

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 194 347 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the grant of the patent:

27.10.2004 Bulletin 2004/44

(21) Application number: **00945855.5**

(22) Date of filing: **30.06.2000**

(51) Int Cl.7: **B65D 71/00, B65B 5/02**

(86) International application number:
PCT/EP2000/006128

(87) International publication number:
WO 2001/004017 (18.01.2001 Gazette 2001/03)

(54) **BOX FOR PACKAGING AND METHOD AND EQUIPMENT FOR PRODUCING AND EMPLOYING
SAME**

VERPACKUNGSDOSE, VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG UND
ANVERWENDUNG DERSELBEN

BOITE D'EMBALLAGE, PROCEDE ET EQUIPEMENT DE PRODUCTION ET D'UTILISATION DE
CETTE BOITE D'EMBALLAGE

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**

(30) Priority: **09.07.1999 IT BO990385**

(43) Date of publication of application:
10.04.2002 Bulletin 2002/15

(73) Proprietors:
• **Zambelli, Alberto**
40018 San Pietro in Casale (IT)
• **Zambelli, Mario**
40050 Funo di Argelato (IT)
• **Zambelli, Monica**
40018 San Pietro in Casale (IT)

(72) Inventor: **ZAMBELLI, Flavio**
I-40018 San Pietro in Casale (IT)

(74) Representative: **Porsia, Dino, Dr. et al**
c/o Succ. Ing. Fischetti & Weber
Via Caffaro 3/2
16124 Genova (IT)

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EP 1 194 347 B1

Description

[0001] The present invention is intended to protect a new corrugated cardboard box for packaging groups of products, for example groups of jars or bottles, and is also intended to protect the method and equipment for producing and employing such a box on an industrial scale. More specifically the invention is intended, in terms of the equipment, to protect a combination type machine which, depending on requirements, is able to package groups of products in conventional trays and wrap them in heat-shrink film or, alternatively, can wrap the said products in the specific cardboard box in question, which has good stacking strength and which, if necessary, can be opened easily and without any special tools, part of it remaining underneath the product and acting as a tray.

[0002] From GB-A-2 299 565 a box like package according to the preamble of claim 1 is known comprising a U-shaped supporting element including a bottom wall with flaps and opposed side walls with edge flaps and top flaps and a U-shaped cover disposed over the open top and sides of the supporting element and connected to its various flaps by adhesive. According to this prior art document the supporting element is formed by folding a rigid cardboard blank around the goods to be packaged and connecting overlapping regions of the edge flaps and bottom flaps by adhesive. Such folding may be done around a mandrel in which the packs are temporarily held. End tabs of the top flaps may also be adhered to the edge flaps. The cover may be of a less stout material such as paper. The package is produced by moving the supporting element and goods together in a series of vertical and horizontal movements past or between folding members.

[0003] A machine for packaging products in a tray and wrapping them in heat-shrink film is generally fitted with a horizontal magazine located underneath the initial path of the products to be packaged and containing the flat blanks, stacked sideways, which form the trays and which, using suitable means, are inserted in phase underneath the products. Further downstream, means are provided which lift up first the front and back strips of the tray and then fold the endtabs of the said strips through 90° onto the sides of the product, thereafter means dispense spots of glue, usually hot-melt glue, onto the ends of the side strips, and other means lift these strips up so as to fix them to the end tabs of the said front and back strips, thereby completing the tray. The package consisting of the product and the tray then passes through a station in which it is wrapped in a length of heat-shrink film which is unwound from a reel and wrapped around itself to form a tube, after which the wrapped package passes through a heating tunnel which causes the film wrapping to shrink, thereby forming a tight and secure packaging which, in a final stage, is stabilized by passing it through a subsequent cooling tunnel.

[0004] According to the present invention, a machine of this type can alternatively be used to package products in a novel corrugated cardboard box, using the following solution.

5 **[0005]** In the magazine that holds the blanks for forming the tray, new blanks of corrugated cardboard are stacked which differ from the usual ones in that the height of the side strips is the same as that of the product to be packaged so as to produce two side walls of a box with hinged flaps along their edges which can be folded down through 90° on top of the product. The two above-mentioned side walls have transverse cutting lines located above that portion of these walls which defines the side strips of the new tray. Downstream of the lower magazine referred to above and above the flow of products, a horizontal magazine is provided in which cardboard blanks intended to form the top wall and the front and back walls of the future box are stacked sideways. These blanks are inserted edge-on in front of the product, before the front strip of the new tray is folded upwards, using the usual means found in known machines to which reference is being made. Once the lower edge of the upper blank is held in place between the product and the lifted front strip of the new tray, the said upper blank is folded to form an upturned "U" so that it covers the product at the front, on top, and at the back, after which the back strip of the new tray is lifted up and holds the other edge of the upper blank in place. In the next stage the end tabs of the lifted strips of the new tray are folded through 90° onto the sides of the product, and spots of hot-melt glue are then applied onto the bottom part of the side walls of the new tray, these side walls being subsequently lifted up so as to close off the sides of the product and sticking to the said end tabs of the front and back strips of the new tray. In the next stage, spots of hot-melt glue are applied along the side edges of the top wall covering the product and then the edge flaps of the walls covering the sides of the product are folded down and stuck onto these glued areas. The product packaged in this way then passes through the tunnels in which the heat-shrink film would be heated and cooled - and which are now inactive - and exits the packaging machine.

45 **[0006]** The product is thus packed into a cardboard box in which the front and back walls are not fixed to the side walls and in which the corrugations of the corrugated cardboard run vertically in all these walls, so that the said box has good stacking strength. When the product packaged in such a box arrives at the point of sale, it is possible to break the said box open along the cutting areas on the sides using just one's hands, and it is possible to lift off the entire upper blank together with the portions of the side walls attached to it at the top, with the product being left contained within a tray which then acts as a display means.

55 **[0007]** When the machine needs to be used to package products in heat-shrink film, the upper magazine referred to above is not used and all the means that pre-

viously acted on the upper blank remain inactive, while the means that act on the lower blank used to form the tray only remain operational and, in the terminal part of the machine, the means for wrapping the heat-shrink film and the heating and cooling tunnels are once again activated.

[0008] Further characteristics of the invention and the advantages deriving therefrom will become apparent from the following description of a preferred embodiment of the said invention, which is illustrated solely by way of non-limiting example in the figures of the attached sheets of drawings, in which:

- Figure 1 is a diagrammatic side view of a combination type machine according to the invention;
- Figure 2 illustrates, in perspective view, the stages of operation of the machine for packaging the products inside cardboard boxes;
- Figures 3 and 4 illustrate, in plan view and opened out flat, the cardboard blanks to be placed in the lower magazine and in the upper magazine, respectively, of the machine operating in accordance with the diagram of Figure 2;
- Figure 5 illustrates, on an enlarged scale and in side view, the intermediate part of the machine for packaging the products in the new boxes formed using the cardboard blanks shown in Figures 3 and 4;
- Figures 6, 7, 8, 9, 10 and 11 each illustrate a detail of the part of the machine shown in Figure 5, taken on the planes VI-VI, VII-VII, VIII-VIII, IX-IX, X-X and XI-XI, respectively;
- Figure 12 illustrates in perspective view the assembled cardboard box containing the product; and
- Figure 13 illustrates in perspective view the cardboard box as it is opened.

