

Doctor

José Luis Salazar

Jefe de División de Nuevas Creaciones (C)

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

E. _____ S. _____ D. _____

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



No. 09-082942- -00009-0000

Fecha: 2013-01-04 16:30:48 Dep. 2020 DIR.NUEVASCR
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 523 RESPUESTA Folios: 30

Referencia: Expediente No. 09.082.942

Solicitud de Patente de Invención titulada: "Método y aparato para la
fabricación de artículos para fumar"

Solicitante: British American Tobacco (Investment) Limited

RESPUESTA AL AUTO NOTIFICADO POR FIJACIÓN EN LISTA NO. 434

DEL 28 DE AGOSTO DE 2012, OFICIO NO. 15105 (EXAMEN DE FONDO)

ÁLVARO CORREA ORDÓÑEZ, mayor de edad y vecino de Bogotá D.C., identificado tal como aparece al pie de mi firma, en mi carácter de apoderado de la sociedad en referencia, doy respuesta al auto emanado por ese Despacho dentro del término de prórroga solicitado en mi memorial 09-082-942-00008-0000 de fecha 21 de noviembre de 2012:

1. Objeciones del Examinador

1.1 Reivindicaciones

Se menciona que las reivindicaciones 5 y 11, se emplea el término "pequeña" que es relativo y se sugiere una modificación.

Se dice que los términos "aproximadamente", "principalmente" son imprecisos y se sugiere

modificarlos.

De la reivindicación 2 se dice que la frase *"el aplicador se configura de tal manera que el aditivo líquido recibido en la barra o varilla de tabaco tiene una distribución en el plano de sección transversal"* sería un resultado a alcanzar. De la reivindicación 3 se dice que la frase: *"una configuración que es rotacionalmente simétrica alrededor del eje longitudinal"* no deja en claro cual es la configuración.

En cuanto a la reivindicación 7 se menciona que la frase: *"en donde una de dichas cabezas se posiciona con el fin de ser localizada dentro del surco"* no es una característica estructural que defina la invención y se sugiere suprimirla.

De la reivindicación 11 se menciona que ésta no enseña características que definan el producto y se sugiere suprimirla.

Se sugiere suprimir la frase *"en donde en uso"* de la reivindicación 1.

Se sugiere suprimir la frase: *"dicha pluralidad de cabezas dispersan de manera simultánea el aditivo líquido en la barra o varilla de tabaco"* (reivindicación 12) y definir el aplicador y las cabezas por sus características técnicas estructurales.

En cuanto a la reivindicación 13 se menciona que no es claro cual es la configuración que permite que se retraiga la cabeza del aplicador.

1.2 Novedad

El Examinador plantea que, después de realizada la búsqueda de anterioridades, encontró documentos que afectan la novedad de las reivindicaciones 1-14 de la presente solicitud.

Particularmente, el Examinador considera que los documentos EP 0405929 (D1) y GB 2229079 (D2) afectan la novedad de la presente solicitud por cuanto:

"Las características esenciales del aparato de la reivindicación 1 habían sido divulgadas previamente en D1, el cual enseña un aparato para la producción de cigarrillos, que

incluye todas las características reclamadas en la reivindicación 1, tal como se encuentra referenciado en la tabla anterior.

Las características esenciales del aparato de la reivindicación 1 habían sido divulgadas previamente en D2, el cual enseña un aparato para la producción de cigarrillos, que un transportador, un aplicador y en donde las cabezas se dirigen hacia el centro de la barra de tabaco.

En consecuencia la reivindicación 1 no es nueva, según lo divulgado en los documentos D1 y D2. "

2. Argumentos a favor de la patentabilidad de la solicitud

2.1 Reivindicaciones

En respuesta a las observaciones formuladas por su Despacho en relación con el capítulo reivindicatorio el solicitante ha decidido presentar un nuevo capítulo reivindicatorio en el cual se han atendido todas las observaciones.

La palabra "pequeña(o)" se ha eliminado, los términos "aproximadamente" y "principalmente" también se han suprimido. La expresión "en donde en uso" se ha retirado. Además las reivindicaciones 11 y 12 se han retirado. Así mismo la frase: "para aplicar un aditivo líquido a la barra de tabaco" se ha eliminado

En cuanto a la expresión: *"el aplicador se configura de tal manera que el aditivo líquido recibido en la barra de tabaco tiene una distribución en el plano de sección transversal"* lo que se quiere denotar es una de las características importantes de la invención. Como lo manifiesta la invención *"La cantidad de saborizante u otro aditivo que se aplica a una varilla de tabaco se conoce como "la carga". Se ha descubierto que, en la práctica, existe un límite de carga máxima de saborizante como el mentol a fin de evitar el manchado."* (página 2, renglones 4 a 7). También se dice que: *"Una tendencia general de la industria del tabaco en los últimos años ha sido aumentar la cantidad de mentol de los cigarrillos. Como la carga máxima que puede aplicarse a la varilla de tabaco misma está limitada por el manchado, una opción es aumentar la cantidad de mentol por cigarrillo aplicando saborizante adicional a los componentes del cigarrillo que no sean la varilla de tabaco, es decir el filtro y/o el papel de cigarrillos. Sin embargo, esto puede llevar a otras*

desventajas." (página 2, último párrafo y página 3, primer renglón).

De lo anterior es claro que la aplicación deseado de sustancias saborizantes al cigarrillo es una práctica cada vez más común y que esta creciendo y que se requiere evitar los problemas asociados con dicha aplicación como es le manchado. Lo que quiere significar la frase objetada es lo que logra la invención solucionando un problema de la técnica que es lograr una aplicación balanceada "sustancialmente simétrica", evitando de esta manera las manchas de la barra del cigarrillo que es uno de los problemas del estado de la técnica.

Le ruego que note que la GUÍA PARA EXAMEN DE SOLICITUDES DE PATENTE DE INVENCION Y MODELO DE UTILIDAD de esa Superintendencia con relación a los resultados a alcanzar manifiesta que: "El resultado a alcanzar no es una característica técnica de la invención. Puede aparecer en la reivindicación, pero siempre acompañando las suprimir la frase dado que el aparato de la invención aparece caracterizado por otros elementos que se han claramente especificado. Es claro que la presente invención se ha caracterizado no solamente por esta característica sino por otras que aparecen claramente especificadas en las reivindicaciones por lo cual no resulta necesario suprimirla.

En cuanto a la frase " una configuración que es rotacionalmente simétrica alrededor del eje longitudinal" se quiere denotar una configuración que esta configurada de manera tal que distribuye de manera uniforme las sustancias aplicadas al cigarrillo. No existe una configuración específica por cuanto dicha simetría se puede dar de muchas y variadas formas de tal suerte que no sería procedente limitarla a una sola dejando la posibilidad de que la invención se circunvale utilizando una forma alternativa de configuración que no este específicamente protegida.

En relación con la frase *"en donde una de dichas cabezas se posiciona con el fin de ser localizada dentro del surco"* se hace para denotar una de las modalidades de la invención que tiene su explicación en la descripción de la invención: *"El cabezal se posiciona de manera que, en funcionamiento, se sitúa dentro del surco de la varilla de tabaco, que puede extenderse hasta aproximadamente el eje longitudinal central de la varilla de tabaco. Esta configuración permite que el cabezal disperse el líquido más profundamente en la varilla de tabaco y así ayuda a reducir la posibilidad de manchado en la superficie de la varilla de tabaco. Además, la dispersión desde el centro de la varilla de tabaco puede ayudar a*

producir una distribución más uniforme del líquido dentro de la varilla de tabaco.". Dado que el solicitante no encuentra otra manera de reivindicar dicha característica muy importante de la invención se le solicita a su Despacho que acepte dicha característica que además resulta ser muy limitada y da a conocer una variante muy importante de dicha invención.

2.2 Novedad

La novedad de una solicitud está legalmente definida en el Artículo 16 de la Decisión 486 así: *"una invención se considerará nueva, cuando no está comprendida en el estado de la técnica. El estado de la técnica comprenderá todo lo que haya sido accesible al público por una descripción escrita u oral, utilización, comercialización o cualquier otro medio antes de la fecha de presentación de la solicitud de patente o, en su caso de la prioridad reconocida..."*

En virtud de la anterior definición, consideramos que los documentos D1 y D2 no constituyen documentos del arte previo que afecten la novedad de la presente solicitud.

