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(54) Smoking article with recessed tobacco rod

(57) There is provided a smoking article (100) comprising: a tobacco rod (101) circumscribed by a wrapper (102); a filter disposed downstream of the tobacco rod (101); a band of tipping paper (105) attaching the filter (104) to the tobacco rod (101). The tobacco rod (101) comprises a compressed region (1011) at the downstream end of the rod and a body region (1012) upstream of the compressed region (1011), the compressed region (1011) having an increased tobacco density compared to the body region (1012). The wrapper (102) extends beyond the compressed region (1011) in the downstream direction to define a recess (103) and wherein the band of tipping paper (105) at least partly overlaps the recess (103). There are also provided a method and apparatus for manufacturing a such smoking article.

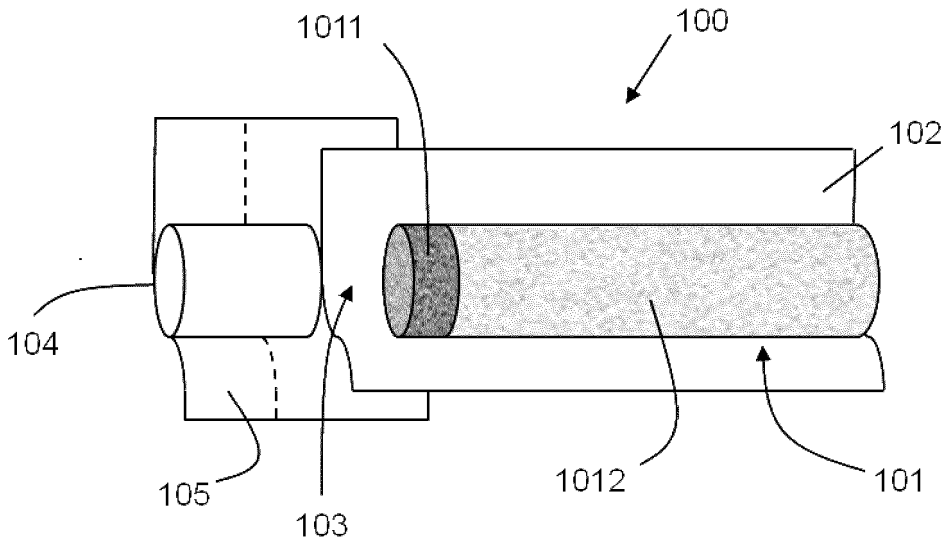

Figure 1

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Description

[0001] The present invention relates to a smoking article comprising a modified tobacco rod and a filter joined to one another by tipping paper. Furthermore, the present invention relates to a method and apparatus for producing such smoking article.

[0002] Smoking articles, such as cigarettes, generally comprise shredded tobacco surrounded by a paper wrapper forming a tobacco rod. The shredded tobacco can be a single type of tobacco or a blend of two or more types of tobacco.

[0003] Cigarettes frequently further comprise a filter aligned in end-to-end relationship with the tobacco rod. Typically, the filter includes a plug of cellulose acetate tow attached to the tobacco rod or substrate by tipping paper overlapping the mouth end segment of the tobacco rod.

[0004] It is has previously been proposed to provide tobacco rods with segments having increased density of tobacco at either end of the tobacco rod to help prevent loose tobacco from falling out. A dense segment at the mouth end of the tobacco rod has been found to be beneficial to the tipping operation. The dense end provides for a very stable alignment of filter and tobacco rod and therefore makes it easier to apply tipping paper neatly. However, because the tipping paper at least partly overlaps the mouth end of the rod, the tobacco in the mouth end dense segment cannot be used.

[0005] It would be desirable to provide a smoking article that allows the use of all of the tobacco in the tobacco rod. Further, it would be desirable to provide a method for manufacturing such a smoking article, that can be implemented easily, as well as to provide an apparatus for manufacturing such a smoking article, that is relatively simple and requires only small modifications to existing machinery.

[0006] According to the invention there is provided a smoking article comprising a tobacco rod circumscribed by a wrapper and a filter disposed downstream of the tobacco rod. A band of tipping paper attaches the filter to the tobacco rod. The tobacco rod comprises a compressed region at the downstream end of the rod and a body region upstream of the compressed region. The compressed region has an increased tobacco density compared to the body region. The wrapper extends beyond the compressed region in the downstream direction to define a recess and the band of tipping paper at least partly overlaps the recess.

[0007] Throughout this specification, the terms "upstream" and "downstream" are used to describe relative positions between elements of the smoking article in relation to the direction of mainstream smoke as it is drawn from a lit end of the smoking article through the filter. Further, the terms "longitudinal" and "longitudinally" are used to describe relative positions between elements of the filter and the smoking article in relation to the direction defined by the main axis of the smoking article.

[0008] The term "recess" is used throughout this specification to mean a hollow space inside the smoking article. In more detail, the term recess is used in this specification to describe a hollow space provided at an end of the tobacco rod and delimited by the wrapper. The recess delimited by the wrapper may be empty as well as partly or completely filled. In some embodiments, the recess may be partly or completely occupied by the filter of the smoking article.

[0009] The term "packing density" is used throughout this specification to mean the ratio between the volume occupied by the smokable material and the total volume. The volume of the smokable material shall be equal to the difference between the total volume and the void volume.