[0009] In Figures 1 and 2, the reference 1 is used to denote the horizontal line along which the products P are conveyed, positioned adjacent to each other and generally aligned in several rows. These products are divided into groups P' of a given number by known means and are conveyed to the packaging means by transverse pushbars 12 on a conveyor 13 and by subsequent conveyor means 1', all known in the prior art. For the sake of clarity, the groups of products P' will be referred to simply as product P' from this point on. Located underneath the line 1 is a horizontal magazine of known type 2, on the conveyor 102 of which the cardboard blanks which form a tray of known type can be stacked sideways. Associated with this magazine are known means 3 which cyclically pick up the lead blank and insert it underneath the product P' as the latter advances along the known conveyor 1', which is fitted with cam-operated lever means (not illustrated) which at the appropriate stage lift up first the front strip and then the back strip of the tray, and then fold back through 90° the closure tabs located on the ends of the said strips, after which other means dispense spots of glue on the ends

of the side strips and additional means lift them up in order to fix them to the said closure tabs, thus completing the tray. The package consisting of the product P' together with the container tray finally arrives in the station 4 where it is wrapped in a length of film unwound from one of the reels 104 and closed in a loop around it, after which the entire packaging passes first through the heating tunnel 5, which causes the film wrapping to shrink, and then through the tunnel 6 which cools and stabilizes the heat-shrunk film wrapping. When the product goes on sale, the film wrapping is removed by cutting it and the product remains on display in the tray.

[0010] In order to implement the alternative packaging process in which the product P' is packaged inside cardboard boxes only, the invention envisages inserting blanks 7 of corrugated cardboard, of the type illustrated in Figure 3, in the magazine 2 in order to form a new tray having a bottom wall 107 with hinged strips of the same height 207, 207' and 307, 307', for example of the same height (see below), the former of which have conventional hinged closure tabs 407 at their ends. The strips 307, 307' are joined by means of weakened or cutting lines 8, 8' to coplanar rectangular extensions, with which they form walls 700, 700' large enough to cover the sides of the product P' and which have hinged closure flaps 507, 507' along their edges.

[0011] The blank 7 thus formed is stacked sideways in the magazine 2, with the walls 700, 700' positioned either side of the said magazine and, even with these large projecting walls, it can still be handled by the essentially known means of the wrapping machine considered above, which means have for that reason not been illustrated in detail in the appended drawings.

[0012] Located above the flow of products, above the means 3 which cyclically insert a blank 7 underneath the product P' advancing along the conveyor line 1, 1', is a horizontal magazine 9, on the bottom conveyor 109 of which blanks of corrugated cardboard 10, as shown in Figure 4, are stacked sideways. These blanks 10 include a wall 110 which is able to cover the top of the product P' and to which similar walls 210, 210', large enough to cover the product P' at the front and at the back, are hinged, these walls advantageously having rounded corners, as indicated by the reference 310. The blanks 10 are placed in the magazine 9 so that their length is positioned vertically, with the walls 210, 210' located above and below the intermediate wall 110.

[0013] In Figures 3 and 4, the arrow F denotes the direction of orientation of the longitudinal cardboard corrugations which form the blanks 7 and 10.

[0014] Figure 5 shows that located at the terminal part of the magazine 9 there are suction means 111 which cyclically remove the lead blank 10 from the said magazine and discharge it vertically downwards, positioning it in front of the path of the product and holding it there temporarily by means of motorized belts 11. When the product P' comes up against the wall 210 of the lowered blank 10, the said product is being positioned on the new

tray 7 and, while the known means lift up the front strip 207 of the new tray, the belts 11 lower the blank 10 so that the lower edge of the wall 210 is positioned between the product P' and the said strip 207 which, at the appropriate stage, is rotated upwards through 90°. It should be understood that this stage could be assisted by suitable guide means and/or by air-blowing means which have not been illustrated.

[0015] As the product advances to the right-hand side of Figure 5, the terminal part of the conveyor 13 is constructed such that a bar 12 thereon (refer to Figs 6 and 7 also) makes its return journey and acts on the blank 10, folding the wall 110 of the said blank down onto the product, after which another folding bar 14 (refer to Figure 8 also), mounted such that it projects out from a subsequent conveyor 15, comes into play and folds the wall 210' of the said blank 10 downwards, positioning it behind the product P', while, at the appropriate stage, the known means of the conveyor 101' lift up the back strip 207' of the new tray, which then holds the said wall 210' in place. In the next stage, known means 22, 22' (Fig. 8) intervene, rotating the closure tabs 407 of the new tray through 90°, after which - as illustrated in Figure 9 - glue guns 16, 16' (also known) come into operation, dispensing spots of hot-melt glue C1 (Figs 2, 5) onto the ends of the strips 307, 307' of the said new tray. The walls 700, 700' then engage with fixed folding members 17, 17' (see also Figure 10) which lift these walls up, while glue guns 18, 18' dispense spots of hot-melt glue C2 at the appropriate stage (Figs 2, 5) along that portion of the wall 110 of the lid adjoining the closure flaps 507, 507', these flaps then being rotated through 90° by fixed folding members 19, 19' (Fig. 11) and folded down onto the said wall 110, on which they are subsequently also held in place by successive rollers 20 for the time required for the glue to dry. The packaging exits the machine via the final stations 4, 5 and 6, which are not active in the present case. It goes without saying that when the machine is used to package products in heat-shrink film, the rollers 20 are designed so that they can be moved out of the way of the known binding means used to wrap the said product in the film wrapping.

[0016] The cardboard packaging produced using the equipment described and illustrated in Figure 12 is characterized in that its side edges 21 are open and in that the corrugations in all its side, front and back walls run vertically, as indicated by the arrows F, so that it has a very good stacking strength. Figure 13 illustrates how, using one's hands to cut the side walls of the box along the perforated lines 8, 8', it is possible to lift off the covering blank 10 together with the wall portions 700, 700' and the strips 507, 507' of the lower blank 7 attached to it, the said lower blank 7 - together with the wall 107 and the strips 207, 207', 307, 307' which are joined together by the tabs 407 - being left behind and acting as a tray underneath the product P'.

[0017] It should be understood that the scope of the invention also encompasses the use of a lower blank 7

which can form a type of tray in which the upper edges are positioned on a plane which is not horizontal and parallel to the bottom, as in the example described, but is inclined and constructed such as to form an acute angle relative to the bottom. A further variant could include the use of means for closing the side edges 21 at least at an intermediate point, for example by means of an operation involving transversely taping the box with adhesive tape.

