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(54) **Automatic machine and method for the packaging of a series of editorial products in plastic film**

Automatische Maschine und Verfahren zum Verpacken von Druckereiprodukte in Kunststoffolie

Machine automatique et procédé pour emballer des produits d'imprimerie dans un film plastique

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Description

[0001] The present invention relates to an automatic machine and a method for the packaging of a series of editorial products in plastic film and also a relative packaging.

[0002] Document EP 1 188 670 discloses a method and a machine for wrapping printed products in a packaging material according to the preamble of claim 10, respectively 1, wherein a feeder supplies and deposits at least two printed products next to each other on a web of packaging material for packaging the same and cutting separate packages. Document US 4,035,984 and GB 2 088 811 disclose wrapping methods and apparatuses for pairs of tubular particles.

[0003] In the field of graphics, there is the tendency of presenting clients with products increasingly rich in accessories. As a result of this, editorial products, such as newspapers, magazines, or other similar items, are packaged in plastic film together with other products or gadgets, both for direct distribution and shipment to subscribers.

[0004] In order to allow the products proposed to be visible, they are normally packaged in film bags where the most important products can be seen in the two front and rear sides of the packaging.

[0005] Another solution, not welcomed by newspapers, is to package various products arranged on supporting boards where the products are aligned and/or superimposed for part of the cover. With this solution, in fact, the products are cumbersome and difficult to display on the stands.

[0006] An objective of the present invention is to provide an automatic machine and a method for the packaging of a series of editorial products in plastic film to provide a relative packaging in which the product and its contents, as also the content of editorial inserts and gadgets, are more visible.

[0007] Advantageously the present invention provides an automatic machine and a method for the packaging of a series of editorial products in plastic film, in which the relative packaging can be easily stacked.

[0008] Advantageously the present invention provides an automatic machine and a method for the packaging of a series of editorial products in plastic film, which is particularly simple and functional, with reduced costs.

[0009] The objectives according to the present invention are achieved by providing an automatic machine and a method as specified in the independent claims.

[0010] Further characteristics of the automatic machine and method for the packaging of a series of editorial products in plastic film are indicated in the dependent claims.

[0011] The characteristics and advantages of an automatic machine and a method for packaging according to the present invention will appear more evident from the following illustrative and non-limiting description, referring to the enclosed schematic drawings, in which:

figure 1 is a schematic view of an automatic machine for the packaging of a series of editorial products in plastic film, object of the present invention;

figure 2 schematically shows a packaging at the moment of separation from the film being fed onto the machine of figure 1;

figures 3A and 3B respectively show schematic transversal sections of two parallel conveyors according to two different feeding configurations to the packaging machine of figure 1;

figures 4A and 4B show two possible arrangements of the plastic film around the products for the longitudinal welding in a packaging station of the machine of figure 1;

figures 5 and 6 schematically show a second longitudinal welder for the closing of the packaging and a transversal welding station of the packaging machine of figure 1, respectively;

figure 7 shows an overturning device of the automatic packaging machine.

[0012] With reference to the figures, these schematically show a packaging machine, indicated as a whole with 10, on which a method is embodied for the packaging of a series of products, comprising at least one editorial product 11 and at least a second product 11', in a plastic film 12 for producing a relative packaging 100 (figure 2), which has four distinct display sides for a better visibility of the products packaged.

[0013] The first page of the cover, which in figure 2 is facing downwards, can for example show either the cover of the main magazine or a false cover carrying the bar code with the sales price of the magazine in its promotional form. The second page of the cover, schematized in the figure as side "B", can for example show a graphic insert, analogously to the third cover page, shown in the figure as side "C", which can alternatively show the back of the gadget. In order to have the maximum visibility, the gadget, such as an audio disk or video, a book or other object, should in fact be positioned on the fourth page of the cover, also not visible in figure 2.

[0014] The packaging 100 envisages the presence of two bags 101 for the products 11 and 11', which are closed and separate from each other.

[0015] Preferably, two further containment areas 102 for labels 103 are situated at an upper end of the bags 101. An overlapping band of the packaging is therefore formed, on which, for example, information necessary for identifying the product and inserts, as also the sales price as a promotional offer or the like, can be visualized.

[0016] Each of the containment areas 102 for labels 103, in addition to the bags 101 for the editorial products 11 and/or gadgets 11' are closed on all sides by means of weldings 104 or a folding 105 of the film.

[0017] The packaging 100 can be folded, at the end of the packaging process in the machine, along the intermediate longitudinal welding line 104 to create a conformation with a limited encumbrance.

[0018] The automatic packaging machine 10 comprises a first feeder 13 which longitudinally transfers the first product 11 onto a main pusher conveyor 14 according to the advance direction schematized with the arrow F. In the illustrative and non-limiting embodiment of the packaging machine, object of the present invention, shown and described, said first product 11 is fed with its cover facing downwards and forms the most visible product at the end of the packaging.

