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

(57) 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, also comprising two pusher conveyors (14, 16) alongside each

other for the feeding of a first product (11) and at least a second product (11') respectively, to the packaging station (20), which comprises at least one longitudinal closing device (23) and a transversal welding station (25) for the formation of a packaging (100), the packaging (100) comprising two closed and separate bags (101) for the first product (11) and the second product (11') respectively.

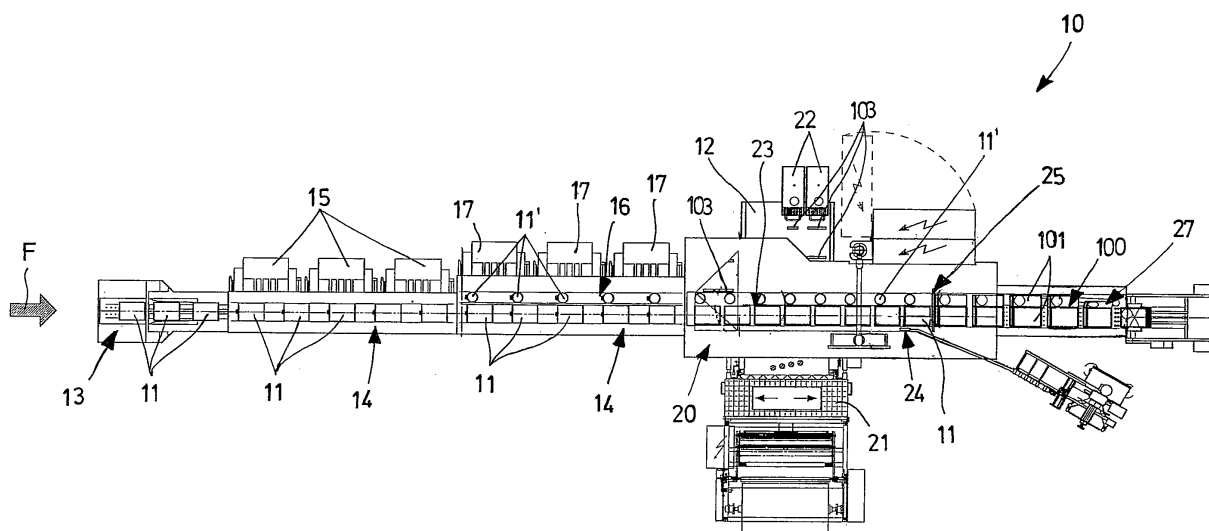


Fig. 1

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] 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.

[0003] 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.

[0004] 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.

[0005] 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.

[0006] A further 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, in which the relative packaging can be easily stacked.

[0007] Another 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, which is particularly simple and functional, with reduced costs.

[0008] These objectives according to the present invention are achieved by providing an automatic machine, a method and a relative packaging as specified in the independent claims.

[0009] Further characteristics of the automatic machine and method for the packaging of a series of editorial products in plastic film and also the relative packaging are indicated in the dependent claims.

[0010] 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, object of the present invention.

[0011] 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.

[0012] 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.

[0013] The packaging 100 envisages the presence of two bags 101 for the products 11 and 11', which are closed and separate from each other.

[0014] In a preferred embodiment of the packaging 100, object of the present invention, 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.

[0015] 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.

[0016] The packaging 100 according to the present invention 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.

[0017] 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.

[0018] 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.

[0019] 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.

[0020] Both conveyors comprise lateral guides 18, which can be adjusted on the basis of the dimensions of the products transported thereon.

[0021] 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.

[0022] 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.

[0023] 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.

[0024] 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.

[0025] 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.

[0026] Alternatively, the labels 103 can all be the same and fed from a roll, not shown.

[0027] 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.

[0028] 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.

[0029] 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.

[0030] The mechanical conformer 21 winds the film around the products 11, which are fed from the two conveyors to the packaging station 20.

[0031] 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'.

[0032] 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).

[0033] 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.

[0034] 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.

[0035] 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.

[0036] 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 figure 7.

[0037] 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.

[0038] 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.

[0039] The automatic packaging machine, object of the present invention can also be advantageously used for the packaging of single products with a high productivity.