Por favor note que la disposición de D1 es muy diferente de la disposición del presente aplicador (ver, por ejemplo, figuras 1 a 3), que tiene una pluralidad de cabezas de dispersión que apuntan interiormente hacia el eje de la barra o varilla de tabaco, aplicando de esta manera un rociado atomizado de saborizante con una distribución simétrica.

La reivindicación 1 especifica que cada una de la pluralidad de cabezas de dispersión esta dirigida hacia el eje longitudinal central de la barra o varilla de tabaco. Esta redacción es directa y resulta derivable sin ambigüedad de la descripción, especialmente en relación con las figuras 3A, 3B y 3C y la página 12, renglón 17 a la página 13, final del primer párrafo de la descripción tal como se presentó que muestra y describe varios ejemplos en los cuales las cabezas se dirigen hacia el eje longitudinal central de la barra o varilla de tabaco.

D1 no describe la característica de una configuración simétrica de las cabezas de dispersión dirigidas hacia el eje longitudinal central de la barra o varilla de tabaco. En su lugar, D1 simplemente describe una boquilla 58 "orientada de tal manera que la boquilla 58 paralela a y en la dirección de viaje de la correa 12" (D1, columna 4, renglones 39-41). De acuerdo

con la interpretación de su Despacho D1 puede tener una pluralidad de cabezas de dispersión todas las cuales son "paralelas al flujo del tabaco". Sin embargo, esto es claramente muy diferente a la configuración reivindicada de las cabezas de dispersión que están dirigidas hacia el eje longitudinal central de la barra o varilla de tabaco.

De acuerdo con la invención se puede aplicar saborizante desde diferentes direcciones por vía de las cabezas o cabezales, logrando de esta manera una aplicación uniforme de aditivo con distribución simétrica que permite una alta carga, sin el riesgo de manchado (ver página 4, primer párrafo).

La persona medianamente versada no encontraría ninguna indicación o sugerencia en D1 ni en ninguna de los artes previos citados que contenga características de una pluralidad de cabezales de dispersión simétricamente dispuestos dirigidos hacia el eje longitudinal central de la barra o varilla de tabaco.

De hecho, las enseñanzas de D1 desanimarían a la persona experta a suministrar esta característica. Esto se debe a que D1 presenta enseñanzas alejadas de la aplicación uniforme de aditivo, en su lugar da enseñanzas en el sentido de suministrar regiones diferentes de diferente alta concentración de aditivo en la forma de hebra(s) líquida(s) a lo largo de la longitud de la barra o varilla de tabaco, estando localizadas las hebras centralmente a lo largo de la longitud de la barra o varilla de tabaco como se muestra en las figuras 6 y 7.

Además, la persona experta, partiendo de D1, no consideraría la posibilidad de dirigir los cabezales al interior hacia el eje longitudinal, porque esto haría mas difícil ubicar las hebras de una manera centralmente localizada consistente tal como lo enseña D1. (Ver D1, figuras 6 y 7 y columna 1, renglones 45-50).

Aún mas, la persona experta no encontraría nada en ningún otro documento de la técnica anterior que le genere alguna motivación a adaptar D1 para suministrar las características de la actual reivindicación 1.

Por lo tanto es claro que la reivindicación 1 posee nivel inventivo.

Comentarios similares se pueden aplicar a D2 que no describe la característica de una

configuración simétrica de cabezales de dispersión dirigidos hacia el eje longitudinal central de la barra o varilla de tabaco tal como lo muestra la reivindicación 1 de la presente invención.

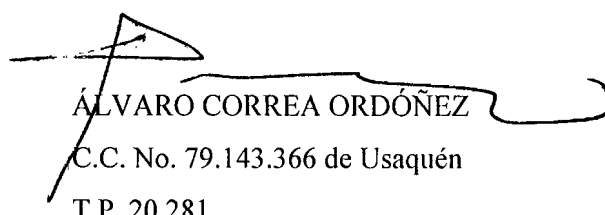
El objeto de la presente invención es un... En consecuencia, el objeto de la presente solicitud es novedoso.

3. Solicitudes concedidas en otros países para esta misma invención.

A manera informativa, pongo en conocimiento del Examinador que la patente europea 2117365 equivalentes a la presente solicitud colombiana ha sido otorgada. Aún cuando entiendo que estas decisiones de ninguna manera obligan al Despacho para decidir de igual forma, considero que por tratarse de una pregunta fáctica la determinación de la existencia de novedad y nivel inventivo, las decisiones de otras oficinas de patentes constituyen un antecedente persuasivo en la materia.

En virtud de lo anterior, solicito que se acepten las razones expuestas en el presente documento y en consecuencia, se otorgue el privilegio de patente de invención para el invento que se tramita en este expediente.

Atentamente,



ÁLVARO CORREA ORDÓÑEZ

C.C. No. 79.143.366 de Usaquén

T.P. 20.281

Anexos: Capítulo reivindicatorio modificado
 Copia de la Patent europea 2117365

REIVINDICACIONES

1. Aparato para fabricar un artículo para fumar que comprende:

una transportadora (60) para una varilla de tabaco (65), en donde la dirección del transporte es paralela a un eje longitudinal central de la varilla de tabaco; y

en donde dicho aplicador comprende una pluralidad de cabezas de dispersión (75A, 75B) para aplicar el aditivo líquido a la varilla de tabaco, en donde dicha pluralidad de cabezas de dispersión tiene una configuración que es simétrica desde dicho eje longitudinal central de la varilla de tabaco,

caracterizado porque cada una de dicha pluralidad de cabezas de dispersión se dirige hacia el eje longitudinal central de la varilla de tabaco.

2. El aparato de la reivindicación 1, en donde el aplicador se configura de tal manera que el aditivo líquido recibido en la varilla de tabaco tiene una distribución en un plano de sección transversal perpendicular al eje longitudinal central de la varilla de tabaco que es

sustancialmente simétrico desde dicho eje longitudinal central.

3. El aparato de la reivindicación 1 o la reivindicación 2, en donde dicha pluralidad de cabezas de dispersión tiene una configuración que es rotacionalmente simétrica alrededor del eje longitudinal central de la varilla de tabaco.
4. El aparato de cualquiera de las reivindicaciones 1 a 3, en donde dicho aplicador comprende un par de cabezas de dispersión dispuestas en lados opuestos de la varilla de tabaco y en donde opcionalmente dicho par de cabezas de dispersión se disponen horizontalmente con respecto a la varilla de tabaco.
5. El aparato de cualquiera de las reivindicaciones 1 a 4, en donde cada una de dichas cabezas penetra en la varilla de tabaco, y en donde opcionalmente la distancia de la penetración de cabeza en la varilla de tabaco es 50 % o menos comparada con las dimensiones de la sección transversal de la varilla de tabaco.

6. El aparato de cualquiera de las reivindicaciones 1 a 5, en las cuales cada una de dichas cabezas está provista con su propio reservorio (120) del aditivo líquido para la aplicación a la varilla de tabaco.
7. El aparato de cualquier reivindicación precedente, en donde dicho aplicador comprende un acanalador (91) para formar un surco (210) en la varilla de tabaco corriente abajo del acanalador y en donde una de dichas cabezas se posiciona con el fin de ser localizada dentro del surco y en donde opcionalmente el surco formado por el acanalador se extiende hacia el eje longitudinal central de la varilla de tabaco.
8. El aparato de la reivindicación 7, en donde el acanalador es estático.
9. El aparato de la reivindicación 7, en donde el acanalador es giratorio y en donde opcionalmente el acanalador tiene una velocidad lineal en su borde que es igual a la velocidad de la varilla transportada de tabaco.

10. El aparato de cualquiera de las reivindicaciones 7 a 9, en donde:

dicha cabeza se posiciona adyacente a la base del surco para dispersar el aditivo líquido; y/o

dicho acanalador y dicha cabeza se posicionan entre la varilla de tabaco mencionada anteriormente.

11. El aparato de cualquiera de las reivindicaciones 1 a 10, en donde cada cabeza del aplicador se configura para retraerse cuando se detiene la transportadora.

12. Un método para fabricar un artículo para fumar que comprende:

transportar una varilla de tabaco (65) en una dirección paralela a un eje longitudinal central de la varilla de tabaco; y

aplicar un aditivo líquido a la varilla de tabaco transportada;

en donde el aditivo líquido se aplica a la varilla de tabaco mediante una pluralidad de cabezas de dispersión

(75A, 75B), en donde cada una de dichas pluralidades de cabezas de dispersión se dirige hacia el eje longitudinal central de la varilla de tabaco y en donde dicha pluralidad de cabezas de dispersión tiene una configuración que es simétrica desde dicho eje longitudinal central de la varilla de tabaco.

