(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 669 199 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
19.11.2014 Bulletin 2014/47

(21) Application number: **13168868.1**

(22) Date of filing: **23.05.2013**

(51) Int Cl.:
B65B 19/22 *(2006.01)* ***B65B 61/20*** *(2006.01)*
B65B 51/10 *(2006.01)* ***B31B 1/00*** *(2006.01)*
B31B 1/90 *(2006.01)* ***B65D 85/10*** *(2006.01)*

(54) **A method for making a packet for elongate smokers' articles**

Verfahren zur Herstellung einer Packung für längliche Rauchartikel

Procédé de fabrication d'un paquet pour articles allongés de fumeurs

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

(30) Priority: **29.05.2012 IT BO20120294**

(43) Date of publication of application:
04.12.2013 Bulletin 2013/49

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EP 2 669 199 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] This invention relates to a method for making a packet for elongate smokers' articles.

[0002] Hereinafter in this description, reference is made to smokers' articles consisting of cigarettes, without thereby restricting the scope of the invention.

[0003] Hard, hinged-lid packets for cigarettes are currently the cigarette packets of the most widespread type on the market because they are simple to make, easy and practical to use and provide good mechanical protection for the cigarettes they contain.

[0004] A hard, hinged-lid packet for cigarettes comprises an inner wrapper, usually made of metallized paper, placed around a group of cigarettes, and a hard outer container which receives the inner wrapper. The outer container comprises an open top container body with upward facing concavity and which receives the group of cigarettes placed in the inner wrapper, and a lid with downward facing concavity and which is joined to the container body along a hinge allowing it to rotate relative to the container body between an open position and a closed position. Normally, there is a frame, which is folded into a U shape and connected to the inside of the container body in such a way as to protrude partly from the open top end of the container body and to engage a corresponding inside surface of the lid when the lid is in the closed position.

[0005] One problem with hard cigarette packets is that after some of the cigarettes have been taken out of the inner wrapper, the packet goes more easily out of shape (flattened or twisted) which may cause the inner wrapper to become floppy or to adopt an incorrect configuration or position.

[0006] To overcome this problem, a hard reinforcement frame made of paperboard was placed inside the inner wrapper and around the group of cigarettes to keep the inner wrapper in the correct configuration and protect the cigarettes during folding of the inner wrapping sheet itself (see EP 2 167 401 B1). It has, however, been found that the position of the inner wrapper relative to this hard reinforcement frame is not very stable, especially after some of the cigarettes have been taken out of the packet, because handling the packet to take out the cigarettes tends to cause the inner wrapper to move sideways relative to the reinforcement frame.

[0007] The problems described are also true of other types of hinged-lid packets different from the hinged-lid packets described above, having an inner wrapper placed around the cigarettes and housed in an outer container.

[0008] This invention has for an aim to provide a method for making a packet for elongate smokers' articles and which overcomes the above mentioned problem.

[0009] The invention accordingly provides a method for making a packet for elongate smokers' articles as described in the appended claims. The invention is described below with reference to the accompanying drawings, which illustrate a non-limiting embodiment of it, and in which:

- Figures 1 and 2 are perspective views of a packet for smokers' articles, in a closed condition and in an open condition, respectively;
- Figure 3 is a perspective view of certain details of the packet of Figures 1 and 2;
- Figure 4 is a perspective view of another detail of the packet of Figures 1 and 2;
- Figure 5 shows a portion of the web of wrapping material which can be used to make a portion of the packet of Figures 1-4; and
- Figure 6 shows a schematic perspective view of a part of an apparatus which can be used to make the packet of Figures 1-4.

[0010] The numeral 1 in Figures 1 and 2 denotes in its entirety a hard, hinged-lid cigarette packet comprising a hollow outer container 2 made of stiff card or paperboard and an inner wrapper 3 housed inside the container 2. The inner wrapper 3 encloses a group 4 of cigarettes 5 and is made, for example, of metallized paper. In the example illustrated, the group 4 is substantially in the shape of a parallelepiped.

[0011] The outer container 2 has an open top end 6 and is provided with a hollow lid 7 joined to the container 2 along a hinge 8 allowing it to rotate relative to the container 2 itself between an open position (illustrated in Figure 2) and a closed position (illustrated in Figure 1) where the open top end 6 is open and closed, respectively.