[0019] The main conveyor 14 is flanked in a first section by at least one transversal feeder 15 for the feeding of other products, such as inserts, magazines, newspapers, leaflets or a series of these, in a stacked position with respect to the first product. Each of the transversal feeders 15 feeds a different product 11 onto the first conveyor, providing the possibility of packaging a series of products 11 in a first bag 101.

[0020] In a subsequent section, the main conveyor 14 is flanked by a further pusher conveyor 16 for transporting a third and possibly fourth product 11' towards a packaging station 20. Feeding means 17, such as automatic feeders for graphic editorial products or robotized feeders for gadgets, audio disks and videos, or other items are arranged to the side of the second pusher conveyor 16.

[0021] Both conveyors comprise lateral guides 18, which can be adjusted on the basis of the dimensions of the products transported thereon.

[0022] Furthermore, the second conveyor 16 also has its own interaxis 19 which can be moved sideways to flank the second conveyor 16 alongside the first conveyor 14.

[0023] Figures 3A and 3B respectively, schematically show, in a transversal section, the two conveyors 14 and 16 parallel to each other carrying products 11 having different side encumbrances.

[0024] Furthermore, the phase of the pusher of the second conveyor 16 can be modified as desired with respect to the phase of the pusher of the main conveyor 14, as specific autonomous motors, not shown, are provided, which operate in correlation with the motor of the main conveyor 14.

[0025] The subsequent packaging station 20 comprises a continuous unwinding bobbin for the feeding of the plastic film 12 and a mechanical conformer 21 which unwinds the film 12 and redirects it in a longitudinal direction F, as schematically illustrated in figure 1.

[0026] In figure 1, two labelling machines 22 are situated along the unwinding run of the packaging film 12 for the positioning of labels 103 either preprinted and/or to be printed with fixed and/or variable data. The labelling machines 22 apply the labels 103 in pairs to the film 12 transversally with respect to the feeding direction F and at a distance from each other corresponding to a pre-established length greater than the length of the editorial products 11 to be packaged.

[0027] Alternatively, the labels 103 can all be the same and fed from a roll, not shown.

[0028] As an alternative, it is also possible to apply a

single label 103 to the film, rather than a pair of labels, suitably positioned between the products.

[0029] A perforator, of the known type and not shown in the figure, can also be assembled on the machine 10, which acts on the film 12 in correspondence with the label 103 applied, creating a hole suitable for hanging the production of packages 100.

[0030] The labels 103, which can be made of various materials, such as paper, film or other materials, are suitable for making the area of the display band stronger and more rigid, for sustaining the weight of the products 11 and 11' when the packaging 100 is hung and avoiding the formation of folds of the film 12.

[0031] The mechanical conformer 21 winds the film around the products 11, which are fed from the two conveyors to the packaging station 20.

[0032] A longitudinal closing device 23 of the known type and schematically shown in figure 1, is for example a wheel welder, a glue dispenser, an ultrasonic welder, or another device, which effects an intermediate longitudinal welding 104 for separating the two flanked bags 101 containing the products 11 and 11'.

[0033] If the plastic film 12 is folded over the flanked products 11 and 11' along their two opposite edges, creating a superimposed area in a substantially central position, the longitudinal welding 104 also forms the welding of the film 12 (figure 4A).

[0034] The film 12 can also be indifferently folded only along one edge of the editorial products 11', as shown in figure 4B. In this case, the intermediate longitudinal welding 104 separates the two bags 101 and a further longitudinal welder 24, positioned laterally, effects the welding with a side trimming of the excess film 106 and closing of the packaging 100, as schematically shown in the sectional detail of figure 5.

[0035] In an alternative embodiment, not shown, the longitudinal closing device 23 can also be set up for effecting a longitudinal cut, if the machine is to be converted for the production of single packagings, for example as an emergency line in the case of damage to the other lines for single packaging. By feeding the same products on both conveyors 14 and 16, and subsequently longitudinally separating the film in an intermediate position with respect to the two products, it is in fact possible to obtain pairs of single packagings, i.e. double the productivity.

[0036] In a subsequent transversal welding station 25, double welding bars 26, also of the known type and only shown schematically in the detail of figure 6, also effect two transversal weldings 107 of the plastic film which close the packaging 100, i.e. they separate the bags 101 from the containment areas of the labels 102, and separate the packaging 100 from the film 12 being fed.

[0037] An overturning device 27, which allows the superimposition of the two bags 101, comprises a base belt which effects a torsion suitable for overturning the product 11' which is alongside the main product 11 on top of the latter thus reducing the encumbrance of the packaging machine, as schematically shown in the detail of fig-

ure 7.

[0038] The automatic machine 10 for the packaging of a series of editorial products in plastic film according to the present invention, can also comprise further known devices, such as an accumulator, a manipulator, a conveyor towards subsequent packaging machines, or other devices.

