

(19)



(11)

EP 2 999 360 B1

(12)

EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
28.03.2018 Bulletin 2018/13

(51) Int Cl.:
A24C 5/00 (2006.01) A24D 3/02 (2006.01)

(21) Application number: **14731055.1**

(86) International application number:
PCT/IB2014/061489

(22) Date of filing: **16.05.2014**

(87) International publication number:
WO 2014/188318 (27.11.2014 Gazette 2014/48)

(54) APPARATUS FOR MAKING SMOKERS' ARTICLES

VORRICHTUNG ZUR HERSTELLUNG EINES RAUCHERARTIKELS

APPAREIL DESTINÉ À LA FABRICATION D'ARTICLES POUR FUMEUR

(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

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(30) Priority: **22.05.2013 IT BO20130241**

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(43) Date of publication of application:
30.03.2016 Bulletin 2016/13

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Description**Technical field**

[0001] This invention relates to an apparatus for making smokers' articles.

[0002] More specifically, the invention has for an object an apparatus for making cylindrical smokers' articles each of which is composed of a group comprising at least two cylindrical pieces which are joined to each other by gummed sheet material wrapped at least partly around the group itself and in which the surface of the sheet material has connected to it, in the context of each group, at least one strip of web material placed circumferentially round the group itself.

Background art

[0003] For convenience of description and without limiting the scope of the invention, reference is made herein to the production of cylindrical smokers' articles composed of two or more pieces of filter material juxtaposed end to end or separated by a gap or having, between at least some of them, spaces filled with loose material of any kind. These cylindrical smokers' articles, again by way of example, are then considered as part of further smokers' articles consisting of filter cigarettes comprising one or more pieces which contain filter material and which have to be connected to a piece of cigarette.

[0004] More in general, therefore, the smokers' articles this invention refers to comprise a succession of cylindrical pieces of smokers' products of any kind used to make up cylindrical smokers' articles.

[0005] In some cases, in the production of smokers' articles, a web which is to be wrapped around cylindrical pieces and glued thereto in order to join the pieces to each other, has to be provided, on one or both sides of its peripheral surface, with one or more strips of suitable material to be glued to the web itself in such a way as to define one or more annular inserts on the surface of the cylindrical smokers' articles obtained by wrapping the web itself round the above mentioned pieces. Depending on circumstances, these annular inserts may have aesthetic functions, in which case, they may be made of foil paper or of plastic material, or they may have a functional purpose, in which case, the strips in question may be used for flavouring purposes.

[0006] In manufacturing machines which make smokers' articles of the above mentioned type, it is standard practice to use webs on which the strips have already been provided during the production of the webs themselves. This practice, however, involves relatively high costs because the special rolls of web of this kind are not only very expensive but also create technical problems which call for complex and uneconomical solutions because it means the manufacturing machines have to be provided with somewhat complicated synchronizing systems designed to position the annular inserts properly

relative to the cylindrical which are wrapped in the webs themselves.

[0007] Moreover a further example of an apparatus for making smokers' articles is disclosed by document WO2013/024263.

Disclosure of the invention

[0008] The aim of this invention is to provide an apparatus for making smokers' articles which is free of the disadvantages described above with reference to the prior art.

[0009] The invention accordingly provides an apparatus for making smokers' articles as set out in the appended claims.

Brief description of the drawings

[0010] The invention is described below with reference to the accompanying drawings, which illustrate a non-limiting embodiment of it, and in which:

Figure 1 is a schematic front view of an apparatus for making smokers' articles according to this invention; and

Figure 2 is a schematic plan view of smokers' articles in various stages of their production in the apparatus of Figure 1.

Detailed description of preferred embodiments of the invention

[0011] Figure 1 shows an apparatus 1 for making smokers' articles, comprising an end or outfeed portion of an apparatus 2 for making filters, which may be of the composite type, that is to say, composed of two or more pieces of filter material of different kinds juxtaposed with each other in axial direction.

[0012] Forming part of the apparatus 2 is a unit 4 comprising conveyor means 5 for feeding pieces of smokers' products consisting of filter elements 6 (see also Figure 2) along a first path P1 extending along a feed direction D1. The apparatus 1 comprises a garniture tongue 7 for forming a (at least one) continuous filter rod 8 which, in the embodiment illustrated, comprises filter elements 6 alternated with gaps 9.