[0040] The automatic machine, the method for the packaging of a series of editorial products in plastic film and the relative packaging thus conceived can undergo numerous modifications and variants, all included in the invention; furthermore all the details can be substituted by technically equivalent elements. 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, **characterized in that** it also comprises two parallel pusher conveyors (14, 16) for the feeding of a first product (11) and at least a second product (11') respectively, to said packaging station (20), said packaging station (20) 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 said first product (11) and said second product (11') respectively, said bags (101) being foldable.
2. The machine according to claim 1, **characterized in that** said at least first product (11) is fed to said first conveyor (14) by a first longitudinal feeder (13) and said at least second product (11') is fed to said second conveyor (16) by transversal feeding means (17).
3. The machine according to claim 1, **characterized in that** each of said conveyors (13, 16) comprises lateral guides (18) which can be regulated on the basis of the dimensions of said products (11, 11').
4. The machine according to claim 3, **characterized in that** said second conveyor (16) has an interaxis (19) which can be moved sideways to be flanked by

said first conveyor (14).

5. The machine according to claim 1, **characterized in that** said first conveyor (14) comprises at least a further transversal feeder (15) for the feeding of other products (11) in a stacked position with respect to said first product (11).
6. The machine according to claim 1, **characterized in that** said longitudinal closing device (23) is a glue dispenser.
7. 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).
8. 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).
9. 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).
10. 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.
11. The machine according to claim 10, **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).
12. A packaging (100) for a series of editorial products (11, 11'), **characterized in that** it comprises two parallel bags (101) closed and separate from each other for at least one first main product (11) and for at least a second product (11'), respectively.
13. The packaging according to claim 12, **characterized in that** said two bags (101) can be folded along an intermediate closing line (104) for the presentation of four distinct display sides for a greater visibility of the packaged products (11, 11').
14. The packaging according to claim 12, **characterized in that** two further containment areas (102) for labels (103), forming an overlapping display band, are positioned at an upper end of said bags (101) and separated therefrom by means of a transversal welding (107).

15. A method for the packaging of a series of editorial products (11, 11') in plastic film (12), **characterized in that** it comprises 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').
16. The method according to claim 15, **characterized in that** it comprises the phase of transversally feeding at least a further product (11) positioned above said first main product (11).
17. The method according to claim 15, **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).

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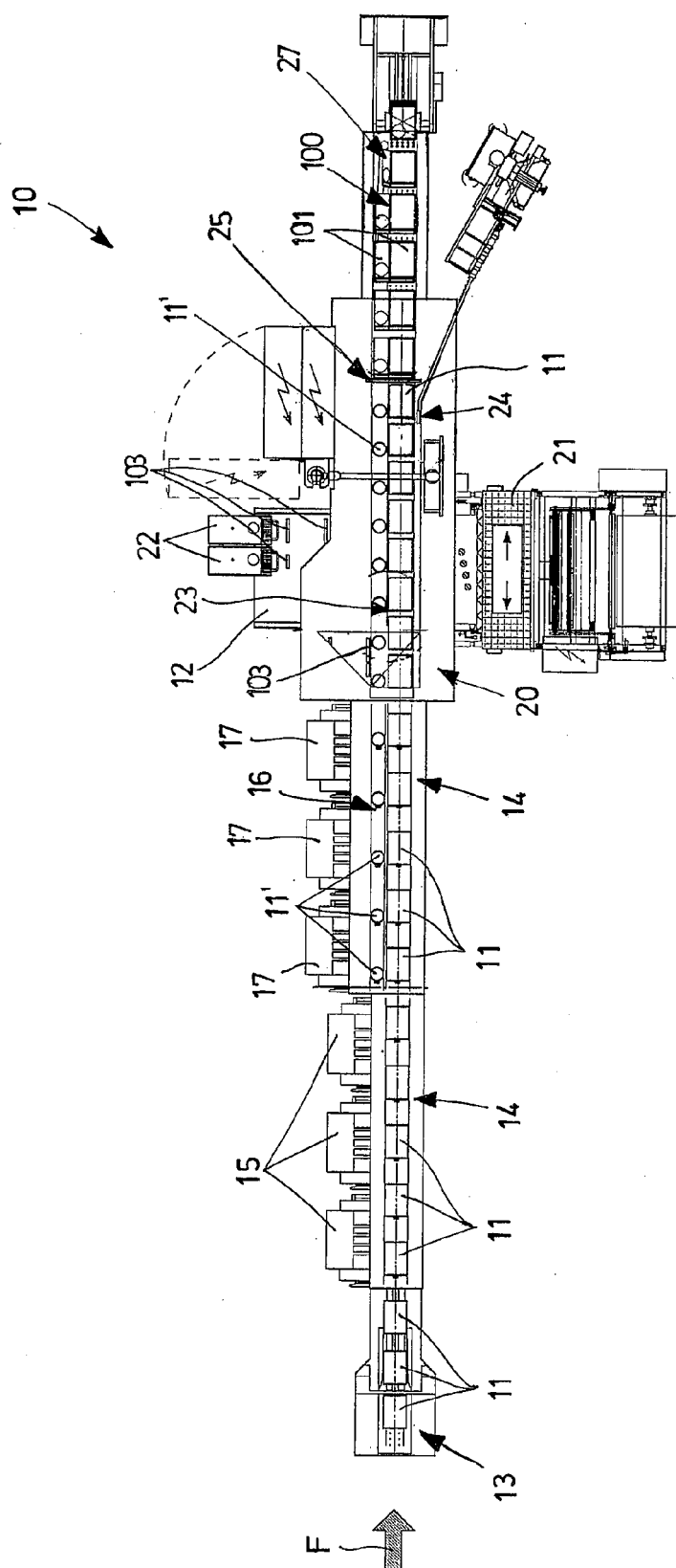