[0010] In a smoking article according to the invention, at the downstream end of the tobacco rod, some of the tobacco is pushed further inside the wrapper. Thus, a dense end, that is a segment of the tobacco rod having increased packing density, is formed. Also, because tobacco is missing underneath the wrapper, a recess is created at the downstream end. A filter is then attached to the tobacco rod by applying the tipping paper substantially only on the part of the wrapper overlying the recess, so that substantially the whole of the tobacco remains upstream of the tipping paper.

[0011] The resulting smoking article contains substantially no tobacco underneath the tipping paper. Accordingly, when, in use, the burn line approaches the tipping paper, that is when the consumer generally stops smoking, approximately all the tobacco in the cigarette will have been effectively consumed. This advantageously allows for a more cost-effective use of the materials, especially the tobacco material.

[0012] Further, by providing a dense end at the mouth end of the rod, favourable conditions are ensured for filter attachment and tipping operations. Accordingly, the manufacturing process is made simple and reliable.

[0013] The tobacco rod comprises tobacco material as a combustible, smokable material circumscribed by a wrapper.

[0014] The tobacco material may typically comprise cured or processed tobacco, reconstituted tobacco, tobacco substitute materials, blends thereof, and blends thereof with pyrolysed or carbonised materials. Blends of tobaccos are particularly desirable. The tobacco material may be employed in various manners. Typically, the tobacco material is employed as a charge of strands. The tobacco material inside the wrapper generally has a basis tobacco density from about 0.4 mg/cubic mm to about 0.55 mg/cubic mm.

[0015] Optionally, the tobacco rod may additionally comprise material other than tobacco material, such as conventional additives such as flavourants or humectants. In particular, the tobacco rod may comprise plant material other than tobacco material that are capable of releasing flavour into smoke produced by a smoking article. For example, the tobacco rod may comprise herb

leaf or other herbaceous material from herbaceous plants including, but not limited to, mints, such as peppermint and spearmint, lemon balm, basil, cinnamon, lemon basil, chive, coriander, lavender, sage, tea, thyme and caraway.

[0016] The tobacco rod comprises a downstream end compressed region obtained by compressing the tobacco material further into the wrapper, so that a portion of the wrapper extends downstream of the compressed region to define a recess. A body region of the tobacco rod having the basis tobacco density described above is thus defined upstream of the compressed region.

[0017] The downstream portion of the wrapper defining the recess may have a length of about 1 mm to about 10 mm. Preferably, the downstream portion of the wrapper has a length of about 2 mm to about 3 mm.

[0018] By compressing the tobacco material further into the wrapper, the tobacco density of the downstream end compressed region is increased with respect to the basis packing density, preferably by from about 4 percent to about 12 percent with respect to the basis packing density. More preferably, the tobacco density of the downstream end compressed region is increased by from about 6 percent to about 10 percent with respect to the basis packing density. In some embodiments, the tobacco density of the downstream end compressed region is from about 7 percent to about 9 percent. More preferably, the tobacco density of the downstream end compressed region is increased by about 8 percent.

[0019] Preferably, the tobacco density of the downstream end compressed region is from about 0.43 mg/cubic mm to about 0.6 mg/cubic mm.

[0020] The tobacco rod may comprise an additional compressed region at the upstream end of the rod, the additional compressed region having an increased tobacco density compared to the body region. Thus the body region with the basis tobacco density is disposed between two segments of the tobacco rod having increased packing density. Accordingly, the upstream end compressed region advantageously helps prevent loose tobacco material from falling out of the rod.

[0021] The tipping paper is attached to the downstream portion of the wrapper extending downstream of the compressed region. Preferably, the tipping paper overlaps the recess underlying the downstream portion of the wrapper in its entirety.

[0022] In some embodiments, the recess preferably defines an internal cavity of the smoking article provided between the tobacco rod and the filter. This cavity may advantageously accommodate an additional material, such as a flavourant capsule, sorbent particulate or any other additive.

[0023] In other embodiments, the filter preferably extends at least partly into the recess. To this purpose, the filter may preferably comprise a tapered portion adapted to be received into the recess. This is advantageous because the filter, which is put into place prior to performing the tipping, strengthens the rod from a structural viewpoint. Accordingly, tipping operations are made easier and a very neat tipping may be obtained. In a preferred embodiment, the filter extends into the recess so as to substantially occupy it in its entirety. Accordingly, substantially no void is left below the tipping paper.

[0024] According to another aspect of the invention there is further provided a method for manufacturing a smoking article, the method comprising: providing a tobacco rod with a first tobacco density circumscribed by a wrapper; forming a compressed region at the downstream end of the rod having an increased tobacco density compared to the first packing density; forming a downstream end portion of the wrapper extending beyond the compressed region in the downstream direction to define a recess; and attaching a filter to the tobacco rod with a band of tipping paper at least partly overlapping the recess; wherein the forming steps comprise longitudinally compressing a portion of the tobacco rod at the downstream end of the tobacco rod into the wrapper.

[0025] Preferably, the step of attaching the filter to the tobacco rod comprises inserting at least a portion of the filter into the recess. Even more preferably, the step of inserting at least a portion of the filter into the recess is carried out during the step of longitudinally compressing a portion of the tobacco rod at the downstream end of the rod further inside the wrapper.