Claims

1. Corrugated cardboard box for packaging products, in particular groups of jars or bottles, consisting basically of two elements or blanks and specifically a first bottom piece (7) which comprises a wall (107) on which the product (P') rests and which has opposite strips (207, 207', 307, 307') hinged around its perimeter which are lifted up around the sides of the product, and a second piece (10) which comprises an intermediate wall (110) for covering the top of the product, **characterized by** the fact that two of these strips (207, 207') having hinged closure tabs (407) at their ends are folded back against the sides of the product and are fixed with spots of glue (C1) to the ends of the other two strips (307, 307'), the latter being joined by means of upper perforated lines (8, 8') to coplanar rectangular portions of cardboard with which they form walls (700, 700') which cover the product on opposite sides and which in turn each have hinged flaps (507, 507') at the top designed to be fixed with spots of glue (C2) along the top of the other piece of cardboard (10) that makes up the box, along the sides of which wall the said top flaps (507, 507') of the said first piece (7) are fixed, this intermediate wall being hinged on either side to two walls (210, 210') which are folded down to cover the front and back of the product in those areas not covered by the side walls (700, 700') of the said first piece, the edges of these front and back walls being inserted behind the strips (207, 207') of the said first piece, the whole assembly being designed such that, at the time the packaged product goes on sale, it is possible to use one's hands to complete the cut through the said side walls (700, 700') along the said perforated lines (8, 8') and it is possible to lift off the second piece (10) completely, together with the portions of the side walls attached to it, while the product is left contained within a display tray formed by the bottom wall (107) and by the strips (207, 207', 307, 307') which are joined together by the closure tabs (407) of the said first piece (7).
2. Box according to Claim 1), **characterized in that** the sides of its side walls (700, 707') and of its front and back walls (210, 210'), which together form the

vertical edges (21) of the said box, are not fixed together except on the lower strips (207, 207', 307, 307', 407).

3. Box according to Claim 2), **characterized in that** means may, if necessary, be provided for joining the vertical edges (21) of its side and front and back walls at least at intermediate points, these means involving for example binding with adhesive tape. 5
4. Box according to Claim 1), in which the corrugations of the corrugated cardboard run vertically in all the side, front and back walls (700, 700', 210, 210'), so that the said box has good stacking strength. 10
5. Method for packaging groups of products in cardboard boxes as claimed in the preceding claims, **characterized by** the following operational stages: 15
 - inserting the first bottom piece (7) of the box underneath the product (P') as it advances along a straight and horizontal path so that the said product rests on the central wall (107) of this first piece and so that its strips (207, 207') are located in front of and behind the product; 20
 - positioning the second piece of cardboard (10) vertically in front of the product (P') so as to cover it at the front with a front wall (210); 25
 - lifting up the strip (207) of the said first bottom piece - which is positioned in front of the product - so that this strip holds the lower edge of the said front wall (210) of the second upper piece in place; 30
 - folding the second upper piece (10) into the shape of a U so that it covers the top of the product with its intermediate wall (110) and the back with its back wall (210'); 35
 - lifting up the back strip (207') of the first bottom piece so that this strip holds the said back wall (210') of the second piece in place; 40
 - folding the closure tabs (407) back against the sides of the product, these tabs being hinged on the ends of the said lifted up strips (207, 207') of the first bottom piece; 45
 - dispensing spots of glue (C1), for example hot-melt glue, onto the ends of the side strips (307, 307') of the first bottom piece; 50
 - lifting up the side walls (700, 700') of the first bottom piece and fixing their corresponding lower strips (307, 307') to the said closure tabs (407); 55
 - dispensing spots of glue (C2), for example hot-melt glue, along those portions of the wall (110) covering the product which adjoin the side walls (700, 700') which were lifted up in the previous stage and which have closure flaps (507, 507'); 60
 - folding the said closure flaps (507, 507') down onto the said glued areas of the top wall (110). 65

6. Method according to claim 5), **characterized in that** a final stage is provided in which the vertical edges of the side, front and back walls of the box are fixed together at least at an intermediate point, for example by means of a so-called transverse taping operation using adhesive tape. 70
7. Equipment for implementing the method referred to in Claim 5), comprising a machine which is designed for packaging products (P') in heat-shrink film, these products being placed in a tray formed by a flat blank of corrugated cardboard taken from a feed magazine (2) located underneath the path of the said products, the machine being designed to handle the said first (7) and the said second (10) cardboard blanks, fitted with additional means for dispensing spots of glue (C2), and operated with the final heat-shrink (5) and cooling (6) stations inactive; the lower magazine (2) of the machine being supplied with the said first blanks (7) intended to form the new tray, these blanks being positioned so that their side walls (700, 700') lie either side of the said magazine, the said machine being fitted with means (17, 17') which, at the appropriate stage, lift up these side walls after spots of glue (C1) have been applied by suitable glue guns (16, 16') onto the ends of those portions (307, 307') of the side walls which act as side strips of the new tray, and the said machine being fitted with first means (19, 19') which fold down the closure flaps (507, 507') of the said lifted side walls (700, 700') in order to stick them onto those areas of the top wall (110) covering the product on which the spots of glue (C2) have been applied by special glue guns (18, 18'), and being fitted with second means (20), which hold the said flaps down in the closure position until the glue can keep them stuck together; the said machine being further fitted with an additional magazine (9), located above the flow of products, in which the second cardboard blanks (10) intended to form the top wall and the front and back walls of the packaging box are stacked sideways, these second blanks being positioned so that the said walls lie one above the other, the terminal part of the said magazine being fitted with means (111) designed cyclically to remove the lead blank and feed it to pairs of motorized belts (11) which point downwards and are designed to position a blank vertically in front of the path of the product to be packaged so that the lower edge of the wall (210) of this blank - which will cover the front of the product - is gripped between the said product and the front strip (207) of the second bottom blank (7) which, at the appropriate stage, is lifted up by the suitable known means; the terminal part of the conveyor (13) - which, by means of its projecting bars (12), causes the product (P') to advance as the said first blank (7) is inserted underneath it - is constructed such that, as it makes its 75

return journey, one of its pushbars folds the intermediate wall (110) of the said second blank (10) down onto the product; and that downstream of the bar conveyor (12, 13) which folds the intermediate wall (110) of the said second blank (10) down onto the product, a means is provided which consists for example of a further conveyor (15) which, by means of its own projecting bars (14), folds the corresponding wall (210') of the second blank down onto the back face of the product (P') while, at the appropriate stage, the lower edge of this wall is gripped between the said product and the back strip (207') of the first bottom blank (7) which, at the appropriate stage, is lifted up by the suitable known means.

8. Equipment according to claim 7, **characterized in that** means are provided which are exclusively dedicated to handling the product (P') to be packaged and the two blanks (7, 10) which form the cardboard box for packaging the said product.

