, lying therebetween, the legs of the lowermost hold-down member, and wherein the web of the lowermost hold-down member runs upstream of these three sections.

14. Device according to one of Claims 11-13, wherein the second conveyor can be moved up and down, at right angles to the transport surface thereof, from a position situated in the extension of the first conveyor into a position situated higher than the first conveyor.

15. Device according to one of Claims 9-14, wherein the conveyor means comprise respectively the first and/or second conveyor, band or belt conveyors having a rubber-like rubber material on the external surface of the band(s) and the belts placed at a mutual distance apart.

16. Device according to one of Claims 10-15, wherein the sealing station is a fusion welding station of, preferably, the pulsed current arc welding type.

Fig 1

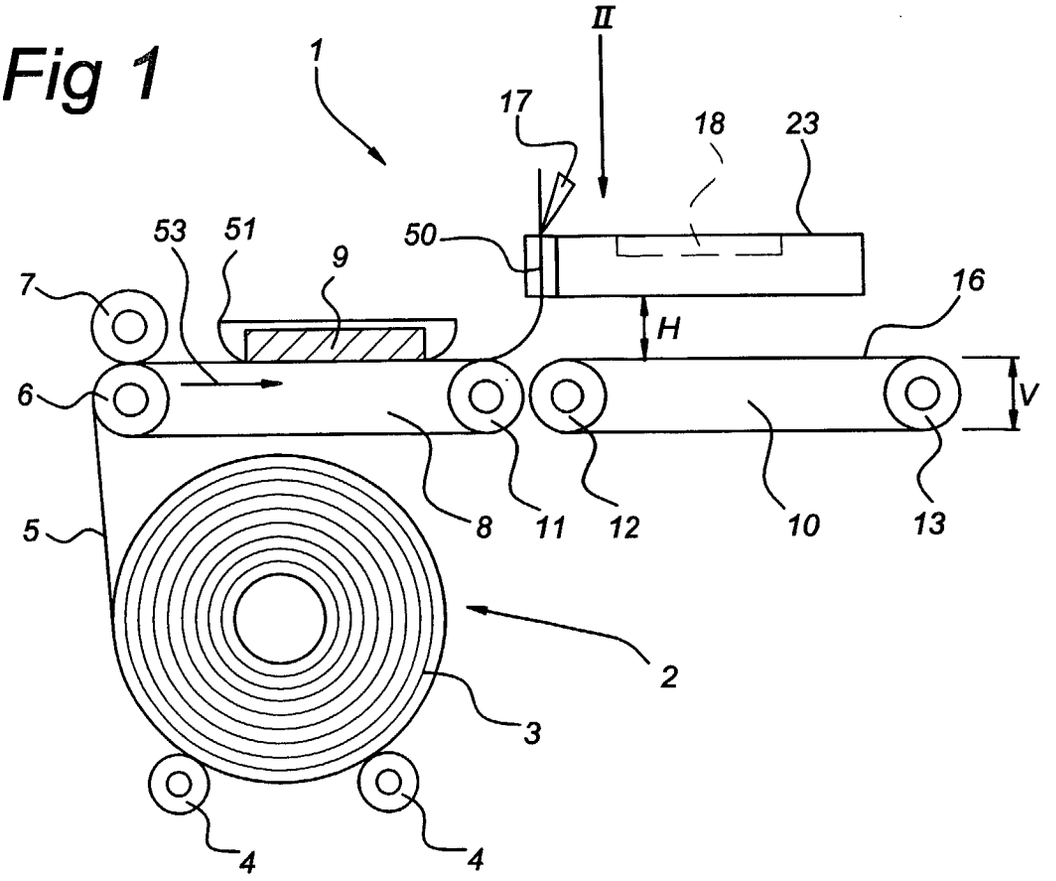

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Fig 2

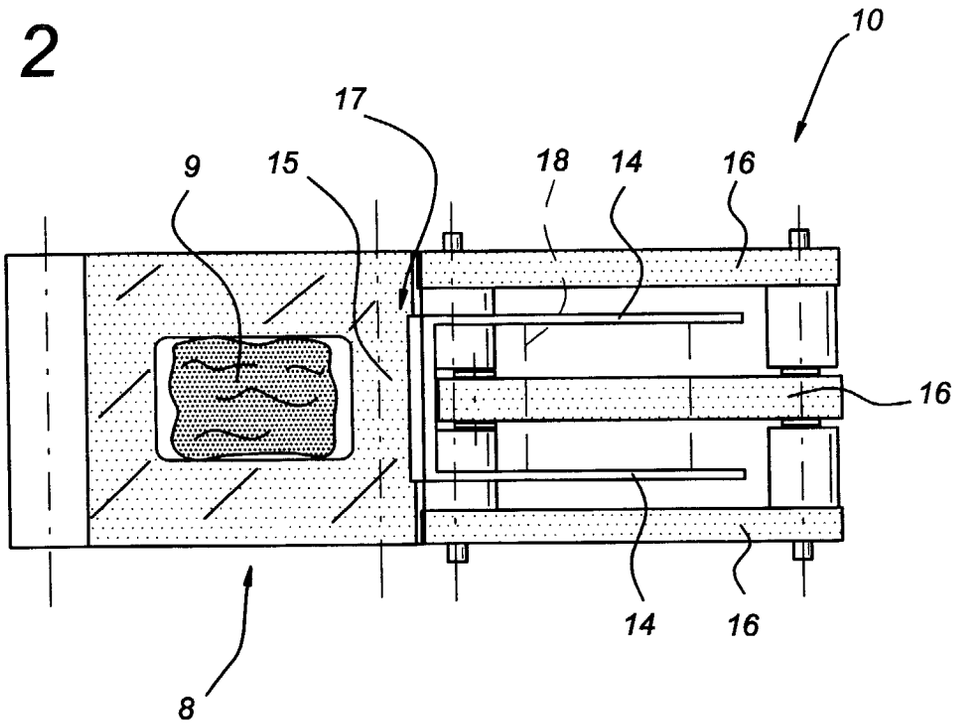
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Fig 3