[0013] More precisely, along the garniture tongue 7, a continuous sequence of filter elements 6 moving along the direction D1 are progressively wrapped in a web 10 of paper (or other sheet material) which is unwound continuously from a roll 11 by feed means of essentially known type denoted in their entirety by the reference 11' and which is fed towards wrapping means schematically represented as a block 12, in such a way as to form the continuous rod 8 which a rotary cutoff device 13 at the outfeed end of the garniture tongue 7 divides into smokers' articles consisting of composite filter pieces 14, each composed (for example) of a central filter element 6

whose two axial ends are separated by gaps 9 and respective halves of further filter elements 6. More specifically, the feed means 11' for the web 10 of sheet material direct the web 10 longitudinally along a second path P2.

[0014] The apparatus 2 also comprises, downstream of the cutoff device 13 in the direction of feed of the continuous filter rod 8, a conveyor device 15 of essentially known type, for sequentially feeding the filter pieces 14 towards the infeed of a filter tip attachment machine 16 of known type for applying filters to cigarettes. The filter tip attachment machine 16 is also able to receive cigarette pieces 17 sequentially from a cigarette maker schematically represented as a block 16', divide the filter pieces 14 into two pieces 18 of half the length, axially interpose the pieces 18 between two cigarette pieces 17 and connect the pieces 17 and 18 to each other in known manner to make a double cigarette 19 which is then divided into two half way along the piece 18 to make two finished filter-tipped cigarettes 20.

[0015] Located along the second path P2 followed by the web 10 upstream of the unit 4, in the order defined by the direction of feed of the web 10 itself, there are applicator devices 21, 22, 27 for applying strips 23, 24 of web to the web 10 itself and which, at predetermined regular intervals, cut the strips 23, 24 from respective webs 23', 24' unwound from respective rolls 23", 24" and apply a spot of glue on a surface thereof by means of a gluing device of known type, not illustrated. In other words, the applicator device 21, 22, 27 is located along the second path P2 to apply the strips 23, 24 on at least one surface of the web 10 of sheet material in such a way that they are oriented transversely to the second path P2.

[0016] The applicator devices 21, 22 are capable of applying on one surface of the web 10 respective transversal strips 23, 24 in such a way that, for example, a strip 23 and a strip 24, spaced from each other by a gap of predetermined length are placed on the web 10 in transit along the garniture tongue 7 which forms the continuous filter rod 8 and are positioned centrally between each pair of filter elements 6, with the strip 24 leading the strip 23. According to the above, the strips 23, 24 of web connected to the web 10 form on each of the finished filter-tipped cigarettes 20 an annular insert 23"', 24"' which surrounds, respectively, a portion of the filter of each of the two cigarettes 20 obtained by cutting in half the double cigarette 19 with the filter in the middle of it.

[0017] The strips 23, 24 may be made of any suitable material, for example paper or plastic material, or they may comprise metallic material or hold any substance, such as a flavouring, for example, capable of affecting the properties of the filter pieces 14.

[0018] Located along the first path P1 which the web 10 follows after the strips 23 and 24 have been applied to it, there are preferably two detector devices 25 and 26 (Figure 2) for checking in known manner that the strips 23, 24 are correctly positioned and, if a positioning error is detected, for providing the applicator devices 21, 22

associated with the detector devices 25 and 26, with feedback for independently delaying or advancing the application of the strips 23 and/or 24 to the web 10 in such a way as to cancel the error.

[0019] As shown in Figure 1, one or more strips similar to the strips 23, 24 are applied to the surface of the web 10 opposite the surface the strips 23 and 24 are applied to. For this purpose, one or more applicator devices 27 similar to the applicator devices 21 and 22 may be provided (Figure 1 shows one, drawn with a dashed lines) in such a way as to act on the opposite surface. The applicator device 27 is preferably also associated with a detector device (not illustrated) similar to the detector devices 25 and 26. Generally speaking, the detector devices are preferably associated with at least part of the applicator devices 21, 22, 27.

[0020] It should be noted that in accordance with the above, the strips 23, 24 can be applied, according to requirements, to a surface of the web 10 which will eventually be on the outside of the continuous rod 8 enclosing the filter elements 6, or to a surface of the web 10 on the inside of the rod 8 or to both of the surfaces.

[0021] Obviously, the number of applicator devices 21, 22, 27 which may be used in the apparatus 1 can be selected as needed.

