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(54) **WRAPPING PAPER PATTERN FOR AN AEROSOL-GENERATING ARTICLE**

UMHÜLLUNGSPAPIERMUSTER FÜR EINEN AEROSOLERZEUGENDEN ARTIKEL

MOTIF DE PAPIER D'EMBALLAGE POUR UN ARTICLE DE GÉNÉRATION D'AÉROSOL

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Description

[0001] This invention relates to a wrapping paper pattern for an aerosol-generating article having a collapsible heat source for heating an aerosol-forming substrate.

[0002] Aerosol-generating articles in which tobacco is heated rather than burned are known in the prior art. An aim of such 'heated' articles is to reduce certain smoke constituents of the type produced by the combustion and pyrolytic degradation of tobacco in conventional cigarettes. In one known type of heated aerosol-generating article, an aerosol is generated by a combustible heat source transferring heat to an aerosol-forming substrate, for example containing tobacco. The aerosol-forming substrate may be located downstream of the combustible heat source. An outer wrapping sheet of the aerosol-generating article may be used to enclose the aerosol-forming substrate and at least a portion of the combustible heat source contained within an inner wrapping sheet. In use, volatile compounds released from the aerosol-forming substrate by heat transfer from the combustible heat source are entrained in air drawn through the heated aerosol-generating article. As the released compounds cool, they condense to form an aerosol.

[0003] Some combustible heat sources may be difficult to extinguish or it may be desirable to extinguish the heat source before it has self-extinguished. It is desirable to provide an aerosol-generating article that can cover the combustible heat source to extinguish or shield the heat source. Arranging the outer wrapping sheet to include an internal recess into which the combustible heat source can be drawn into is one way of achieving this.

[0004] WO 2017/115196 discloses an aerosol-generating article having a collapsible structure to retract the heat source into an interior 'void space'. The disclosed structure includes an inner tubular member, which comprises, in order from a distal, tip end towards a proximal, mouthpiece end: a heat source, an aerosol-generating substrate, a first diffuser element, a void space, a second diffuser element, and an aerosol-cooling element. In use, the inner tubular member is retained within a tubular body which includes a mouthpiece filter element. An outer wrapping sheet may be adhered at a junction of the inner tubular member to form the tubular body which retains the inner tubular element within the tubular body. The inner tubular member includes an area of weakness whereby the tip end can collapse within the tubular body into the void space.

[0005] Aerosol-generating articles are typically manufactured in a back-to-back configuration by rolling a wrapping sheet around a rod formed of first and second inner tubular elements mounted to respective first and second mouthpiece filters. The mouthpiece filters may be conjoined to form a mouthpiece filter element. The wrapped rod may then be cut through the mouthpiece filter to produce two aerosol-generating articles. This arrangement allows for a higher manufacturing line speed compared to wrapping individual aerosol-generating articles. Dur-

ing the manufacture of collapsible aerosol-generating articles, it is proposed that two wraps may be applied to the rod. The first wrap may adhere to the rod at a proximal end of the rod. For example, the first wrap may secure a wrapping sheet at the mouthpiece filter and optionally at a proximal portion of the inner tubular elements and the mouthpiece filter. The second wrap may secure the outer wrapping sheet to the first wrap. The second wrap may be secured along its length to the underlying first wrap. This may create an outer tubular member that rigidly supports and protects the rod or inner tubular member, while allowing the inner tubular element to be collapsible within the outer tubular member, and thus be collapsible when "stuffed" out.

[0006] However, the glue pattern proposed for use in adhering the outer wrapping sheet first to the rod and then to itself does not secure the ends of the outer wrapping sheet to the rod at all points, particularly during the first wrap, as gluing over the entire outer wrapping sheet area for that first wrap would reduce the collapsibility of the inner tubular element. Therefore, the outer wrapping paper is proposed only to be adhered to the mouthpiece filter and a portion of the first and second inner tubular elements on the first wrap. A rotating drum comprising a vacuum to temporarily adhere the outer wrapping sheet to the rotating drum is a typical method of rolling such an aerosol-generating article. Because adhesive is only applied to the central portion of the outer wrapping sheet for the portion that will form the first wrap, only that central portion will be positively attached to the rod. The tips of the outer wrapping sheet are not adhered to the rod at this stage, and accordingly will have more of a propensity to stay attached to the rotating drum. Consequently, the non-central parts of the outer wrapping sheet may remain attached to the rotating drum whilst the central parts are securely wrapped around the rod during the first circumferential wrap, which may result in an uneven wrap of the outer wrapping sheet and the formation of conically shaped aerosol-generating articles.

[0007] It would be desirable to provide an aerosol-generating article having a structure incorporating an outer sheet which did not result in conically shaped aerosol-generating articles, yet retained a collapsible portion. It would be desirable to provide an aerosol-generating article that can be manufactured using existing manufacturing processes and can be produced at existing manufacturing speeds.

[0008] According to the present invention there is provided an aerosol-generating article having a proximal end and a distal end, the aerosol-generating article comprising:

- an inner tubular element comprising an inner wrapping sheet circumscribing a combustible heat source positioned towards the distal end of the aerosol-generating article;
- an outer wrapping sheet to form an outer tubular el-

ement of the aerosol-generating article when rolled about a longitudinal axis, the outer wrapping sheet comprising: a first edge comprising a proximal portion and a distal portion, wherein the proximal portion includes a glued section, and wherein the distal portion extends from the proximal portion at an acute angle relative to the longitudinal axis.

[0009] Also disclosed, but not claimed, is a wrapping sheet to form a tubular element of an aerosol-generating article when rolled about a longitudinal axis. The wrapping sheet comprises a first edge comprising a proximal portion and a distal portion. The proximal portion includes a glued section. The distal portion extends from the proximal portion at an acute angle relative to the longitudinal axis.

[0010] The wrapping sheet advantageously provides an aerosol-generating article that has a less conically shaped profile than those of the prior art. This is in part due to the glued section at the proximal end of the first edge that initially contacts an inner tubular element during an overwrapping procedure to form the aerosol-generating article. This glued section enables the wrapping sheet to wrap tightly around the inner tubular element without any separation between the wrapping sheet and the inner tubular element during a first circumferential wrap. Additionally, the angled distal portion of the first edge provides traction between the wrapping sheet and the inner tubular element as the wrapping sheet is wrapped around the inner tubular element. This causes the wrapping sheet to be drawn towards the inner tubular element as the wrapping sheet is wrapped around the inner tubular element. This further reduces the likelihood of any separation between the wrapping sheet and the inner tubular element.

[0011] In some embodiments, the proximal portion of the first edge is substantially parallel to the longitudinal axis.

[0012] In some embodiments, the wrapping sheet further comprises a second edge, opposed to the first edge. The second edge comprises a second edge proximal portion and a second edge distal portion, wherein the first and second edges define a width of the sheet. The second edge proximal portion may be substantially parallel to the proximal portion of the first edge. The second edge proximal portion may also be substantially the same length as the proximal portion of the first edge. The second edge distal portion may be substantially parallel to the distal portion of the first edge. The second edge distal portion may also be substantially the same length as the distal portion of the first edge. In some embodiments, the wrapping sheet further comprises proximal and distal end edges extending between the first and second edges at respective proximal and distal ends thereof. The distance between the first and second edges may be constant along the length of the sheet. The proximal and distal end edges may extend substantially perpendicularly to the longitudinal axis.

[0013] In some embodiments, a first region is defined by the area of sheet between the first edge proximal portion and the second edge proximal portion. A first glue pattern, which includes the glued section, is applied to the first region, thereby defining a band of glue across the width of the sheet in the proximal portion. The first glue pattern may be applied across the whole extent of the first region, for example as a continuous glue layer. The glue pattern may be discontinuous, such as a series of bands, stripes, dots, or the like, in either a regular or irregular array.

[0014] In some embodiments, a second region is defined by the area of sheet between the first edge distal portion and the second edge distal portion. The second region is split into a first zone adjacent the first edge and a second zone adjacent the second edge by a boundary line extending from the distal end edge to the first region. A second glue pattern is applied to the second zone. The second glue pattern may be applied across the whole extent of the second zone. As with the first glue pattern, the second glue pattern may be applied as a continuous glue layer or may be discontinuous, such as a series of bands, stripes, dots, or the like, in either a regular or irregular array. Typically, no glue is applied to the first zone.

[0015] The boundary line may be substantially parallel to the first edge distal portion.

[0016] In some embodiments, the first region extends by a first distance from the proximal end edge, wherein the first distance is in the range of 1mm to 60mm. The first distance is preferably in the range of 5mm to 15mm.

[0017] In some embodiments, the first zone extends by a second distance from the first edge distal portion, wherein the second distance is in the range of 10mm to 40mm. The second distance is preferably in the range of 10mm to 25mm.

