



No. 06-096297- -00001-0000

Fecha: 2007-09-19 16:36:34 Dep. 2020 NUECREACIONE
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 535 PETICION Folios: 2

Señora

Alix Carmenza Céspedes de Vergel

Jefe de División de Nuevas Creaciones

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

E. _____ S. _____ D. _____

Referencia: Expediente No. 06.096.297

Solicitud de Patente de Invención titulada: "Artículo y aparato para fumar y proceso para la elaboración de un artículo para fumar"

Solicitante: British American Tobacco (Investments) Limited

SOLICITUD DE EXAMEN DE PATENTABILIDAD SEGÚN EL ARTÍCULO 44 DE LA DECISIÓN

486. GACETA NO. 574

ÁLVARO CORREA ORDÓÑEZ, mayor de edad y vecino de Bogotá D.C., identificado según aparece al pie de mi firma, en mi condición de apoderado de la sociedad arriba mencionada, solicito que se examine la invención de la referencia según los requisitos de patentabilidad previstos en la Decisión 486 de la Comisión de la Comunidad Andina de Naciones. Adjunto recibo de caja por valor de \$404.000 para cubrir la tasa correspondiente según la Resolución 36155 del 28 de diciembre de 2006.

Atentamente,

ÁLVARO CORREA ORDÓÑEZ

C.C.No.79.143.366 de Usaquén

T.P.20.281

Anexo: Recibo de caja No. 07-61410 y 07-66616 por valor de \$404.000

166



Industria y Comercio

169

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO



Nº. 06-096297- -00001-0000

Fecha: 2007-09-19 18:36:34 Dep. 2020 NUECREACIONE
Tra. 11 PATENTEIYII Eve: 378 FASENACIONALI
Act. 538 PETICION Folios: 2

SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO

NIT : 800176089-2

RECIBO OFICIAL DE CAJA : 07 - 61,410
FECHA : JULIO 30 DE 2007

***** CONSIGNACION *****

DEPOSITANTE	TIPO PAGO	BANCO	CUENTA	Nº. PAGO	FECHA PGO	Vr. PAGO
PAISBECK LARA RODRIGUEZ	CONSIGNACION	BANCO POPULAR	050-00110-6	37198962	30/07/2007	41,379,000.00

***** CONCEPTO *****

CANT.	RENTISTICO	CONCEPTO	TOTAL CONCEPTO
1	50005-01-01	SOLICITUDES	
		114 PTC CAP-II EXAMEN DE PATENTIBILID	202,000.00
		TOTAL :	\$ 202,000.00

SON: DOSCIENTOS DOS MIL PESOS

RESPONSABLE :



[54] CARBON FILLED WRAPPER FOR SMOKING ARTICLE

[75] Inventors: Stuart W. McCarty, Brevard; Donald T. Owen, Hendersonville; William F. Owens, Jr., Pisgah Forest, all of N.C.

[73] Assignee: Olin Corporation, Pisgah Forest, N.C.

[22] Filed: Nov. 24, 1971

[21] Appl. No.: 201,837

[52] U.S. Cl. 131/8, 131/15 R
[51] Int. Cl. A24d 1/02
[58] Field of Search. 131/15, 17, 2

[56] References Cited
UNITED STATES PATENTS

3,608,560	9/1971	Briskin et al.	131/2
3,145,717	8/1964	Osborne et al.	131/140
1,909,924	5/1933	Schweitzer et al.	131/15 R
2,754,207	7/1956	Schurz et al.	131/15 R
2,114,281	4/1938	Allen	131/17 R
253,841	2/1882	Carpenter	131/15 R X

OTHER PUBLICATIONS

Davis "Manufacture of Paper"(text) page 581 cited entitled Improved Cigarette Paper pub by Henry Carey Baird and Co. 1886

Primary Examiner—Melvin D. Rein
Attorney—Robert W. Habel

[57] ABSTRACT

A carbon filled wrapper for smoking articles such as cigarettes, cigars and the like which significantly reduces the total particulate matter yield and organic vapor phase constituents in the mainstream smoke therefrom while simultaneously reducing the visible sidestream smoke. The carbon filled wrapper is preferably used as an inner wrapper for the tobacco column in combination with an outer wrapping of conventional cigarette paper or cigar wrap. The carbon content of the wrapper may vary over a wide range depending upon the effect desired. Various types of carbon, either activated or unactivated, may be used. Increased effects may be obtained if calcium carbonate is incorporated in the carbon filled sheet and the effects are further enhanced if the paper is treated with an oxidation catalyst such as the alkali metal hydroxides, bicarbonates and carbonates. The paper is also particularly suited as a means for introducing various flavorants to the cigarette since the carbon holds the flavor until released by the heat of the burning zone.