[0022] Lastly, it should be noted that using separate applicator devices 21, 22, 27 which can be adjusted independently of each other allows varying the positions of the strips 23 and 24 in order to space them apart according to requirements and/or to vary the spacing in the event of a changeover to pieces 18 of a different size.

Claims

1. An apparatus for making smokers' articles comprising a unit (4) comprising conveyor means for feeding along a first path (P1), extending along a feed direction (D1), a continuous succession of filter elements (6) of smokers' products intended to form part of the smokers' articles (14); feed means (11') by which a web (10) of sheet material is unwound continuously from a roll (11) and directed longitudinally along a second path (P2); a garniture tongue (7) whereby the continuous sequence of filter elements (6) moving along the feed direction (D1) are progressively wrapped in the web (10) of sheet material which is fed towards wrapping means (12) so as to form at least one continuous rod (8) enclosing the filter elements (6) in the web (10) of sheet material; and a cutoff device (13) placed at the outfeed end of the garniture tongue (7) and configured for subdividing the continuous rod (8) into smokers' articles (14) consisting of composite filter pieces (14); the apparatus being **characterized in that** it comprises separate applicator devices (21, 22) for applying strips (23, 24) of web; the applicator devices (21, 22) being located along the second path (P2) to apply the strips

(23, 24) on one surface of the web (10) of sheet material in such a way that they are oriented transversely to the second path (P2), wherein the applicator devices (21, 22), at predetermined regular intervals, cut the strips (23, 24) from respective webs (23', 24') unwound from respective rolls (23", 24") and apply a spot of glue on a surface of the strips (23, 24) by means of a gluing device, and wherein the applicator devices (21, 22) are adjustable independently of each other to vary the position of the strips (23, 24); said apparatus further comprising detector means (25, 26) associated with at least part of the applicator devices (21, 22) for checking the position of the strips (23, 24) and providing the applicator devices (21, 22, 27) with feedback for adjusting the application of the strips (23, 24) to the web (10).

2. The apparatus according to claim 1, **characterized in that** the strips (23, 24) are applied to a surface of the web (10) of sheet material on the outside of the continuous rod (8) enclosing the pieces (6).
3. The apparatus according to claim 1 or 2, **characterized in that** the transversal strips (23, 24) of web are applied to a surface of the web (10) of sheet material on the inside of the continuous rod (8) enclosing the pieces (6).
4. The apparatus according to claim 1, **characterized in that** the strips (23, 24) are made of paper or comprise paper material.
5. The apparatus according to claim 1, **characterized in that** the strips (23, 24) are made of metal or comprise metallic material.
6. The apparatus according to claim 1, **characterized in that** the strips (23, 24) are made of plastic or comprise plastic material.

Patentansprüche

1. Vorrichtung zur Herstellung von Raucherartikeln, umfassend eine Einheit (4), umfassend Fördermittel, um eine durchgehende Abfolge an Filterelementen (6) von Raucherprodukten, die dazu bestimmt sind, einen Teil der Raucherartikel (14) zu formen, entlang eines ersten Wegs (P1) zuzuführen, die sich entlang einer Zuführungsrichtung (D1) erstreckt; Zuführungsmittel (11'), mittels derer eine Bahn (10) aus Bogenmaterial durchgehend von einer Rolle (11) abgewickelt und längsseitig entlang eines zweiten Wegs (P2) geführt wird; eine Formatgarnitur (7), mittels derer die durchgehende Abfolge an Filterelementen (6), die sich entlang der Zuführungsrichtung (D1) bewegt, progressiv in die Bahn (10) aus Bogenmaterial eingewickelt wird, die hinführend zu