[0018] There is disclosed an aerosol-generating article having a proximal end and a distal end. The aerosol-generating article typically comprises a mouthpiece filter at the proximal end. The aerosol-generating article comprises an inner tubular element typically having a heat source end positioned at the distal end of the aerosol-generating article. The inner tubular element typically comprises an inner wrapping sheet circumscribing a combustible heat source positioned towards the distal end of the aerosol-generating article. The inner wrapping sheet typically circumscribes an aerosol-forming substrate downstream of the combustible heat source. The inner wrapping sheet may circumscribe a void space between the aerosol-forming substrate and the mouthpiece end. The combustible heat source, aerosol-forming substrate and, where included, void space are provided in a co-axial arrangement. An outer tubular element extends from the proximal end of the aerosol-generating article towards the distal end thereof. The outer tubular element typically circumscribes at least the mouthpiece end of the inner tubular element and the void space. The outer tubular element typically terminates downstream of the

heat source. The outer tubular element comprises a wrapping sheet according to the aspect described above. The inner wrapping sheet may include a collapsible portion surrounding at least the void space such that the distal end including the combustible heat source and the aerosol-forming substrate is slideable relative to the outer tubular element. The distal end may thus be slideable from an extending position having a first article length, to a retracted position having a second article length that is less than the first article length.

[0019] The width of the sheet, between the first and second opposed edges, is typically at least equal to twice the circumference of the inner tubular element about which it is to be wrapped. The boundary line may be spaced from the first edge distal portion by a distance (i. e. the second distance) at least equal to the circumference of the inner tubular element about which it is to be wrapped.

[0020] The first distance may be selected such that when rolled into the outer tubular element form, the wrapping sheet is adhesively joined to the inner tubular element only at the proximal end thereof for a first circumferential wrap by a band of glue formed by the first glue pattern and is adhered to itself along substantially the whole length for a second wrap by the second glue pattern of the second zone and by the adjacent remainder of the band of glue formed by the first glue pattern, thereby forming a tight seal across the aerosol-generating article.

[0021] According to the present invention there is provided a method of manufacturing an aerosol-generating article, wherein the aerosol-generating article has a proximal end and a distal end and a longitudinal axis, the method of manufacturing the aerosol-generating article comprising the steps of:

- providing an inner tubular element comprising an inner wrapping sheet circumscribing a combustible heat source positioned towards the distal end of the aerosol-generating article;
- providing an outer wrapping sheet comprising a first edge comprising a proximal portion and a distal portion, wherein the proximal portion includes a glued section, and wherein the distal portion extends from the proximal portion at an acute angle relative to the longitudinal axis;
- overwrapping at least a portion of the inner tubular element with the outer wrapping sheet by, starting from the first edge of the outer wrapping sheet:
- adhesively joining the first edge proximal portion to the inner tubular element by bringing the glued section into contact with a proximal end of the inner tubular element; and,
- wrapping the outer wrapping sheet about the inner

tubular element by rolling.

[0022] In some embodiments, the overwrapping procedure comprises applying the wrapping sheet using a rotating drum. The overwrapping may comprise rolling the inner tubular element through a pinch between the rotating drum on which the wrapping sheet is temporarily attached and a stationary guide plate, the sheet wrapping around the inner tubular element during passage through the pinch.

[0023] In some embodiments, the method comprises manufacturing a pair of aerosol-generating articles back-to-back, including providing a singular mouthpiece filter element having first and second ends corresponding to initially conjoined first and second mouthpiece filters. Providing an inner tubular element comprises providing first and second inner tubular elements which are mounted to the respective first and second ends of the singular mouthpiece filter element. The overwrapping of the first and second inner tubular elements is simultaneous, using a single wrapping sheet symmetrical about the centre of the mouthpiece filter element to form initially conjoined first and second outer tubular elements. The method further includes cutting through the conjoined outer tubular elements and the mouthpiece filter element to separate the conjoined articles into first and second aerosol-generating articles.

[0024] In specific embodiments the method of manufacture of an aerosol-generating article further comprises providing an inner tubular element that includes a collapsible portion. Ideally the collapsible portion, of the inner tubular element surrounds at least a void space of the aerosol-generating element.

[0025] All scientific and technical terms used herein have meanings commonly used in the art unless otherwise specified. The definitions provided herein are to facilitate understanding of certain terms used frequently herein.

[0026] As used herein, the term "aerosol-generating article" refers to an article comprising an aerosol-forming substrate that is capable of releasing volatile compounds that can form an aerosol, for example by heating, combustion or chemical reaction.

[0027] As used herein, the term "aerosol-forming substrate" is used to describe a substrate capable of releasing volatile compounds, which can form an aerosol. The aerosols generated from the aerosol-forming substrates of aerosol-generating articles according to the invention may be visible or invisible and may include vapours (for example, fine particles of substances, which are in the gaseous state, that are ordinarily liquid or solid at room temperature) as well as gases and liquid droplets of condensed vapours.

[0028] As used herein, the term "sheet" denotes a laminar element having a width and length greater than the thickness thereof.

[0029] The terms "upstream" and "downstream" refer to relative positions of elements of the aerosol-generating

article described in relation to the direction of inhalation air flow as it is drawn through the body of the aerosol-generating article from a distal end to the mouthpiece end. In other words as used herein, "downstream" is defined relative to air flow during use of the aerosol-generating article, with the mouth end of the article being the downstream end through which air and aerosol is drawn. The end opposite the mouthpiece end is the upstream end.

[0030] The words "preferred" and "preferably" refer to embodiments of the invention that may afford certain benefits, under certain circumstances. However, other embodiments may also be preferred, under the same or other circumstances. Furthermore, the recitation of one or more preferred embodiments does not imply that other embodiments are not useful, and is not intended to exclude other embodiments from the scope of the disclosure, including the claims.

[0031] Throughout the description and claims of this specification, the words "comprise" and "contain" and variations of them mean "including but not limited to", and they are not intended to (and do not) exclude other moieties, additives, components, integers or steps. Throughout the description and claims of this specification, the singular encompasses the plural unless the context otherwise requires. In particular, where the indefinite article is used, the specification is to be understood as contemplating plurality as well as singularity, unless the context requires otherwise.

[0032] Embodiments of the invention are further described hereinafter with reference to the accompanying drawings, in which:

Figure 1 is a schematic illustration of a prior art rod and a proposed outer wrapping sheet;

Figure 2 is a schematic illustration of an exemplary aerosol-generating article;

Figure 3 is a schematic illustration of a rod and an outer wrapping sheet according to the invention;

Figure 4 is a schematic illustration of an outer wrapping sheet partially wrapped around a rod; and

Figure 5 illustrates a side view of an overwrapping station used to wrap the outer wrapping sheet around the rod.

[0033] The schematic drawings are not necessarily to scale and are presented for purposes of illustration and not limitation. The drawings depict one or more aspects described in this disclosure. However, it will be understood that other aspects not depicted in the drawings fall within the scope of this disclosure.

[0034] Figure 1 is a schematic illustration of a prior art rod 16 and a proposed outer wrapping sheet 20. The rod 16 is arranged in a back-to-back configuration and com-

prises a first 15' inner tubular element having a distal end 12' and a mouthpiece filter end 11'. A mouthpiece filter 10' is mounted to the first inner tubular element 15' at the mouthpiece filter end 11'. The rod 16 further comprises a second inner tubular element 15" that is a mirror image of the first 15' inner tubular element, and like parts are referenced by like reference signs, but suffixed with a double prime (""). Each of the first 10' and second 10" mouthpiece filters have a proximal end and the first 10' and second 10" mouthpiece filters are conjoined at their respective proximal ends to form a mouthpiece filter element 10. Each of the first 15' and second 15" inner tubular elements contain a heat source, an aerosol-forming substrate and a void (see Figure 2). The proposed outer wrapping sheet 20 is shown in Figure 1 as a substantially rectangular sheet having a first edge 21, a first region of glue 25 and a second region of glue 30. As the first edge 21 is brought into contact with the rod 16, the first region 25 of glue may adhere the outer wrapping sheet 20 to the first 15' and second 15" inner tubular members and the mouthpiece filter element 10. However, the glue pattern only bonds the outer wrapping sheet 20 to the inner tubular members 15', 15" near their respective mouthpiece filter ends 11', 11"; because there is no glue towards the outer ends of the outer wrapping sheet at least for the initial stages of the wrapping process - i. e. for at least a first wrap about the inner tubular members 15', 15".

[0035] When manufacturing aerosol-generating articles in the back-to-back configuration, a series of outer wrapping sheets are typically temporarily attached to a rotating drum, for example by a vacuum, and respective rods 16 are brought into contact with the first edge of the associated outer wrapping sheet 20. As the rotating drum rotates, each rod 16 is brought, with outer wrapping sheet 20 attached, in turn towards a stationary guide plate. The rotating drum and stationary guide plate act as a pinch and friction between the unwrapped aerosol-generating article, stationary guide plate and rotating drum cause the outer wrapping sheet 20 to wrap around the rod 16, thereby forming a wrapped aerosol-generating article. As the outer wrapping sheet 20 is initially wrapped around the rod 16 for the first wrap, only the area of the outer wrapping sheet that is glued to the rod 16 by the first region of glue 25 remains tightly bonded to the rod 16. The remaining outer wrapping sheet 20 is not adhered to the rod 16 so may remain attached to the rotating drum. This can create a tension across the first edge 21 where the adhesive is pulling the outer wrapping sheet 20 towards the rod 16 and the rotating drum is pulling the outer wrapping sheet 20 away from the rod 16. Consequently, rolled aerosol-generating articles may be formed with a conical profile, where the finished aerosol-generating article has a smaller diameter at the mouthpiece filter end 11', 11" compared to the distal end 12', 12". This will subsequently be referred to as the "cone effect". When produced in the back-to-back configuration, an outer wrapping sheet member formed of two symmetrical outer

wrapping sheets 20 attached at respective proximal ends can be used to simultaneously form two conjoined outer tubular elements (as shown in Figure 1). The conjoined outer tubular element can be subsequently cut along a centreline 35 to form separate first and second aerosol-generating articles.