[0039] The packaging of a series of editorial products, produced with the machine and method, object of the present invention, has the advantage of giving the inserts greater visibility and consequently a consistent value added advertising.

[0040] The automatic packaging machine, object of the present invention can also be advantageously used for the packaging of single products with a high productivity.

[0041] The automatic machine, the method for the packaging of a series of editorial products in plastic film thus conceived can undergo numerous modifications and variants, all included in the invention as claimed. In practice, the materials used, as also the dimensions, can vary according to technical requirements.

Claims

1. An automatic machine for the packaging of a series of editorial products in plastic film comprising feeding means of editorial products (11, 11') and a packaging station (20) equipped with a mechanical conformer (21) for the winding of the film (12) around the products (11, 11') and means for the closing of the same, said means comprising at least one longitudinal closing device (23) and a transversal welding station (25) for the formation of a packaging (100), wherein said packaging (100) comprises two closed and separate bags (101) for a first product (11) and a second product (11') respectively, said bags (101) being foldable, **characterized in that** it also comprises two parallel pusher conveyors (14, 16) for the feeding of said first product (11) and at least said second product (11') respectively, to said packaging station (20), said machine comprising a first longitudinal feeder (13) for the feeding of said at least first product (11) to said first pusher conveyor (14), at least one transversal feeder (15) flanked to a first section of said first pusher conveyor (14) for the feeding of other products (11) in a stacked position with respect to said first product (11), wherein in a subsequent section of the first pusher conveyor (14) flanked by said second pusher conveyor (16) the machine further comprises transversal feeding means (17) arranged to the side of said second pusher conveyor (16) for the feeding of said at least second product (11') to said second pusher conveyor (16).
2. The machine according to claim 1, **characterized in that** each of said conveyors (14, 16) comprises

lateral guides (18) which can be regulated on the basis of the dimensions of said products (11, 11').

3. The machine according to claim 2, **characterized in that** said second conveyor (16) has an interaxis (19) which can be moved sideways to be flanked by said first conveyor (14).
4. The machine according to claim 1, **characterized in that** said longitudinal closing device (23) is a glue dispenser.
5. The machine according to claim 1, **characterized in that** said longitudinal closing device (23) is a welder suitable for optionally effecting the longitudinal welding between said bags (101).
6. The machine according to claim 1, **characterized in that** it comprises a further longitudinal welder (24) positioned laterally for the welding with a side trimming of an excess (106) of film (12) and the closing of said packaging (100).
7. The machine according to claim 1, **characterized in that** it comprises an overturning device with a belt (27) for the superimposition of said two bags (101).
8. The machine according to claim 1, **characterized in that** said packaging station (20) comprises at least one labelling machine (22) situated along the unwinding run of the packaging film (12) for the application of labels (103) in pre-established positions.
9. The machine according to claim 8, **characterized in that** said at least one labelling machine (22) is associated with a perforating device for the perforation of the film (12) in correspondence with said labels (103).
10. A method for the packaging of a series of editorial products (11, 11') in plastic film (12), comprising the phases of feeding at least a first main product (11) and at least a second product (11') separate and flanked with a packaging station (20), winding said parallel products (11, 11') with plastic film (12), effecting at least one longitudinal welding (104) in an intermediate position between said parallel products (11, 11') and at least one transversal welding (107) for the closing of said packaging (100) and the formation of at least two separate containment bags (101) of said products (11, 11'), **characterized in that** said first main product (11) is fed longitudinally and said second product (11') is subsequently fed transversally to the side of said first product (11), the method further comprising the phase of transversally feeding at least a further product (11) positioned above said first main product (11) and at least a further product (11') to said second product (11').

11. The method according to claim 10, **characterized in that** it comprises the phase of transversally applying labels (103) on said plastic film (12) in a pre-established and intermediate position between said products (11, 11') and effecting a transversal welding (107) for the formation of two further containment areas (102) for said labels (103).