BM_RAC/BOGDMS-#1320953-V1-P2009_000218-NUEVO_CAPÍTULO_REIVINDICATORIO.DOCX



(11) EP 2 117 365 B1

(12) EUROPEAN PATENT SPECIFICATION

- (45) Date of publication and mention of the grant of the patent:
02.03.2011 Bulletin 2011/09

(21) Application number: 08701565.7

(22) Date of filing: 18.01.2008
- (51) Int Cl.:
A24C 5/18 (2006.01)

(86) International application number:
PCT/EP2008/050553

(87) International publication number:
WO 2008/098815 (21.08.2008 Gazette 2008/34)

(54) A METHOD AND APPARATUS FOR THE MANUFACTURE OF SMOKING ARTICLES
VERFAHREN UND VORRICHTUNG ZUR HERSTELLUNG VON RAUCHARTIKELN
PROCÉDÉ ET APPAREIL POUR LA FABRICATION D'ARTICLES À FUMER

- | | |
|--|---|
| <p>(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
HR HU IE IS IT LI LT LU LV MC MT NL NO PL PT
RO SE SI SK TR</p> <p>(30) Priority: 13.02.2007 GB 0702769</p> <p>(43) Date of publication of application:
18.11.2009 Bulletin 2009/47</p> <p>(73) Proprietor: British American Tobacco
(Investments) Limited
London WC2R 3LA (GB)</p> | <p>(72) Inventor: McLELLAN, Andrew
Millbrook Southampton SO15 8TL (GB)</p> <p>(74) Representative: Read, Matthew Charles et al
Venner Shipley LLP
20 Little Britain
London
EC1A 7DH (GB)</p> <p>(56) References cited:
EP-A- 0 274 247 EP-A- 0 405 929
EP-A- 0 558 447 DE-A1- 3 821 677
DE-A1- 19 844 682 GB-A- 2 070 409
GB-A- 2 229 079 US-A- 3 817 258
US-A- 4 979 521</p> |
|--|---|

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

Description

Field of the Invention

[0001] The present invention relates to smoking articles such as cigarettes and to a method and apparatus for the manufacture thereof.

Background of the Invention

[0002] It is known to apply an additive to a cigarette or other smoking article. The additive can serve various purposes, for example, it may comprise a flavourant (e.g. menthol), an adhesive (e.g. starch), or some substance for controlling the burn characteristics of a cigarette.

[0003] C.B. Kaymich & Co of Sheffield, United Kingdom (see www.kaymich.co.uk) manufacture various systems for the application of additives to the different parts of a cigarette, such as the filter, the wrapping paper and the tobacco. The Kaymich CSS1000 system can be used to apply adhesive to cigarette paper. WO 2006/010895 (to Kaymich) discloses one method of applying an additive to the filter material of a cigarette. The Kaymich UFA1000 system is designed for the application of a flavourant, such as menthol, to various components of a cigarette, including the cigarette paper and the tobacco stream (rod).

[0004] One known system for applying a flavourant to a tobacco rod includes an atomising applicator head that is positioned adjacent the passing tobacco rod. The flavourant, in either solvent or undiluted form, is dispersed from the applicator head at a steady rate onto the passing tobacco rod. The applicator head retracts during a machine stop to prevent excess flavourant being applied to a particular location on the tobacco rod.

[0005] The amount of flavouring or other additive that is applied to a tobacco rod is known as the loading. It has been found that in practice there is limit to the maximum loading for flavourants such as menthol in order to avoid spotting. Thus if the loading is too high, excess menthol may accumulate and form (yellow) spots on the paper wrapping of the cigarette. Alternatively (or additionally), an excess of flavouring or other additive may produce (brown) spots by leaching substances such as tannins from the tobacco onto the paper wrapping.

[0006] The presence of spotting unsightly, and significantly degrades the appearance of the product. The maximum safe loading of menthol through the above-described application method to avoid spotting has been found to be approximately 5-6 mg per cigarette, although this is somewhat dependent on factors such as humidity and temperature (increased humidity and/or temperature may increase the tendency to spotting).

[0007] A general trend in the tobacco industry over recent years has been to increase the amount of menthol in cigarettes. Since the maximum loading that can be applied to the tobacco rod itself is limited by spotting, one option is to increase the amount of menthol per cigarette

by applying additional, flavouring to the components of the cigarette other than the tobacco rod i.e. the filter and/or the cigarette paper. However, this can lead to other disadvantages. For example, it is known to include mentholated foil wraps in cigarette packaging. It takes about 14-21 days for the menthol to migrate from such foils into the tobacco and/or the filter. This delay can make it more difficult to manage stock control and manufacturing levels.

[0008] Another option is to apply menthol to bulk tobacco, in other words before formation of the tobacco rod. However, the application of flavourants to bulk tobacco requires bulk processing, and is therefore not always cost-effective, especially for short production runs. Furthermore, bulk application of flavourant before the tobacco enters the manufacturing apparatus results in contamination by flavourant of the whole production line. This may cause problems in certain machinery, and also requires considerable time and resources to clean the production line if it is desired to switch to another flavourant (or to no flavourant).

[0009] EP 0405929A2 describes methods for applying liquid strands containing additives to cigarette rods.

Summary of the invention

[0010] One embodiment of the invention provides apparatus for manufacturing a smoking article. The apparatus includes a conveyor for a tobacco rod, wherein the direction of conveyance is parallel to a central longitudinal axis of the tobacco rod. The apparatus further includes an applicator for applying a liquid additive, such as menthol, to the tobacco rod on the conveyor. The applicator is configured such that liquid additive received into the tobacco rod has a distribution in a cross-sectional plane perpendicular to the central longitudinal axis of the tobacco rod that is substantially symmetrical about the central longitudinal axis.

[0011] Known applicators involve dispersing an additive into a tobacco rod from one side. This leads to an asymmetric distribution of additive within the tobacco rod. In contrast, providing a symmetric distribution of additive within the tobacco rod improves uniformity, and so helps to avoid peaks of additive concentration that might lead to spotting. This therefore allows a higher loading of additive to be achieved in the tobacco rod than can be obtained with known applicators (without increasing the risk of spotting). This higher loading in the tobacco rod then avoids having to apply (extra) additive to the filter or packaging, which would increase the cost and complexity of the manufacturing process.

[0012] According to the invention, the applicator comprises a plurality of dispersion heads for applying the liquid additive to the tobacco rod. The dispersion heads may have a configuration which is rotationally symmetric about the central longitudinal axis of the tobacco rod to provide the desired symmetrical distribution of additive in the tobacco rod. For example, a pair of dispersion heads may be disposed horizontally on opposite sides of the tobacco rod. Other embodiments may have a dif-

ferent number and/or configuration of heads.

[0013] In one embodiment, the applicator comprises a plough for forming a furrow in the tobacco rod downstream of the plough and a head for dispersing the liquid additive into the tobacco rod. The head is positioned so that in operation it is located within the furrow of the tobacco rod, which may extend to approximately the central longitudinal axis of the tobacco rod. This configuration allows the head to disperse liquid deeper into the tobacco rod, and so helps to reduce the possibility of spotting on the surface of the tobacco rod. Furthermore, dispersing from the centre of the tobacco rod can help to produce a more uniform distribution of liquid within the tobacco rod.

[0014] In one embodiment, the plough is static. Such a plough generally has a pointed head directed upstream to face the oncoming tobacco rod. This allows the plough to cleave into the oncoming tobacco stream, thereby opening up the furrow without completely disrupting the tobacco rod. In another embodiment, the plough may be rotary, for example, some form of cutting wheel that extends into the tobacco rod, where the rotation axis of the cutting wheel is perpendicular to the longitudinal axis of the tobacco rod. The cutting wheel may rotate so that it runs at substantially the same linear speed as the tobacco rod.

[0015] In one embodiment, the plough and the head are both positioned to enter the tobacco rod from above. However, other geometries are also possible, for example, the plough and head might alternatively enter the tobacco rod from below or from the side.

[0016] In one embodiment, each head of the applicator is configured to retract from the tobacco rod when the conveyor stops. This helps to reduce the risk of excess additive being dispersed into a fixed location of a stationary tobacco rod.