Patentansprüche

1. Kiste aus Wellpappe zum Verpacken von Produkten, insbesondere Gruppen von Gefäßen oder Flaschen, bestehend im wesentlichen aus zwei Elementen oder Rohteilen und im speziellen aus einem ersten Bodenteil (7), das eine Wand (107) umfaßt, auf der das Produkt (P') steht, und das gegenüberstehende, um seinen Umfang herum klappbare Streifen (207, 207', 307, 307') aufweist, die um die Seiten des Produkts herum angehoben sind, und aus einem zweiten Stück (10), das eine Zwischenwand (110) zum Abdecken einer Oberseite des Produkts aufweist, **dadurch gekennzeichnet, daß** zwei der Streifen (207, 207') mit klappbaren Schließstreifen (407) an ihren Enden gegen die Seiten des Produkts zurückgefaltet sind und mit Klebepunkten (C1) an den Enden der zwei anderen Streifen (307, 307') befestigt sind, wobei die letztgenannten mit Hilfe von perforierten Linien (8, 8') mit planparallelen rechteckigen Pappteilen verbunden sind, mit denen sie Wände (700, 700') bilden, die das Produkt an gegenüberliegenden Seiten abdecken und die wiederum jeweils am oberen Ende klappbare Klappen (507, 507') aufweisen, die so gestaltet sind, daß sie mit Klebepunkten (C2) entlang der Oberseite des anderen Stückes des Kartons (10) und entlang der Seiten, an deren Wand die oberen Klappen (507, 507') des ersten Stückes befestigt sind, befestigt werden können, was die Kiste bildet, wobei die Zwischenwand an beiden Seiten an zwei Wänden (210, 210') klappbar befestigt ist, die herunter gefaltet sind, um die Vorderseite und die Rückseite des Produkts in denjenigen Bereichen abzudecken, die nicht durch die Seitenwände (700, 700') des ersten Stückes abgedeckt wer-

den, wobei die Kanten der Vorder- und Rückwand hinter den Streifen (207, 207') des ersten Stückes eingeführt sind, wobei die gesamte Anordnung dergestalt ist, daß, wenn das verpackte Produkt in den Verkauf geht, es möglich ist, per Hand den Schnitt durch die Seitenwände (700, 700') entlang der perforierten Linie (8, 8') zu vervollständigen und es möglich ist, das zweite Stück (10) vollständig zusammen mit den Teilen der daran befestigten Seitenwänden abzuheben, während das Produkt innerhalb einer Auslagewanne aufbewahrt bleibt, die durch die Bodenwand (107) und durch die Streifen (207, 207', 307, 307') gebildet wird, die durch die Schließstreifen (407) des ersten Stückes (7) miteinander verbunden sind.

2. Kiste nach Anspruch 1, **dadurch gekennzeichnet, daß** die Seiten ihrer Seitenwände (700, 700') und ihrer Vorder- und Rückwände (210, 210'), die zusammen die vertikalen Kanten (21) der Kiste bilden, außer an den unteren Streifen (207, 207', 307, 307') nicht aneinander befestigt sind.
3. Kiste nach Anspruch 2, **dadurch gekennzeichnet, daß** Mittel, soweit notwendig, zum Verbinden der vertikalen Kanten ihrer Seiten-, Vorder- und Rückseiten wenigstens an Zwischenpunkten vorgesehen sein können, wobei diese Mittel beispielsweise ein Verbinden mit Klebebändern einschließt.
4. Kiste nach Anspruch 1, bei der die Wellen der Wellpappe vertikal in allen der Seiten-, Vorder- und Rückwänden verlaufen, so daß die Kiste eine gute Stapelfestigkeit aufweist.
5. Verfahren zum Verpacken von Gruppen von Produkten in Kisten aus Wellpappe nach den vorstehenden Ansprüchen, **gekennzeichnet durch** die folgenden Arbeitsschritte:
- Einfügen eines ersten Bodenteiles (7) der Kiste unterhalb des Produkts (P'), wenn es sich entlang eines geraden und horizontalen Weges fortbewegt, so daß das Produkt auf der Mittelwand (107) des ersten Stückes steht und so daß dessen Streifen (207, 207') vor und hinter dem Produkt angeordnet sind;
 - Positionieren des zweiten Stückes des Kartons (10) vertikal vor dem Produkt (P'), um es an der Vorderseite mit einer Vorderwand (210) abzudecken;
 - Anheben des Streifens (207) des ersten Bodenteils, der vor dem Produkt angeordnet ist, so daß dieser Streifen die untere Kante der Vorderwand (210) des zweiten oberen Stückes in Position hält;
 - Falten des zweiten oberen Stückes (10) in eine U-Form, so daß es die Oberseite des Produkts