Fig. 1

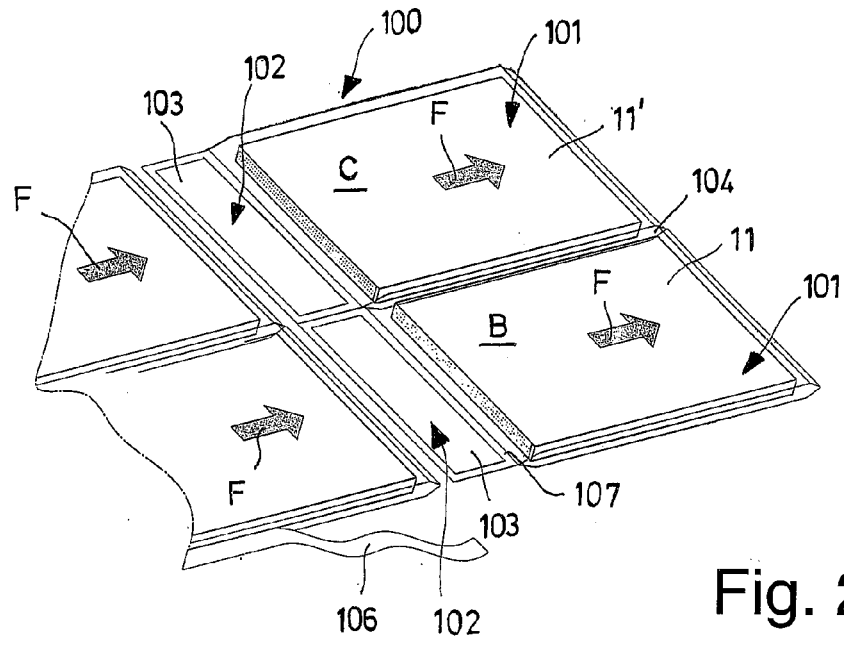


Fig. 2

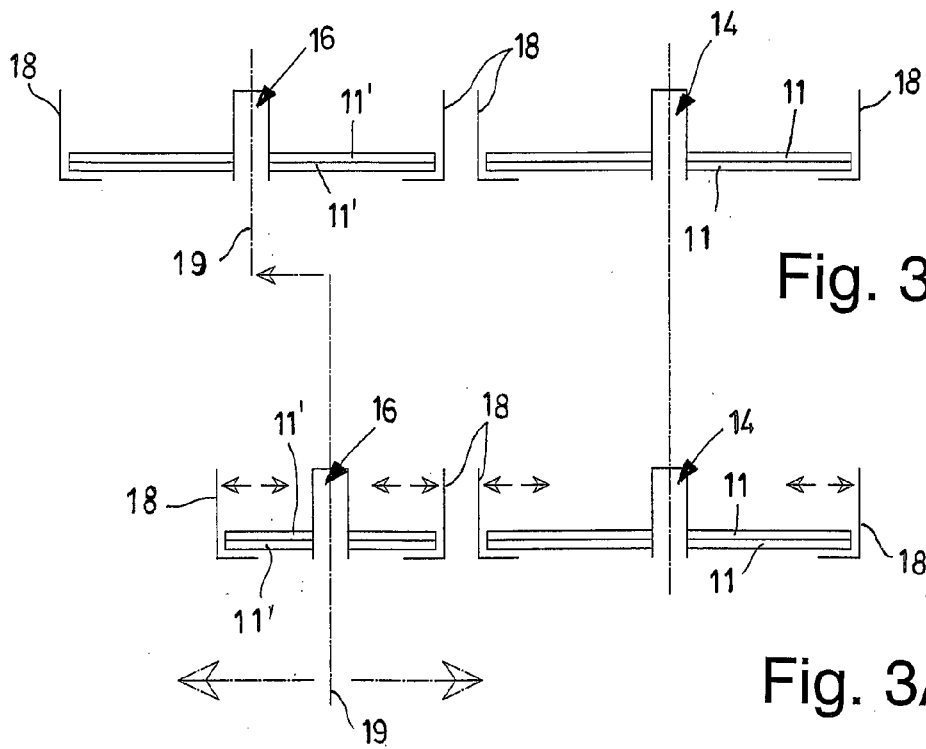


Fig. 3B

Fig. 3A

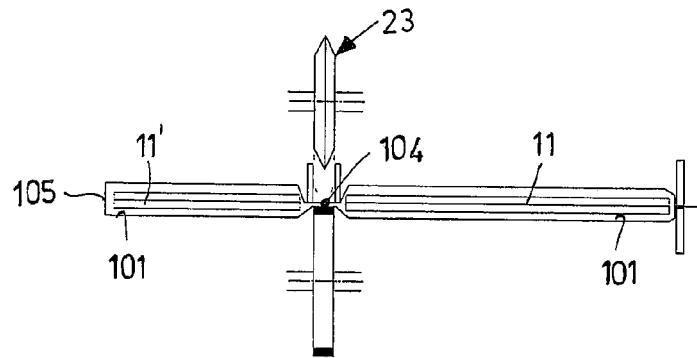