[0026] Further, according to yet another aspect of the invention there is provided an apparatus for manufacturing a smoking article, comprising: conveyor means for receiving a succession of tobacco rods circumscribed by respective wrappers; and compression means operatively coupled with the conveyor means and configured to cooperate with each tobacco rod at a respective first end so as to longitudinally compress a first end portion of the tobacco rod further inside the respective wrapper to form a compressed region of the rod, the wrapper thus extending beyond the compressed region in the longitudinal direction to define a recess at the first end of the rod. Features described in relation to one aspect of the invention may also be applicable to another aspect of the invention.

[0027] Preferably, the conveyor comprises a surface having a plurality of flutes, each flute being adapted to receive and hold a tobacco rod as the surface moves; and wherein the compression means comprise a plurality of members, each of which is disposed in a respective flute of the surface, extends substantially parallel to the flute and is movable within the flute between a retracted configuration, where the movable member does not cooperate with the tobacco rod, and an extended configuration, where the movable member is inserted inside the wrapper to a predetermined depth.

[0028] The conveyor means may typically comprise a rotary drum conveyor of the type commonly used for receiving and transferring elongated articles such as tobacco rods. A such conveyor generally comprises in its periphery a plurality of flutes, typically angularly equispaced from each other and consisting of flutes extending

parallel to the axis of the drum. This conveyor is commonly provided with means for holding the tobacco rods in the flutes, for example by applying suction to them. As an alternative, the conveyor may be operatively coupled with a cog wheel configured to hold the tobacco rods at the end opposite the end with which the movable members are configured to cooperate.

[0029] The movable members may consist of piston-like elements having, at one end, a portion adapted to be partially inserted into the wrapper to compress the tobacco material in the rod. Each movable member may be configured to move independently from the other movable members. Preferably, at least a set of members of the plurality of members are movable simultaneously to cooperate with a corresponding set of tobacco rods substantially at the same time. Accordingly, the production rate can advantageously be increased.

[0030] Preferably, the apparatus comprises means for supplying a filter in abutting relation with a respective tobacco rod. For example, the apparatus may comprise a further drum conveyor adapted to receive the tobacco rods with compressed first end portions and operatively coupled with means for feeding plugs of filter material, for example received from a hopper, to the further drum conveyor in abutting relation with a respective tobacco rod.

[0031] Preferably, the apparatus comprises means for inserting at least a portion of a filter into the recess of a respective tobacco rod. In some embodiments, each movable member may preferably comprise a tubular portion adapted to accommodate a filter portion, so that when the movable member is moved from the retracted configuration to the extended configuration, the filter portion is partly inserted inside the wrapper; each movable member further comprising a filter release mechanism configured such that, when the movable member is moved back from the extended position to the retracted position, the filter portion is transferred from the tubular portion into the recess.

[0032] For example, the movable member may be configured as a double-walled piston, wherein the outer wall acts as a retractable sleeve. In its extended configuration, the outer wall extends beyond the inner wall in the longitudinal direction to define the tubular portion for accommodating the filter portion. In use, once the movable member holding the filter plug portion has been inserted into the recess of the tobacco rod, the outer wall may be retracted to expose and release the filter portion so that it extends at least partly in the recess of the tobacco rod.

[0033] Movement of the movable members between their retracted and extended configurations, as well as operation of the filter release mechanism, such as the transition between the extended and retracted configuration of the outer wall in the double-walled piston, are preferably properly synchronised with one another and with respect to the movement of the conveyor. For example, the speed of operation of the movable members and of the filter release mechanism are selected based on the rotational speed of the drum conveyor holding the tobacco rods. Thus, a timely release of the filter portion and, therefore, accurate alignment and reciprocal positioning of the filter portions and the tobacco rods may advantageously be ensured.

[0034] In some particularly preferred embodiments, the tubular portion accommodates the filter portion in a compressed state such that, when the movable member is moved back from the extended configuration to the retracted configuration, the filter portion, while being released, expands to circumferentially engage with the wrapper.

[0035] The invention will be further described, by way of example only, with reference to the accompanying drawings in which:

Figure 1 is a schematic perspective view of a smoking article according to a first embodiment of the present invention;

Figure 2 is a schematic perspective view of a smoking article according to a second embodiment of the present invention;

Figures 3-4-5 are schematic perspective views of an apparatus for the manufacture of a smoking article according to the present invention shown in operation in three consecutive moments; and

Figures 6-7-8-9-10 are schematic perspective views of a variant of the apparatus of Figures 3-4-5 shown in operation in five consecutive moments.

[0036] Figure 1 is a schematic view of a smoking article 100 according to a first embodiment of the present invention. The smoking article 100 comprises a tobacco rod 101 circumscribed by a wrapper 102. At its downstream end, the tobacco rod 101 comprises a compressed region 1011 and a body region 1012 upstream of the compressed region 1011. The body region 1012 has a tobacco density of about 0.45 mg/cubic mm, whereas the compressed region 1011 has a tobacco density higher by about 8 percent. The wrapper 102 extends beyond the compressed region 1011 in the downstream direction. Thus, a recess 103 is defined at the downstream end of the tobacco rod 101.