[0012] The lid 7, when it is in the closed position, gives the outer container 2 the shape of a rectangular parallelepiped defined by a top wall 9 and a bottom wall 10 which are parallel and opposite to each other, two large side walls 11 and 12 which are parallel and opposite to each other and two small side walls 13 which are parallel and opposite to each other. More specifically, one of the large side walls, labelled 11, constitutes the front wall of the outer container 2, whilst the other large side wall, labelled 12, defines the rear wall of the outer container 2.

[0013] The packet 1 also comprises an inner frame 16, which is folded into a U shape and fixed (normally by gluing) to the inside of the outer container 2 in such a way as to protrude partly from the open top end 6 and to engage a corresponding inside surface of the lid 7 when the lid 7 is in the aforementioned closed position. The inner frame 16 is made of stiff card or paperboard and comprises a front wall 17 in contact with the front wall 11 of the outer container 2 and two side walls 18 located on opposite sides of the front wall 17 and in contact with the small side walls 13 of the outer container 2.

[0014] In one preferred embodiment, the inner frame 16 has a pair of tabs 19 which protrude laterally to engage the side walls of the lid 7 by interference in such a way as to keep the lid 7 in the closed position. As illustrated in Figures 3 and 4, the inner wrapper 3 houses a stabilizing support member 23 or inner reinforcement, whose

inside surface is in contact with a front and two sides of the group 4 of cigarettes 5 and which is surrounded by the inner wrapper 3 at a front wall 3' and two small side walls 3" of the inner wrapper 3. The stabilizing support member 23 has a portion, constituted by its front wall 23', which is in contact with the front wall 3' of the inner wrapper 3, two side walls 23", which are in contact with corresponding side walls 3" of the inner wrapper 3, and is made of stiff card or paperboard identical to the stiff card or paperboard the outer container 2 and the inner frame 16 are made of. The wall 23' of the stabilizing support member 23 adheres to a front of the group 4 of cigarettes 5, whilst the side walls 23" adhere to two sides of the group 4.

[0015] The stabilizing support member 23 has a front dimension which is smaller than the dimension of the front wall 11 of the outer container 2 and is delimited at the top by an edge 23a which substantially reproduces the shape of the top edge 16' of the inner frame 16 and which is positioned just under the edge 16' so it is hidden from view when the packet 1 is opened.

[0016] The function of the stabilizing support member 23 is to keep the inner wrapper 3 in the correct configuration, even when some of the cigarettes 5 have been taken out of the packet 1, and to protect the cigarettes 5 when the sheet of wrapping material constituting the inner wrapper 3 itself is folded.

[0017] As shown in Figures 3 and 4, a portion of the inside surface of the front wall 3' of the inner wrapper 3 is covered by a deposit 24 of adhesive material, consisting preferably of hot-melt glue. In the embodiment of the invention illustrated in Figures 3 and 4, the deposit 24 covers a substantially central, rectangular zone of the front wall 3', but it might be of any shape and size or it might be substituted for two or more deposits of adhesive material.

[0018] In a variant embodiment not illustrated, the adhesive material might be present also, or alternatively, on the inside surface of one or both of the small side walls 3" of the inner wrapper 3.

[0019] In a further variant embodiment not illustrated, the adhesive material, instead of on the inside surface of the walls 3' and/or 3" of the inner wrapper 3, might be applied to the adjacent walls 23' and/or 23" of the stabilizing support member 23 in contact with the inner wrapper 3 itself.

[0020] It has been found that gluing at least part of the outside surface of the stabilizing support member 23 to a corresponding part of the inside surface of the inner wrapper 3 totally prevents sideways movements of the inner wrapper 3 relative to the stabilizing support member 23, thereby overcoming the problem described above with reference to prior art packets.

[0021] As shown in Figure 5, a particularly advantageous method of applying and managing the adhesive material mentioned above consists in applying the deposits 24 of hot-melt glue on a web 25 from which the sheets 26 that will form the inner wrappers 3 will later be cut off. The deposits 24 must be applied on the web 25 at a spacing equal to the length of the sheets 26 and must be positioned on the sheets 26 themselves in such a way as to adhere to the correct parts of the walls 23', 23" of the stabilizing support members 23 when the inner wrapper 3 is formed.