10 Claims, No Drawings

1
CARBON FILLED WRAPPER FOR SMOKING ARTICLE

BACKGROUND OF THE INVENTION

This invention relates generally to smoking articles such as cigarettes, cigars and the like, and the wrapper for the tobacco column thereof, and more particularly to an improved wrapper for such smoking articles which when used either by itself or as an inner liner in combination with conventional wrappers significantly reduces particulate and vapor phase constituents in the smoke drawn through the smoking article as well as reducing the amount of visible sidestream smoke that normally emanates therefrom.

It has been the practice for a number of years to use various smoke filtering devices in cigarettes and other smoking articles to reduce the amount of certain constituents in the smoke. While some of these devices have been relatively successful, they still leave much to be desired in the way of reducing many of the materials found in cigarette smoke. Cigarette papers are conventionally modified by the addition of various burning chemicals to improve the burning rate and ash characteristics of cigarettes as disclosed in U.S. Pat. Nos. 2,580,611, 2,652,834, and 2,733,720, but such papers have little, if any, effect upon the content of the cigarette smoke. Also, it is well known to use a calcium carbonate filter in the production of cigarette paper to improve the appearance and properties of the paper as the above patents disclose. However, such conventional cigarette papers do not have a significant effect upon the reduction of undesirable constituents in the cigarette smoke.

A composite wrapper for cigarettes is disclosed in U.S. Pat. No. 3,395,714 in which the outer wrapper is conventional cigarette paper and the inner wrapper next to the tobacco column is a low-temperature melting point, heat-insulating plastic sheet material. Such a combination is stated to decrease the burning zone temperature of the cigarette resulting in a lengthening of the cigarette's low temperature distillation zone and an increase in the nicotine and flavor content of the smoke.

Various metal coated cigarette papers have also been suggested in the prior art. For example, U.S. Pat. No. 3,586,005 proposes a cigarette paper wrapper in which the paper is coated on either or both surfaces with a thin layer of a metal such as aluminum or aluminum-base alloys. The patentee asserts that cigarettes made with such wrappers have a higher peak burning temperature and form a relatively continuous and unbroken sheath or tube around the burned and burning tobacco. This tube is stated to oppose air entering the burning zone radially and acts as a lengthwise conduit for the air so that more air passes through the burning zone over its entire cross section making more oxygen available for more complete combustion and higher burning temperatures. However, the use of such metal coated paper as a wrapper for cigarettes is impractical since the long ash produced tends to pull the burning cone out of the cigarette when the ash is knocked off during smoking.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a means for reducing the particulate and gaseous ingredients in the smoke of cigarettes, cigars and the like. A specific ob-

ject is to provide a means for reducing the quantity of gaseous components in cigarette and cigar smoke as well as reducing the particulate constituents thereof as the smoking article is consumed without impairing the smoking characteristics thereof. A more specific object is to provide a wrapper for the tobacco column of cigarettes, cigars and the like which accomplishes the foregoing objects.

In accordance with this invention we have found that by using a carbon filled wrapper for the tobacco column of a cigarette, cigar or similar smoking article that the mainstream smoke therefrom contains a reduced quantity of organic vapor phase components, and total particulate matter normally found in the smoke of such smoking articles made with conventional wrappers. In addition, the visible sidestream smoke from the cigarette or cigar is substantially reduced giving the appearance of a smokeless cigarette or cigar during static burning.

The carbon filled wrappers of this invention may be made using an ordinary paper furnish such as pulped wood or flax fibers to which is added a sufficient quantity of pulverized carbon filler. The furnish of fiber pulp and carbon filler is then used to make a paper sheet on conventional paper-making machines. The particular fiber furnish from which the carbon filled wrapper is made is not critical and any of the cellulosic fiber pulps used in paper making can be employed. The fiber pulps customarily used to make paper wrappers for cigarettes or the tobacco materials used to make cigar wrap are preferred. Thus, in addition to wood and flax fibers, the furnish may be pulped tobacco stalks or stems to which is added the carbon filler or the carbon may be added to the furnish used in making reconstituted tobacco sheets for cigar wrap.

Ideally, the carbon filled paper is used as an inner wrap under a normal outer wrap for the tobacco column of the cigarette or cigar. Conventional cigarette paper or cigar wrap is used as the outer wrapping for the smoking article. Such a combination reduces the tobacco weight necessary to make a satisfactory product, increases the tobacco rod firmness and does not alter the appearance of the cigarette or cigar since the outer wrap of conventional cigarette paper or cigar wrap hides the grey carbon filled inner liner.