[0036] Figure 2 is a schematic diagram of an exemplary aerosol-generating article 100 related to aspects of the present disclosure. The aerosol-generating article 100 extends between a proximal end 102 and a distal end 104 along a longitudinal axis 150 and comprises an inner tubular element 105 having a mouthpiece end 107 and an opposed heat source end positioned at the distal end 104 of the aerosol-generating article 100. The inner tubular element 105 comprises an inner wrapping sheet 109 circumscribing: a combustible heat source 115 positioned towards the distal end 104 of the aerosol-generating article 100, an aerosol-forming substrate 120 positioned downstream of the combustible heat source 115, and a void space 125 located between the aerosol-forming substrate 120 and the mouthpiece end 107. The combustible heat source 115, aerosol forming substrate 120 and, when present, void space 125 are provided in a coaxial arrangement. The portion of the inner wrapping sheet 109 circumscribing the void space can be considered a collapsible portion 109b. A mouthpiece filter 127 is provided at the proximal end 102 and is shown mounted to the inner tubular element 105 at the mouthpiece end 107. A removable cap 110 may also be mounted at the distal end of the inner tubular element 105 to help preserve the aerosol-forming substrate 115 by forming a seal at the distal end 104 of the inner tubular element 105.

[0037] The aerosol-generating article 100 is shown further comprising an outer tubular element 130 extending from the proximal end 102 of the aerosol-generating article 100 towards the distal end 104 thereof. The outer tubular element 130 circumscribes at least the mouthpiece end 107 of the inner tubular element 105 and the void space 125 and is formed by wrapping the outer wrapping sheet 200 around the mouthpiece filter 127 and a portion of the inner tubular element 105. The outer tubular element 130 terminates downstream of the heat source 115. The distal end 104 including the combustible heat source 115 and the aerosol-forming substrate 120 is slideable relative to the outer tubular element 130 from an extended position having a first article length, for example L1, to a retracted position having a second article length less than the first article length, for example L2. The aerosol-generating article may have a length of a conventional cigarette. The aerosol-generating article may have a diameter of a conventional cigarette. Sliding the distal end 104 from an extended position to a retracted position at least partially collapses the void space 125 to an axial contracted configuration. The slideable distal end, including the combustible heat source 115 and aerosol-forming substrate 120, allows the slideable distal end to collapse into the void space from an extended

position to a retracted position. The retracted position may be such that the heat source is positioned within the outer tubular element. The retracted position may be achieved by application of a pressure or force at the distal end of the aerosol-generating article 100, such as when a "stubbing" out action is performed. It is not essential that the void space 125 be entirely collapsed when in the axially contracted configuration. As shown in Figure 2, the inner tubular element 105 further comprises first 121a and second 121b transfer elements located at the ends of the void space 125. The inner tubular element 105 may further comprise a further transfer element 117 arranged between the combustible heat source 115 and the aerosol-forming substrate 120. The void space 125 provides a recess within which the distal end may collapse to cover the combustible heat source 115. In embodiments, the void space need not be a void, but may alternatively comprise any compressible region.

[0038] While the outer tubular element 130 of the aerosol-generating article is shown terminating downstream of the aerosol-forming substrate 120, it would be apparent to the skilled person that such an arrangement is purely exemplary and that other arrangements are possible, for example, where the outer tubular element 130 terminated at the aerosol-forming substrate 120 would be equally included by this description.

[0039] Figure 3 illustrates an outer wrapping sheet 200 of the present invention. Because the illustrated outer wrapping sheet 200 is for wrapping a pair of inner tubular elements 105', 105" simultaneously in a back-to-back manner, the outer wrapping sheet is symmetrical about a centre line 155. For brevity, only the left-hand side of the mirrored sheet will be described. Such a single outer wrapping sheet could be used to wrap a single inner tubular element 105'. As shown, the outer wrapping sheet 200 has proximal 205 and distal 210 end edges, the end edges extending substantially perpendicular to the longitudinal axis 150, with first 215 and second 220 edges extending therebetween parallel to the longitudinal axis 150. The width of the sheet 200, between the first 215 and second 220 opposed edges, is at least equal to twice the circumference of the first inner tubular element 105'. An intermediate line 225 extends between the first 215 edge and the second edge 220 and defines first 230 and second regions 240. The intermediate line 225 is spaced from the proximal end edge 205 by a first distance. The first distance may be in the range of 1mm to 60mm and preferably in the range of 5mm to 15mm. In this embodiment, the point at which the intermediate line 225 joins the first edge 215 divides the first edge 215 into a first proximal edge portion 215a and a first distal edge portion 215b. The intermediate line 225 may be spaced from the distal end edge 210 by a distance in the range of 6mm to 140mm and preferably 9mm to 50mm. However, in some embodiments, the start of the first distal edge portion 215b may not be coincident with the intermediate line 228. The first distal edge portion 215b is shown forming an acute angle α with the longitudinal axis 150. The

angle α between the first distal edge portion 215b and the longitudinal axis 150 may be in the range of 1° to 40° and preferably in the range of 7° to 31° . Where the intermediate line 225 joins the second edge 220, the second edge 220 may be divided into a second proximal edge portion 220a and a second distal edge portion 220b. The first region 230 is substantially covered with an adhesive in a first glue pattern suitable for bonding the outer wrapping sheet 200 to the rod 105 during the first circumferential wrap, and for bonding the proximal end of the outer wrapping sheet corresponding to the first region to itself for a second wrap.

[0040] Additionally, a boundary line 235 is shown extending between the distal end edge 210 and the intermediate line 225. The boundary line 235 may be spaced from the first edge distal portion 215b by a second distance at least equal to the circumference of the inner tubular element. The second distance may be in the range of 10mm to 40mm and preferably in the range of 10mm to 25mm. The boundary line may be spaced from the second edge distal portion 220b by a distance in the range of 5mm to 20mm and preferably in the range of 7mm to 15mm. The boundary line 235 is used to divide the second region 240 into first 240a and second 240b zones. The second zone 240b is substantially covered with an adhesive in a second glue pattern and can be considered a glued area. The adhesive is suitable for bonding the outer wrapping sheet 200 to itself during the second circumferential wrap. The adhesive applied to the first region 230 may be similar or different to that applied to the second zone 240b. The first zone 240a is left without glue and can be considered a non-glued area.

[0041] While the first proximal edge portion 215a is shown in figure 3 as being parallel with the longitudinal axis 150 this is not essential to the present invention. While the second distal edge portion 220b preferably forms an acute angle with the longitudinal axis 150 this is not essential to the present invention. While the second proximal edge portion 220a is shown parallel with the longitudinal axis 150 this is not essential to the present invention. While the first distal edge portion 215b is preferably parallel with the second distal edge portion 220b this is not essential to the present invention. The point where the boundary line 235 extends from the intermediate line 225 may be spaced from the second edge proximal portion 220a by a distance in the range of 6mm to 30mm and preferably in the range of 10mm to 21mm. The point where the boundary line 235 extends from the intermediate line 225 may be spaced from the first edge proximal portion 215a by a distance in the range of 9mm to 35mm and preferably in the range of 13mm to 26mm. While the distance between the first 215 and second 220 edges is preferably substantially constant, this is not essential to the present invention. While the boundary line 235 is shown parallel to the first distal edge portion 215b, this is not essential to the present invention.

[0042] As shown in Figures 3 and 4, the outer wrapping sheet 200 can be used to manufacture aerosol-generat-

ing articles in the back-to-back configuration by providing symmetrical outer wrapping sheets 200 integrally attached at their respective proximal ends 205. This allows a rod 106 comprising first 105' and second 105" inner tubular elements and a mouthpiece filter element 129 to be overwrapped simultaneously. First 105' and second 105" inner tubular elements are shown having respective mouthpiece filter ends 107', 107" and respectively distal ends 104', 104". First 105' and second 105" inner tubular elements are shown mounted to the mouthpiece filter element 129 at the respective mouthpiece filter ends 107', 107". First 105' and second 105" inner tubular elements are also shown comprising respective first 125' and second 125" void spaces. When manufacturing aerosol-generating articles in the back-to-back configuration, a mouthpiece filter element 129 comprising conjoined first 127' and second 127" mouthpiece filters may be used. As shown in Figure 3, the second distal edge 220b may form an acute angle relative to the second proximal edge 220a. As shown in Figure 3, the second distal edge 220b may be parallel to the first distal edge 215b. In other embodiments, the shape of the second edge may be matched to the shape of the first edge. This may avoid cutting losses. The size of the outer wrapping sheet may be selected to that the second edge is close to the first edge when wrapped around the aerosol-generating article. This may ensure the outer wrapping sheet has a single consistent diameter along its length on the finished aerosol-generating article 100. However, while this arrangement is preferable, it would be apparent to the skilled person that such an arrangement was not essential to the present invention.