Patentansprüche

1. Automatische Maschine zum Verpacken einer Reihe von Druckereiprodukten in Kunststoffolie, umfassend ein Aufgabemittel für Druckereiprodukte (11, 11') und eine Verpackungsstation (20), die mit einer mechanischen Anpassungseinrichtung (21) zum Wickeln der Folie (12) um die Produkte (11, 11') und einem Mittel zum Verschließen derselben ausgestattet ist, wobei das Mittel zumindest eine Längsschlusseinrichtung (23) und eine Querschweißstation (25) für das Bilden der Verpackung (100) umfasst, wobei die Verpackung (100) zwei verschlossene und getrennte Taschen (101) für ein erstes Produkt (11) bzw. ein zweites Produkt (11') umfasst, wobei die Taschen (101) faltbar sind, **dadurch gekennzeichnet, dass** sie auch zwei parallele Schiebefördervorrichtungen (14, 16) zum Aufgeben des ersten Produkts (11) bzw. zumindest des zweiten Produkts (11') auf die Verpackungsstation (20) umfasst, wobei die Maschine eine erste Längsaufgabereinrichtung (13) zum Aufgeben des zumindest ersten Produkts (11) auf die erste Schiebefördervorrichtung (14), zumindest eine Queraufgabereinrichtung (15), die ein erstes Teilstück der ersten Schiebefördervorrichtung (14) flankiert, zum Aufgeben von anderen Produkten (11) in einer gestapelten Position mit Bezug auf das erste Produkt (11), umfasst, wobei in einem nachfolgenden Teilstück der ersten Schiebefördervorrichtung (14), das von der zweiten Schiebefördervorrichtung (16) flankiert ist, die Maschine ferner ein Queraufgabemittel (17), das auf der Seite der zweiten Schiebefördervorrichtung (16) angeordnet ist, zum Aufgeben des zumindest zweiten Produkts (11') auf die zweiten Schiebefördervorrichtung (16) umfasst.
2. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** jede der Fördervorrichtungen (14, 16) Seitenführungen (18) umfasst, die auf der Basis der Abmessungen der Produkte (11, 11') geregelt werden können.
3. Maschine nach Anspruch 2, **dadurch gekennzeichnet, dass** die zweite Fördervorrichtung (16) eine Zwischenachse (19) aufweist, die seitwärts bewegt werden kann, sodass sie von der ersten Fördervorrichtung (14) flankiert ist.

4. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** die Längsschlusseinrichtung (23) eine Klebstoffabgabeeinrichtung ist.
5. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** die Längsschlusseinrichtung (23) eine Schweißvorrichtung ist, die geeignet ist, die Längsschweißung zwischen den Taschen (101) optional zu bewirken.
6. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** sie eine weitere Längsschweißvorrichtung (24), die seitlich angeordnet ist, zum Verschweißen mit einem Seitenzuschnitt eines Überschusses (106) der Folie (12) und zum Verschließen der Verpackung (100) umfasst.
7. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** sie eine Umklappeinrichtung mit einem Band (27) für die Übereinanderlagerung der zwei Taschen (101) umfasst.
8. Maschine nach Anspruch 1, **dadurch gekennzeichnet, dass** die Verpackungsstation (20) zumindest eine Etikettiermaschine (22), die entlang des Abwickelverlaufs der Verpackungsfolie (12) gelegen ist, zum Aufbringen von Etiketten (103) in vorgegebenen Positionen umfasst.
9. Maschine nach Anspruch 8, **dadurch gekennzeichnet, dass** der zumindest einen Etikettiermaschine (22) eine Perforiereinrichtung zum Perforieren der Folie (12) in Übereinstimmung mit den Etiketten (103) zugeordnet ist.
10. Verfahren zum Verpacken einer Reihe von Druckereiprodukten (11, 11') in Kunststoffolie (12), das die Phasen umfasst, dass zumindest ein erstes Hauptprodukt (11) und zumindest ein zweites Produkt (11') getrennt und flankiert mit einer Verpackungsstation (20) zugeführt werden, die parallelen Produkte (11, 11') mit Kunststoffolie (12) eingewickelt werden, zumindest eine Längsschweißung (104) in einer Zwischenposition zwischen den parallelen Produkten (11, 11') und zumindest ein Querschweißung (107) für das Verschließen der Verpackung (100) und die Bildung zumindest zweier separater Umhüllungstaschen (101) der Produkte (11, 11') bewirkt wird, **dadurch gekennzeichnet, dass** das erste Hauptprodukt (11) in Längsrichtung aufgegeben wird und das zweite Produkt (11') anschließend quer zu der Seite des ersten Produkts (11) aufgegeben wird, wobei das Verfahren ferner die Phase umfasst, dass zumindest ein weiteres Produkt (11), das über dem ersten Hauptprodukt (11) angeordnet ist, und zumindest ein weiteres Produkt (11') quer zu dem zweiten Produkt (11') aufgegeben werden.

11. Verfahren nach Anspruch 10, **dadurch gekennzeichnet, dass** es die Phase umfasst, dass Etiketten (103) quer auf die Kunststoffolie (12) in einer vorgegebenen und dazwischenliegenden Position zwischen den Produkten (11, 11') aufgebracht werden und eine Querschweißung (107) für das Bilden von zwei weiteren Umhüllungsbereichen (102) für die Etiketten (103) bewirkt wird.