In the case of cigarettes the construction is such that the carbon filled paper inner wrap can be sealed or unsealed. If left unsealed, the sealed outer wrap holds the inner wrap around the circumference of the cigarette.

The carbon content of the wrapper may vary over a wide range depending upon the reduction of vapor phase and particulate matter desired. Carbon amounts of at least 5 percent by weight based upon the weight of the paper will give satisfactory results and amounts as high as 90 percent can be used successfully. Higher amounts of carbon filler tend to produce greater reductions in particulate and vapor phase constituents. Either activated or unactivated carbon can be used in the carbon filled wrapper, although activated carbons are preferred. Carbons ranging from pulverized coal to very high activity coconut shell charcoal have been used successfully. Other typical examples are activated wood carbons, activated mill waste carbons, activated coal and petroleum base carbons, unactivated bituminous coal, and pulverized charcoal briquettes.

From an appearance standpoint, the particle size of the carbon should be small enough so that visible lumps

do not show in the paper. This is generally more important when the filled sheet is used as an inner wrap in cigarettes since larger carbon particles produce visible lumps under the cigarette paper outer wrap. With cigars such lumps would be less noticeable and therefore not objectionable. Preferably, the carbon is finely pulverized and we have found that particulate carbon that will pass through an 80 mesh screen or smaller is a desirable size range.

The carbon filled wrapper produces the desired effect without the addition of any of the commonly used cigarette paper or cigar wrap burning chemicals. However, the use of burning chemicals appears to act synergistically with the carbon to provide enhanced results in reduction of vapor phase components and total particulate matter in the smoke in addition to providing better burning rate control. The most efficient burning chemicals that we have found are the alkali metal hydroxides, bicarbonates and carbonates, although there are many other commonly known burning chemicals that can be used such as citrate, phosphate and nitrate salts. It is also possible to use burning retardants in combination with the carbon filler to modify the combustion properties of the wrapper.

As discussed above, carbon in the wrapper alone provides most of the beneficial effects in smoking articles. However, the use of an alkaline earth metal carbonate such as calcium or magnesium carbonate as an additional filler material in the wrapper stock further enhances the effects obtained over the use of carbon as the sole filler material. Total particulate matter yield and the major organic vapor phase yield are significantly reduced by the addition of calcium carbonate to the carbon filled paper even when as little as 5 percent calcium carbonate by weight of the paper is added. Maximum reductions appear to be obtained with a total filler level of approximately 50 percent to 80 percent by weight in the wrapper using carbon as the sole filler or a carbon/calcium carbonate filler mixture containing at least 5 percent calcium carbonate by weight of the finished paper. Carbon/calcium carbonate ratios may be varied as desired to produce different yields of total particulate matter, major organic vapor phase components in the mainstream smoke, or the degree of visibility of the sidestream smoke.

The porosity of the carbon filled paper can be tailored to fit the requirements of the finished cigarette or cigar such as the air dilution of the smoke desired. When the carbon filled paper is used as an inner wrap, the porosity can vary over a wide range since porosity of the total wrapper in the finished cigarette or cigar can be controlled with the regular outer wrap.

This invention also provides an excellent method for the addition of flavorants to a cigarette or cigar since they are easily added to the carbon filled paper. The carbon holds the flavorant until it is released by the heat of the burning zone to go into the sidestream or mainstream smoke. Menthol, vanillin, and glycyrrhiza are examples of common flavorings for cigarettes and cigars that have been added to the carbon filled paper and used with very satisfactory results.

Greater than 50 percent reductions in the total particulate matter yield and major organic vapor phase yield in cigarette smoke have been achieved in cigarettes made with carbon filled paper wrappers in accordance with this invention. Similar dramatic effects are obtained in reducing the visible sidestream smoke.

While we do not know with certainty why such reductions occur, it has been determined that the carbon filled wrapper normally increases the burning temperature of the smoking article. It is believed that this increase in burning temperature, particularly at the skin of the cigarette or cigar, is important in reducing yields in the smoke from cigarettes or cigars employing carbon filled paper wrappers, also the carbon in the wrapper downstream from the burning zone may tend to adsorb certain constituents in the smoke.

PREFERRED EMBODIMENTS

Typical results demonstrating the effects obtained in accordance with this invention are described in the following examples which are illustrative of the invention only and are not in limitation thereof.