[0043] As the outer wrapping sheet 200 is wrapped around the first inner tubular element 105' and the mouthpiece filter 127' for the first circumferential wrap (see also Figure 5), the first inner tubular element 105' is initially attached to the outer wrapping sheet 200 at the first proximal edge portion 215a via the adhesive. Where included, the mouthpiece filter 127' may also be attached to the outer wrapping sheet 200. As the outer wrapping sheet 200 is wrapped around the first inner tubular element 105', the glue applied to the first region 230 adheres the outer wrapping sheet 200 to a portion of the first inner tubular element 105' at the first proximal edge portion 215a. When present, the glue applied to the first region 230 may also adhere the outer wrapping sheet 200 to the mouthpiece filter 127'. As the outer wrapping sheet 200 is wrapped around the first inner tubular element 105', the first distal edge 215b is also brought into contact with the first inner tubular element 105' and the first, unglued, zone 240a is wrapped around a further portion of the first inner tubular element 105'. The unglued zone 240a of the outer wrapping sheet 200 is not adhered to the first inner tubular element 105'. As glue is applied across the length of the first proximal edge portion 215a, any tension generated along the first edge 215 due to the temporary attachment of the outer wrapping sheet 200 to the rotating drum 320 will pull the first distal edge

215b towards the first inner tubular element 105', enhancing the contact between the unglued zone 240a and the first inner tubular element 105'. The acute angle between the first distal edge portion 215b and the first proximal edge 215a further enhances the contact between the unglued zone 240a and the first inner tubular element 105'. This is in contrast to the prior art, where tension across the first edge 21 can cause the unglued area of the outer wrapping sheet 200 to separate from the first inner tubular element 105' during the overwrapping process. The present invention allows for the unglued area 240a to be wrapped tightly around the first inner tubular element 105', reducing the cone effect seen in the prior art.

[0044] While the manufacturing process has been described with a mouthpiece filter 127' it would be apparent to the skilled person this was not essential to the present invention. While the manufacturing process has been described in the context of a single aerosol-generating article 100, it would be apparent to the skilled person that this description would apply to *mutatis mutandis* to manufacture of aerosol-generating articles manufactured in the back-to-back configuration, which may be preferable for process efficiency, being able to produce two articles simultaneously within a single manufacture line.

[0045] As the outer wrapping sheet 200 is wrapped around the mouthpiece filter 127' and the first inner tubular element 105' for a second circumferential wrap, the remaining glue applied to the first region 230 and the glue applied to the second zone 240b enables the outer wrapping sheet 200 to adhere to itself along substantially its own length, forming the outer tubular element. When manufactured in a back-to-back configuration, conjoined first and second outer tubular elements are formed.

[0046] Figure 5 illustrates a side view of an overwrapping station used to wrap the outer wrapping sheet 200 around the rod 106. The overwrapping station typically comprises a first rotating drum 320, a passage or pinch 310 delimited by the first rotating drum 320 and a stationary guide plate 330, and a second rotating drum 340. An outer wrapping sheet 200 having the described glue pattern is typically temporarily attached to the surface of the first rotating drum 320. This temporary attachment may be created by a vacuum holding the outer wrapping sheet 200 to the surface of the first rotating drum 320. This may be achieved by incorporating an array of holes in the outer surface of the first rotating drum 320 through which air can be drawn to generate the vacuum, as is known in the art. A rod 106 is also shown attached to the first proximal edge portion 215a of the outer wrapping sheet 200. As the first rotating drum 320 rotates, the rod 106 and outer wrapping sheet 200 are brought towards a passage or pinch 310 delimited by the first rotating drum 320 and a stationary guide plate 330. As the rod 106 passes through the pinch 310, the rotation of the first rotating drum 320 rolls the rod 106 over the stationary plate 330, which causes the outer wrapping sheet 200 to wrap around the rod 106. While the overwrapping sta-

tion described comprises a pinch 310 to wrap the outer wrapping sheet 200 around the rod 106, it would be apparent to the skilled person this was not essential to the invention and other methods of overwrapping known in the art may be used.

[0047] Once the outer wrapping sheet 200 is wrapped around the rod 106, an aerosol-generating article 100 is formed and may be removed from the pinch 310 by a second rotating drum 340. If manufactured in the back-to-back configuration a conjoined outer tubular element will be formed around the rod 106 and can be removed from the pinch 310 by the second rotating drum 340. In this case, the conjoined outer tubular elements may be cut along a centreline 155 through the conjoined outer tubular elements and conjoined mouthpiece filter element 129 to form first and second aerosol-generating articles 100. This arrangement is preferable, as aerosol-generating articles 100 can be manufactured using existing processes and at existing line speeds. While the overwrapping process has been described in the context of manufacturing aerosol-generating articles in the back-to-back configuration, it would be apparent to the skilled person that this description applies equally to the manufacture of aerosol-generating articles individually and that the manufacture of aerosol-generating articles in the back-to-back configuration is not essential to the present invention. The cutting of the conjoined outer tubular elements and conjoined mouthpiece filter element 129 may be performed in the overwrapping station, or at a separate cutting station.

[0048] The aerosol-generating article 100 may have a length and diameter similar to a conventional cigarette. The second article length, L2, may be about 90% or less than the first article length. The second article length may be about 80% or less than the first article length. The second article length may be about 70% or less than the first article length.

[0049] While a mouthpiece filter 127 and mouthpiece filter element 129 have been included in this description for clarity, they are not essential to the present invention. Similarly, while a removeable cap 110 has been described as a way of preserving the aerosol-forming substrate, a removeable cap 110 is not essential to the present invention. Similarly, while a transfer element 117 has been described, it is not essential to the present invention. While an adhesive has been described as a method of securing the outer wrapping sheet 200 to the inner tubular element 105 and to itself, this is not essential to the invention and other methods of fixation, including methods of mechanical fixation such as perforations or surface features, are included in this description. While the outer wrapping sheet 200 is described as being adhered to itself along substantially the whole length of the outer wrapping sheet 200, this is not essential to the invention. Adhesion along less than the whole length of the outer wrapping sheet 200 may still provide the benefit of the invention.

Claims

1. An aerosol-generating article (100) having a proximal end (102) and a distal end (104), the aerosol-generating article (100) comprising:
 - an inner tubular element (105) comprising an inner wrapping sheet (109) circumscribing a combustible heat source (115) positioned towards the distal end (104) of the aerosol-generating article (100);
 - an outer wrapping sheet (200) to form an outer tubular element (130) of the aerosol-generating article (100) when rolled about a longitudinal axis (150), the outer wrapping sheet (200) comprising: a first edge (215) comprising a proximal portion (215a) and a distal portion (215b), wherein the proximal portion (215a) includes a glued section, and wherein the distal portion (215b) extends from the proximal portion (215a) at an acute angle (α) relative to the longitudinal axis (150).
2. The aerosol-generating article (100) of claim 1, wherein the proximal portion (215a) of the first edge (215) is substantially parallel to the longitudinal axis (150).
3. The aerosol-generating article (100) of claim 1 or claim 2, wherein the outer wrapping sheet (200) further comprises a second edge (220), opposed to the first edge (215) and comprising a second edge proximal portion (220a) and a second edge distal portion (220b), wherein the first (215) and second (220) edges define a width of the sheet (200).
4. The aerosol-generating article (100) of claim 3, wherein the second edge proximal portion (220a) is substantially parallel to and substantially the same length as the proximal portion (215a) of the first edge (215).
5. The aerosol-generating article (100) of claim 3 or claim 4, wherein the second edge distal portion (220b) is substantially parallel to and substantially the same length as the distal portion (215b) of the first edge (215).
6. The aerosol-generating article (100) of any one of claims 3 to 5, wherein the outer wrapping sheet (200) further comprises proximal and distal end edges (205, 210) extending between the first and second edges (215, 220) at respective proximal and distal ends thereof.
7. The aerosol-generating article (100) of any one of claims 3 to 6, wherein a first region (230) is defined by the area of sheet between the first edge proximal portion (215a) and the second edge proximal portion (220a), and wherein a first glue pattern, which includes the glued section, is applied to the first region (230).
8. The aerosol-generating article (100) of claim 7, wherein the first glue pattern is applied across the whole extent of the first region (230).
9. The aerosol-generating article (100) of any one of claims 3 to 8, wherein a second region (240) is defined by the area of sheet between the first edge distal portion (215b) and the second edge distal portion (220b), and wherein the second region (240) is split into a first zone (240a) adjacent the first edge (215) and a second zone (240b) adjacent the second edge (220) by a boundary line (235) extending from the distal end edge (210) to the first region (230), and wherein a second glue pattern is applied to the second zone (240).
10. The aerosol-generating article (100) of claim 9, wherein the second glue pattern is applied across the whole extent of the second zone (240b).
11. The aerosol-generating article (100) according to claim 9 or claim 10, wherein the boundary line (235) is substantially parallel to the first edge distal portion (215b).
12. The aerosol-generating article (100) according to any previous claim wherein the outer tubular element (130) extends from the proximal end (102) of the aerosol-generating article (100) towards the distal end (104) thereof.
13. The aerosol-generating article (100) according to any previous claim wherein the outer wrapping sheet (200) overlaps at least a portion of the inner tubular element (105).
14. The aerosol-generating article (100) according to any previous claim wherein the glued section of the first edge proximal portion (215a) is adhesively joined to a proximal end of the inner tubular element (105).
15. The aerosol-generating article (100) according to any previous claim wherein the aerosol-generating article (100) further comprises a void space (125).
16. The aerosol-generating article (100) according to claim 15, wherein the inner wrapping sheet (109) includes a collapsible portion (109b) surrounding at least the void space (125).
17. A method of manufacturing an aerosol-generating article (100), wherein the aerosol-generating article