Einwickelmitteln (12) geführt wird, sodass mindestens eine durchgehende Stange (8) geformt wird, die die Filterelemente (6) in der Bahn (10) aus Bogenmaterial einschließt, und eine Trennvorrichtung (13), die am Ausführenden der Formatgarnitur (7) platziert und ausgelegt ist, um die durchgehende Stange (8) in Raucherartikel (14) zu teilen, bestehend aus Verbundfilterstücken (14), wobei die Vorrichtung **dadurch gekennzeichnet ist, dass** sie separate Anbringungsrichtungen (21, 22) zum Anbringen von Bahnstreifen (23, 24) umfasst, wobei die Anbringungsrichtungen (21, 22) entlang des zweiten Wegs (P2) angeordnet sind, um die Streifen (23, 24) auf einer Oberfläche der Bahn (10) aus Bogenmaterial anzubringen, sodass sie quer zum zweiten Weg (P2) ausgerichtet sind, wobei die Anbringungsrichtungen (21, 22) in vorgegebenen regelmäßigen Abständen die Streifen (23, 24) aus jeweiligen Bahnen (23', 24') schneiden, die von jeweiligen Rollen (23", 24") abgewickelt werden, und einen Tupfen Leim auf eine Oberfläche der Streifen (23, 24) mittels einer Leimvorrichtung auftragen, und wobei die Anbringungsrichtungen (21, 22) unabhängig voneinander verstellbar sind, um die Position der Streifen (23, 24) zu variieren, wobei die Vorrichtung zudem Erfassungsmittel (25, 26) umfasst, die mit mindestens einem Teil der Anbringungsrichtungen (21, 22) assoziiert sind, um die Position der Streifen (23, 24) zu prüfen und den Anbringungsrichtungen (21, 22, 27) Informationen für die Einstellung der Anbringung der Streifen (23, 24) an der Bahn (10) zu übermitteln.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Streifen (23, 24) an einer Oberfläche der Bahn (10) aus Bogenmaterial an der Außenseite der durchgehenden Stange (8), einschließend die Stücke (6), angebracht werden.
3. Vorrichtung nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Bahnquerstreifen (23, 24) an einer Oberfläche der Bahn (10) aus Bogenmaterial an der Innenseite der durchgehenden Stange (8), einschließend die Stücke (6), angebracht werden.
4. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Streifen (23, 24) aus Papier bestehen oder Papiermaterial umfassen.
5. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Streifen (23, 24) aus Metall bestehen oder Metallmaterial umfassen.
6. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** die Streifen (23, 24) aus Kunststoff bestehen oder Kunststoffmaterial umfassen.

Revendications

1. Appareil destiné à la fabrication d'articles pour fumeur comprenant une unité (4) comprenant des moyens de convoyage servant à alimenter, le long d'un premier parcours (P1) se prolongeant le long d'une direction d'alimentation (D1), une succession continue d'éléments filtrants (6) de produits pour fumeur prévus pour faire partie des articles pour fumeur (14) ; des moyens d'alimentation (11') par lesquels une bande (10) de matériau à feuille est déroulée continuellement à partir d'un rouleau (11) et orientée longitudinalement le long d'un second parcours (P2) ; une garniture de mise en forme (7) par laquelle la séquence continue d'éléments filtrants (6) se déplaçant le long de la direction d'alimentation (D1) sont progressivement enroulés dans la bande (10) de matériau à feuille qui est alimentée vers des moyens d'emballage (12) de manière à former au moins une tige continue (8) renfermant les éléments filtrants (6) dans la bande (10) de matériau à feuille ; et une coupeuse (13) placée en correspondance de l'extrémité de sortie de la garniture de mise en forme (7) et configurée pour subdiviser la tige continue (8) en articles pour fumeur (14) consistant en des bouts-filtres (14) composites ; l'appareil étant **caractérisé en ce qu'il** comprend des dispositifs applicateurs séparés (21, 22) pour appliquer des rubans (23, 24) de bande ; les dispositifs applicateurs (21, 22) étant situés le long du second parcours (P2) pour appliquer les rubans (23, 24) sur une surface de la bande (10) de matériau à feuille de manière à ce qu'ils soient orientés transversalement à un second parcours (P2), dans lequel les dispositifs applicateurs (21, 22), à des intervalles réguliers prédéfinis, coupent les rubans (23, 24) à partir de bandes (23', 24') respectives déroulées à partir de rouleaux (23", 24") respectifs et appliquent un point de colle sur une surface des rubans (23, 24) au moyen d'un dispositif à encoller, et dans lequel les dispositifs applicateurs (21, 22) sont réglables indépendamment les uns des autres pour varier la position des rubans (23, 24) ; ledit appareil comprenant de plus des moyens de détection (25, 26) associés à au moins une partie des dispositifs applicateurs (21, 22) pour vérifier la position des rubans (23, 24) et fournir aux dispositifs applicateurs (21, 22, 27) un retour d'information pour régler l'application des rubans (23, 24) à la bande (10).
2. Appareil selon la revendication 1, **caractérisé en ce que** les rubans (23, 24) sont appliqués à une surface de la bande (10) de matériau à feuille sur l'extérieur de la tige continue (8) renfermant les bouts (6).
3. Appareil selon la revendication 1 ou 2, **caractérisé en ce que** les rubans transversaux (23, 24) de bande sont appliqués à une surface de la bande (10) de matériau à feuille sur l'intérieur de la tige continue (8) renfermant les bouts (6).
4. Appareil selon la revendication 1, **caractérisé en ce que** lesdits rubans (23, 24) sont en papier ou comprennent une matière en papier.
5. Appareil selon la revendication 1, **caractérisé en ce que** les rubans (23, 24) sont en métal ou comprennent un matériau en métal.
6. Appareil selon la revendication 1, **caractérisé en ce que** lesdits rubans (23, 24) sont en plastique ou comprennent une matière en plastique.