EXAMPLE I

Sample cigarettes were prepared using a carbon filled paper inner wrap for the tobacco column and a regular cigarette paper outer wrap. All samples were 70mm in length and approximately 8mm in diameter. The carbon filled paper inner wrap was made conventionally from flax fiber pulp using an activated wood pulp carbon filler. The particle size of the carbon was such that it would all pass through an 80 mesh screen and approximately 25 to 50 percent would pass through a 325 mesh screen. The final carbon filled sheet had a basis weight of 60 g/m² and contained about 70 percent by weight carbon. In half the samples prepared, the carbon filled paper for the inner wrap was further treated with an oxidation catalyst consisting of 5 percent solution of sodium carbonate. For control purposes, identical cigarette samples were prepared without a carbon filled paper inner wrap using the same tobacco and cigarette paper. The following table sets forth the results obtained given as a per cent of the property measured as compared with the control cigarette having no carbon filled paper inner wrap, measuring the smoke obtained from burning 60mm of the tobacco column of each cigarette.

TABLE I

Property measured	Control cigarette (percent)	Cigarette with plain carbon filled paper inner wrap (percent)	Cigarette with 5% Na ₂ CO ₃ treated carbon filled paper inner wrap (percent)
Mainstream total particulate matter yield.....	100	77	48
Mainstream major organic vapor phase yield.....	100	70	40
Visible sidestream smoke.....	100	53	20
Burning rate.....	100	95	150
Burning zone temperature.....	100	115	120

As the results in the above table clearly show, the total particulate matter yield and major organic vapor phase yield in the mainstream smoke from cigarettes with the carbon filled inner wrap are substantially reduced when compared with the control cigarettes having a conventional cigarette paper wrapper. Very substantial reductions were also obtained in the visible sidestream smoke.

EXAMPLE II

A number of carbon filled papers were prepared with different activities, types and amounts of carbon filler,

both with and without additional calcium carbonate filler. Some of the papers were also additionally treated with oxidation catalysts. The particle size of each of the carbons tested was such that they would pass through an 80 mesh screen or smaller. The carbon filled papers were made by conventional papermaking techniques using flax pulp as the basic fiber and the weight of each of the finished sheets was approximately 60 g/m². Each of the carbon filled sheets was then used in making a cigarette 70mm long and approximately 8mm in diameter with the carbon filled sheet as the inner wrap for the tobacco column under a conventional cigarette paper outer wrap. Identical control cigarettes were prepared from the same tobacco and using the same cigarette paper wrapping but without any carbon filled paper inner wrap. In the following table the results are given as a per cent of the property measured compared with the control cigarettes having no carbon filled paper inner wrap. All results are based on the smoke obtained from burning 60mm of each cigarette with approximately 10 standard 35cc puffs per cigarette.

TABLE 2

Comparison of Activated and Unactivated Carbons

Description	T.P.M. Yield Main-stream	Vapor Phase Acrolein Yield Main-stream	Sidestream T.P.M. Yield
Carbon filled paper inner wrap containing 70% carbon by weight			
High Activity Wood Carbon; 72 mg Carbon per Cigarette	73%	61%	64%
Medium Activity Mill Waste Carbon; 72 mg Carbon per cigarette	77%	54%	55%
Unactivated Bituminous Coal; 72 mg Carbon per Cigarette	89%	98%	78%
Unactivated Pulverized Charcoal Briquets; 72 mg Carbon per Cigarette	85%	89%	77%

TABLE 3

Effect with Addition of Calcium Carbonate Filler

Description	T.P.M. Yield Main-stream	Vapor Phase Acrolein Yield Main-stream	Sidestream T.P.M. Yield
Carbon filled paper inner wrap			
Medium Activity Mill Waste Carbon; Paper contained 70% Carbon by weight; 72 mg Carbon per cigarette, No. CaCO ₃	77%	54%	54%
Medium Activity Mill Waste Carbon; Paper Contained 50% Carbon by weight; 52 mg Carbon per Cigarette, 20 mg CaCO ₃	74%	61%	67%
Medium Activity Mill Waste Carbon; Paper Contained 30% Carbon by weight; 31 mg Carbon per Cigarette, 41 mg CaCO ₃	74%	59%	72%
Medium Activity Mill Waste Carbon; Paper Contained 10% Carbon by weight; 10 mg Carbon per Cigarette, 62 mg CaCO ₃	74%	60%	78%

TABLE 4

Effects with Calcium Carbonate and Burning Chemical

Description	T.P.M. Yield Main-stream	Vapor Phase Acrolein Yield Main-stream	Sidestream T.P.M. Yield
Carbon Filled Paper Inner Wrap			
High Activity Wood carbon; Paper Contained 70% Carbon by weight; Paper Treated with 2.0% Solution of Na ₂ CO ₃ ; 72 mg Carbon per Cigarette, No CaCO ₃	66%	44%	32%