- mit dessen Zwischenwand (110) und die Rückseite mit dessen Rückwand (210') abdeckt;
- Anheben des Rückstreifens (207') des ersten Bodenstückes, so daß dieser Streifen die Rückwand (210') des zweiten Stückes hält; 5
 - Zurückfalten der Schließstreifen (407) gegen die Seiten des Produkts, wobei diese Streifen mit den Enden der angehobenen Streifen (207, 207') klappbar verbunden sind;
 - Auftragen von Klebepunkten (C1), beispielsweise Heißkleber, auf die Enden der Seitenstreifen (307, 307') des ersten Bodenstückes; 10
 - Anheben der Seitenwände (700, 700') des ersten Bodenstücks und Befestigen ihrer entsprechenden unteren Streifen (307, 307') an den Schließstreifen (407); 15
 - Auftragen von Klebepunkten (C2), beispielsweise Heißkleber, entlang derjenigen Teile der das Produkt abdeckenden Wand (110), die an den Seitenwänden (700, 700') angrenzen, die in dem vorherigen Schritt angehoben wurden und Schließklappen (507, 507') aufweisen; 20
 - Herunterfalten der Schließklappen (507, 507') auf die Klebebereiche der Oberwand (110). 25
6. Verfahren nach Anspruch 5, **dadurch gekennzeichnet, daß** ein letzter Schritt vorgesehen ist, in dem die vertikalen Kanten der Seiten-, Vorder- und Rückwände der Kiste zumindest an einem Zwischenpunkt beispielsweise mit Hilfe eines sogenannten Quer-Tape-Arbeitsganges unter Verwendung von Klebeband aneinander befestigt werden 30
7. Vorrichtung zur Durchführung des Verfahrens nach Anspruch 5, mit einer Maschine, die zum Verpacken von Produkten (P') in einer Schrumpffolie ausgelegt ist, wobei diese Produkte in einer Wanne angeordnet sind, die durch ein flaches Rohteil aus Wellpappe gebildet ist, die aus einem Zuführmagazin entnommen wird, das unter dem Pfad des Produkts angeordnet ist, wobei die Maschine ausgelegt ist, den ersten und den zweiten Rohling aus Wellpappe zu handhaben, mit zusätzlichen Mitteln zum Auftragen von Klebepunkten (C2) ausgestattet ist und mit einer am Ende angeordneten Schrumpfstation (5) und Kühlstation (6) betrieben wird, wobei das untere Magazin (2) der Maschine mit den ersten Rohteilen (7) gefüllt ist, die die neue Wanne formen sollen, wobei diese Rohteile derart angeordnet sind, daß ihre Seitenwände (700, 700') an jeder Seite des Magazins liegen, wobei die Maschine mit Mitteln (17, 17') ausgestattet ist, die in dem entsprechenden Schritt diese Seitenwände anheben, nachdem Klebepunkte (C1) durch geeignete Kleberpistolen (16, 16') auf die Enden der Teile (307, 307') der Seitenwände aufgebracht worden sind, welche als Seitenstreifen der neuen Wanne dienen, und wobei die Maschine mit ersten Mitteln (19, 19') ausgestattet ist, welche die Schließklappen (507, 507') der hochgehobenen Seitenwände (700, 700') herunterfalten, um sie auf jene Bereiche der oberen, das Produkt abdeckenden Wand (110) zu kleben, auf die die Klebepunkte (C2) durch spezielle Kleberpistolen (18, 18') aufgetragen worden sind, und wobei die Maschine mit zweiten Mitteln (20) ausgestattet ist, welche die Klappen in einer Schließposition nach unten halten, bis der Kleber sie klebend zusammenhalten kann; wobei die Maschine des Weiteren mit einem zusätzlichen, über dem Durchlauf der Produkte angeordneten Magazin (9) ausgestattet ist, in dem die zweiten Rohteile (10) aus Wellpappe, die die obere Wand und die Vorder- und Rückwand der Verpackungskiste bilden sollen, seitlich gestapelt sind, wobei diese zweiten Rohteile derart angeordnet sind, daß die Wände übereinander liegen, wobei der Endteil des Magazins mit Mitteln (111) ausgestattet ist, die ausgelegt sind, zyklisch das Führungsrohteil zu entnehmen und es zu einem Paar von angetriebenen Bändern (11) zu führen, welche nach unten gerichtet sind und ausgelegt sind, das Rohteil vertikal vor dem Pfad des zu verpackenden Produkts zu positionieren, so daß die untere Kante der Wand (210) dieses Rohteils - das die Vorderseite des Produkts abdecken wird - zwischen dem Produkt und dem vorderen Streifen (207) des zweiten Bodenrohteils (7) gepackt wird, das in dem entsprechenden Schritt durch geeignete bekannte Mittel angehoben wird; wobei der Endteil des Förderers (13) - der mit Hilfe dessen hervorstehenden Stangen das Produkt antreibt, wenn das erste Rohteil unter ihm eingeführt wird - so konstruiert ist, daß, wenn er zurückfährt, eine seiner Druckstangen die Zwischenwand (110) des zweiten Rohteils (10) auf das Produkt herunterfaltet; und daß stromabwärts von dem Stangenförderer (12, 13), der die Zwischenwand (110) des zweiten Rohteils (10) auf das Produkt herunterfaltet, Mittel vorgesehen sind, welche beispielsweise aus einem weiteren Förderer (15) bestehen, der mit Hilfe eigener hervorstehender Stangen (14) die entsprechende Wand (210') des zweiten Rohteils auf die Rückseite des Produkts (P') herunterfaltet, während in dem entsprechenden Schritt die untere Kante dieser Wand zwischen dem Produkt und der Rückstreifen (207') des ersten Bodenrohteils (7) gegriffen wird, welcher in dem entsprechenden Schritt durch geeignete bekannte Mittel angehoben wird. 35 40 45 50
8. Vorrichtung nach Anspruch 7, **dadurch gekennzeichnet, daß** Mittel vorgesehen sind, die ausschließlich zum Handhaben des zu verpackenden Produkts (P') und der zwei Rohteile bestimmt sind, welche die Kiste aus Wellpappe zum Verpacken des Produkts bilden. 55

Revendications

1. Boîte en carton ondulé pour emballer des produits, en particulier, des groupes de bocaux ou de bouteilles, composée fondamentalement de deux éléments, découpes ou flancs et en particulier d'une première pièce inférieure ou de fond (7) qui comprend une paroi (107) sur laquelle le produit (P') repose et qui comporte des bandes opposées (207, 207', 307, 307') articulées autour de son périmètre et lesquelles sont relevées autour des côtés du produit, et une seconde pièce (10) qui comprend une paroi intermédiaire (110) pour couvrir la partie supérieure du produit, **caractérisée en ce que** deux de ces bandes (207, 207') comportant des languettes de fermeture articulées (407) au niveau de leurs extrémités sont rabattues contre les côtés du produit et sont fixées par des points de colle (C1) aux extrémités des deux autres bandes (307, 307'), ces dernières étant reliées au moyen de lignes perforées supérieures (8, 8') aux parties rectangulaires du carton situées dans un même plan avec lesquelles elles forment des parois (700, 700') qui recouvrent le produit sur des côtés opposés et qui possèdent chacune des languettes à charnière ou articulées (507, 507') au niveau de la partie supérieure conçue pour être fixée par des points de colle (C2) le long de la partie supérieure de l'autre pièce de carton (10) qui compose la boîte, le long des côtés de laquelle paroi lesdites languettes supérieures (507, 507') de ladite première pièce (7) sont fixées, cette paroi intermédiaire étant articulée sur l'un et/ou l'autre côté sur deux parois (210, 210') qui sont rabattues pour couvrir la partie avant et arrière du produit dans ces zones non couvertes par les parois latérales (700, 700') de ladite première pièce, les bords de ces parois avant et arrière étant insérées derrière les bandes (207, 207') de ladite première pièce, la totalité de l'assemblage étant conçu de façon à ce que, au moment où le produit emballé va en vente, il soit possible d'utiliser ses mains pour terminer la coupe à travers lesdites parois latérales (700, 700') le long desdites lignes perforées (8, 8') et qu'il soit possible d'enlever la seconde pièce (10) complètement, ainsi que les parties des parois latérales qui y sont fixées, tandis que le produit est laissé au sein d'un plateau-présentoir formé par la paroi inférieure (107) et par les bandes (207, 207', 307, 307') qui sont reliées ensemble par les languettes de fermeture (407) de ladite première pièce (7).
2. Boîte selon la revendication 1, **caractérisée en ce que** les côtés de ses parois latérales (700, 707') et de ses parois avant et arrière (210, 210'), qui forment ensemble les bords verticaux (21) de ladite boîte, ne sont pas fixés ensemble sauf sur les bandes inférieures (207, 207', 307, 307', 407).
3. Boîte selon la revendication 2, **caractérisée en ce que** des moyens peuvent, si nécessaire, être prévus pour relier les bords verticaux (21) de ses parois latérales et avant et arrière au moins aux points intermédiaires, ces moyens comprenant, par exemple, la fixation par une bande adhésive.
4. Boîte selon la revendication 1, dans laquelle les ondulations de la boîte en carton ondulée sont à la verticale sur toutes les parois latérales, avant et arrière (700, 700', 210, 210'), de façon à ce que ladite boîte comporte une bonne résistance d'empilage.
5. Procédé d'emballage de groupes de produits dans des boîtes en carton selon les revendications précédentes, **caractérisé par** les étapes de fonctionnement suivantes consistant à :
 - insérer la première pièce inférieure (7) de la boîte sous le produit (P') au fur et à mesure qu'il avance le long d'une voie droite et horizontale de façon à ce que ledit produit repose sur la paroi centrale (107) de cette première pièce et de façon à ce que les bandes (207, 207') soient placées à l'avant et à l'arrière du produit ;
 - positionner la seconde pièce de la boîte en carton (10) verticalement à l'avant du produit (P') de manière à le couvrir à l'avant avec une paroi avant (210) ;
 - relever la bande (207) de ladite première pièce inférieure - qui est positionnée à l'avant du produit - de façon à ce que cette bande maintienne en place le bord inférieur de ladite paroi avant (210) de la seconde pièce supérieure ;
 - plier la seconde pièce supérieure (10) sous la forme d'un U de façon à ce qu'elle couvre la partie supérieure du produit avec sa paroi intermédiaire (110) et la partie arrière avec sa paroi arrière (210') ;
 - relever la bande arrière (207') de la première pièce inférieure de façon à ce que cette bande maintienne en place ladite paroi arrière (210') de la seconde pièce ;
 - rabattre les languettes de fermeture (407) contre les côtés du produit, ces languettes étant articulées sur les extrémités desdites bandes relevées (207, 207') de la première pièce inférieure ;
 - répartir ou distribuer des points de colle (C1), par exemple, de colle thermofusible, sur les extrémités des bandes latérales (307, 307') de la première pièce inférieure ;
 - relever les parois latérales (700, 700') de la première pièce inférieure et fixer leurs bandes inférieures correspondantes (307, 307') auxdites languettes de fermeture (407) ;
 - répartir ou distribuer des points de colle (C2), par exemple, de colle thermofusible, le long de