[0017] Another embodiment provides apparatus for manufacturing a smoking article comprising: a conveyor for a tobacco rod, wherein the direction of conveyance is parallel to a central longitudinal axis of the tobacco rod; and an applicator for applying a liquid additive to the tobacco rod on the conveyor. The applicator has a plurality of heads for simultaneously dispersing the liquid additive into the tobacco rod. It will be appreciated that such an apparatus may benefit from the same particular features as described in relation to the previous embodiments.

[0018] Another embodiment provides apparatus for manufacturing a smoking article comprising: a conveyor for a tobacco rod, wherein the direction of conveyance is parallel to a central longitudinal axis of the tobacco rod; and an applicator for applying a liquid additive to the tobacco rod on the conveyor. The applicator comprises a plough for forming a furrow in the tobacco rod downstream of the plough and a head for dispersing the liquid additive into the tobacco rod. The head is positioned so as to be located within the furrow of the tobacco rod. Again, it will be appreciated that such an apparatus may benefit from the same particular features as described in

relation to the previous embodiments.

[0019] Another embodiment of the invention provides a method for manufacturing a smoking article comprising the features of claim 1.

[0020] Another embodiment provides a method for manufacturing a smoking article comprising: conveying a tobacco rod in a direction parallel to a central longitudinal axis of the tobacco rod; and applying a liquid additive with an applicator to the conveyed tobacco rod, wherein the applicator has a plurality of heads for simultaneously dispersing the liquid additive into the tobacco rod.

[0021] Another embodiment provides a method for manufacturing a smoking article comprising: conveying a tobacco rod in a direction parallel to a central longitudinal axis of the tobacco rod; and applying a liquid additive with an applicator to the conveyed tobacco rod by forming a furrow in the tobacco rod with a plough, wherein the furrow is formed downstream of the plough, and dispersing the liquid additive from a head into the tobacco rod. The head being positioned so as to be located within the furrow of the tobacco rod.

[0022] It will be appreciated that the various method embodiments of the invention may benefit from the same particular features as the apparatus embodiments of the invention.

[0023] The approach described herein achieves a higher loading of flavourant or other additive in tobacco, thereby avoiding adding flavourant to the filter and/or the packaging, and so saves time and resources. This allows easier processing and can help to improve quality (because it involves flavourant at only one stage of the processing), as well as providing easier cleaning and smaller volumes to be processed, leading to reduced waste.

Brief Description of the Drawings

[0024] Various embodiments of the invention will now be described in detail by way of example only with reference to the following drawings:

Figure 1 is a schematic plan view of cigarette manufacturing apparatus in accordance with one embodiment of the invention.

Figure 2 is a schematic cross-section through a portion of the manufacturing apparatus of Figure 1 in accordance with one embodiment of the invention.

Figures 3A-3C are schematic illustrations of possible head positions for the manufacturing apparatus of Figure 1 in accordance with various embodiments of the invention.

Figure 4 is a schematic plan view of cigarette manufacturing apparatus in accordance with another embodiment.

Figure 5 is a schematic view illustrating the operation of the cigarette manufacturing apparatus of Figure 4 in accordance with one embodiment.

Figures 6A-6D are schematic cross-sections through Figure 5 in accordance with one embodiment.

Detailed Description

[0025] Figure 1 is a schematic plan view (not to scale) of cigarette manufacturing apparatus in accordance with one embodiment of the invention. The apparatus includes a hopper 40 of bulk tobacco which feeds tobacco into a tobacco rod (or stream) 65 formed by suction belt 60. The general flow of tobacco within stream 65, as it is conveyed by the vacuum of the suction belt 60, is in the direction indicated by arrow A in Figure 1.

[0026] The tobacco rod 65 is trimmed by a pair of ecreteur disks 70. Accordingly, the tobacco rod 65 leaving the ecreteur disks is slightly smaller than the tobacco rod entering the ecreteur disks. After passing through the ecreteur disks 70, the tobacco rod 65 arrives at a flavourant adder 72. The flavourant adder 72 may be located within the suction chamber (not shown) of a conventional cigarette manufacturing system. The tobacco rod 65, including the added flavourant, such as menthol, then progresses into the garniture area 80, where the tobacco rod is cut into portions and associated with filters for subsequent packaging.

[0027] Note that by positioning the flavourant adder at this location on the production line, the upstream apparatus (such as ecreteur disks 70) avoids contamination by the flavourant. This makes it easier to switch the production line to making cigarettes having a different added flavour (or having no added flavour), since relatively little apparatus on the production line needs to be cleaned and/or adjusted to effect such a change. In addition, applying the flavourant at a relatively late stage in the production reduces wastage (compared to applying the flavourant to bulk tobacco, for example, since a certain proportion of the bulk tobacco is expended in the general manufacturing process, and never reaches the final product).

[0028] It can be seen that in contrast to current systems for adding flavourant, flavourant adder 72 includes a pair of heads 75A, 75B disposed on either side of tobacco rod 65. In one embodiment, the two heads 75A, 75B are substantially conical (or needle-like) in shape.

[0029] The two heads 75A, 75B are used to atomise the flavourant, which is sprayed into the tobacco rod from both of the heads. The two heads 75A and 75B are fed the flavourant in fluid form from a reservoir (not shown in Figure 1). In one embodiment, each head is provided with its own reservoir (which then generally needs separate replenishment). Alternatively both heads may share a common reservoir for the flavourant fluid. In one embodiment, the two heads may be heated slightly to assist with dispersion of the flavourant (such heating may or may not be employed, depending on the properties of the particular flavourant being used).

[0030] The amount of flavourant ejected from the

heads is controlled in conjunction with the speed of conveyor 60. In other words, if the conveyor is going fast, more spray is ejected from heads 75A, 75B, while if the conveyor is going more slowly, less spray is ejected from heads 75A, 75B. This facility helps to supply a constant amount of menthol to a given weight or length of the tobacco rod 65. In one embodiment, heads 75A and 75B are retractable, and can be withdrawn from the tobacco rod 65 if the tobacco rod 65 stops moving - e.g. because the suction belt is switched off.

[0031] In the embodiment of Figure 1, each of the heads 75A, 75B is inserted slightly into the tobacco rod 65. This then allows the atomised spray to be dispersed directly into the tobacco itself. The insertion distance is substantially less than the radius of tobacco rod 65 (to prevent splitting or other disruption of the tobacco rod 65).

[0032] Figure 2 is a schematic vertical cross-section (not to scale) of a part of the apparatus of Figure 1, in accordance with one embodiment of the invention. This cross-section is perpendicular to the longitudinal axis of tobacco rod 65; in other words, the plane of Figure 2 is orthogonal to arrow A in Figure 1. In Figure 2, the tobacco rod 65 is shown as having an approximately square cross-section, but in other embodiments this cross-section may be round, rectangular, elliptical, or any other appropriate shape, depending upon how tobacco rod is formed and trimmed.

[0033] Also shown in Figure 2 are the two heads 75A, 75B of flavourant adder 72. These two heads are gravity-fed with flavourant to be added to tobacco rod 65 from reservoir 120. In some embodiments, the feed to the heads may be power-assisted (by some suitable form of pump), and/or each head may be provided with its own, separate reservoir, as noted above.

[0034] The approximate dispersion of the flavourant from head 75A into tobacco rod 65 is depicted in Figure 2 by shaded area 110A. Likewise, the approximate dispersion of the flavourant from head 75B into tobacco rod 65 is depicted in Figure 2 by shaded area 110B. Note that the dispersion of the flavourant is substantially symmetrical about the central longitudinal axis of tobacco rod 65, as marked by a "+" with reference numeral 115 in Figure 2. This in turn reflects the fact that heads 75A, 75B are likewise symmetrically disposed about the central longitudinal axis of tobacco rod 65.

[0035] The head configuration of Figure 2 allows for a more uniform dispersion of flavourant through the cross-section of tobacco rod 65 (compared to known machines which use a single head for adding flavourant to tobacco rod 65). This in turn helps to permit a higher concentration of flavourant, such as menthol, to be provided within tobacco rod 65 without increasing the risk of spotting. This is because spotting is generally most likely at regions of greatest concentration. However by providing a more uniform (and more symmetrical) distribution of flavourant within the tobacco rod 65 (compared to known machines), the total loading of flavourant within tobacco rod 65 can be increased without raising the maximum con-

centration at any one point, thereby helping to avoid any increased risk of spotting.