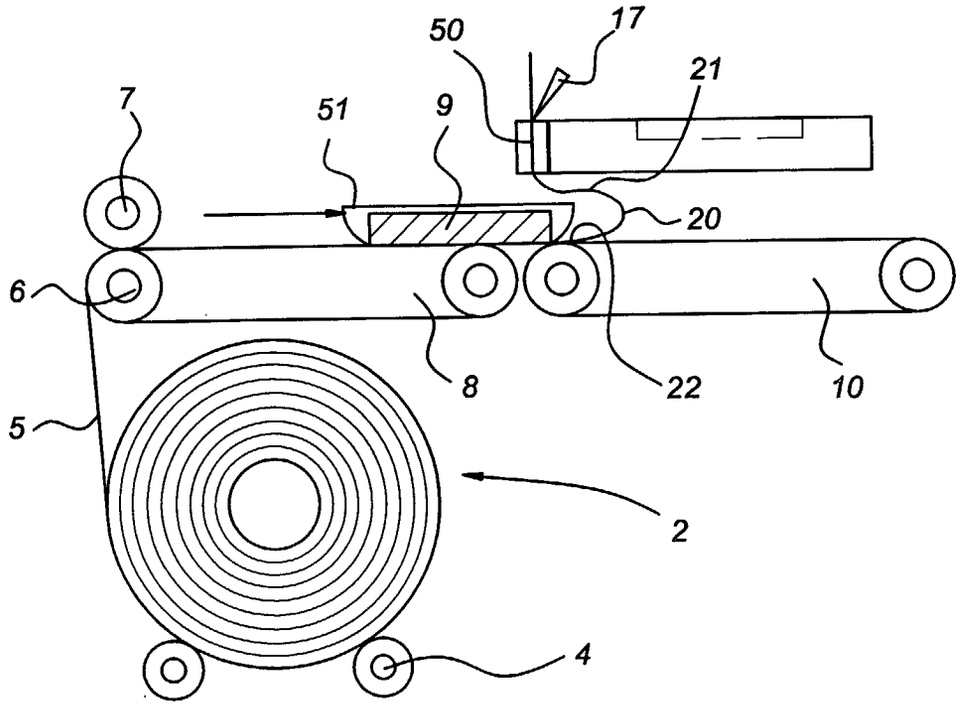


Fig 4

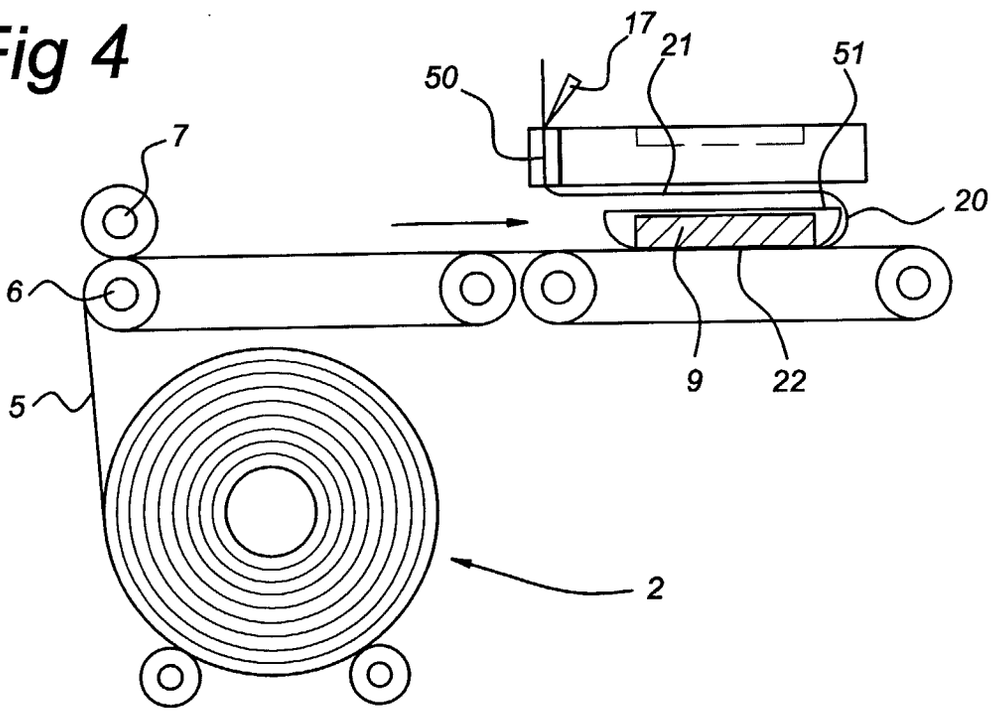


Fig 5