ces parties de la paroi (110) couvrant le produit qui sont attenantes aux parois latérales (700, 700') qui ont été relevées dans l'étape précédente et qui comportent des languettes de fermeture (507, 507') ;

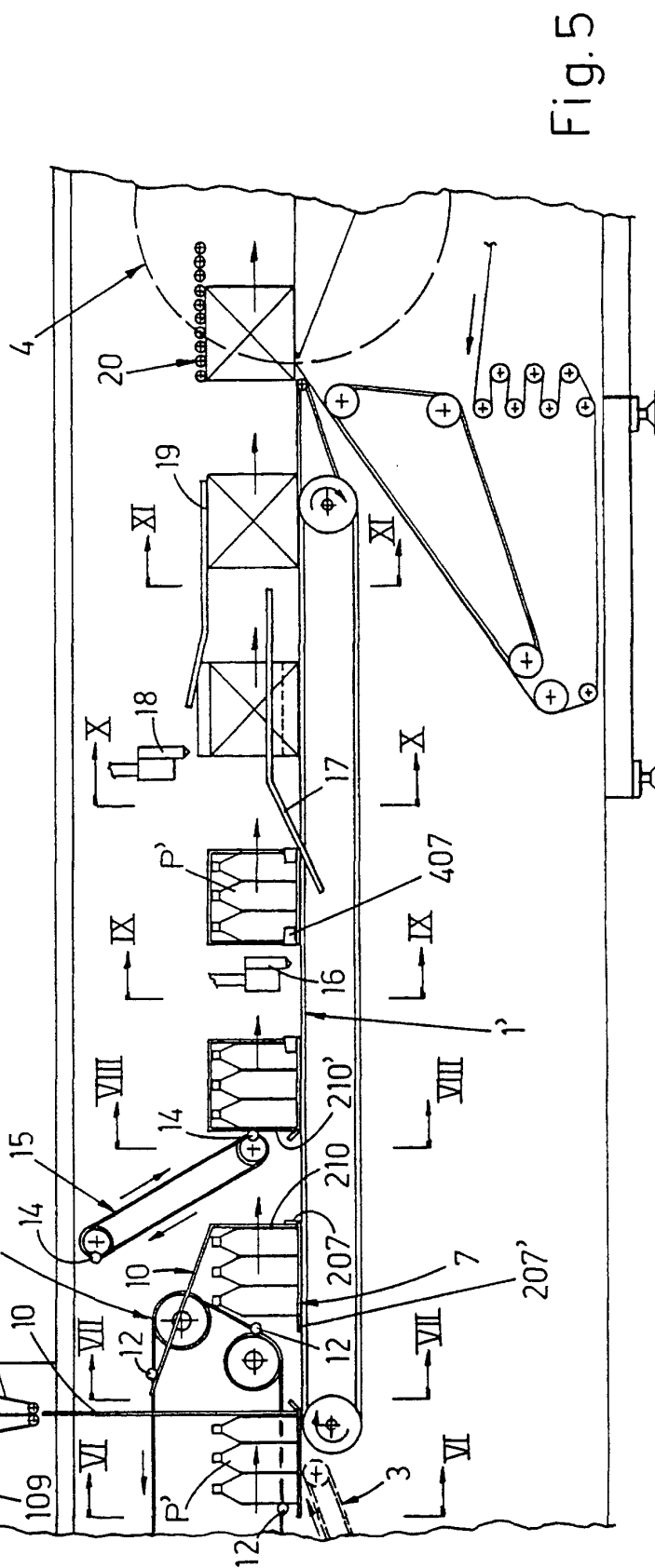
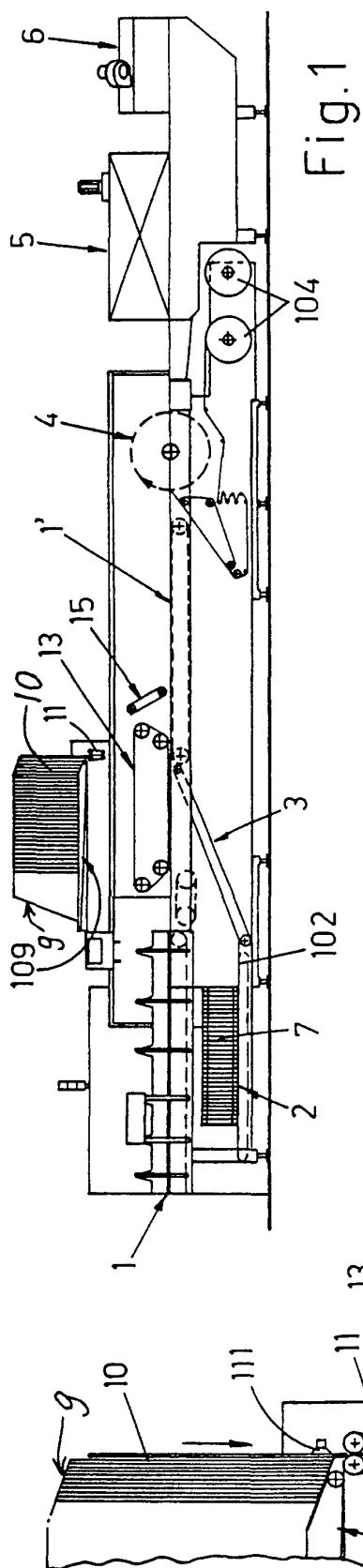
- rabattre lesdites languettes de fermeture (507, 507') sur lesdites zones collées de la paroi supérieure (110).