Fig. 4B

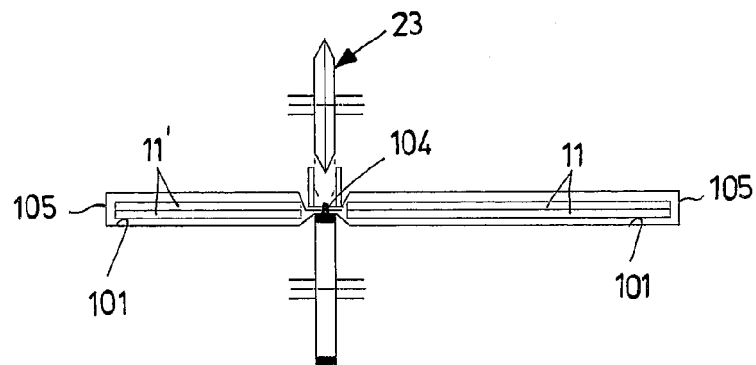


Fig. 4A

Fig. 5

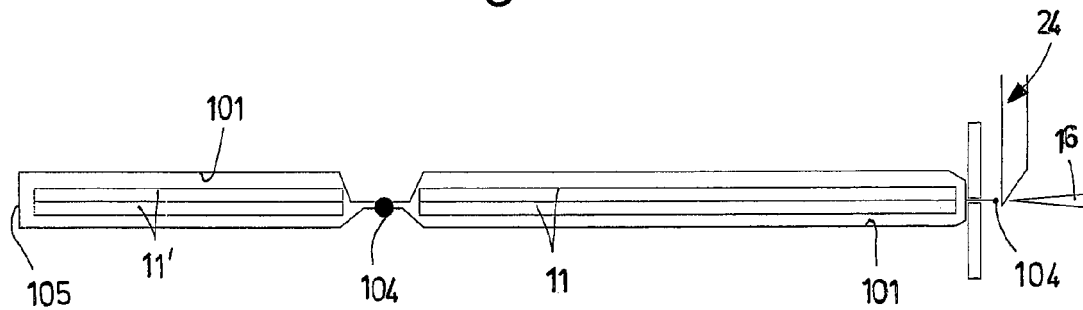


Fig. 6