[0022] Alternatively, the inner wrappers 3 might be made from sheets 26 picked from a stack. In this case, a deposit 24 of hot-melt glue must already be present on each of the sheets 26.

[0023] As shown in Figure 6 and according to the method of the invention, each inner wrapper 3, just made by a packing unit schematically represented as a block C1, and containing a group 4 of cigarettes 5 partly surrounded by a stabilizing support member 23, is made to pass between two parallel belt conveyors 27 which gently compress the front wall 3' and the wall opposite to it. The conveyor 27 adjacent to the front wall 3' is heated and its contact with the inner wrappers 3 heats by conduction and reactivates the hot-melt glue of the deposits 24 on the inner wrappers 3, thus causing the front walls 3' of the inner wrappers 3 to be glued to the adjacent front walls 23' of the stabilizing support members 23. When the inner wrappers 3 move away from the space between the belt conveyors 27 and are fed into a packing unit schematically represented as a block C2, the glue of the deposits 24 cools down and the front walls 3' of the inner wrappers 3 stick firmly to the walls 23' of the stabilizing support members 23. If deemed useful, the inner wrappers 3 might be made to pass with their front walls 3' in contact with cooling elements so that the hot-melt glue sets more quickly.

[0024] It should be noted that if the adhesive material is present also, or alternatively, on the inside surface of one or both of the small side walls 3" of the inner wrappers 3, or has been applied to any other point of the inner wrapper 3 in contact with a portion of a stabilizing support member 23 (whatever the shape of the stabilizing support members 23, since their shape might differ from that described) the glue must be reactivated by causing the portions of the inner wrappers 3 just formed to pass by in contact with the heated surfaces. Of course this consideration also applies if the glue is applied to the stabilizing support members 23 instead of on the sheets 26 that will form the inner wrappers 3.

[0025] If the sheets 26 from which the inner wrappers 3 are formed are made of a layered material comprising at least one layer made at least partly from a metallic material, the glue of the deposits 24 might be heated by making the inner wrappers 3 just made pass through an electromagnetic field emitter device (of essentially known type) capable of heating by induction the metallic material contained in the sheets 26.

[0026] The glue of the deposits 24 might also be reactivated in the ways described above by acting on the finished packets 1, where the inner wrappers 3 have already been enclosed within corresponding outer containers 2.

[0027] The above described stabilizing support mem-

ber 23 constitutes a structure for stabilizing and supporting the inner wrapper 3 and connected to portions of the selfsame inner wrapper 3 by means of an adhesive substance.

[0028] The function of stabilizing support structure might, however, also be performed by the inner frame 16 which, if deemed necessary, might be larger in size than shown in Figure 3, and part of its inside surface might be glued to the outside surface of the respective inner wrapper 3 in ways similar to those described above.

[0029] Moreover, the function of stabilizing support structure might also be performed by the outer container 2, a part of whose inside surface might be glued to the outside surface of the respective inner wrapper 3 in ways similar to those described above.

[0030] It should be noted that the deposit 24 of hot-melt glue is preferably applied to the sheet material that will make up the inner wrappers 3 or the stabilizing support members 23 or the outer containers 2 outside the packing machine C1 before the packets 1 are made and is then left to cool so that it loses its adhesive properties.

Claims

1. A method for making a packet for smokers' articles, the packet comprising an inner wrapper (3) consisting of a sheet of wrapping material (26) folded around a group (4) of smokers' articles (5), and an outer container (2) which accommodates the inner wrapper (3), the packet also comprising a stabilizing support structure (23) by which the inner wrap (3) is stabilized and supported, the method being **characterized in that** it comprises the steps applying at least one deposit (24) of hot-melt glue on sheet material that will make up the inner wrapper (3) or the stabilizing support structure (23) of the inner wrapper (3), cooling the at least one deposit (24) of hot-melt glue so that it loses its adhesive properties, assembling at least a part of the packet (1) comprising the inner wrapper (3) and the stabilizing support structure (23) so they are placed in mutual contact at the at least one deposit (24) of hot-melt glue, and heating at least that part of the packet (1) in order to reactivate the at least one deposit (24) of hot-melt glue and to glue the inner wrapper (3) and the stabilizing support structure (23) to each other.