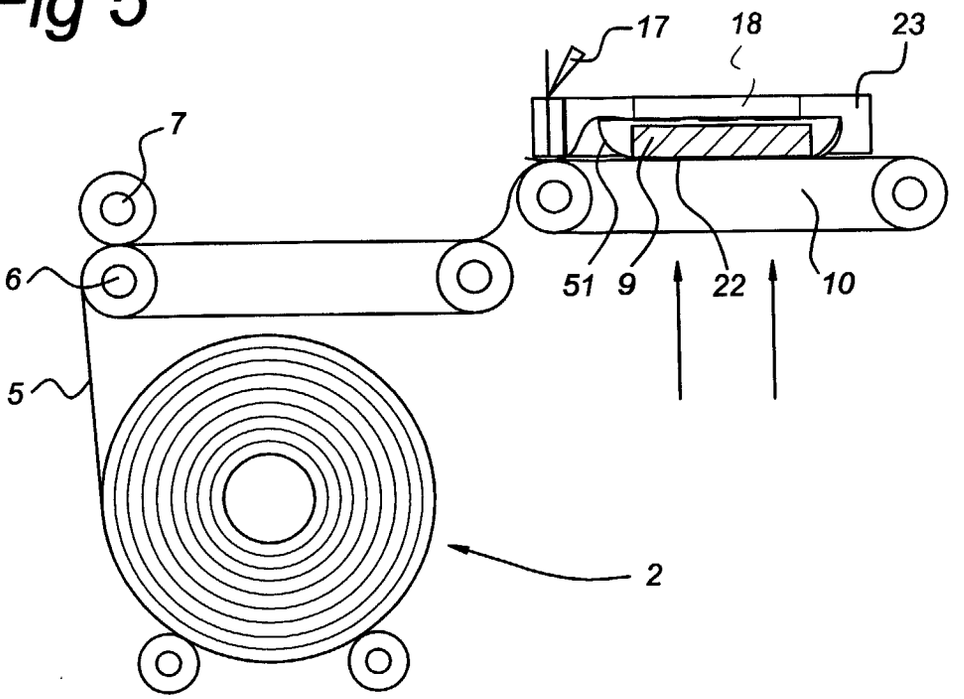


Fig 6

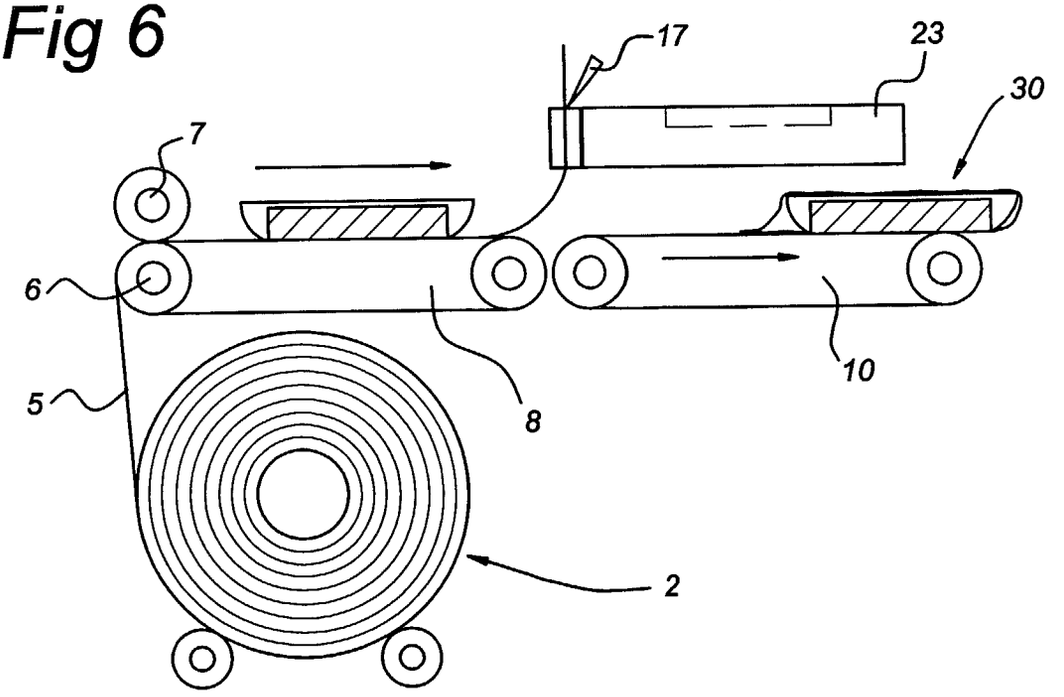


Fig 7