Revendications

1. Machine automatique pour l'emballage d'une série de produits éditoriaux dans un film plastique comprenant des moyens d'alimentation de produits éditoriaux (11, 11') et une station d'emballage (20) équipée avec un formeur mécanique (21) pour l'enroulement du film (12) autour des produits (11, 11') et des moyens pour la fermeture de ces derniers, lesdits moyens comprenant au moins un dispositif de fermeture longitudinale (23) et une station d'enroulement transversal (25) pour la formation d'un emballage (100), dans laquelle ledit emballage (100) comprend deux sachets fermés et séparés (101) pour un premier produit (11) et un second produit (11') respectivement, lesdits sachets (101) étant pliables, **caractérisée en ce qu'elle** comprend également deux convoyeurs pousseurs parallèles (14, 16) pour l'alimentation dudit premier produit (11) et au moins dudit second produit (11') respectivement, jusqu'à ladite station d'emballage (20), ladite machine comprenant un premier dispositif d'alimentation longitudinal (13) pour l'alimentation dudit au moins un premier produit (11) vers ledit premier convoyeur pousseur (14), au moins un dispositif d'alimentation transversal (15) adjacent à une première section dudit premier convoyeur pousseur (14) pour l'alimentation de l'autre produit (11) dans une position empilée par rapport audit premier produit (11), dans laquelle, dans une section successive du premier convoyeur pousseur (14) flanqué par ledit second convoyeur pousseur (16), la machine comprend en outre des moyens d'alimentation transversale (17) agencés sur le côté dudit second convoyeur pousseur (16) pour l'alimentation dudit au moins second produit (11') jusqu'audit second convoyeur pousseur (16).
2. Machine selon la revendication 1, **caractérisée en ce que** chacun desdits convoyeurs (14, 16) comprend des guides latéraux (18) qui peuvent être réglés en fonction des dimensions desdits produits (11, 11').
3. Machine selon la revendication 2, **caractérisée en ce que** ledit second convoyeur (16) a un axe intermédiaire (19) qui peut être déplacé latéralement pour être flanqué par ledit premier convoyeur (14).

4. Machine selon la revendication 1, **caractérisée en ce que** le dispositif de fermeture longitudinale (23) est un distributeur de colle.
5. Machine selon la revendication 1, **caractérisée en ce que** ledit dispositif de fermeture longitudinale (23) est un dispositif de soudage approprié pour effectuer facultativement le soudage longitudinal entre lesdits sachets (101).
6. Machine selon la revendication 1, **caractérisée en ce qu'elle** comprend un autre dispositif de soudage longitudinal (24) positionné latéralement pour le soudage d'une chute latérale d'un excès (106) de film (12) et la fermeture dudit emballage (100).
7. Machine selon la revendication 1, **caractérisée en ce qu'elle** comprend un dispositif de retournement avec une courroie (27) pour la superposition desdits deux sachets (101).
8. Machine selon la revendication 1, **caractérisée en ce que** ladite station d'emballage (20) comprend au moins une machine d'étiquetage (22) située le long de la course de déroulement du film d'emballage (12) pour l'application d'étiquettes (103) dans des positions préétablies.
9. Machine selon la revendication 8, **caractérisée en ce que** ladite au moins une machine d'étiquetage (22) est associée à un dispositif de perforation pour la perforation du film (12) en correspondance avec lesdites étiquettes (103).
10. Procédé pour l'emballage d'une série de produits éditoriaux (11, 11') dans un film en plastique (12), comprenant les étapes consistant à alimenter au moins un premier produit principal (11) et au moins un second produit (11') séparés et adjacents à une station d'emballage (20), envelopper lesdits produits parallèles (11, 11') avec le film en plastique (12), effectuer au moins une soudure longitudinale (104) dans une position intermédiaire entre lesdits produits parallèles (11, 11') et au moins une soudure transversale (107) pour la fermeture dudit emballage (100) et la formation d'au moins deux sachets de confinement séparés (101) desdits produits (11, 11'), **caractérisé en ce que** ledit produit principal (11) est alimenté longitudinalement et ledit second produit (11') est alimenté ensuite transversalement vers le côté dudit premier produit (11), le procédé comprenant en outre l'étape consistant à alimenter de manière transversale au moins un produit supplémentaire (11) positionné au-dessus dudit premier produit principal (11) et au moins un produit supplémentaire (11') sur ledit second produit (11').
11. Procédé selon la revendication 10, **caractérisé en**

ce qu'il comprend l'étape consistant à appliquer de manière transversale des étiquettes (103) sur ledit film en plastique (12) dans une position préétablie et intermédiaire entre lesdits produits (11, 11') et effectuer une soudure transversale (107) pour la formation de deux zones de confinement supplémentaires (102) pour lesdites étiquettes (103).