2. The method for making a packet for smokers' articles according to claim [1], **characterized in that** the stabilizing support structure for the packet (1) comprises a stabilizing support member (23) housed inside the inner wrapper (3), and the at least one deposit (24) of hot-melt glue is located on sheet material that will make up the inner wrapper (3) the method comprising a step of heating only the inner wrapper (3) in order to reactivate the at least one deposit (24) of hot-melt glue.

3. The method for making a packet for smokers' articles according to claim 1, **characterized in that** the stabilizing support structure for the packet (1) comprises a stabilizing support member (23) housed inside the inner wrapper (3), and the at least one deposit (24) of hot-melt glue is located on sheet material that will make up the inner wrapper (3); the method comprising a step of heating the entire packet (1) in order to reactivate the at least one deposit (24) of hot-melt glue.

4. The method according to any of the claims from 1 to 3, **characterized in that** heating the at least one deposit (24) of hot-melt glue is accomplished by conduction.

5. The method according to any of the claims from 1 to 3, **characterized in that** the sheet material making up the inner wrapper (3) is made from layered material comprising at least one layer which is at least partly made of metallic material; heating the at least one deposit (24) of hot-melt glue being accomplished by electromagnetic induction.

Patentansprüche

1. Verfahren zur Herstellung einer Packung für Rauchartikel, wobei die Packung eine innere Hülle (3) umfasst, bestehend aus einem Blatt Einwickelmaterial (26), gefaltet rund um eine Gruppe (4) von Rauchartikeln (5), und einen äußeren Behälter (2), in dem die innere Hülle (3) untergebracht ist, wobei die Packung auch eine stabilisierende Haltestruktur (23) umfasst, durch die die innere Hülle (3) stabilisiert und gehalten wird, wobei das Verfahren **dadurch gekennzeichnet ist, dass** es die Schritte zum Aufbringen von mindestens einer Ablagerung (24) von Heißkleber auf das Blattmaterial umfasst, das die innere Hülle (3) oder die stabilisierende Haltestruktur (23) der inneren Hülle (3) bildet, zum Kühlen der mindestens einen Ablagerung (24) von Heißkleber, sodass dieser seine Hafteigenschaften verliert, zum Zusammenfügen von mindestens einem Teil der Packung (1), umfassend die innere Hülle (3) und die stabilisierende Haltestruktur (23), sodass diese in gegenseitigem Kontakt an der mindestens einen Ablagerung (24) von Heißkleber positioniert werden, und zum Erhitzen des mindestens einen Teils der Packung (1), um die mindestens eine Ablagerung (24) von Heißkleber wieder zu aktivieren und die innere Hülle (3) und die stabilisierende Haltestruktur (23) miteinander zu verkleben.

2. Verfahren zur Herstellung einer Packung für Rauchartikel nach Anspruch 1, **dadurch gekennzeichnet, dass** die stabilisierende Haltestruktur für die Packung (1) ein stabilisierendes Halteelement (23) um-

fasst, das in der inneren Hülle (3) untergebracht ist, und dass die mindestens eine Ablagerung (24) von Heißkleber auf dem Blattmaterial platziert ist, das die innere Hülle (3) bildet, wobei das Verfahren einen Schritt zum Erhitzen von nur der inneren Hülle (3) umfasst, um die mindestens eine Ablagerung (24) von Heißkleber wieder zu aktivieren.

3. Verfahren zur Herstellung einer Packung für Rauchartikel nach Anspruch 1, **dadurch gekennzeichnet, dass** die stabilisierende Haltestruktur für die Packung (1) ein stabilisierendes Halteelement (23) umfasst, das in der inneren Hülle (3) untergebracht ist, und dass die mindestens eine Ablagerung (24) von Heißkleber auf dem Blattmaterial platziert ist, das die innere Hülle (3) bildet, wobei das Verfahren einen Schritt zum Erhitzen der gesamten Packung (1) umfasst, um die mindestens eine Ablagerung (24) von Heißkleber wieder zu aktivieren.

4. Verfahren nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** das Erhitzen der mindestens einen Ablagerung (24) von Heißkleber durch Leitung erfolgt.