(100) has a proximal end (102) and a distal end (104) and a longitudinal axis (150), the method of manufacturing the aerosol-generating article (100) comprising the steps of:

- providing an inner tubular element (105) comprising an inner wrapping sheet (109) circumscribing a combustible heat source (115) positioned towards the distal end (104) of the aerosol-generating article (100);
 - providing an outer wrapping sheet (200) comprising a first edge (215) comprising a proximal portion (215a) and a distal portion (215b), wherein the proximal portion (215a) includes a glued section, and wherein the distal portion (215b) extends from the proximal portion (215a) at an acute angle (α) relative to the longitudinal axis (150);
 - overwrapping at least a portion of the inner tubular element (105) with the outer wrapping sheet (200) by, starting from the first edge (215) of the outer wrapping sheet (200):
 - adhesively joining the first edge proximal portion (215a) to the inner tubular element (105) by bringing the glued section into contact with a proximal end of the inner tubular element (105); and,
 - wrapping the outer wrapping sheet (200) about the inner tubular element (105) by rolling.
18. The method of claim 17, wherein the overwrapping procedure comprises applying the outer wrapping sheet (200) using a rotating drum (320).
19. The method of claim 18, wherein the overwrapping comprises rolling the inner tubular element (105) through a pinch (310) between the rotating drum (320) on which the outer wrapping sheet (200) is temporarily attached and a stationary guide plate (330), the outer wrapping sheet (200) wrapping around the inner tubular element (105) during passage through the pinch (310).
20. The method of any one of claims 17 to 19, comprising manufacturing a pair of aerosol-generating articles (100) back-to-back, including providing a singular mouthpiece filter element (129) having first and second ends corresponding to initially conjoined first and second mouthpiece filters (127', 127''), wherein providing an inner tubular element (105) comprises providing first and second inner tubular elements (105', 105'') which are mounted to the respective first and second ends of the singular mouthpiece filter element (129), wherein the overwrapping of the first and second inner tubular elements (105', 105'') is simultaneous, using a single outer wrapping sheet (200) symmetrical about the centre of the mouthpiece filter element (129) to form initially conjoined first and sec-

ond outer tubular elements, the method including cutting through the conjoined outer tubular elements and the mouthpiece filter element (129) to separate the conjoined articles into first and second aerosol-generating articles (100).

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Patentansprüche

- 10 1. Aerosolerzeugender Artikel (100) mit einem proximalen Ende (102) und einem distalen Ende (104), der aerosolerzeugende Artikel (100) aufweisend:
- ein inneres röhrenförmiges Element (105), aufweisend ein inneres Umhüllungsflächengebilde (109), das eine in Richtung des distalen Endes (104) des aerosolerzeugenden Artikels (100) positionierte brennbare Wärmequelle (115) abgrenzt;
 - ein äußeres Umhüllungsflächengebilde (200) zum Ausbilden eines äußeren, röhrenförmigen Elements (130) des aerosolerzeugenden Artikels (100), wenn es um eine Längsachse (150) gerollt ist, das äußere Umhüllungsflächengebilde (200) aufweisend: eine erste Kante (215), aufweisend einen proximalen Abschnitt (215a) und einen distalen Abschnitt (215b), wobei der proximale Abschnitt (215a) einen geklebten Teil beinhaltet, und wobei sich der distale Abschnitt (215b) in einem spitzen Winkel (α) relativ zu der Längsachse (150) von dem proximalen Abschnitt (215a) erstreckt.
2. Aerosolerzeugender Artikel (100) nach Anspruch 1, wobei der proximale Abschnitt (215a) der ersten Kante (215) im Wesentlichen parallel zu der Längsachse (150) ist.
3. Aerosolerzeugender Artikel (100) nach Anspruch 1 oder Anspruch 2, wobei das äußere Umhüllungsflächengebilde (200) eine der ersten Kante (215) gegenüberliegende zweite Kante (220) aufweist, die einen proximalen Abschnitt (220a) der zweiten Kante und einen distalen Abschnitt (220b) der zweiten Kante aufweist, wobei die erste (215) und die zweite (220) Kante eine Breite des Flächengebildes (200) definieren.
4. Aerosolerzeugender Artikel (100) nach Anspruch 3, wobei der proximale Abschnitt der zweiten Kante (220a) im Wesentlichen parallel zu dem proximalen Abschnitt (215a) der ersten Kante (215) ist und im Wesentlichen die gleiche Länge wie dieser hat.
5. Aerosolerzeugender Artikel (100) nach Anspruch 3 oder Anspruch 4, wobei der distale Abschnitt der zweiten Kante (220a) im Wesentlichen parallel zu dem distalen Abschnitt (215a) der ersten Kante (215)

- ist und im Wesentlichen die gleiche Länge wie dieser hat.
6. Aerosolerzeugender Artikel (100) nach einem der Ansprüche 3 bis 5, wobei das äußere Umhüllungsflächengebilde (200) ferner proximale und distale Endkanten (205, 210) aufweist, die sich zwischen den ersten und zweiten Kanten (215, 220) an deren jeweiligen proximalen und distalen Enden erstrecken.
7. Aerosolerzeugender Artikel (100) nach einem der Ansprüche 3 bis 6, wobei eine erste Fläche (230) durch den Bereich des Flächengebildes zwischen dem proximalen Abschnitt der ersten Kante (215a) und dem proximalen Abschnitt der zweiten Kante (220a) definiert ist, und wobei ein erstes Klebstoffmuster, das den geklebten Teil beinhaltet, auf die erste Fläche (230) aufgebracht ist.
8. Aerosolerzeugender Artikel (100) nach Anspruch 7, wobei das erste Klebstoffmuster über das gesamte Maß der ersten Fläche (230) aufgetragen ist.
9. Aerosolerzeugender Artikel (100) nach einem der Ansprüche 3 bis 8, wobei eine zweite Fläche (240) durch den Bereich des Flächengebildes zwischen dem distalen Abschnitt der ersten Kante (215b) und dem distalen Abschnitt der zweiten Kante (220b) definiert ist, und wobei die zweite Fläche (240) durch eine Begrenzungslinie (235), die sich von der distalen Endkante (210) zu der ersten Fläche (230) erstreckt, in eine erste Zone (240a) neben der ersten Kante (215) und eine zweite Zone (240b) neben der zweiten Kante (220) unterteilt ist, und wobei ein zweites Klebstoffmuster auf die zweite Zone (240) aufgetragen ist.
10. Aerosolerzeugender Artikel (100) nach Anspruch 9, wobei das zweite Klebstoffmuster über das gesamte Maß der zweiten Zone (240b) aufgetragen ist.
11. Aerosolerzeugender Artikel (100) nach Anspruch 9 oder Anspruch 10, wobei die Begrenzungslinie (235) im Wesentlichen parallel zu dem distalen Abschnitt der ersten Kante (215b) ist.
12. Aerosolerzeugender Artikel (100) nach einem der vorhergehenden Ansprüche, wobei sich das äußere röhrenförmige Element (130) von dem proximalen Ende (102) des aerosolerzeugenden Artikels (100) zu dessen distalem Ende (104) erstreckt.
13. Aerosolerzeugender Artikel (100) nach einem der vorhergehenden Ansprüche, wobei das äußere Umhüllungsflächengebilde (200) zumindest einen Abschnitt des inneren röhrenförmigen Elements (105) umhüllt.
14. Aerosolerzeugender Artikel (100) nach einem der vorhergehenden Ansprüche, wobei der geklebte Teil des proximalen Abschnitts der ersten Kante (215a) mit einem proximalen Ende des inneren röhrenförmigen Elements (105) klebend zusammengefügt ist.
15. Aerosolerzeugender Artikel (100) nach einem der vorhergehenden Ansprüche, wobei der aerosolerzeugende Artikel (100) ferner einen Hohlraum (125) aufweist.
16. Aerosolerzeugender Artikel (100) nach Anspruch 15, wobei das innere Umhüllungsflächengebilde (109) einen, zumindest den Hohlraum (125) einschließenden, zusammenklappbaren Abschnitt (109b) beinhaltet.
17. Verfahren zum Herstellen eines aerosolerzeugenden Artikels (100), wobei der aerosolerzeugende Artikel (100) ein proximales Ende (102) und ein distales Ende (104) und eine Längsachse (150) hat, das Verfahren zum Herstellen des aerosolerzeugenden Artikels (100) die Schritte aufweisend:
- Vorsehen eines inneren röhrenförmigen Elements (105), aufweisend ein inneres Umhüllungsflächengebilde (109), das eine in Richtung des distalen Endes (104) des aerosolerzeugenden Artikels (100) positionierte brennbare Wärmequelle (115) abgrenzt;
 - Vorsehen eines äußeren Umhüllungsflächengebildes (200), aufweisend eine erste Kante (215), die einen proximalen Abschnitt (215a) und einen distalen Abschnitt (215b) aufweist, wobei der proximale Abschnitt (215a) einen geklebten Teil beinhaltet, und wobei sich der distale Abschnitt (215b) in einem spitzen Winkel (α) relativ zu der Längsachse (150) von dem proximalen Abschnitt (215a) erstreckt;
 - Umhüllen zumindest eines Abschnitts des inneren röhrenförmigen Elements (105) mit dem äußeren Umhüllungsflächengebilde (200) durch, ausgehend von der ersten Kante (215) des äußeren Umhüllungsflächengebildes (200):
 - klebendes Zusammenfügen des proximalen Abschnitts der ersten Kante (215a) mit dem inneren röhrenförmigen Element (105) durch Inkontaktbringen des geklebten Teils mit einem proximalen Ende des inneren röhrenförmigen Elements (105); und
 - Umhüllen des äußeren Umhüllungsflächengebildes (200) um das innere röhrenförmige Element (105) durch Rollen.
18. Verfahren nach Anspruch 17, wobei das Umhüllungsverfahren das Auftragen des äußeren Umhüllungsflächengebildes (200) unter Verwendung einer rotierenden Trommel (320) aufweist.