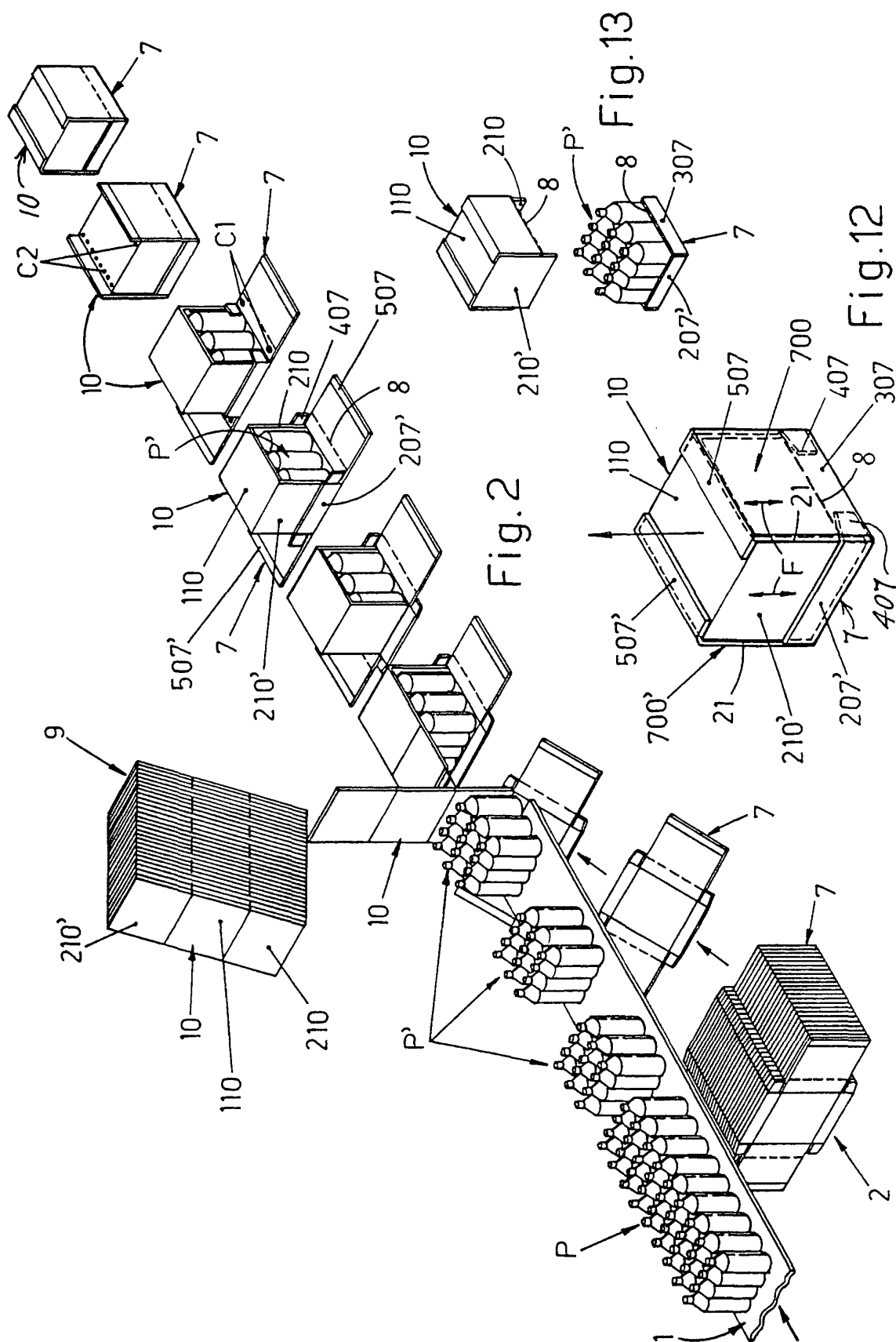
6. Procédé selon la revendication 5, **caractérisé en ce qu'une** étape finale est prévue dans laquelle les bords verticaux des parois latérales, avant et arrière de la boîte sont fixés ensemble au moins à un point intermédiaire, par exemple, au moyen de ce qu'on appelle une opération de jointure transversale en utilisant du ruban adhésif.

7. Equipement pour mettre en oeuvre le procédé auquel il est fait référence dans la revendication 5, comprenant une machine qui est conçue pour emballer des produits (P') dans un film thermorétractable, ces produits étant placés dans un plateau formé par une découpe ou un flanc plat(e) de carton ondulé provenant d'un magasin d'alimentation (2) placé sous le chemin desdits produits, la machine étant conçue pour manipuler lesdites premières (7) et lesdites secondes (10) découpes ou flancs en carton, pourvue de moyens supplémentaires pour répartir des points de colle (C2), et actionnée avec les postes finaux de thermorétraction (5) et de refroidissement (6) inactifs ; le magasin inférieur (2) de la machine étant approvisionné avec lesdites premières découpes (7) prévues pour former le nouveau plateau, ces découpes ou flancs étant positionnées de façon à ce que leurs parois latérales (700, 700') reposent sur l'un et/ou l'autre côté dudit magasin, ladite machine étant pourvue de moyens (17, 17') qui, à l'étape appropriée, relèvent ces parois latérales après que les points de colle (C1) ont été appliqués par des pistolets-colleurs appropriés (16, 16') sur les extrémités de ces parties (307, 307') des parois latérales qui font office de bandes latérales du nouveau plateau, et ladite machine étant pourvue de premiers moyens (19, 19') qui rabattent les languettes de fermeture (507, 507') desdites parois latérales relevées (700, 700') afin de les coller sur ces zones de la paroi supérieure (110) couvrant le produit sur lequel les points de colle (C2) ont été appliqués par des pistolets-colleurs spéciaux (18, 18'), et étant pourvue de seconds moyens (20), qui maintiennent en place lesdites languettes dans la position de fermeture jusqu'à ce que la colle puisse les maintenir collées ensemble ; ladite machine étant, en outre, pourvue d'un magasin supplémentaire (9), placé au-dessus du flux de produits, dans lequel les secondes découpes ou flancs en carton (10) prévues pour former la paroi supérieure et les parois avant et arrière de la boîte

d'emballage sont empilées latéralement, ces secondes découpes ou flancs étant positionnées de façon à ce que lesdites parois reposent l'une au-dessus de l'autre, la partie terminale dudit magasin étant pourvue de moyens (111) conçus cycliquement pour enlever la découpe ou flanc avant ou de tête et l'acheminer vers des paires de courroies motorisées (11) qui sont dirigées vers le bas et sont conçues pour positionner une découpe ou un flanc verticalement devant le chemin du produit pour être emballée de façon à ce que le bord inférieur de la paroi (210) de cette découpe ou flanc - qui couvrira l'avant du produit - soit serrée entre ledit produit et la bande avant (207) de la seconde découpe inférieure (7), qui, à l'étape appropriée, est relevée par des moyens connus appropriés ; la partie terminale du transporteur (13) - qui, au moyen de ses barres faisant saillie (12), amène le produit (P') à avancer au fur et à mesure que ladite première découpe ou flanc (7) est insérée sous lui, - est construite de façon à ce que, alors qu'il effectue son trajet de retour, une de ses barres de poussée rabatte la paroi intermédiaire (110) de ladite seconde découpe (10) sur le produit ; et en ce que en aval du transporteur à barres (12, 13) qui rabat la paroi intermédiaire (110) de ladite seconde découpe (10) sur le produit, un moyen est prévu qui est constitué, par exemple, d'un autre transporteur (15) qui, au moyen de ses propres barres faisant saillie (14), rabat la paroi correspondante (210') de la seconde découpe sur la face arrière du produit (P') tandis que, à l'étape appropriée, le bord inférieur de cette paroi est serré entre ledit produit et la bande arrière (207') de la première découpe inférieure (7) qui, à l'étape appropriée, est relevée par lesdits moyens connus appropriés.