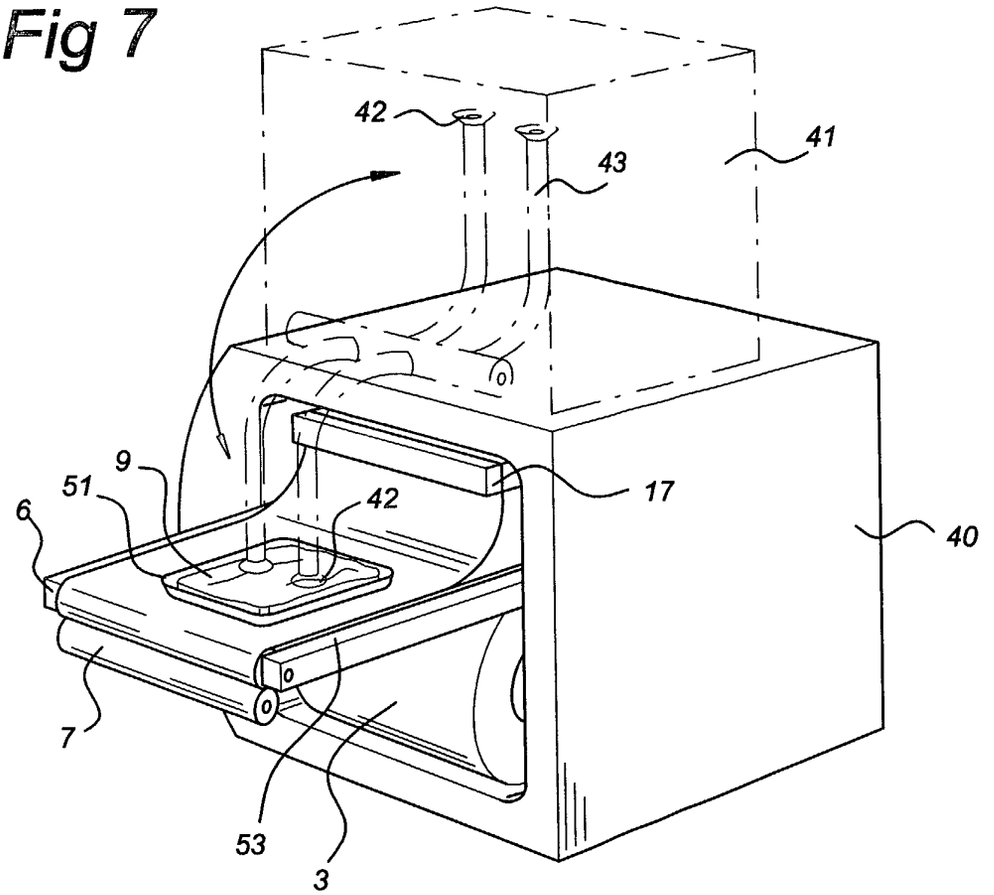
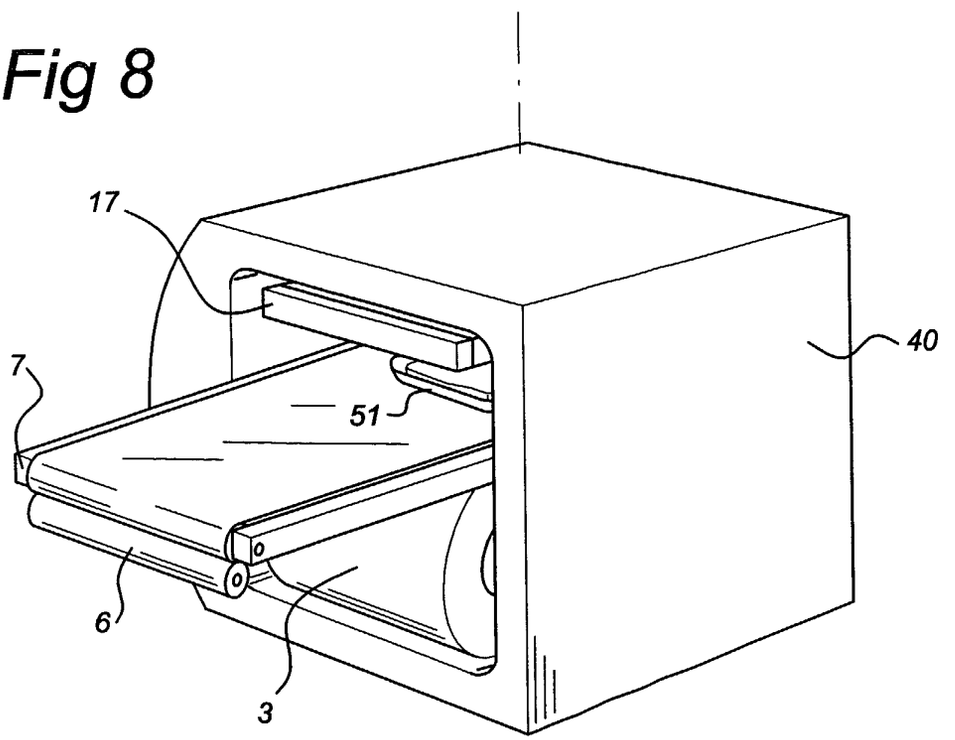


Fig 8



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THE HAGUE	3 January 2002	Grentzius, W

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