5. Verfahren nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** das Blattmaterial, das die innere Hülle (3) bildet, aus einem geschichteten Material besteht, umfassend mindestens eine Schicht, die zumindest teilweise aus Metallmaterial besteht, wobei das Erhitzen der mindestens einen Ablagerung (24) von Heißkleber durch elektromagnetische Induktion erfolgt.

Revendications

1. Procédé de fabrication d'un paquet pour articles pour fumeurs, le paquet comprenant une enveloppe interne (3) consistant en une feuille de matériel d'emballage (26) pliée autour d'un groupe (4) d'articles pour fumeurs (5) ainsi qu'un contenant externe (2) logeant l'enveloppe interne (3), le paquet comprenant aussi une structure de support stabilisante (23) par laquelle l'enveloppe interne (3) est stabilisée et supportée, le procédé étant **caractérisé en ce qu'**il comprend les étapes consistant à appliquer au moins un dépôt (24) de colle thermofusible sur du matériau en feuille destiné à constituer l'enveloppe interne (3) ou la structure de support stabilisante (23) de l'enveloppe interne (3), à refroidir l'au moins un dépôt (24) de colle thermofusible de manière à en annuler ses propriétés adhésives, à assembler au moins une partie du paquet (1) comprenant l'enveloppe interne (3) et la structure de support stabilisante (23) de manière à ce qu'elles soient placées en contact mutuel au niveau de l'au moins un dépôt (24) de colle thermofusible et à chauffer au moins ladite partie du paquet (1) afin de réactiver l'au moins un dépôt (24) de colle thermofusible et à coller l'enveloppe interne (3) et la structure de support stabilisante (23) l'une à l'autre.

2. Procédé de fabrication d'un paquet pour articles pour fumeurs selon la revendication 1, **caractérisé en ce que** la structure de support stabilisante pour le paquet (1) comprend un organe de support stabilisant (23) logé à l'intérieur de l'enveloppe interne (3) et l'au moins un dépôt (24) de colle thermofusible est situé sur le matériau en feuille destiné à constituer l'enveloppe interne (3), le procédé comprenant une étape consistant à chauffer uniquement l'enveloppe interne (3) afin de réactiver l'au moins un dépôt (24) de colle thermofusible.

3. Procédé de fabrication d'un paquet pour articles pour fumeurs selon la revendication 1, **caractérisé en ce que** la structure de support stabilisante pour le paquet (1) comprend un organe de support stabilisant (23) logé à l'intérieur de l'enveloppe interne (3) et l'au moins un dépôt (24) de colle thermofusible est situé sur le matériau en feuille destiné à constituer l'enveloppe interne (3), le procédé comprenant une étape consistant à chauffer l'intégralité du paquet (1) afin de réactiver l'au moins un dépôt (24) de colle thermofusible.

4. Procédé selon l'une quelconque des revendications de 1 à 3, **caractérisé en ce que** le chauffage de l'au moins un dépôt (24) de colle thermofusible est accompli par conduction.

5. Procédé selon l'une quelconque des revendications de 1 à 3, **caractérisé en ce que** le matériau en feuille destiné à constituer l'enveloppe interne (3) est réalisé à partir d'un matériau en couche comprenant au moins une couche étant au moins en partie constituée d'un matériau métallique ; le chauffage de l'au moins un dépôt (24) de colle thermofusible étant accompli par induction électromagnétique.