High Activity Wood Carbon; Paper Contained 50% Carbon by weight; Paper Treated with 1.5% Solution of Na ₂ CO ₃ ; 52 mg Carbon per Cigarette, 20 mg CaCO ₃	73%	19%	40%
High Activity Wood Carbon; Paper Contained 30% Carbon by weight; Paper Treated with 1.0% Solution of Na ₂ CO ₃ ; 31 mg Carbon per Cigarette, 41 mg CaCO ₃	81%	13%	52%
High Activity Wood Carbon; Paper Contained 10% Carbon by weight; Paper Treated with 0.5% Solution of Na ₂ CO ₃ ; 10 mg Carbon per Cigarette, 62 mg CaCO ₃	83%	56%	65%

Similar beneficial results are obtained using carbon filled wrappers made from wood pulp both with and without the addition of calcium carbonate as the filler. Also, while all of the above cigarettes tested employed the carbon filled paper as an inner wrap under the conventional cigarette paper outer wrap for the tobacco column, other samples tested using the carbon filled paper as the sole wrapper produced similar reductions in the particulate and vapor phase yields of the cigarettes. Likewise, comparable results are obtained with carbon filled wrappers used as cigar wrap.

The effectiveness of the carbon filled wrapper of this invention for cigarettes and cigars is quite apparent from the foregoing illustrative examples. Many variations will become apparent to those skilled in the art, and the invention is not limited to the preferred embodiments shown. Various modifications and changes may be made without departing from the spirit and scope of the invention as defined in the following claims.

What we claim is:

1. A smoking article of generally cylindrical form comprising a tobacco charge, an intermediate wrapper for said tobacco charge, said intermediate wrapper comprising a combustible porous paper sheet of cellulosic fibers and finely pulverized carbon particles, said carbon particles constituting at least 5 percent by weight of said sheet, and an outer wrapper for said tobacco charge selected from the group consisting of conventional cigarette paper and cigar wrap having good combustibility, said outer wrapper encircling and in contact with said intermediate wrapper, whereby upon burning of the smoking article a substantial decrease in the visible sidestream smoke emanating therefrom is manifested while also reducing the constituents in the mainstream smoke as compared to a smoking article of the same composition without said intermediate wrapper.

2. The smoking article of claim 1 in which said intermediate wrapper contains an alkaline earth metal carbonate, said carbonate constituting at least 5 percent by weight of the intermediate wrapper.

3. The smoking article of claim 2 in which the alkaline earth metal carbonate is calcium carbonate.

4. The smoking article of claim 1 in which the finely pulverized carbon used in said intermediate wrapper is medium to highly activated.

5. The smoking article of claim 1 in which the intermediate wrapper contains a flavorant absorbed by the carbon.

6. A composite wrapper adapted to encircle a tobacco charge in a smoking article, said wrapper constituting two superposed sheets, the first of said sheets comprising a porous paper sheet of combustible cellulosic fibers and finely pulverized carbon particles, said carbon particles constituting at least 5 percent by

3,744,496

7

weight of the paper sheet, and the second of said sheets selected from group consisting of conventional cigarette paper and cigar wrap having good combustibility, whereby when the composite wrapper is employed as the wrapper for a tobacco charge, with the first said sheet positioned intermediate the tobacco charge and the second said sheet, a substantial decrease in the visible sidestream smoke emanating from the smoking article is manifested during burning while also reducing the constituents in the mainstream smoke as compared to a smoking article of the same composition without said intermediate wrapper.

8

7. The composite wrapper of claim 6 in which the first said sheet contains an alkaline earth metal carbonate, said carbonate constituting at least 5 percent by weight of the first said sheet.

8. The composite wrapper of claim 7 in which the alkaline earth metal carbonate is calcium carbonate.

9. The composite wrapper of claim 6 in which the finely pulverized carbon used in the first said sheet is medium to highly activated.

10. The smoking article of claim 6 in which the first said sheet contains a flavorant absorbed by the carbon.

* * * * *

15

20

25

30

35

40

45

50

55

60

65

02= EP 0533423



United States Patent ^[19]

Jones et al.