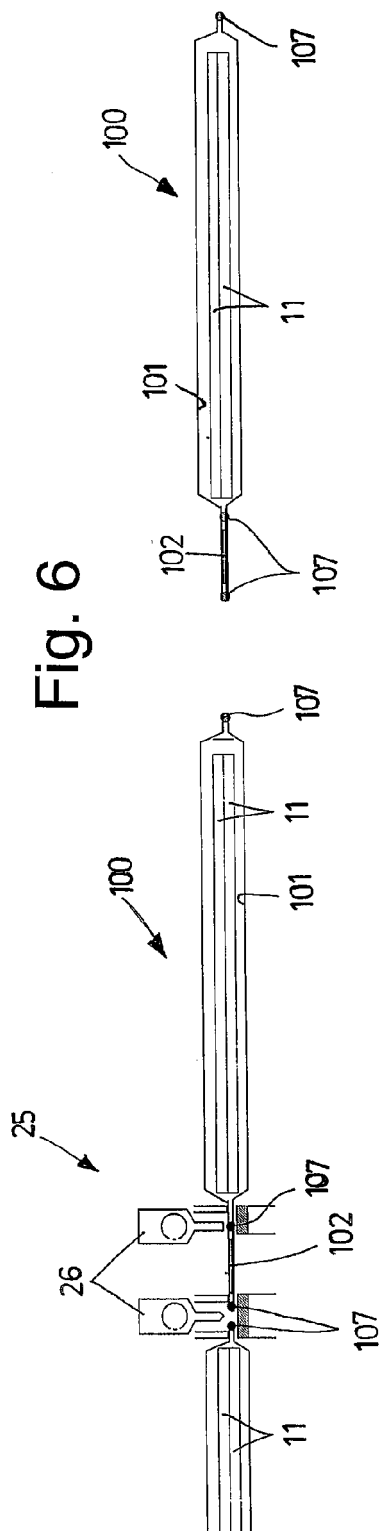
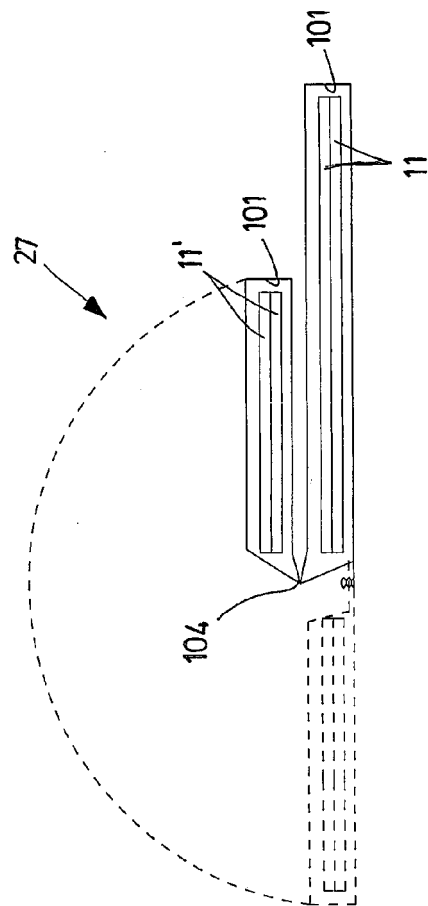


Fig. 7





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