8. Equipement selon la revendication 7, **caractérisé en ce que** des moyens sont prévus qui sont exclusivement dédiés à la manipulation du produit (P') à emballer et des deux découpes (7, 10) qui forment la boîte en carton pour emballer ledit produit.





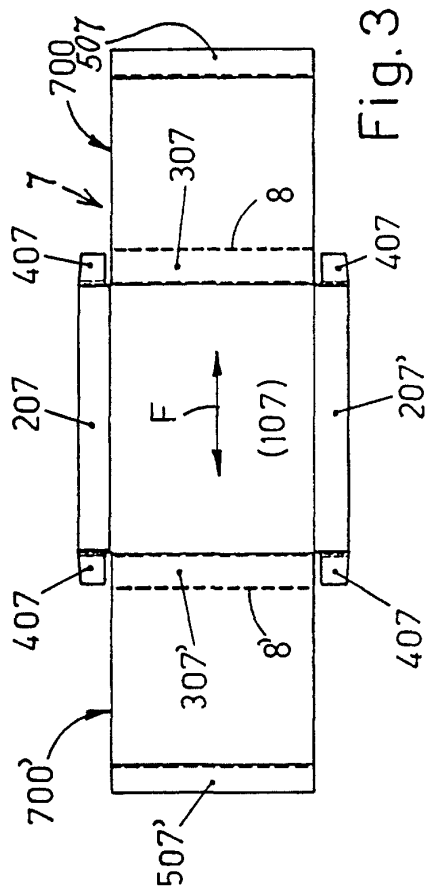


Fig. 3

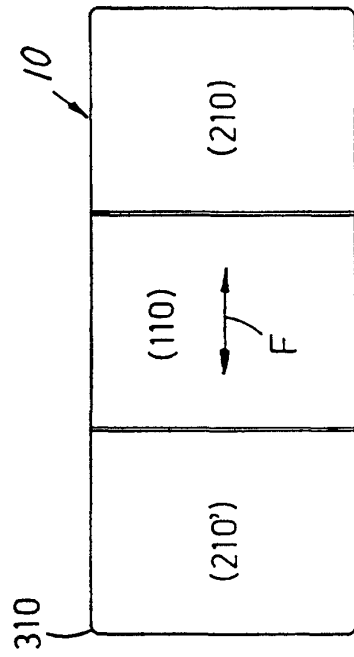


Fig. 4

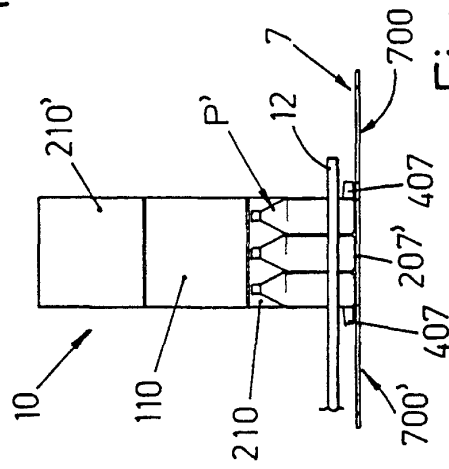


Fig. 6

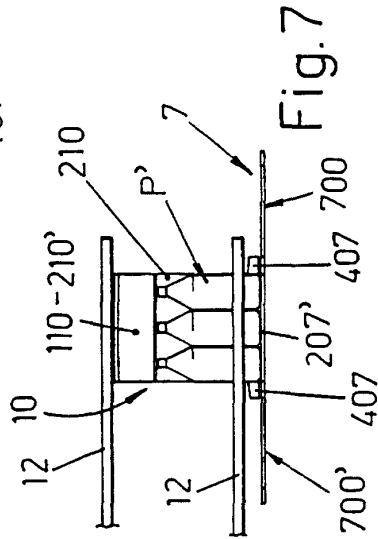


Fig. 7

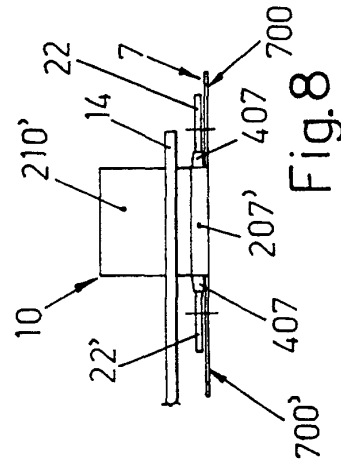


Fig. 8

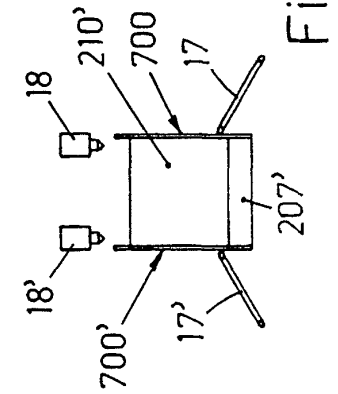


Fig. 9

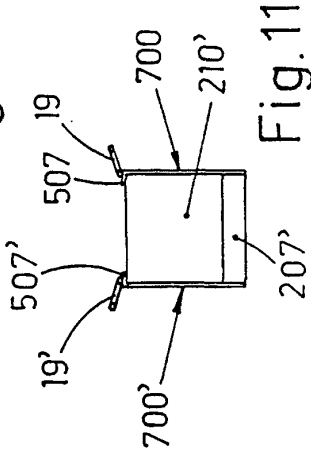


Fig. 10

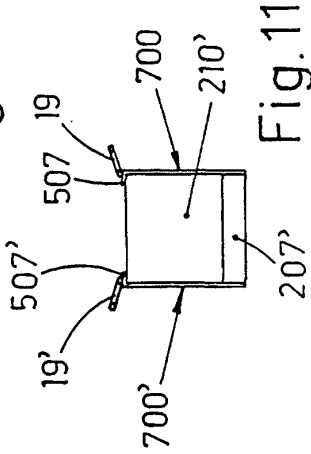


Fig. 11