US005307823A

[11] Patent Number: 5,307,823

[45] Date of Patent: May 3, 1994

U.S. Patent

May 3, 1994

5,307,823

[54] ROD OF SMOKING MATERIAL AND CIGARETTES MADE THEREFROM

[58] Field of Search 131/331, 342, 365, 336, 131/361

[75] Inventors: David H. Jones, Leigh-on-Sea; Jerzy Kijowski, Billericay, both of England

[56] References Cited

U.S. PATENT DOCUMENTS

[73] Assignee: Rothmans International Services Limited, United Kingdom

3,640,285 2/1972 Briskin 131/365
3,744,496 7/1973 McCarty et al. 131/342
4,924,888 5/1990 Perfetti et al. 131/331 X

[21] Appl. No.: 945,876

Primary Examiner—William H. Grieb
Attorney, Agent, or Firm—Diller, Ramik & Wight

[22] Filed: Sep. 17, 1992

[57] ABSTRACT

[30] Foreign Application Priority Data

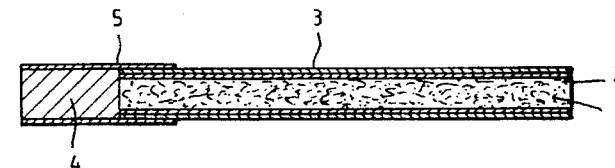
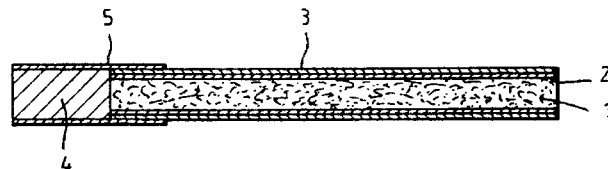
Sep. 19, 1991 [GB] United Kingdom 9120060

A rod of smoking material having an inner wrapper of sidestream reducing paper containing carbon as part of its total filler content and an outer overwrapping cigarette paper.

[51] Int. Cl.⁵ A24D 1/02

[52] U.S. Cl. 131/331; 131/342; 131/365

11 Claims, 1 Drawing Sheet



ROD OF SMOKING MATERIAL AND CIGARETTES MADE THEREFROM

This invention relates to a rod of smoking material and a cigarette produced therefrom that gives reduced levels of sidestream smoke whilst maintaining acceptable smoke taste, puff number and tactile characteristics.

According to the present invention a rod of smoking material has an inner wrapper of sidestream reducing paper containing carbon as part of its total filler content and an outer overwrapping cigarette paper.

The outer wrapping can be a conventional cigarette paper or a low sidestream cigarette paper made and supplied by, for example Ecusta (a Division of P.H. Glatfelter Co.), Papeteries de Mauduit, or Kimberly-Clark Corporation.

The inner and outer wrappers can be of different porosity and it has been found that unexpected results for the burn rates of cigarettes with this type of construction can be obtained.

For example, use of a carbon-filled paper with a porosity of 12 CORESTA gave a static burn rate of 4 mm/min but when overwrapped with a paper of porosity 120 CORESTA a burn rate of 5.2 mm/min was obtained. This resulted in a cigarette having two less puffs than the cigarette which has the carbon filled paper, in addition the overwrapped cigarette gave rise to greater sidestream reduction (53%) relative to the cigarette with just the carbon paper (30%).

The tobacco rod can be attached to a filter element and the invention also includes a cigarette incorporating such a smoking material rod.

The cigarette rod and a cigarette incorporating the rod can be made in various ways and the accompanying drawing is a cross-section view through a cigarette incorporating the invention.

As shown in the drawing the cigarette comprises a rod of smoking material, for example, tobacco 1 which is located within an inner wrapper 2 made from a sidestream reducing paper containing carbon. The inner wrapper is enclosed within an overwrapping outer wrapper 3 made from a conventional cigarette paper or from a low sidestream cigarette paper. A conventional filter element 4 made from, for example, cellulose acetate, polypropylene, paper or web materials is attached to the cigarette rod by a tipping paper 5.

A range of cigarette design parameters relating to cigarettes incorporating the invention are set out below.

RANGE OF CIGARETTE PARAMETERS		
PARAMETER	RANGE	PREFERRED VALUES
Cigarette length (mm)	50-140	60-100
Tobacco rod length (mm)	40-100	50-90
Filter length (mm)	5-40	10-30
Tobacco rod circumference (mm)	10-30	17-25
Tobacco rod density (mg/cc)	120-300	180-275
Inner paper porosity (CORESTA units)	4-130	10-30
Outer paper porosity (CORESTA units)	4-300	20-300

Cigarette paper parameters for the invention are also shown as follows.

PAPER SPECIFICATION		
PARAMETER	RANGE	PREFERRED VALUES
INNER PAPER		
Basis Weight g/m ²	20-60	35-50
% Carbon in filler	5-20	8-15
% Mg(OH) ₂ in filler	5-20	6-11
% CaCO ₃ in filler	5-20	15-20
Porosity (CORESTA units)	4-130	5-20

Although the invention is not limited to the particular parameters set out above they provide sufficient details to make cigarettes according to the invention.