[0037] Further, the smoking article 100 comprises a filter 104 and a band of tipping paper 105 attaching the filter 104 to the tobacco rod 101. The band of tipping paper 105 overlaps the recess 103. In more detail, the upstream edge of the band of tipping paper 105 is positioned proximate to the downstream end of the compressed region 1011 of the tobacco rod 101. The filter 104 is provided in abutting relation to the tobacco rod 101 such that the recess 103 defines an internal cavity between downstream end of the compressed region 1011 of the tobacco rod 101 and the upstream end of the filter 104.

[0038] Figure 2 is a schematic view of a smoking article 200 according to a second embodiment of the present invention. The smoking article 200 comprises a tobacco

rod 201 circumscribed by a wrapper 202. At its downstream end, the tobacco rod 201 comprises a compressed region 2011 and a body region 2012 upstream of the compressed region 2011. The body region 2011 has a tobacco density of 0.45 mg/cubic mm, whereas the compressed region 2012 has a tobacco density higher by about 8 percent. The wrapper 202 extends beyond the compressed region 201 a in the downstream direction. Thus, a recess 203 is defined at the downstream end of the tobacco rod 201.

[0039] Further, the smoking article 200 comprises a filter 204 and a band of tipping paper 205 attaching the filter 204 to the tobacco rod 201. The band of tipping paper 205 overlaps the recess 203. In more detail, the upstream edge of the band of tipping paper 205 is positioned proximate to the downstream end of the compressed region 2011 of the tobacco rod 201. The filter 204 extends into the recess 203. In particular, the filter 204 may comprise a tapered portion (not shown) adapted to be received into the recess and is provided in abutting relation to the tobacco rod 101 such that the tapered portion substantially occupies the recess 203 in its entirety.

[0040] Figures 3-4-5 are schematic perspective views of an apparatus 300 for the manufacture of a smoking article according to the present invention seen in operation in three consecutive moments. The apparatus 300 comprises a rotary drum conveyor 301 having a plurality of peripheral flutes 302, each of which is adapted to receive a tobacco rod 101, 201 circumscribed by a respective wrapper 102, 202 as the conveyor 301 rotates about its rotation axis. Further, each flute 302 is operatively connected with a vacuum source so as to hold a respective tobacco rod by suction, as the drum rotates, along a segment of the circumference of the drum.

[0041] The apparatus 300 further comprises a plurality of piston-like movable members 303, each of which is disposed in a respective flute 302 and extends substantially parallel to the flute 302. In Fig. 3, the movable members 303 are shown in a retracted configuration, where the movable members 303 do not cooperate with the tobacco rods. Each movable member 303 is movable from the retracted configuration of Fig. 3 to an extended configuration (see Fig. 4), where the movable member 303 is inserted inside the wrapper 102, 202 to a predetermined depth so as to compress the tobacco material in the rod 101, 201, whereby a compressed region 1011, 2011 and a recess 103, 203 are formed at one end of the rod. Fig. 5 shows the movable members moved back to the retracted configuration so as to enable the rods to be delivered to the filter tipping unit. As illustrated in Figs. 3-4-5, a set of piston-like members 303 are movable simultaneously to cooperate with a corresponding set of tobacco rods 101, 201 substantially at the same time.

[0042] Figures 6-7-8-9-10 are schematic perspective views of a variant 400 of the apparatus of Figures 3-4-5 seen in operation in five consecutive moments. The apparatus 400 comprises a rotary drum conveyor 401 having a plurality of peripheral flutes 402, each of which is adapted to receive a tobacco rod 101, 201 circumscribed by a respective wrapper 102, 202 as the conveyor 401 rotates about its rotation axis. Further, each flute 402 is operatively connected with a vacuum source so as to hold a respective tobacco rod by suction, as the drum rotates, along a segment of the circumference of the drum.

[0043] The apparatus 400 further comprises a plurality of piston-like movable members 403, each of which is disposed in a respective flute 402 and extends substantially parallel to the flute 402. Each member 403 comprises a tubular portion 4031 adapted to accommodate a filter portion 404. In more detail, each member 403 is configured as a double-walled piston, wherein the outer wall acts as a retractable sleeve. In its extended configuration (see Figs. 6, 7), the outer wall extends beyond the inner wall in the longitudinal direction to define the tubular portion for accommodating the filter portion 404.

[0044] Each movable member 403 is movable from the retracted configuration of Fig. 6 to an extended configuration (see Fig. 7), where the movable member 403 holding the filter 404 is inserted inside the wrapper 102, 202 to a predetermined depth so as to compress the tobacco material in the rod 101, 201. This forms a compressed region 1011, 2011 and a recess 103, 203 at one end of the rod 101, 201. While the movable member 403 is moved back from its extended configuration into its retracted configuration (see Fig. 10), the filter portion 404 is transferred from the tubular portion into the recess 103, 203. In more detail, once the movable member 403 holding the filter portion 404 has been inserted into the recess of the tobacco rod (see Fig. 7), the outer wall may be retracted (see Fig. 8) to expose and release the filter portion 404 so that it occupies at least part of the recess 103, 203. In particular, the filter portion is held inside the movable member 403 in a compressed state, so that, as the movable member 403 is brought back into its retracted configuration (see Figs. 8-10) and the outer sleeve is simultaneously retracted (see Figs. 8, 9), the filter portion 404 is released into the recess 103, 203 and expands to circumferentially engage with the wrapper 102, 202.