[0036] In the embodiment of Figure 2, the two heads 75A and 75B are disposed horizontally about the central longitudinal axis of tobacco rod 65. Note that in this embodiment, the effect of gravity on the flavourant dispersion region 110 is the same for both heads 75A, 75B, which can assist with uniformity and symmetry. In other embodiments, a somewhat different configuration of heads might be used. For example, the heads might be offset above or below the central longitudinal axis of tobacco rod 65, or rotated around from the horizontal - e.g. one head pointing upwards from below the central longitudinal axis of tobacco rod 65 and one head pointing downwards from above the central longitudinal axis of tobacco rod 65.

[0037] In other embodiments, there may be more than two heads 75 for injecting flavourant into tobacco rod 65. Figures 3A-3C show a variety of such embodiments. In the embodiment of Figure 3A, the two horizontally directed heads 75A, 75B from the embodiment of Figure 2 are supplemented by a third, downwardly directed head 75C, located above tobacco rod 65. In the embodiment of Figure 3B, there are again three heads, but in this embodiment the two heads 75A and 75B on the sides of the tobacco rod 65 are shifted downwards and rotated into a slightly upwards facing direction. This leads to a configuration which has rotational symmetry (of order 3) about the central longitudinal axis of the tobacco rod. In the embodiment of Figure 3C the two horizontally directed heads 75A, 75B from the embodiment of Figure 2 are supplemented by a third, downwardly directed head 75C, located above tobacco rod 65, and a fourth, upwardly directed head 75D, located below tobacco rod 65. The configuration of Figure 3C has rotational symmetry (of order 4) about the central longitudinal axis of the tobacco rod. The skilled person will be aware of other possible configurations for heads 75, further to those shown in Figures 3A-3C.

[0038] In some embodiments, different heads may be used to disperse different additives into the tobacco rod 65. For example, heads 75A and 75B in the configuration of Figure 3C may disperse one additive into tobacco rod 65, while heads 75C and 75D simultaneously disperse a second additive into the tobacco rod. In some situations, the multiple additives may interact or combine with one another. For example, one additive may be a binder to help a second additive, such as a flavourant, adhere to the tobacco.

[0039] Adding extra heads 75 to the flavourant adder 72 (compared to the pair of heads shown in the embodiment of Figure 2) can increase the uniformity and symmetry of the distribution of flavourant as provided within tobacco rod 65. This in turn may allow a higher loading of flavourant without (significantly) increasing the risk of spotting. On the other hand, adding extra heads 75 to the flavourant adder 72 also increases the complexity and cost of the flavourant adder 72.

[0040] Figure 4 illustrates a manufacturing apparatus for smoking articles in accordance with another embodiment which however does not fall within the scope of the present invention. The components of this embodiment are generally the same as those of Figure 1, except in relation to flavourant adder 72. Thus in the embodiment of Figure 4, flavourant adder comprises a single atomising head 92 for dispersing liquid additive within tobacco rod 65. The head 92 may be substantially the same as heads 75A and 75B described in relation to the embodiment of Figure 1. In other embodiments, head 92 may comprise a hypodermic needle (rather than an atomising spray). Head 92 may be connected to an appropriate reservoir of the liquid additive (not shown in Figure 4).

[0041] The flavourant adder of Figure 4 also includes a plough 91 that is located upstream of the head 92. Note that in some embodiments, plough 91 and head 92 may be formed as a single unit. The plough 91 causes a furrow to open in the tobacco stream 65 that goes past the plough. Head 92 is located in the furrow (slipstream) created by plough 91.

[0042] Figure 5 presents a further schematic illustration of the action of plough 91 and head 92 in accordance with one embodiment. Figure 5 depicts tobacco rod 65 travelling in the direction of arrow A past plough 91. The plough opens up a furrow or gap 210 in the tobacco rod, which extends downstream of the plough. Note that furrow 210 gradually narrows as it progresses further downstream from the plough, due to the natural dynamics and pressure within tobacco rod 65. Eventually the furrow closes (at the point indicated as 211 in Figure 5), whereupon tobacco stream 65 has returned substantially to its original geometry.

[0043] The head 92 is located within the furrow 210 created by the plough. As previously described in relation to the embodiment of Figure 1, head 92 (and also potentially plough 91) may be configured to retract from tobacco stream 65 if the flow of tobacco by conveyor 60 stops.

[0044] The arrangement of Figure 5 allows the head to penetrate more deeply into the tobacco stream 65 than for the embodiment of Figure 1. This in turn allows the head 92 to disperse liquid into the tobacco stream from close to the centre of the tobacco stream. Accordingly, a more uniform (rotationally symmetric) distribution of liquid within tobacco rod 65 can be obtained. This allows the loading of additive within the tobacco rod to be increased without raising the risk of spotting. Furthermore, because the additive is injected nearer to the centre of the tobacco rod, any excess concentration of additive that does occur will tend to be contained within the body of the tobacco rod, rather than migrating to the surface (where it could then manifest itself as visible spotting).

[0045] Figures 6A-6D are schematic cross-sections through tobacco rod 65, corresponding to arrows C1-C4 respectively from Figure 5, in accordance with one embodiment. In other words, a given portion of tobacco rod 65 passes through the stages of Figures 6A, 6B, 6C and then 6D in succession as it travels along conveyor 60.

Note that in Figures 6A-6D, tobacco rod 65 is assumed to have a substantially rectangular cross-section, although other embodiments may utilise a different cross-section for the tobacco rod - e.g. circular, ellipse, etc.

[0046] Figure 6A illustrates an upstream portion of the plough 91 in accordance with one embodiment. This portion of the plough is relatively narrow, and also relatively shallow, so that it can cleave open the tobacco rod 65 to form furrow 210. Figure 6B illustrates a more downstream portion of the plough 91 in accordance with one embodiment. This portion of the plough 91 is both wider and longer than in Figure 6A, thereby increasing the width and depth of furrow 210. This streamlined configuration of plough 91, small at the front, larger at the rear, provides minimal disruption to the tobacco stream 65 flowing past the plough (other than to open furrow 210). Note that the deepest portion of furrow 210, as shown in Figure 6B, extends approximately to the centre of tobacco rod 65.

[0047] Figure 6C illustrates the operation of head 92 within furrow 210 in accordance with one embodiment. Since the general tendency of furrow 210 is to close up as the tobacco progresses downstream of plough 91, furrow 210 in Figure 6C is narrower than shown in Figure 6B (but wider than shown in Figure 6A). Nevertheless, furrow 210 in Figure 6C is wide and deep enough to accommodate head 92, which is therefore able to disperse liquid from reservoir 120 internally into tobacco rod 65.

[0048] In one embodiment, head 92 disperses liquid into tobacco rod 65 from the tip of head 92, which is positioned at or close to the longitudinal central axis of tobacco rod 65. This leads to an approximate distribution of additive 220 within the tobacco rod 65 as shown in Figure 6C. It can be seen that the additive is concentrated within the central portion of tobacco rod 65, away from the surface of the tobacco rod, due to the central location of the point of injection from head 92. This helps to minimise spotting, which arises from excess additive adjacent to the surface of cigarettes.

[0049] The central location of the internal point of injection from head 92 also allows a more uniform (or rotationally symmetric) distribution of additive within tobacco rod 65. This again helps to achieve an increased loading of additive within the tobacco rod (compared to known machines which inject additive from one side), since there is less risk of concentrations of additive forming in particular areas, which might then lead to spotting.

[0050] In some embodiments, head 92 itself penetrates slightly into the tobacco rod (i.e. beyond the bottom of furrow 210), analogous to the situation depicted in Figure 2. This penetration by head 92 can assist with dispersal of the additive into the tobacco (and also prevent dispersal of the additive into furrow 210, which might then migrate relatively easily to the surface of tobacco rod 65).

[0051] The angle of dispersion from head 92 is fairly wide (compared to the narrower dispersion from heads 75A and 75B shown in Figure 2). For example, the dispersion from heads 75A, 75B occurs into a cone having a (half)-angle approximately in the range 20 and 65 de-

grees, e.g. approximately 30 degrees. In contrast, the conical (half)-angle of dispersion from head 92 is greater than 120 degrees, and may approach 180 degrees (depending on the size and geometry of the head 92 itself and furrow 210). The angle and also shape of dispersion from heads 75A, 75B and 92 can be controlled by appropriate head design. (The dispersion shape may not necessarily be conical, bearing in mind the longitudinal motion of the tobacco rod past the head).