If desired the outer wrapper can be impregnated with or incorporate flavour components to improve the flavour of mainstream smoke and the aroma of sidestream smoke. Alternatively this can be achieved, for example, by impregnating the carbon portion of the filler material in the paper or by incorporating a flavour component in the filler materials.

Additionally, irritant reducing and impact enhancing compounds can be added to the filler.

Carbon used in the filler can have a range of surface areas and activities. Typically the surface areas of the carbon used can be in the range of 200 to 2000 m²g⁻¹ with activities (measured by the Carbon Tetrachloride method of absorption) in the range of 20 to 150%.

We claim:

1. A rod of smoking material having an inner wrapper of sidestream reducing paper and an outer overwrapping cigarette paper, said sidestream reducing paper having a basis weight in the range of 35 g/m² to 50 g/m², a porosity of between 5 and 20 coresta units, and has a filler content which includes 8% to 15% carbon, 6% to 11% magnesium hydroxide (Mg(OH)₂) and 15% to 20% calcium carbonate (CaCO₃).

2. A rod of smoking material as claimed in claim 1 in which the outer wrapping is a conventional cigarette paper or a low sidestream cigarette paper.

3. A rod of smoking material as claimed in claim 2 in which the inner wrapper and outer wrapping are of different porosity.

4. A rod of smoking material as claimed in claim 1 in which the outer overwrapping is impregnated with or incorporates a flavour component.

5. A rod of smoking material as claimed in claim 1 in which the carbon portion of the filler is impregnated with a flavour component.

6. A rod of smoking material as claimed in claim 1 in which the filler material incorporates a flavour component.

7. A rod of smoking material as claimed in claim 1 in which an irritant reducing compound is added to the filler.

8. A rod of smoking material as claimed in claim 1 in which an impact enhancing compound is added to the filler.

9. A rod of smoking material as claimed in claim 1 in which the surface area of the carbon used in the filler is in the range of 200 to 2000 m²g⁻¹ with activities (measured by the Carbon Tetrachloride method of absorption) in the range of 20% to 150%.

10. A rod of smoking material as claimed in claim 1 in which is attached to a filter element.

11. A rod of smoking material having an inner wrapper of sidestream reducing paper and an outer overwrapping cigarette paper, said outer overwrapping cigarette paper being low sidestream cigarette paper, said sidestream reducing paper of said inner wrapper having a basis weight in the range of 35 g/m² to 50 g/m², a porosity of between 5 and 20 coresta units, and has a filler content which includes 8% to 15% carbon, 6% to 11% magnesium hydroxide (Mg(OH)₂) and 15% to 20% calcium carbonate (CaCO₃).



US 2004/0154630A1

(19) United States

(12) Patent Application Publication (10) Pub. No.: US 2004/0154630 A1
(43) Pub. Date: Aug. 12, 2004(54) DOUBLE WRAPPER CIGARETTE,
MACHINE AND METHOD FOR
MANUFACTURING THE SAME

(30) Foreign Application Priority Data

Aug. 7, 2001 (JP) 2001-239182

(76) Inventors: Hiromi Tabuchi, Tokyo (JP); Masaomi
Fukumachi, Tokyo (JP); Hidetoshi
Okuyama, Tokyo (JP)

Publication Classification

(51) Int. Cl.⁷ D21F 11/00

(52) U.S. Cl. 131/365; 131/360; 162/139

Correspondence Address:

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747 (US)

(57) ABSTRACT

(21) Appl. No.: 10/771,328

(22) Filed: Feb. 5, 2004

Related U.S. Application Data

(63) Continuation of application No. PCT/JP02/07463,
filed on Jul. 24, 2002.

A double wrapper cigarette produced by a manufacturing machine and method according to the invention includes an inner wrapper (6) wrapped around a rod-like filler including a tobacco material, an outer wrapper (8) surrounding the inner wrapper (6), and a perfume emitting layer (10) provided between the inner wrapper (6) and the outer wrapper (8). The perfume emitting layer (10) includes a perfume material for weakening odor of sidestream smoke of the cigarette.