Claims

1. A smoking article comprising:

a tobacco rod circumscribed by a wrapper;
a filter disposed downstream of the tobacco rod;
a band of tipping paper attaching the filter to the tobacco rod;
the tobacco rod comprising a compressed region at the downstream end of the rod and
a body region upstream of the compressed region, the compressed region having an increased tobacco density compared to the body region;
wherein the wrapper extends beyond the com-

pressed region in the downstream direction to define a recess and wherein the band of tipping paper at least partly overlaps the recess.

2. A smoking article according to claim 1, wherein an upstream edge of the band of tipping paper is positioned proximate to the downstream end of the compressed region of the rod.

3. A smoking article according to claim 1 or 2, wherein the recess defines an internal cavity of the smoking article provided between the tobacco rod and the filter.

4. A smoking article according to any one of claims 1 to 3, wherein the filter extends at least partly into the recess.

5. A smoking article according to claim 4, wherein the filter comprises a tapered portion adapted to be received into the recess.

6. A method for manufacturing a smoking article, comprising:

- providing a tobacco rod with a first tobacco density circumscribed by a wrapper;
- forming a compressed region at the downstream end of the rod having an increased tobacco density compared to the first packing density;
- forming a downstream end portion of the wrapper extending beyond the compressed region in the downstream direction to define a recess; and
- attaching a filter to the tobacco rod with a band of tipping paper at least partly overlapping the recess;

wherein the forming steps comprise longitudinally compressing a portion of the tobacco rod at the downstream end of the tobacco rod into the wrapper.

7. A method according to claim 6, wherein the step of attaching the filter to the tobacco rod comprises inserting at least a portion of the filter into the recess.

8. A method according to claim 7, wherein the step of inserting at least a portion of the filter into the recess is carried out during the step of longitudinally compressing a portion of the tobacco rod at the downstream end of the rod further inside the wrapper.

9. Apparatus for manufacturing a smoking article, comprising:

conveyor means for receiving a succession of tobacco rods circumscribed by respective wrappers; and

compression means operatively coupled with the conveyor means and configured to cooperate with each tobacco rod at a respective first end so as to longitudinally compress a first end portion of the tobacco rod further inside the respective wrapper to form a compressed region of the rod, the wrapper thus extending beyond the compressed region in the longitudinal direction to define a recess at the first end of the rod.

10. Apparatus according to claim 9, wherein the conveyor comprises a surface, the surface comprising a plurality of flutes, each flute being adapted to receive and hold a tobacco rod as the surface moves; and wherein the compression means comprise a plurality of members, each of which is operable within a flute of the surface, extends substantially parallel to the flute and is movable within the flute between a retracted configuration, where the movable member does not cooperate with the tobacco rod, and an extended configuration, where the movable member is inserted inside the wrapper to a predetermined depth.

11. Apparatus according to claim 10, wherein at least a set of members of the plurality of members are movable simultaneously to cooperate with a corresponding set of tobacco rods substantially at the same time.

12. Apparatus according to claim 9 or 11, further comprising means for supplying a filter in abutting relation with a respective tobacco rod.

13. Apparatus according to any one of claims 9 to 12, further comprising means for inserting at least a portion of a filter into the recess of a respective tobacco rod.

14. Apparatus according to claim 13, wherein each movable member comprises a tubular portion adapted to accommodate a filter portion, so that when the movable member is moved from the retracted configuration to the extended configuration, the filter portion is partly inserted inside the wrapper; each movable member further comprising a filter release mechanism configured such that, when the movable member is moved back from the extended configuration to the retracted configuration, the filter portion is transferred from the tubular portion into the recess.

15. Apparatus according to claim 14, wherein the tubular portion accommodates the filter portion in a compressed state such that, when the movable member is moved back from the extended configuration to the retracted configuration, the filter portion, while being released, expands to circumferentially engage with the wrapper.