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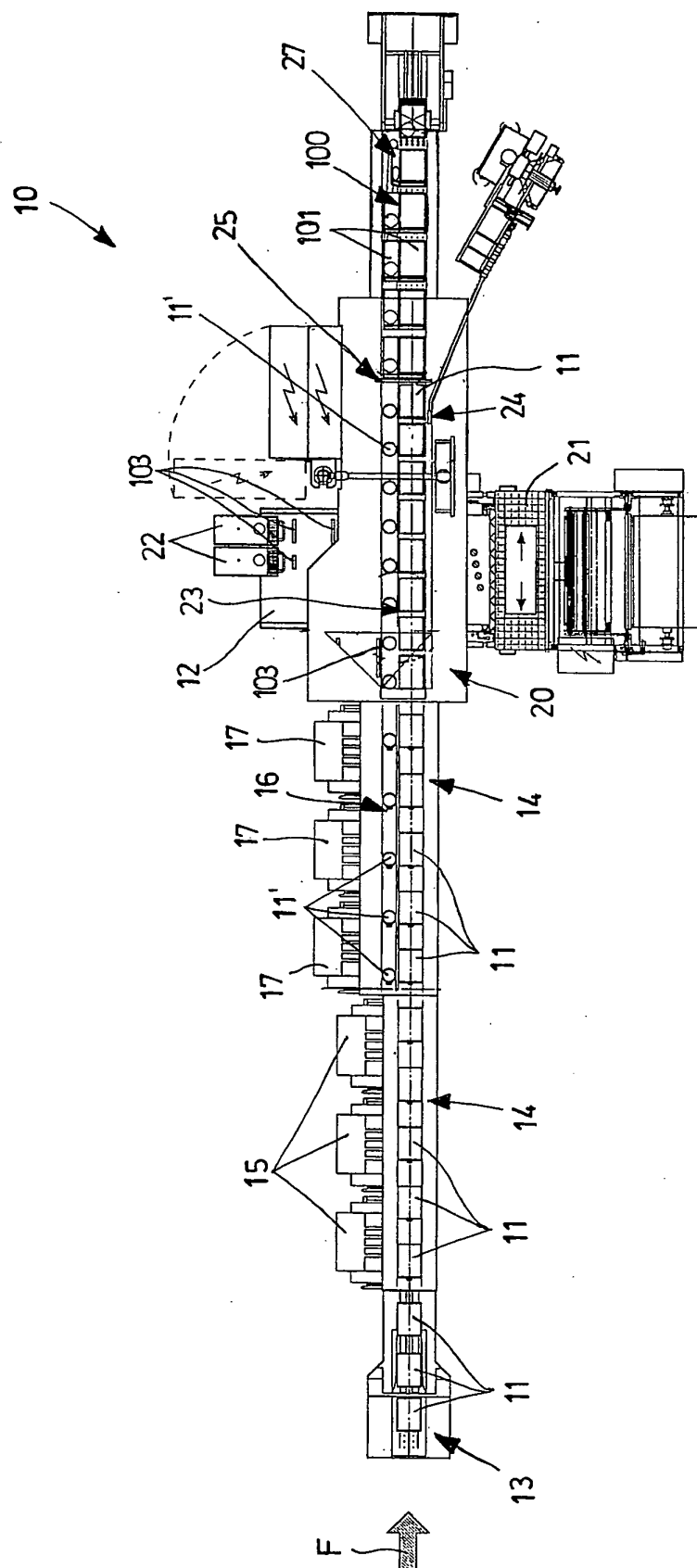