FIG.1

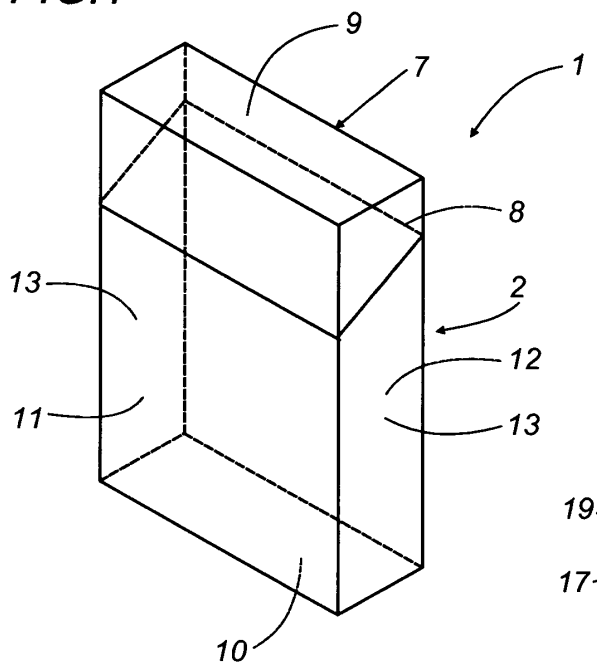


FIG.2

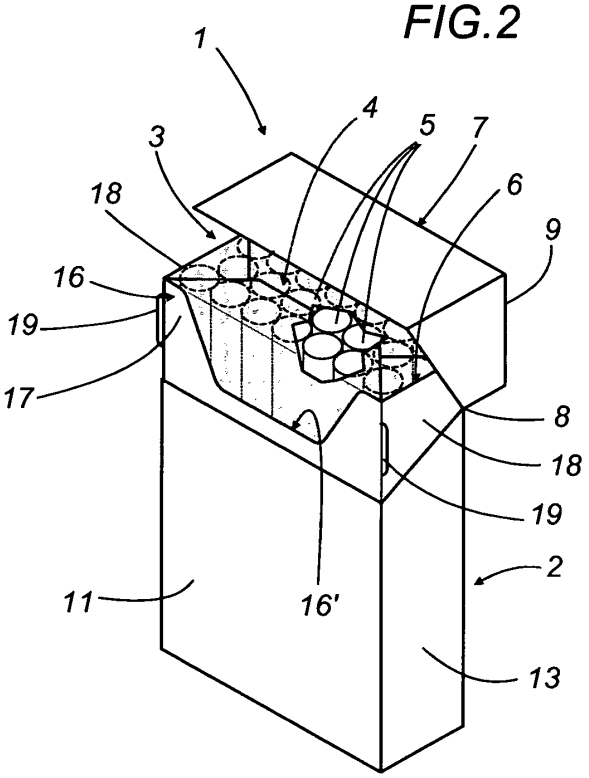


FIG.3

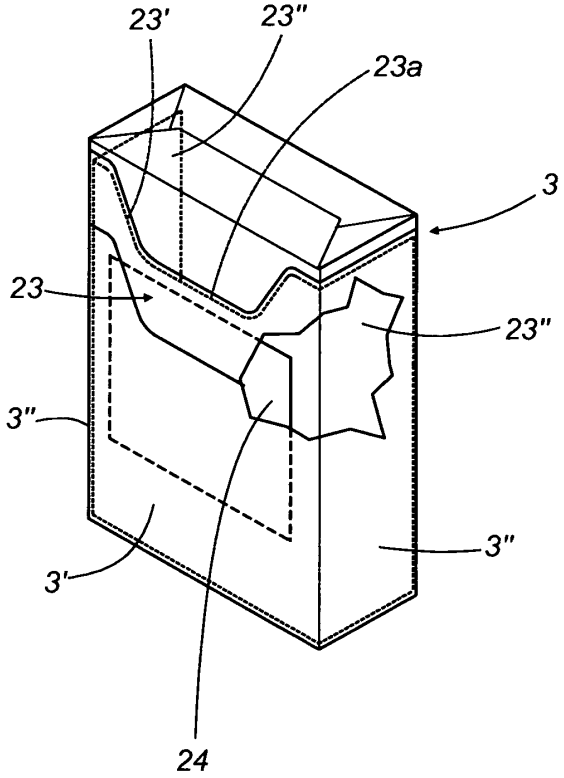


FIG.4

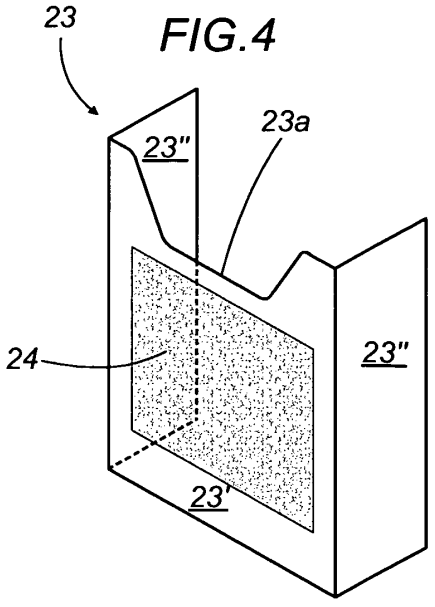