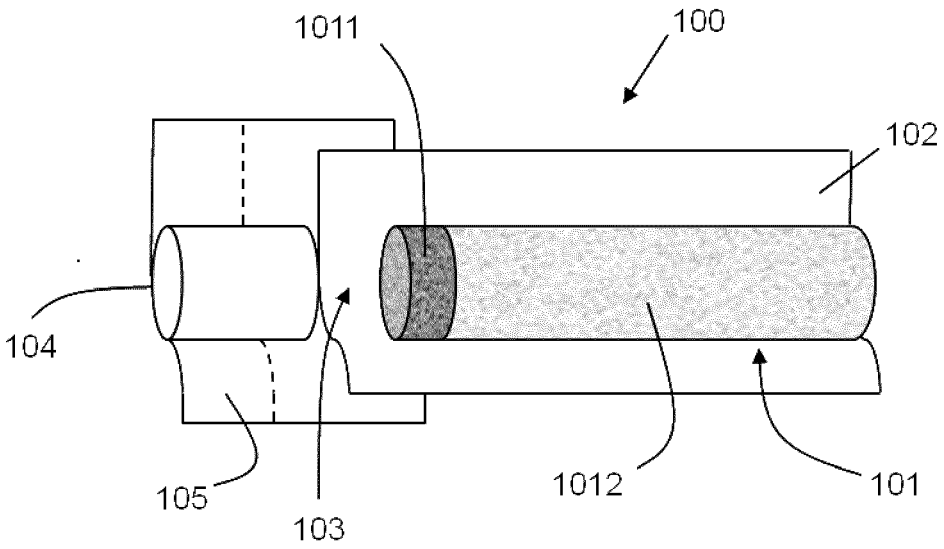

Figure 1

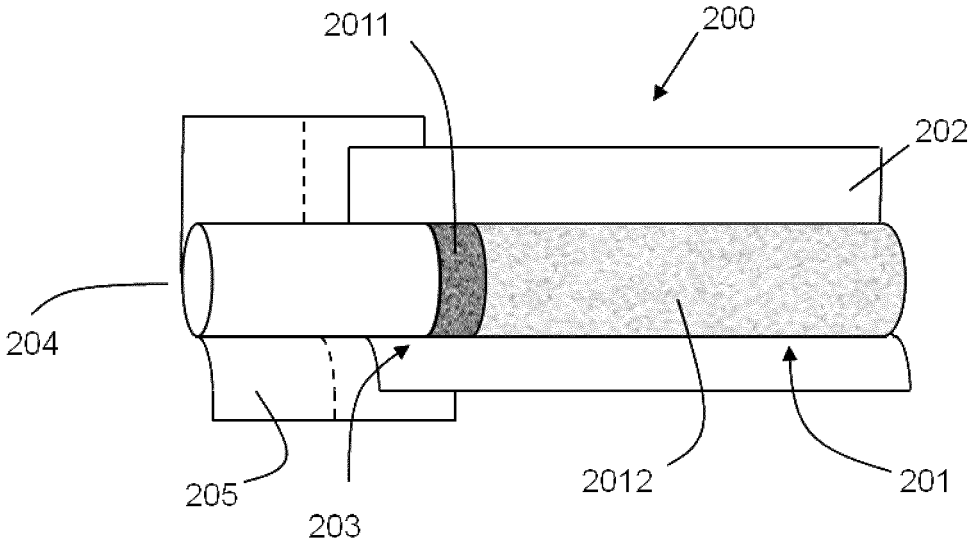

Figure 2

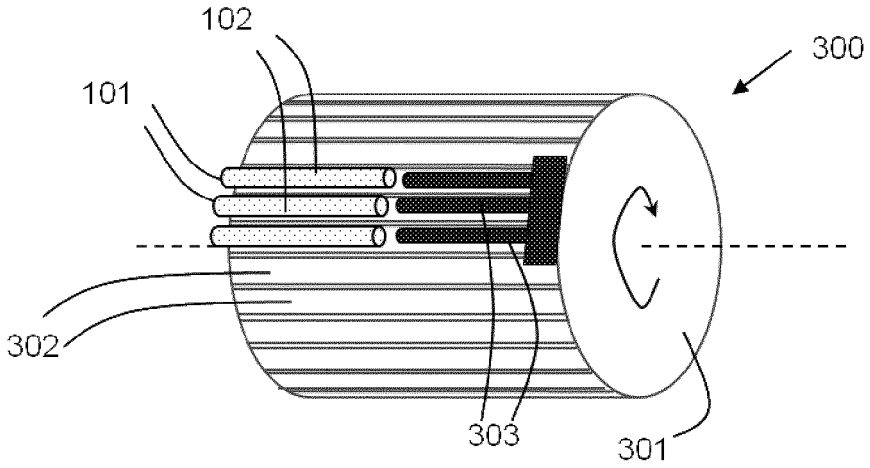

Figure 3

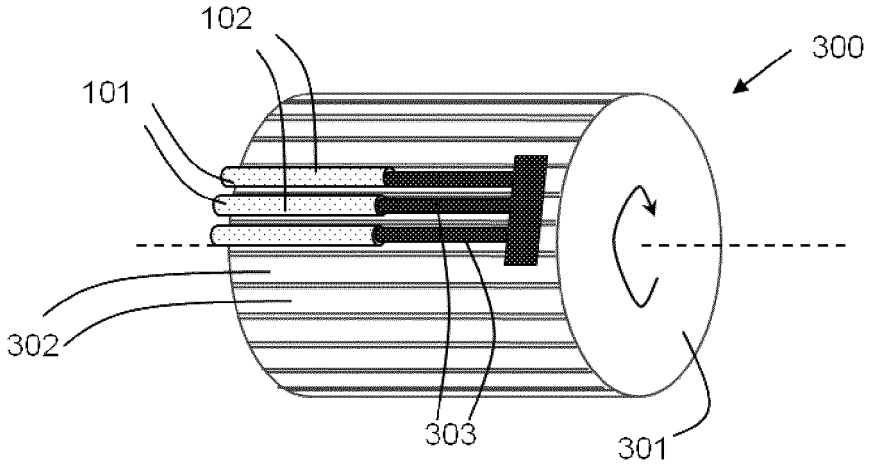

Figure 4

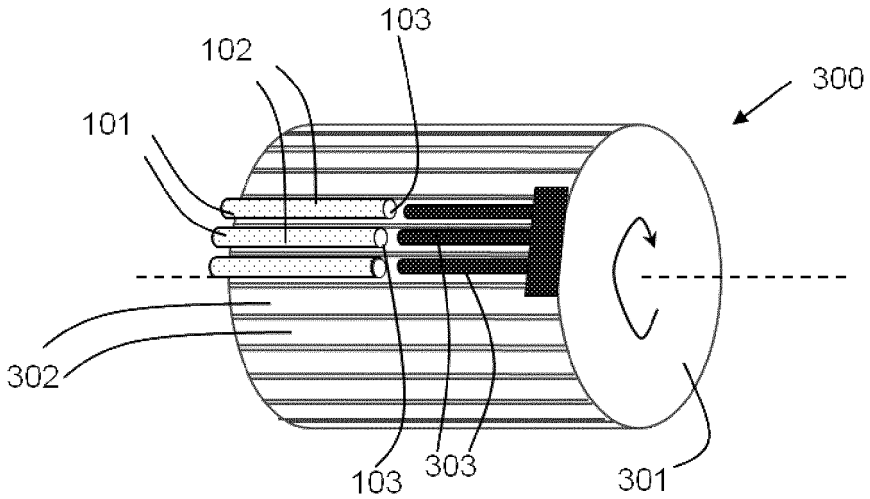

Figure 5

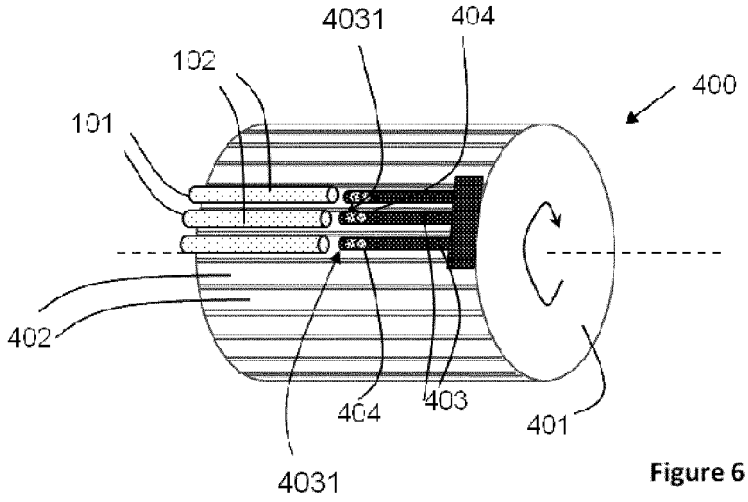

Figure 6

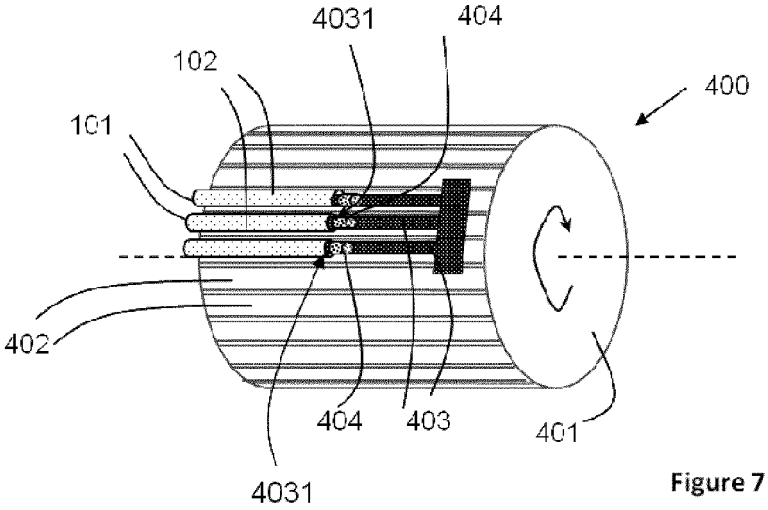

Figure 7

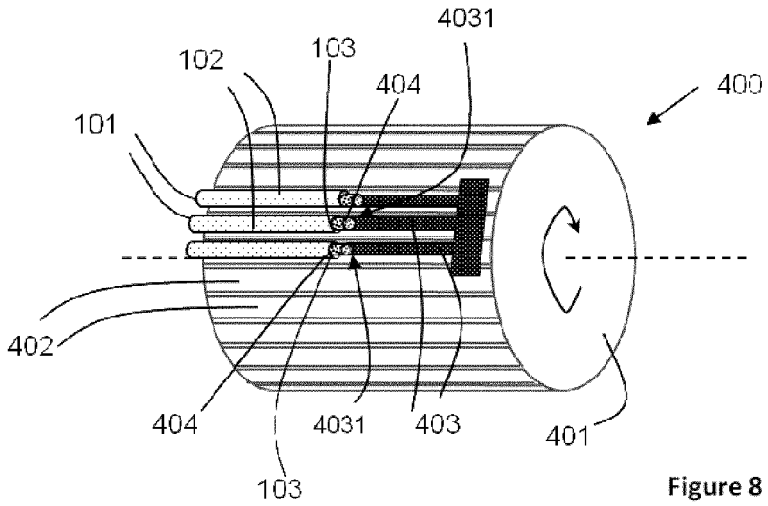

Figure 8

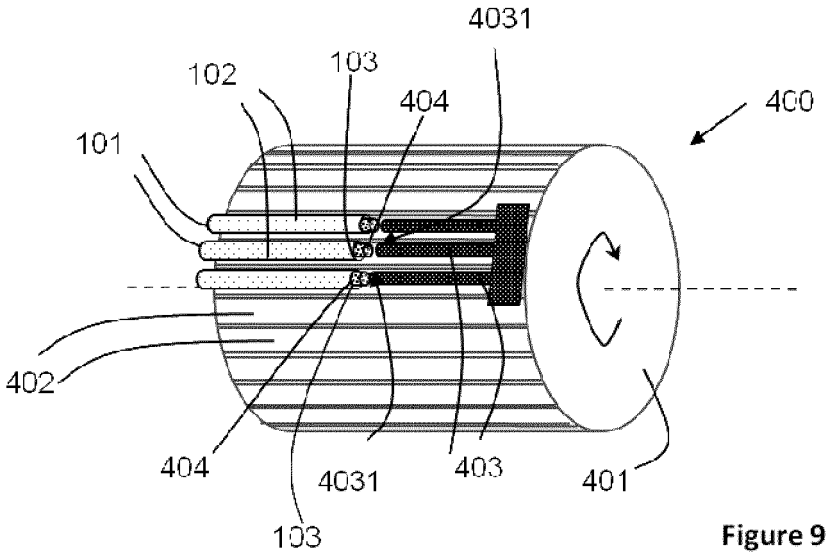

Figure 9

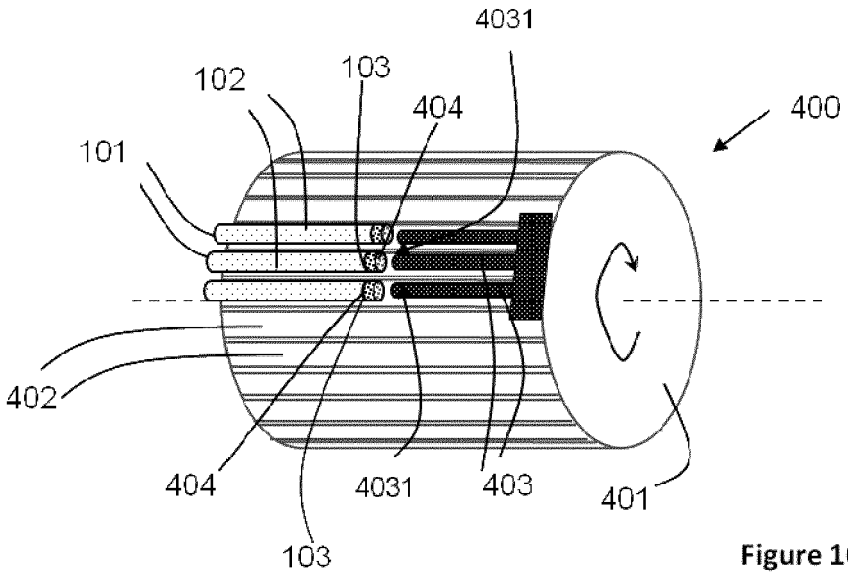

Figure 10

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 13 19 9229

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 067 995 A (SCHNEIDER WERNER [DE] ET AL) 30 May 2000 (2000-05-30) * column 5, line 29 - column 6, line 19 *	1,2,4, 6-8	INV. A24D1/00 A24C5/47
A	US 4 730 628 A (TOWNSEND DAVID E [US] ET AL) 15 March 1988 (1988-03-15) * column 4, line 37 - column 6, line 30 *	1,6	
A	US 2006/011205 A1 (ADIGA KAYYANI C [US] ET AL) 19 January 2006 (2006-01-19) * paragraph [0016] - paragraph [0017] *	1,6	
A	US 2 918 922 A (ERICH EISSMANN OSWALD) 29 December 1959 (1959-12-29) * column 2, line 33 - column 3, line 65 *	1,6	

TECHNICAL FIELDS SEARCHED (IPC)

A24D
A24C

~~The present search report has been drawn up for all claims~~