[0052] In some embodiments, the angle of dispersion from head 92 may be relatively small, for example with a conical half-angle of 50 degrees or less, 30 degrees or less, or 15 degrees or less. A relatively narrow (constrained) output from head 92 is particularly suitable if it is desired to confine the additive to substantially the centre of the tobacco rod. In this case, the radius of the portion of the tobacco rod containing additive is small compared to the radius of the tobacco rod, for example perhaps only 50%, 30% or 15% of the radius of the latter.

This confined arrangement, with the flavourant bead located substantially along the central longitudinal axis of the tobacco rod, maintains a significant gap between the flavourant and the outer surface of the cigarette, and so helps to protect against spotting.

[0053] Figure 6D illustrates the tobacco rod downstream of head 92. In this position furrow 210 is starting to close up, due to natural motion within the tobacco rod as it is drawn along conveyor 60. In general, this closure of furrow 210 enhances the uniformity and symmetry of the additive distribution 220 within tobacco rod 65.

[0054] In the particular embodiment of Figure 4, the plough 91 and head 92 are shown entering the tobacco rod from the side. However, the plough 91 and head 92 may also enter the tobacco rod from the bottom or from the top (or from any other angle). Entry from the top may cause less disruption to the tobacco rod (apart from the creation of furrow 210).

[0055] Although Figures 4-6 illustrate the use of a static plough, in other embodiments, a rotary plough might be used. The axis of rotation of such a plough is substantially perpendicular to the flow direction of tobacco rod 65. In this case, the operation of the plough could be considered as somewhat analogous to a circular saw cutting into the tobacco rod 65. In one particular embodiment, the rotation speed of the plough cutting wheel is synchronised with the movement of the tobacco rod, so that the linear speed (velocity) of the edge of the wheel is the same as or similar to the speed of movement of the tobacco stream. This then provides comparatively little relative movement between the wheel and the tobacco rod at the point of cutting, which can help to avoid damage to the tobacco stream. In general, the configuration and operation of plough 91 for a given tobacco stream can be arranged to provide the most stable, reliable, and best-shaped furrow for that particular tobacco stream (and dispensing head).

[0056] The various embodiments described herein can be used to disperse a wide range of additives, including

flavourants, such as menthol, binders or adhesives, and so on. The additive can be in any appropriate form, such as a solution, undiluted, etc. The type of head used for dispersing the additive (e.g. atomising spray, hypodermic needle, etc) may depend on the particular properties of the desired additive. Likewise, in some cases the head may require heating for proper dispersal of the additive (for example, if the additive is otherwise rather viscous at room temperature).

[0057] In summary, the skilled person will be aware of many possible modifications and variations on the embodiments so far described. For example, although the present approach has been described generally in the context of cigarette manufacture, it can be applied to other tobacco products, e.g. cigars. Accordingly, the scope of the present invention is defined by the appended claims and their equivalents.

Claims

- 1. Apparatus for manufacturing a smoking article comprising:

a conveyor (60) for a tobacco rod (65), wherein in use the direction of conveyance is parallel to a central longitudinal axis of the tobacco rod; and an applicator (72) for applying a liquid additive to the tobacco rod on the conveyor, wherein said applicator comprises a plurality of dispersion heads (75A, 75B) for applying the liquid additive to the tobacco rod, wherein said plurality of dispersion heads has a configuration which is symmetric about said central longitudinal axis of the tobacco rod, **characterised in that** each of said plurality of dispersion heads is directed towards the central longitudinal axis of the tobacco rod.
- 2. The apparatus of claim 1, wherein the applicator is configured such that liquid additive received into the tobacco rod has a distribution in a cross-sectional plane perpendicular to the central longitudinal axis of the tobacco rod that is substantially symmetrical about said central longitudinal axis.
- 3. The apparatus of claim 1 or claim 2, wherein said plurality of dispersion heads has a configuration which is rotationally symmetric about the central longitudinal axis of the tobacco rod.
- 4. The apparatus of any of claims 1 to 3, wherein said applicator comprises a pair of dispersion heads disposed on opposite sides of the tobacco rod and wherein optionally said pair of dispersion heads are horizontally disposed with respect to the tobacco rod.
- 5. The apparatus of any of claims 1 to 4, wherein each

of said heads penetrates into the tobacco rod, and wherein optionally the distance of head penetration into the tobacco rod is small compared to the cross-sectional dimensions of the tobacco rod.

- 6. The apparatus of any of claims 1 to 5, wherein each of said heads is provided with its own reservoir (120) of liquid additive for application to the tobacco rod.
- 7. The apparatus of any preceding claim, wherein said applicator comprises a plough (91) for forming a furrow (210) in the tobacco rod downstream of the plough and wherein one of said heads is positioned so as to be located within the furrow and wherein optionally the furrow formed by the plough extends to approximately the central longitudinal axis of the tobacco rod.
- 8. The apparatus of claim 7, wherein the plough is static.
- 9. The apparatus of claim 7, wherein the plough is rotary and wherein optionally the plough has a linear speed at its edge that is approximately equal to the speed of the conveyed tobacco rod.
- 10. The apparatus of any of claims 7 to 9, wherein:

said head is positioned adjacent the base of the furrow to disperse the liquid additive; and/or said plough and said head are both positioned to enter the tobacco rod from above.
- 11. The apparatus of any of claims 7 to 10, wherein the dispensed additive is limited to a central region of the tobacco rod, and wherein the radius of said central region is small compared to the radius of the tobacco rod.
- 12. The apparatus of any preceding claim wherein said plurality of heads are for simultaneously dispersing the liquid additive into the tobacco rod.
- 13. The apparatus of any of claims 1 to 12, wherein each head of the applicator is configured to retract when the conveyor stops.
- 14. A method of manufacturing a smoking article comprising:

conveying a tobacco rod (65) in a direction parallel to a central longitudinal axis of the tobacco rod; and applying a liquid additive to the conveyed tobacco rod; wherein the liquid additive is applied to the tobacco rod by a plurality of dispersion heads (75A, 75B), wherein each of said plurality of dis-

persions heads is directed towards the central longitudinal axis of the tobacco rod and wherein said plurality of dispersion heads has a configuration which is symmetric about said central longitudinal axis of the tobacco rod.

Patentansprüche

1. Vorrichtung für die Herstellung eines Rauchartikels, umfassend:

ein Fördermittel (60) für einen Tabakstab (65), wobei die Förderrichtung bei der Verwendung parallel zu einer mittigen Längsachse des Tabakstabs liegt; und einen Applikator (72) zum Aufbringen eines flüssigen Zusatzmittels auf den Tabakstab auf dem Fördermittel, wobei der Applikator mehrere Dispersionsköpfe (75A, 75B) zum Aufbringen des flüssigen Zusatzmittels auf den Tabakstab umfasst, wobei die Mehrzahl von Dispersionsköpfen eine Konfiguration aufweist, die um die mittige Längsachse des Tabakstabs herum symmetrisch ist, **dadurch gekennzeichnet, dass** jeder der Mehrzahl von Dispersionsköpfen auf die mittige Längsachse des Tabakstabs hin ausgerichtet ist.

2. Vorrichtung nach Anspruch 1, wobei der Applikator so konfiguriert ist, dass das auf dem Tabakstab aufgenommene flüssige Zusatzmittel eine Verteilung in einer Querschnittsebene aufweist, die senkrecht zu der mittigen Längsachse des Tabakstabs liegt, der im Wesentlichen symmetrisch um die mittige Längsachse liegt.

3. Vorrichtung nach Anspruch 1 oder Anspruch 2, wobei die Mehrzahl von Dispersionsköpfen eine Konfiguration aufweist, die rotationell symmetrisch um die mittige Längsachse des Tabakstabs liegt.

4. Vorrichtung nach einem der Ansprüche 1 bis 3, wobei der Applikator ein Paar Dispersionsköpfe umfasst, die auf entgegengesetzten Seiten des Tabakstabs angeordnet sind und wobei wahlweise das Paar von Dispersionsköpfen mit Bezug auf den Tabakstab horizontal angeordnet ist.

5. Vorrichtung nach einem der Ansprüche 1 bis 4, wobei jeder der Köpfe in den Tabakstab eindringt und wobei wahlweise die Kopfeindringstrecke in den Tabakstab im Vergleich mit den Querschnittsdimensionen des Tabakstabs gering ist.