19. Verfahren nach Anspruch 18, wobei das Umhüllen das Rollen des inneren röhrenförmigen Elements (105) durch eine Verengung (310) zwischen der drehenden Trommel (320), an der das äußere Umhüllungsflächengebilde (200) vorübergehend angebracht ist, und einem stationären Leitblech (330) aufweist, wobei das äußere Umhüllungsflächengebilde (200) das innere röhrenförmige Element (105) während des Durchlaufs durch die Verengung (310) umhüllt.
20. Verfahren nach einem der Ansprüche 17 bis 19, aufweisend das Herstellen eines Paares von aerosolerzeugenden Artikeln (100) in Folge, einschließlich des Vorsehens eines singulären Mundstückfilterelements (129) mit einem ersten und zweiten Ende, die anfänglich verbundenen ersten und zweiten Mundstückfiltern (127', 127'') entsprechen, wobei das Vorsehen eines inneren röhrenförmigen Elements (105) das Vorsehen erster und zweiter innerer röhrenförmiger Elemente (105', 105'') aufweist, die an den jeweiligen ersten und zweiten Enden des singulären Mundstückfilterelements (129) angebracht sind, wobei das Umhüllen der ersten und zweiten inneren röhrenförmigen Elemente (105', 105'') gleichzeitig unter Verwendung eines einzelnen äußeren Umhüllungsflächengebildes (200) erfolgt, das symmetrisch um die Mitte des Mundstückfilterelements (129) angeordnet ist, um anfänglich verbundene erste und zweite äußerer röhrenförmiger Elemente auszubilden, wobei das Verfahren das Durchschneiden der anfänglich verbundenen äußeren röhrenförmigen Elemente und des Mundstückfilterelements (129), zur Trennung der verbundenen Artikel in erste und zweite aerosolerzeugende Artikel (100) beinhaltet.

Revendications

1. Article de génération d'aérosol (100) ayant une extrémité proximale (102) et une extrémité distale (104), l'article de génération d'aérosol (100) comprenant :
- un élément tubulaire interne (105) comprenant une feuille d'enveloppe interne (109) entourant une source de chaleur combustible (115) positionnée vers l'extrémité distale (104) de l'article de génération d'aérosol (100) ;
 - une feuille d'enveloppe externe (200) destinée à former un élément tubulaire externe (130) de l'article de génération d'aérosol (100) lorsqu'il est enroulé autour d'un axe longitudinal (150), la feuille d'enveloppe externe (200) comprenant : un premier bord (215) comprenant une partie proximale (215a) et une partie distale (215b), dans lequel la partie proximale (215a)
- inclut une section collée, et dans lequel la partie distale (215b) s'étend depuis la partie proximale (215a) selon un angle aigu (a) par rapport à l'axe longitudinal (150).
2. Article de génération d'aérosol (100) selon la revendication 1, dans lequel la partie proximale (215a) du premier bord (215) est sensiblement parallèle à l'axe longitudinal (150).
3. Article de génération d'aérosol (100) selon la revendication 1 ou la revendication 2, dans lequel la feuille d'enveloppe externe (200) comprend en outre un second bord (220), opposé au premier bord (215) et comprenant une partie proximale de second bord (220a) et une partie distale de second bord (220b), dans lequel les premier (215) et second (220) bords définissent une largeur de la feuille (200).
4. Article de génération d'aérosol (100) selon la revendication 3, dans lequel la partie proximale de second bord (220a) est sensiblement parallèle à la partie proximale (215a) du premier bord (215) et sensiblement de même longueur que celle-ci.
5. Article de génération d'aérosol (100) selon la revendication 3 ou la revendication 4, dans lequel la partie distale de second bord (220b) est sensiblement parallèle à la partie distale (215b) du premier bord (215) et sensiblement de même longueur que celle-ci.
6. Article de génération d'aérosol (100) selon l'une quelconque des revendications 3 à 5, dans lequel la feuille d'enveloppe externe (200) comprend en outre des bords d'extrémité proximale et distale (205, 210) s'étendant entre les premier et second bords (215, 220) au niveau des extrémités proximale et distale respectives de ceux-ci.
7. Article de génération d'aérosol (100) selon l'une quelconque des revendications 3 à 6, dans lequel une première région (230) est définie par la zone de feuille entre la partie proximale de premier bord (215a) et la partie proximale de second bord (220a), et dans lequel un premier motif de colle, qui inclut la section collée, est appliqué à la première région (230).
8. Article de génération d'aérosol (100) selon la revendication 7, dans lequel le premier motif de colle est appliqué sur toute l'étendue de la première région (230).
9. Article de génération d'aérosol (100) selon l'une quelconque des revendications 3 à 8, dans lequel une seconde région (240) est définie par la zone de feuille entre la partie distale de premier bord (215b) et la partie distale de second bord (220b), et dans

- lequel la seconde région (240) est divisée en une première zone (240a) adjacente au premier bord (215) et une seconde zone (240b) adjacente au second bord (220) par une ligne de délimitation (235) s'étendant du bord d'extrémité distale (210) jusqu'à la première région (230), et dans lequel un second motif de colle est appliqué à la seconde zone (240).
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10. Article de génération d'aérosol (100) selon la revendication 9, dans lequel le second motif de colle est appliqué sur toute l'étendue de la seconde zone (240b).
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11. Article de génération d'aérosol (100) selon la revendication 9 ou la revendication 10, dans lequel la ligne de délimitation (235) est sensiblement parallèle à la partie distale de premier bord (215b).
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12. Article de génération d'aérosol (100) selon l'une quelconque des revendications précédentes, dans lequel l'élément tubulaire externe (130) s'étend depuis l'extrémité proximale (102) de l'article de génération d'aérosol (100) vers son extrémité distale (104).
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13. Article de génération d'aérosol (100) selon l'une quelconque des revendications précédentes, dans lequel la feuille d'enveloppe externe (200) forme une surenveloppe sur au moins une partie de l'élément tubulaire interne (105).
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14. Article de génération d'aérosol (100) selon l'une quelconque des revendications précédentes, dans lequel la section collée de la partie proximale de premier bord (215a) est liée de manière adhésive à une extrémité proximale de l'élément tubulaire interne (105).
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15. Article de génération d'aérosol (100) selon l'une quelconque des revendications précédentes, dans lequel l'article de génération d'aérosol (100) comprend en outre un espace vide (125).
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16. Article de génération d'aérosol (100) selon la revendication 15, dans lequel la feuille d'enveloppe interne (109) inclut une partie pliable (109b) entourant au moins l'espace vide (125).
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17. Procédé de fabrication d'un article de génération d'aérosol (100), dans lequel l'article de génération d'aérosol (100) a une extrémité proximale (102) et une extrémité distale (104) et un axe longitudinal (150), le procédé de fabrication de l'article de génération d'aérosol (100) comprenant les étapes de :
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- la fourniture d'un élément tubulaire interne (105) comprenant une feuille d'enveloppe interne (109) entourant une source de chaleur com-
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- bustible (115) positionnée vers l'extrémité distale (104) de l'article de génération d'aérosol (100) ;
- la fourniture d'une feuille d'enveloppe externe (200) comprenant un premier bord (215) comprenant une partie proximale (215a) et une partie distale (215b), dans lequel la partie proximale (215a) inclut une section collée, et dans lequel la partie distale (215b) s'étend depuis la partie proximale (215a) selon un angle aigu (α) par rapport à l'axe longitudinal (150) ;
 - la formation d'une surenveloppe sur au moins une partie de l'élément tubulaire interne (105) avec la feuille d'enveloppe externe (200), en commençant par le premier bord (215) de la feuille d'enveloppe externe (200), par :
 - la liaison de manière adhésive de la partie proximale de premier bord (215a) à l'élément tubulaire interne (105) en amenant la section collée en contact avec une extrémité proximale de l'élément tubulaire interne (105) ; et,
 - l'enveloppement de la feuille d'enveloppe externe (200) autour de l'élément tubulaire interne (105) par enroulement.
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18. Procédé selon la revendication 17, dans lequel la procédure de formation d'une surenveloppe comprend l'application de la feuille d'enveloppe externe (200) à l'aide d'un tambour rotatif (320).
19. Procédé selon la revendication 18, dans lequel la formation d'une surenveloppe comprend l'enroulement de l'élément tubulaire interne (105) à travers un pincement (310) entre le tambour rotatif (320) sur lequel la feuille d'enveloppe externe (200) est temporairement fixée et une plaque de guidage fixe (330), la feuille d'enveloppe externe (200) s'enveloppant autour de l'élément tubulaire interne (105) pendant le passage à travers le pincement (310).
20. Procédé selon l'une quelconque des revendications 17 à 19, comprenant la fabrication d'une paire d'articles de générations d'aérosol (100) dos à dos, incluant la fourniture d'un élément filtrant d'embout buccal unique (129) ayant des première et seconde extrémités correspondant à des premier et second filtres d'embout buccal initialement unis (127', 127''), dans lequel la fourniture d'un élément tubulaire interne (105) comprend la fourniture de premier et second éléments tubulaires internes (105', 105'') qui sont montés aux première et seconde extrémités respectives de l'élément filtrant d'embout buccal unique (129), dans lequel la formation d'une surenveloppe sur les premier et second éléments tubulaires intérieurs (105', 105'') est simultanée, en utilisant une seule feuille d'enveloppe externe (200) symétrique autour du centre de l'élément filtrant d'embout buccal (129) pour former des premier et second élé-