Fig. 1

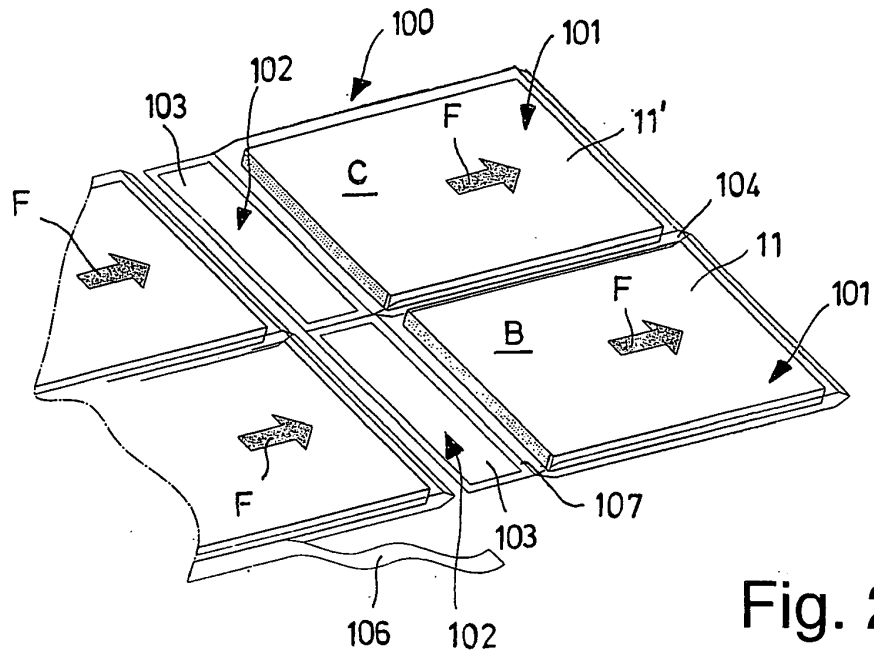


Fig. 2

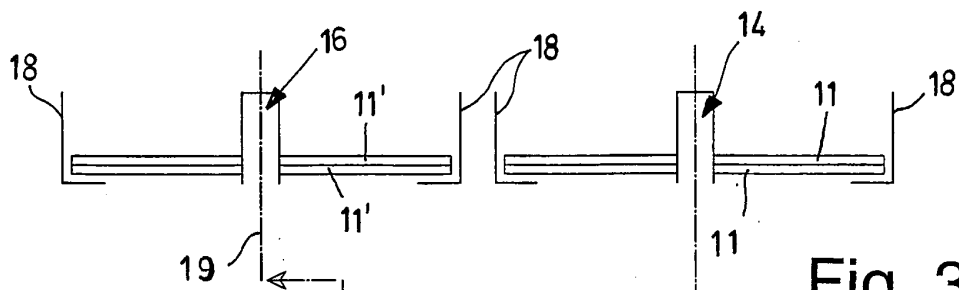


Fig. 3B

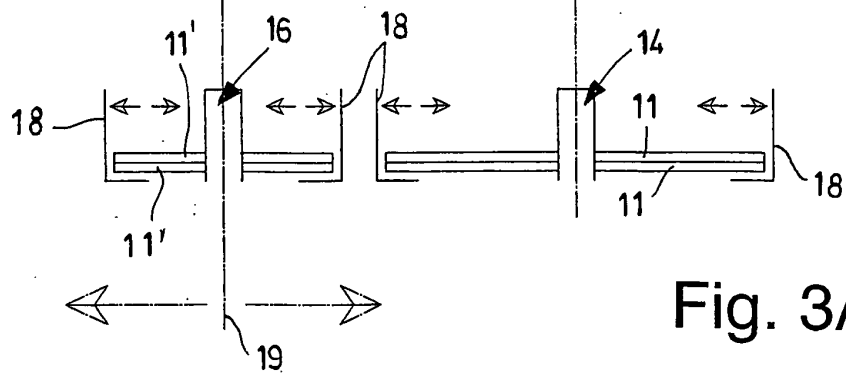
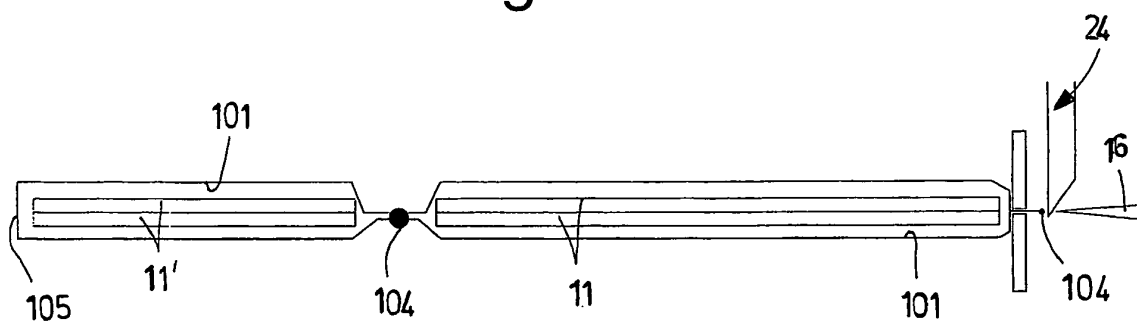
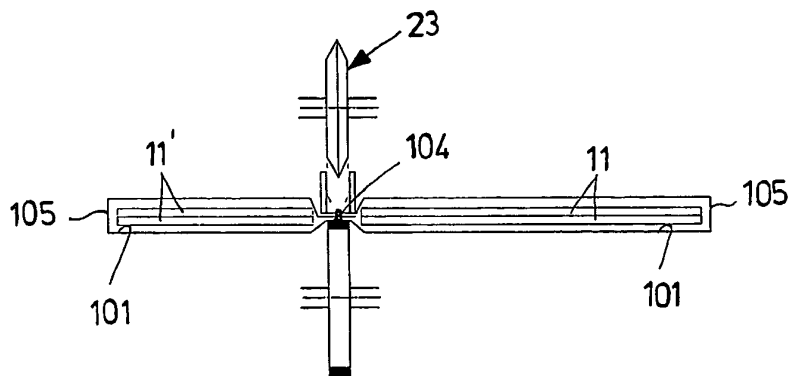