6. Vorrichtung nach einem der Ansprüche 1 bis 5, wobei jeder der Köpfe mit seinem eigenen Reservoir

(120) von flüssigem Zusatzmittel zum Aufbringen auf den Tabakstab ausgestattet ist.

7. Vorrichtung nach einem der vorhergehenden Ansprüche, wobei der Applikator einen Pflug (91) zum Bilden einer Furche (210) in dem Tabakstab stromabwärts von dem Pflug umfasst und wobei einer der Köpfe so positioniert ist, dass er sich innerhalb der Furche befindet und wobei die von dem Pflug gebildete Furche sich wahlweise bis etwa zur mittigen Längsachse des Tabakstabs erstreckt.

8. Vorrichtung nach Anspruch 7, wobei der Pflug statisch ist.

9. Vorrichtung nach Anspruch 7, wobei der Pflug drehbar ist und wobei der Pflug wahlweise eine lineare Geschwindigkeit an seiner Kante aufweist, die etwa der Geschwindigkeit des transportierten Tabakstabs gleich ist.

10. Vorrichtung nach einem der Ansprüche 7 bis 9, wobei:

der Kopf neben dem Boden der Furche positioniert ist, um das flüssige Zusatzmittel zu dispergieren; und/oder der Pflug und der Kopf beide so positioniert sind, dass sie in den Tabakstab von oben eintreten.

11. Vorrichtung nach einem der Ansprüche 7 bis 10, wobei das abgegebene Zusatzmittel auf einen mittleren Bereich des Tabakstabs begrenzt ist und wobei der Radius des mittleren Bereichs im Vergleich mit dem Radius des Tabakstabs klein ist.

12. Vorrichtung nach einem der vorhergehenden Ansprüche, wobei die Mehrzahl der Köpfe dem gleichzeitigen Dispergieren des flüssigen Zusatzmittels in den Tabakstab dient.

13. Vorrichtung nach einem der Ansprüche 1 bis 12, wobei jeder Kopf des Applikators so konfiguriert ist, dass er zurückgezogen wird, wenn das Fördermittel stoppt.

14. Verfahren zum Herstellen eines Rauchartikels, umfassend:

das Transportieren eines Tabakstabs (65) in einer Richtung parallel zu der mittigen Längsachse des Tabakstabs; und das Aufbringen eines flüssigen Zusatzmittels auf den transportierten Tabakstab; wobei das flüssige Zusatzmittel auf den Tabakstab durch eine Mehrzahl von Dispersionsköpfen (75A, 75B) aufgebracht wird, wobei jeder der Mehrzahl von Dispersionsköpfen auf die mittige

15	EP 2 117 365 B1	16
	Längsachse des Tabakstabs hin gerichtet ist und wobei die Mehrzahl von Dispersionsköpfen eine Konfiguration aufweist, die um die mittige Längsachse des Tabakstabs herum symmetrisch ist.	propre réservoir (120) d'adjuvant liquide en vue d'une application à la tige de tabac.
	Revendications	
1.	Appareil pour la fabrication d'un article à fumer, comprenant :	7. Appareil selon l'une quelconque des revendications précédentes, ledit applicateur comprenant une entailleuse (91) pour former un sillon (210) dans la tige de tabac en aval de l'entailleuse, et l'une desdites têtes étant positionnée de sorte à se trouver au sein du sillon et facultativement le sillon ainsi formé par l'entailleuse s'étendant jusqu'à environ l'axe longitudinal central de la tige de tabac.
	un convoyeur (60) pour une tige de tabac (65), cas dans lequel en utilisation le sens d'acheminement est parallèle à un axe longitudinal central de la tige de tabac ; et	8. Appareil selon la revendication 7, l'entailleuse étant statique.
	un applicateur (72) pour appliquer un adjuvant liquide à la tige de tabac sur le convoyeur, cas dans lequel ledit applicateur comprend une pluralité de têtes de dispersion (75A, 75B) pour appliquer l'adjuvant liquide à la tige de tabac, alors que ladite pluralité de têtes de dispersion présente une configuration qui est symétrique autour dudit axe longitudinal central de la tige de tabac,	9. Appareil selon la revendication 7, l'entailleuse étant rotative, et facultativement l'entailleuse ayant une vitesse linéaire au niveau de son bord laquelle est environ égale à la vitesse de la tige de tabac acheminée.
	caractérisé en ce que chaque tête de ladite pluralité de têtes de dispersion est dirigée vers l'axe longitudinal central de la tige de tabac.	10. Appareil selon l'une quelconque des revendications 7 à 9, ladite tête étant positionnée de façon adjacente à la base du sillon afin de disperser l'adjuvant liquide ; et/ou ladite entailleuse et ladite tête étant toutes les deux positionnées de façon à entrer dans la tige de tabac par le haut.
2.	Appareil selon la revendication 1, l'applicateur étant configuré de sorte que l'adjuvant liquide reçu dans la tige de tabac a une distribution suivant un plan transversal qui est perpendiculaire à l'axe longitudinal central de la tige de tabac qui est sensiblement symétrique autour dudit axe longitudinal central.	11. Appareil selon l'une quelconque des revendications 7 à 10, l'adjuvant distribué étant limité à une zone centrale de la tige de tabac, et le rayon de ladite zone centrale étant faible s'il est comparé au rayon de la tige de tabac.
3.	Appareil selon la revendication 1 ou la revendication 2, ladite pluralité de têtes de dispersion ayant une configuration qui est symétrique de façon rotationnelle autour de l'axe longitudinal central de la tige de tabac.	12. Appareil selon l'une quelconque des revendications précédentes, ladite pluralité de têtes étant destinée à disperser de façon simultanée l'adjuvant liquide dans la tige de tabac.
4.	Appareil selon l'une quelconque des revendications 1 à 3, ledit applicateur comprenant une paire de têtes de dispersion disposée sur des côtés opposés de la tige de tabac, et facultativement ladite paire de têtes de dispersion étant disposée dans le plan horizontal par rapport à la tige de tabac.	13. Appareil selon l'une quelconque des revendications 1 à 12, chaque tête de l'applicateur étant configurée de façon à se rétracter lorsque le convoyeur s'arrête.
5.	Appareil selon l'une quelconque des revendications 1 à 4, chacune desdites têtes pénétrant dans la tige de tabac, et facultativement la distance de pénétration de la tête dans la tige de tabac étant faible si elle est comparée aux dimensions transversales de la tige de tabac.	14. Procédé de fabrication d'un article à fumer, comprenant les opérations consistant à : acheminer une tige de tabac (65) dans un sens qui est parallèle à un axe longitudinal central de la tige de tabac ; et appliquer un adjuvant liquide à la tige de tabac acheminée ; cas dans lequel l'adjuvant liquide est appliqué à la tige de tabac par une pluralité de têtes de dispersion (75A, 75B), alors que chaque tête de ladite pluralité de têtes de dispersion est dirigée vers l'axe longitudinal central de la tige de tabac,
6.	Appareil selon l'une quelconque des revendications 1 à 5, chacune desdites têtes étant pourvue de son	

et que ladite pluralité de têtes de dispersion présente une configuration qui est symétrique autour dudit axe longitudinal central de la tige de tabac.