Place of search	Date of completion of the search	Examiner
Munich	4 June 2014	Koob, Michael

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

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Application Number
EP 13 19 9229

CLAIMS INCURRING FEES

The present European patent application comprised at the time of filing claims for which payment was due.

☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):

☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.

LACK OF UNITY OF INVENTION

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.

☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.

☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:

☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1-8

☐ The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).

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LACK OF UNITY OF INVENTION
SHEET B

Application Number
EP 13 19 9229

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-8

A smoking article comprising a tobacco rod circumscribed by a wrapper, a filter disposed downstream of the tobacco rod, a band of tipping paper attaching the filter to the tobacco rod, the tobacco rod comprising a compressed region at the downstream end of the rod and a body region upstream of the compressed region, the compressed region having an increased tobacco density compared to the body region, wherein the wrapper extends beyond the compressed region in the downstream direction to define a recess and wherein the band of tipping paper at least partly overlaps the recess, as well as a corresponding method for manufacturing.

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2. claims: 9-15

Apparatus for manufacturing a smoking article, comprising conveyor means for receiving a succession of tobacco rods circumscribed by respective wrappers, and compression means operatively coupled with the conveyor means and configured to cooperate with each tobacco rod at a respective first end so as to longitudinally compress a first end portion of the tobacco rod further inside the respective wrapper to form a compressed region of the rod, the wrapper thus extending beyond the compressed region in the longitudinal direction to define a recess at the first end of the rod.

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 19 9229

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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04-06-2014

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