FIG.1

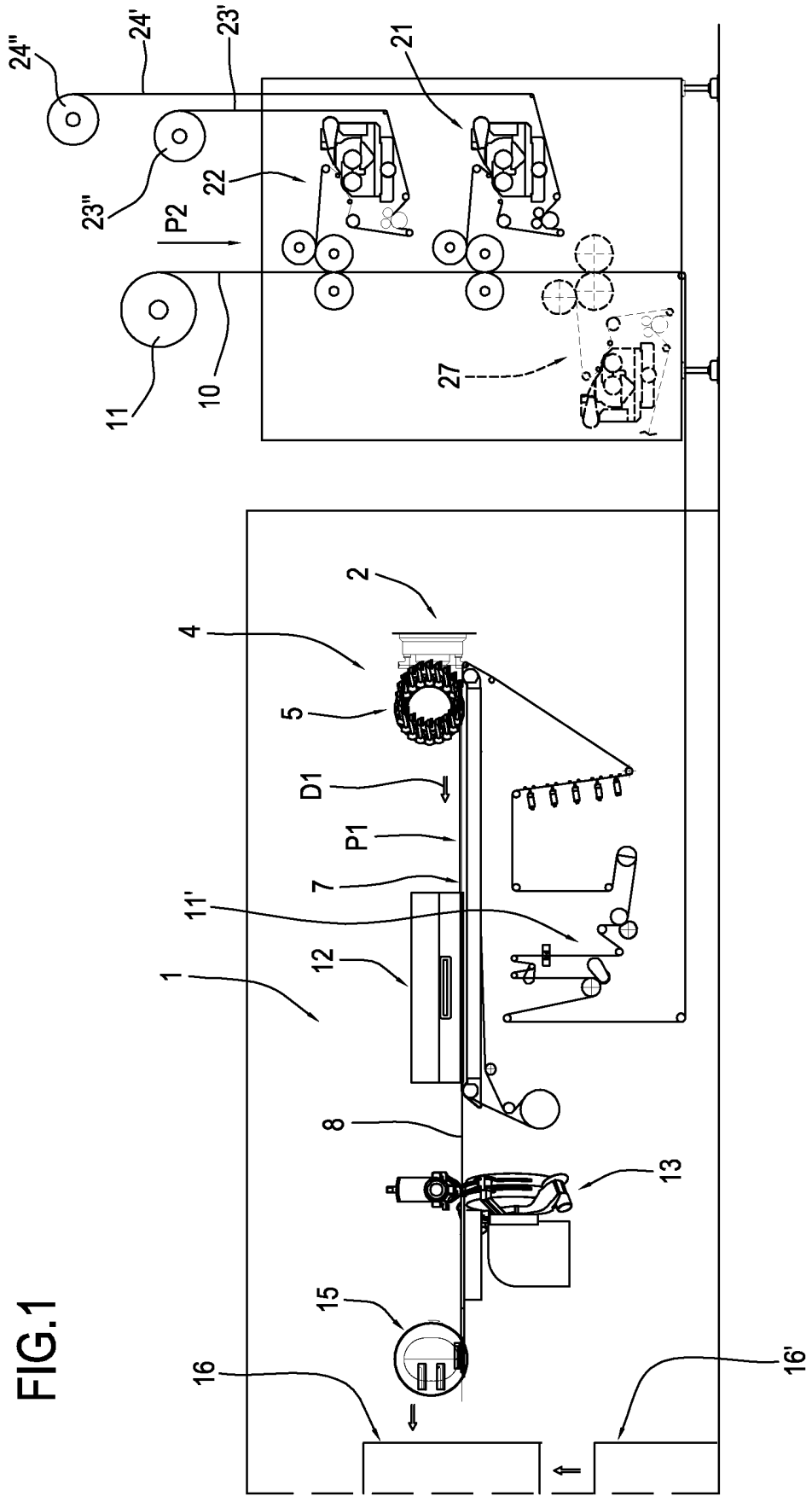
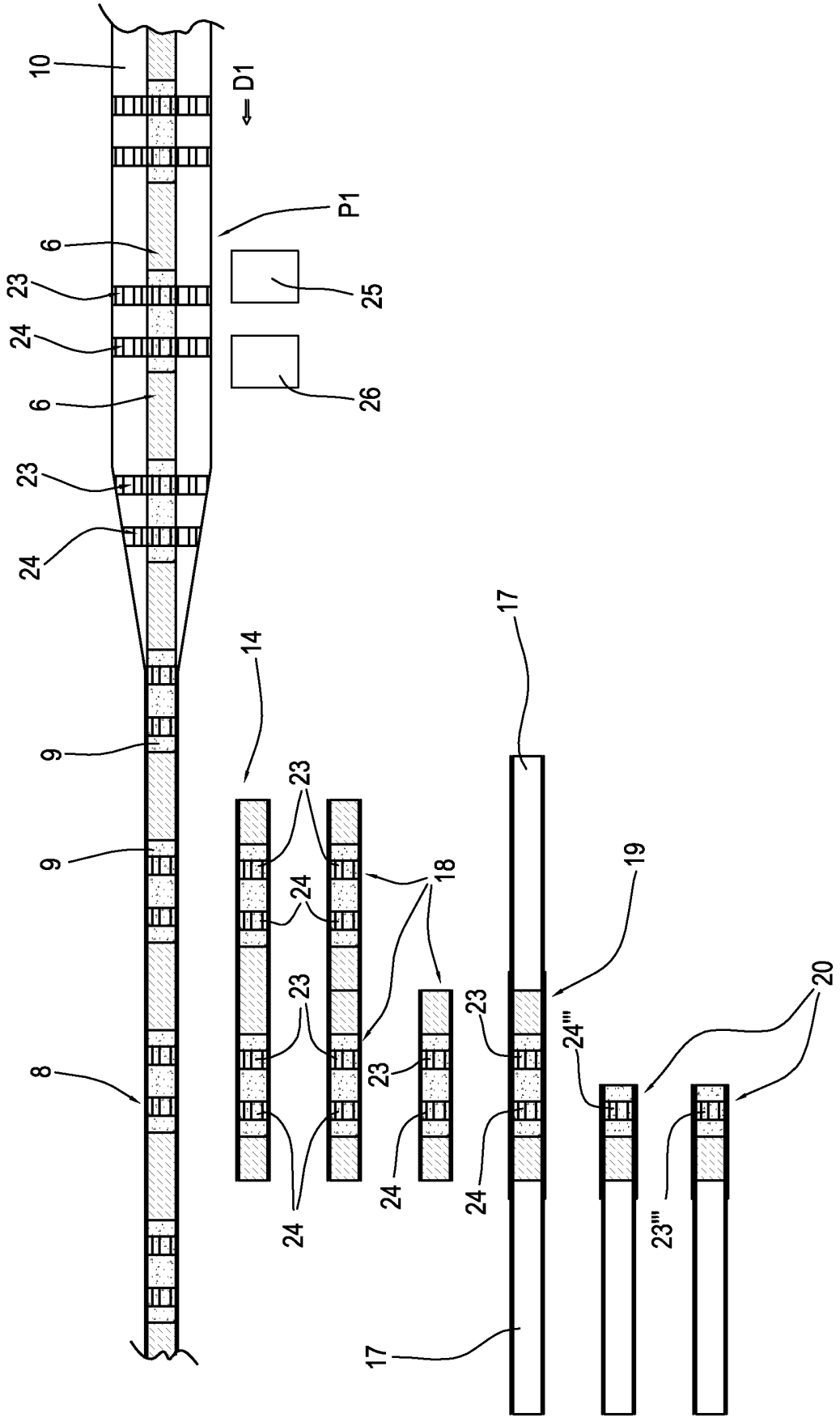


FIG.2



REFERENCES CITED IN THE DESCRIPTION

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