FIG.5

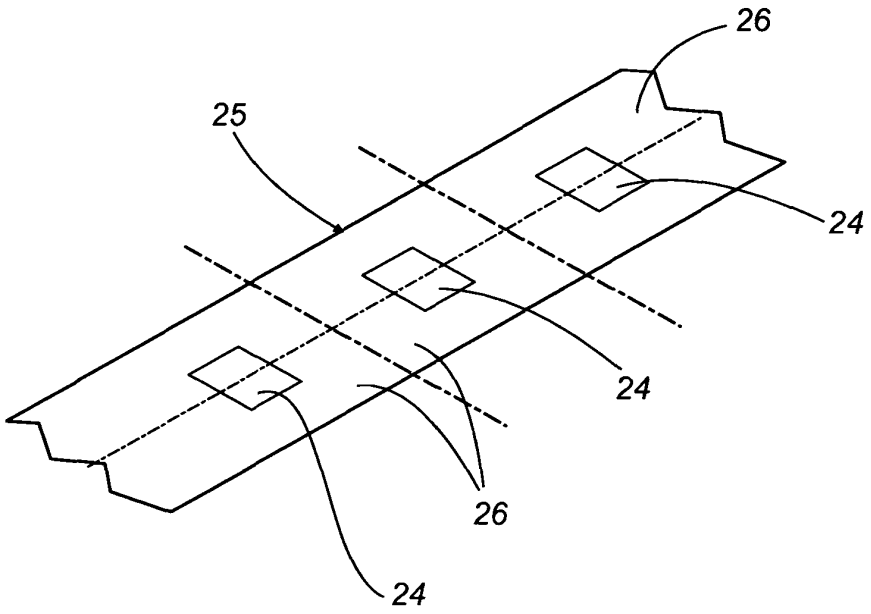
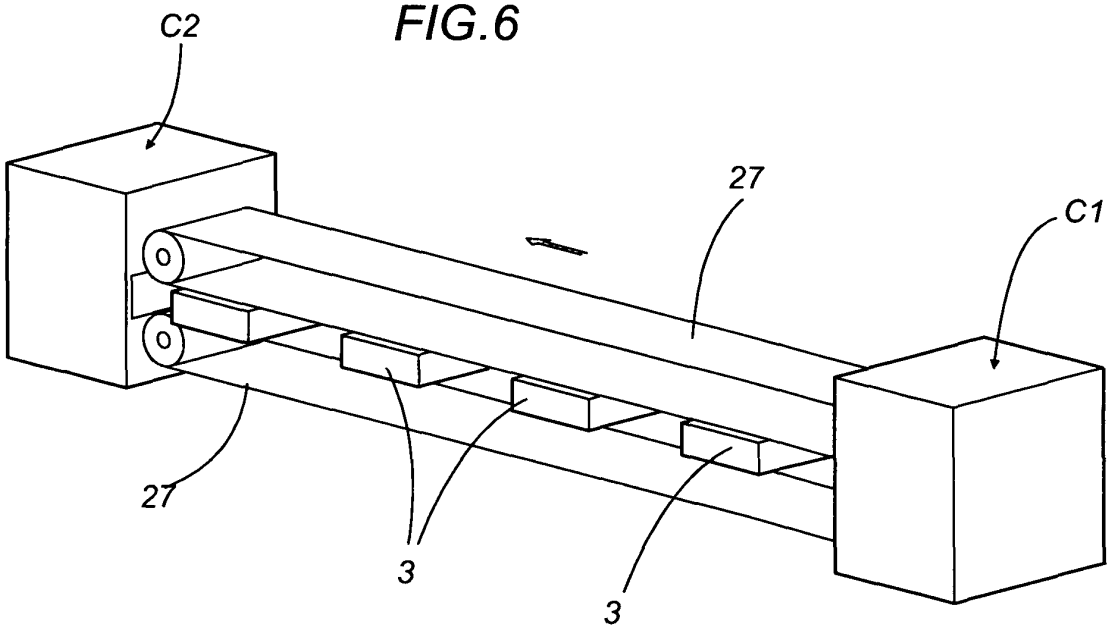


FIG.6



REFERENCES CITED IN THE DESCRIPTION

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