ments tubulaires externes initialement unis, le procédé incluant la découpe à travers les éléments tubulaires externes unis et l'élément filtrant d'embout buccal (129) pour séparer les articles unis en des premier et second articles de génération d'aérosol (100). 5

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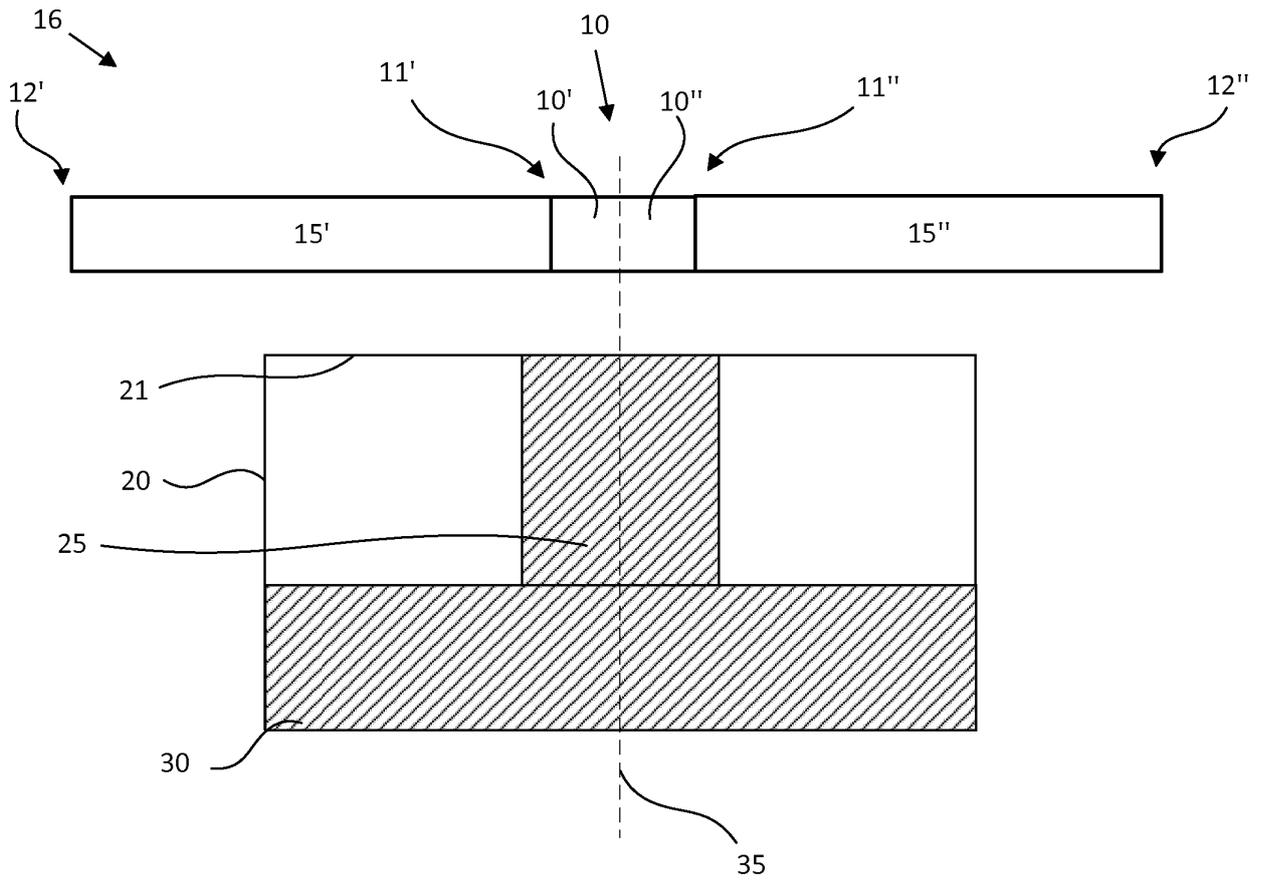