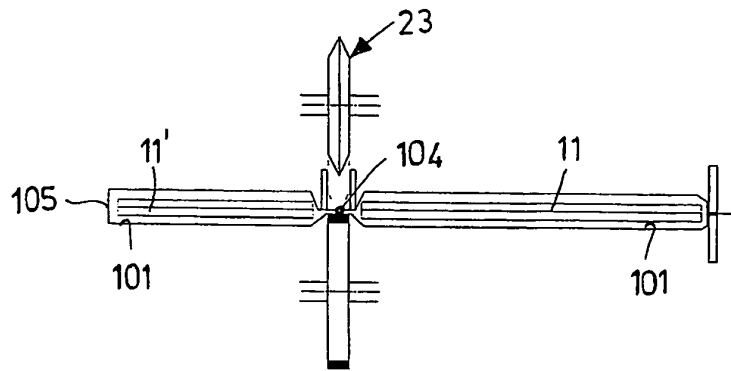
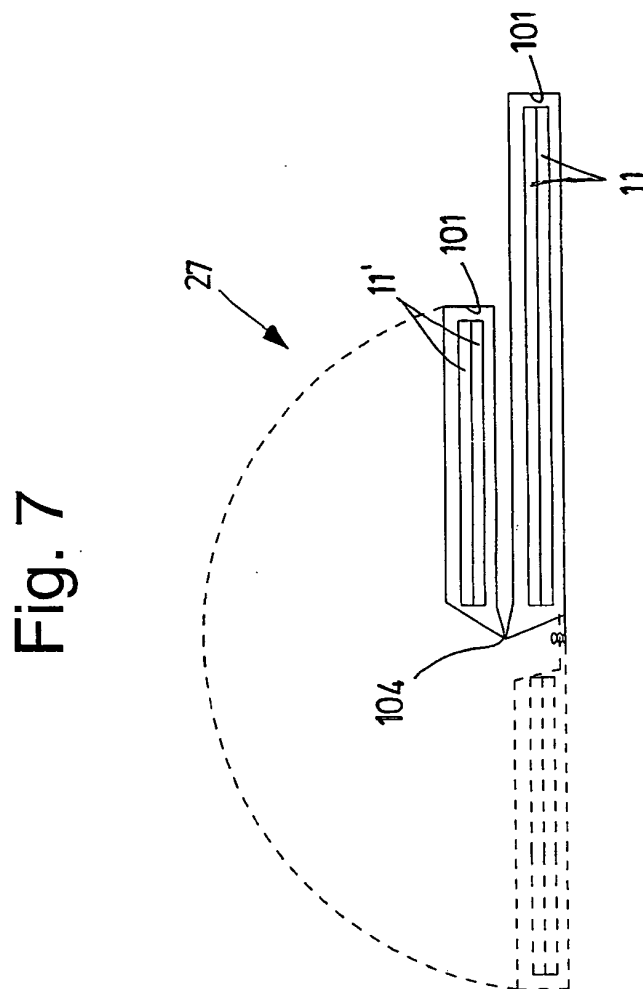
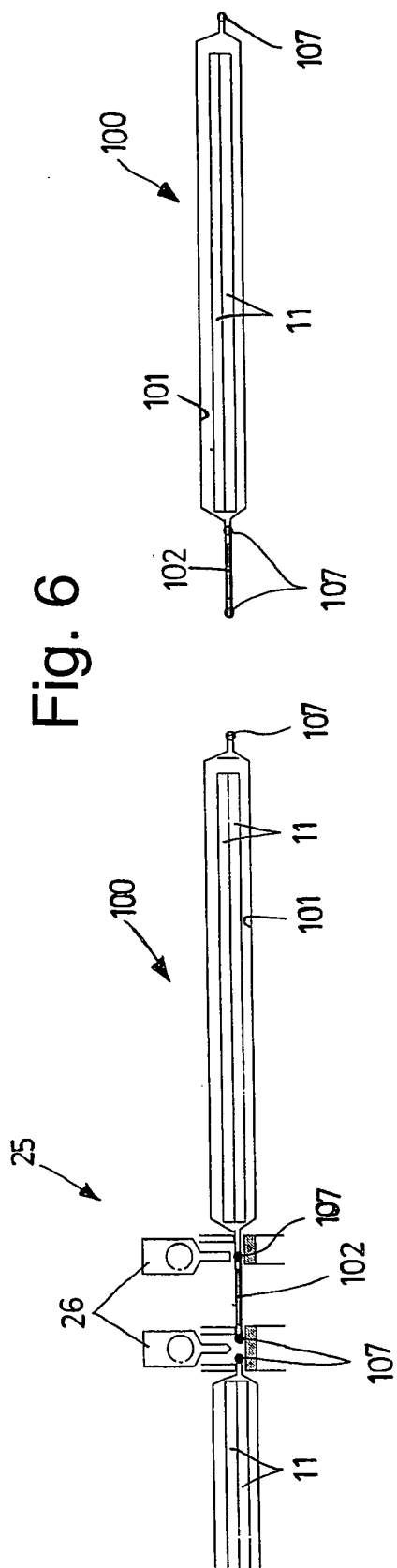


Fig. 3A





REFERENCES CITED IN THE DESCRIPTION

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