5

10

15

20

25

30

35

40

45

50

55

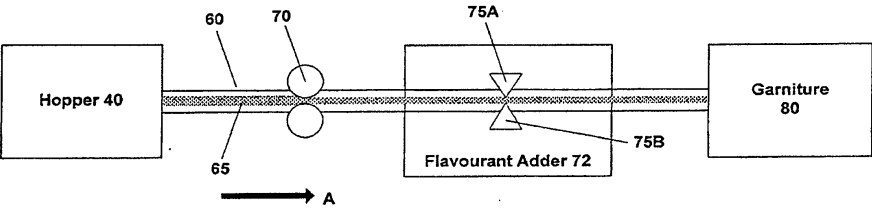


Figure 1

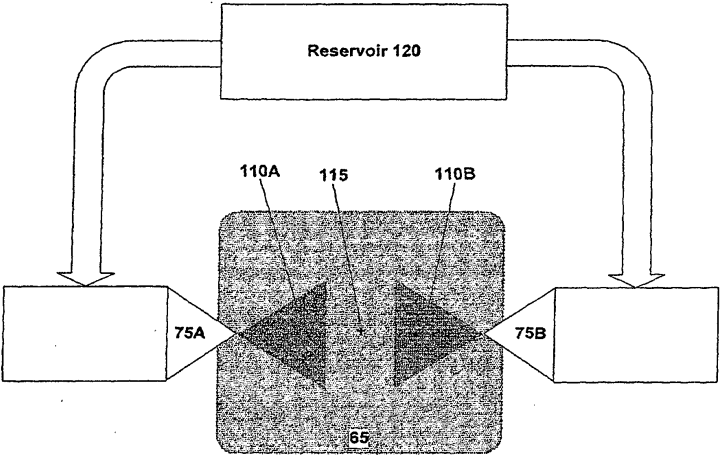


Figure 2

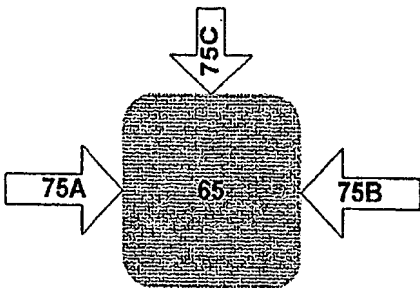


Figure 3A

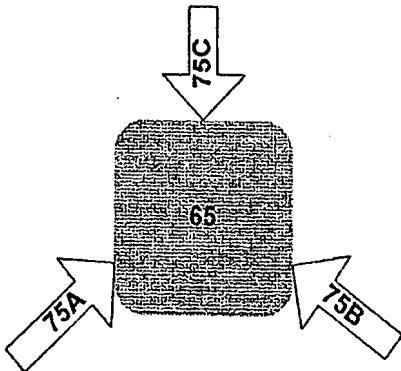


Figure 3B

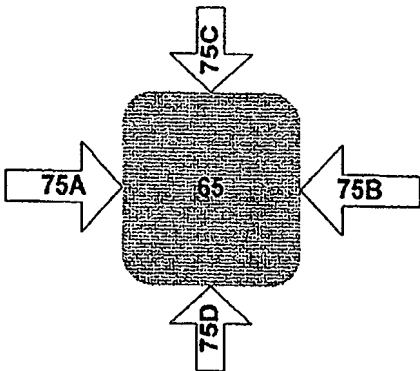


Figure 3C

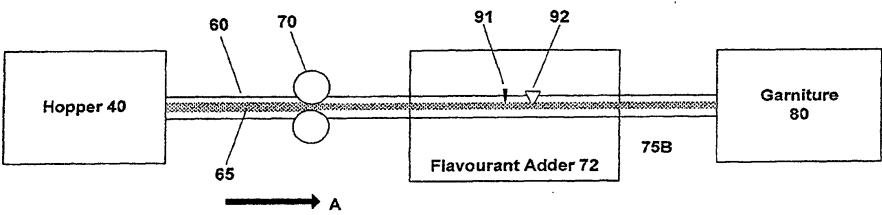


Figure 4

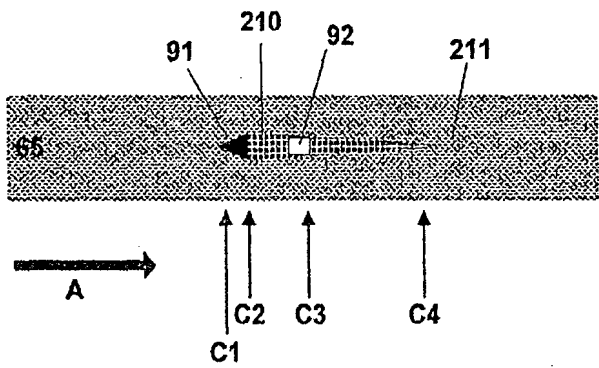


Figure 5

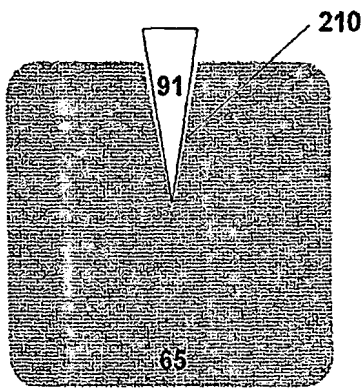


Figure 6A

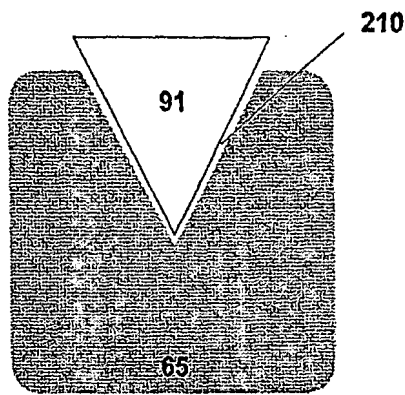


Figure 6B

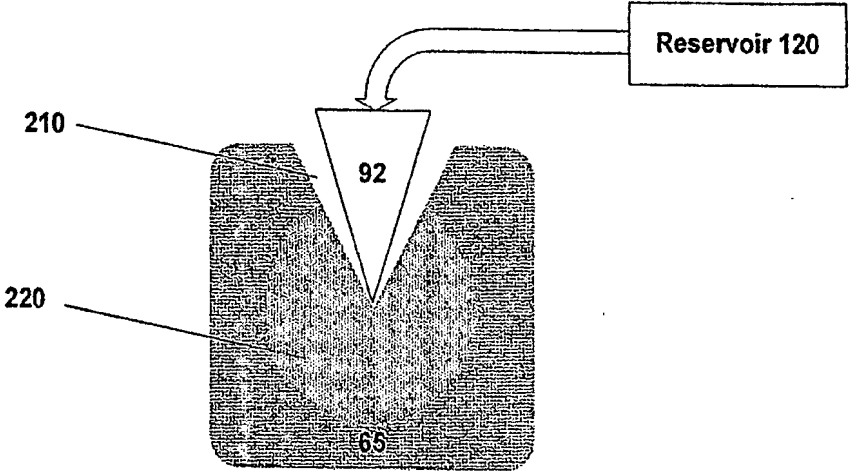


Figure 6C

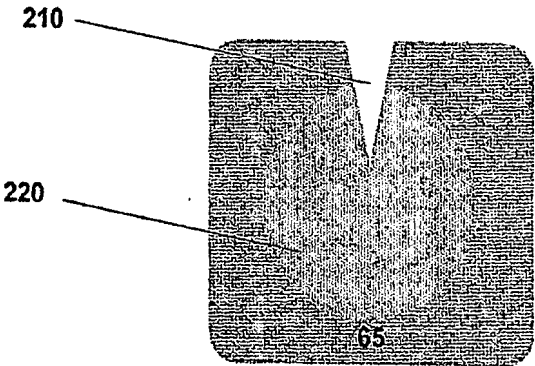


Figure 6D

29

EP 2 117 365 B1

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 2006010895 A, Kaymich [0003]
- EP 0405929 A2 [0009]

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO NIT : 800.176.089-2 - / -					
 Industria y Comercio SUPERINTENDENCIA	RECIBO DE CAJA			No. 13 - 000845	
				Bogotá D.C., Enero 04 de 2013 - 16:00:04	
RECIBIDO DE : BAKER & MCKENZIE				NI 900.034.906	
*** Soporte del Pago ***					
TIPO PAGO	BANCO	CUENTA	No. PAGO	FECHA PAGO	VR. PAGO
CONSIGNACION	BANCO DE BOGOTA	062754387	189773813	04/01/2013	2.145.000.00
*** Conceptos Pagados ***					
CANT.	RENTISTICO	CONCEPTO	Vr.UNDITARIO	Vr. CONCEPTO	
2 50005-01-01	SOLICITUDES	1607 REIVINDICACION PATENTE UNITARIA ADICIONAL A LAS 10 INIC	30.000.00	60.000.00	
				\$60.000.00	
=====					
SON: **SESENTA MIL PESOS MONEDA CORRIENTE***					
Responsable: 			SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO		
Recibo de Caja Aplicado al Expediente No. _____					
			No. 09-082942- -00009-0000		
			Fecha: 2013-01-04 16:30:48 Dep. 2020 DIR.NUEVASCR		
			Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI		
			Act. 523 RESPUESTA Folios: 30		
Sede Centro: Carrera 13 No. 27 - 00 Pisos 3,4,5 y 10 Bogotá, D.C.- Colombia					
Web: www.sic.gov.co e-mai: info@sic.gov.co Conmutador: (571) 5870000 Fax: (571) 5870284 Línea: 018000-910165 Call Center: (571) 6513240					
Enero 4 de 2013 - 16:00:04					