FIG. 1

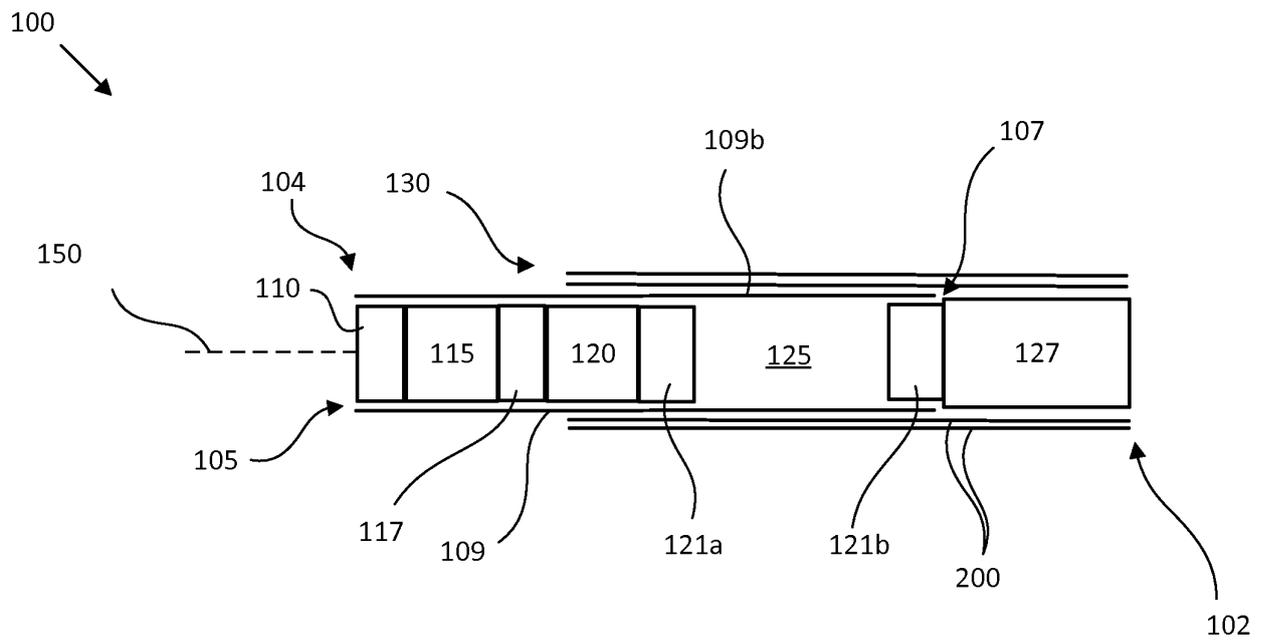


FIG. 2

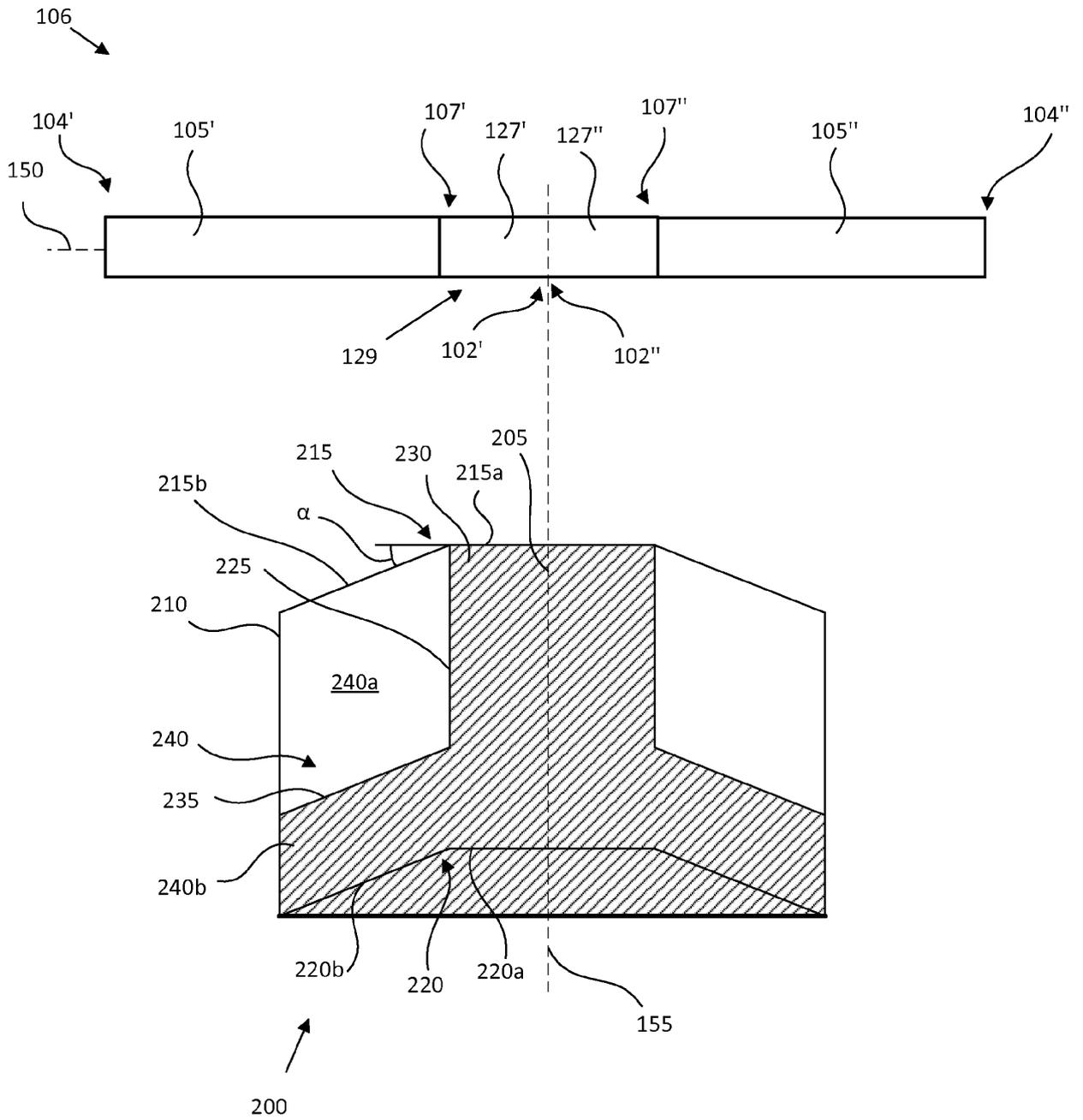


FIG. 3

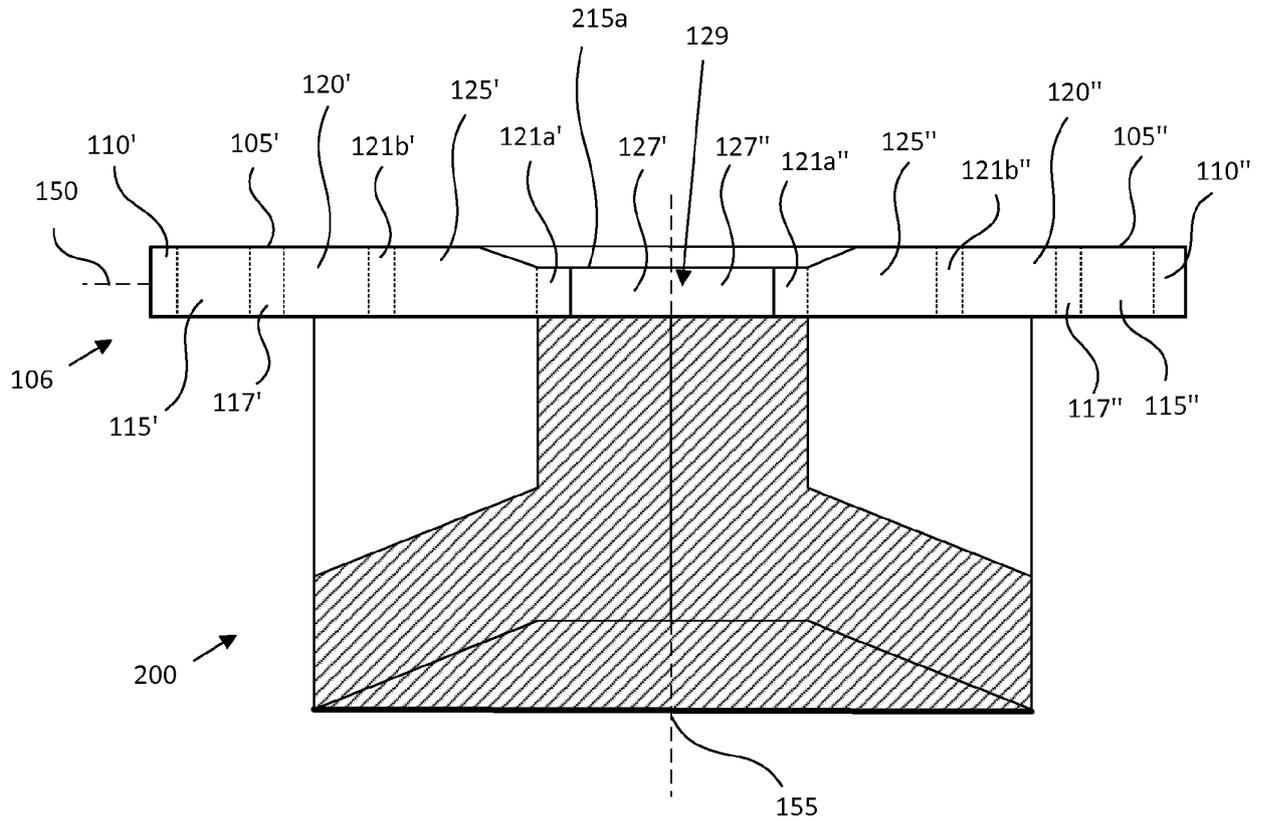


FIG. 4

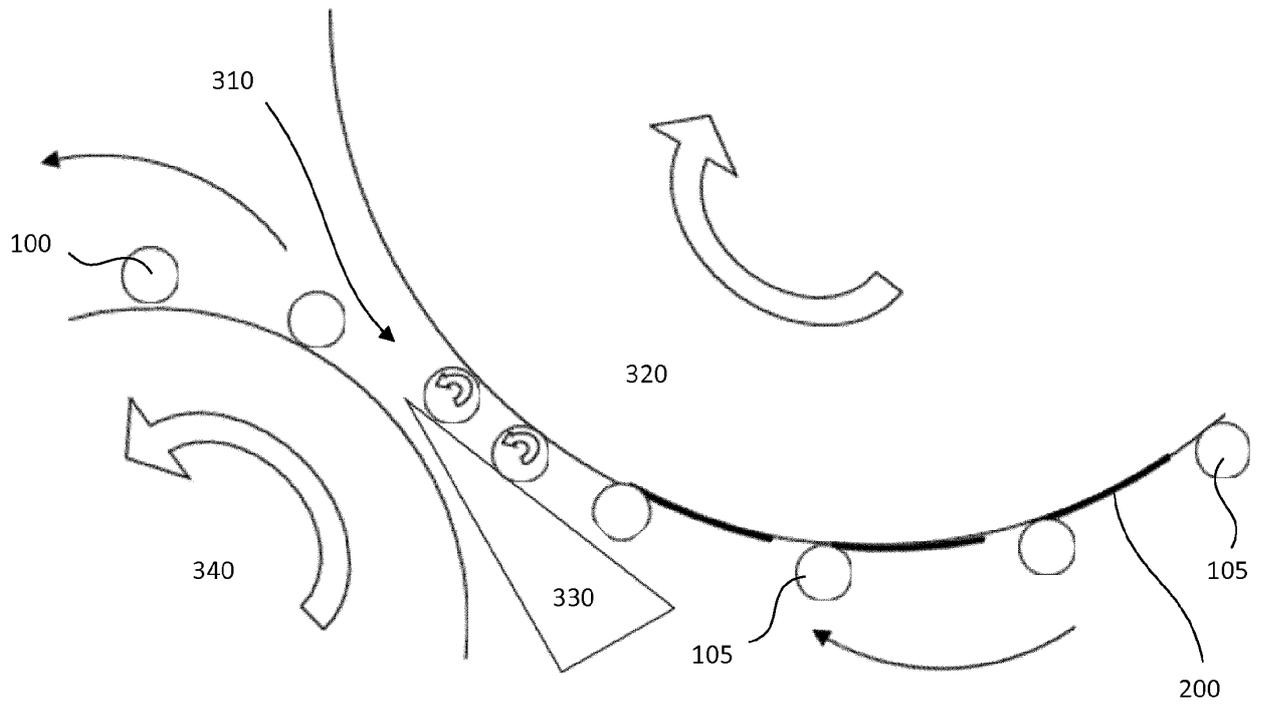


FIG. 5

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- WO 2017115196 A [0004]