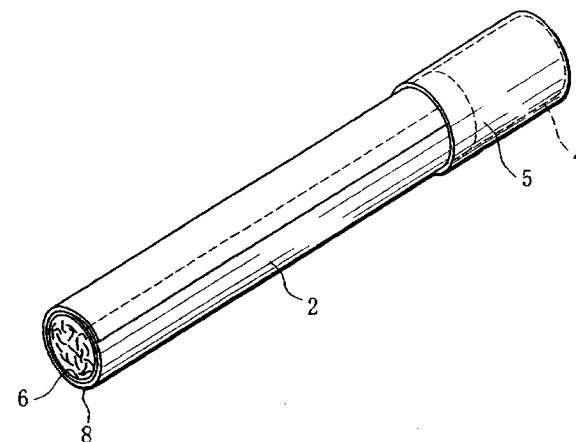
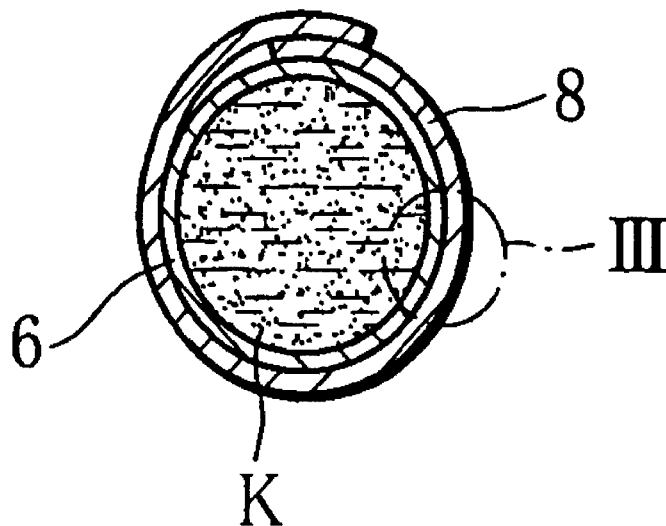


FIG. 2

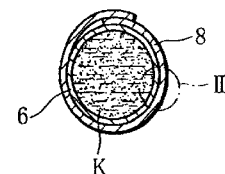


FIG. 3

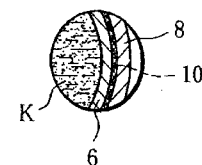
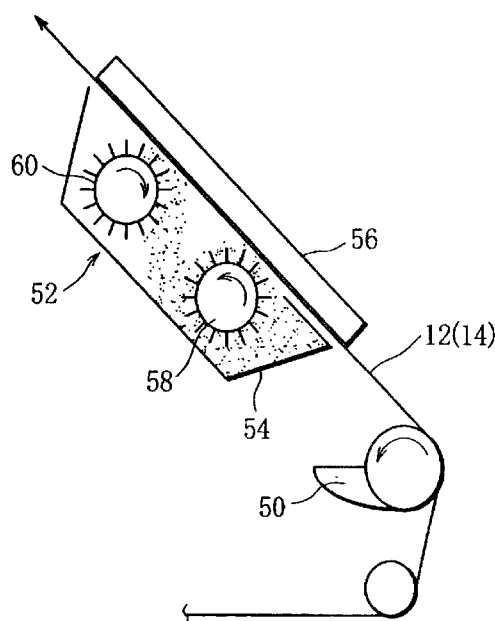


FIG. 7

WRAPPING SECTION



DOUBLE WRAPPER CIGARETTE, MACHINE AND METHOD FOR MANUFACTURING THE SAME

TECHNICAL FIELD

[0001] The invention relates to a double wrapper cigarette, more specifically, a double wrapper cigarette which can weaken odor of sidestream smoke, and a machine and method for manufacturing the cigarette.

BACKGROUND ART

[0002] When a cigarette is smoked, sidestream smoke tends to give an uncomfortable feeling to not only a smoker but also people around the smoker, which prevents the smoker from enjoying smoking.

[0003] Considering this, cigarettes reduced in sidestream smoke have been developed. Cigarettes of this type include special additives in their wrappers. The special additives are effective in reducing sidestream smoke but often strengthen the odor of the sidestream smoke compared with standard cigarettes.

[0004] It is thought that the odor of the sidestream smoke can be weakened by adding a perfume material to a cigarette. Specifically, a perfume material can be added to the filler of a cigarette or seam glue applied on a wrapper thereof.

[0005] However, when a perfume material is added to the filler, the perfume material damages the filler's original aroma and taste. When a perfume material is to be added to seam glue, it is difficult to add a sufficient amount of the perfume material to the seam glue without lowering the adhesive force of the seam glue.

DISCLOSURE OF THE INVENTION

[0006] An object of the invention is to provide a double wrapper cigarette which can weaken odor of sidestream smoke without the above-mentioned problems, and a method and machine for manufacturing the double wrapper cigarette.

[0007] A double wrapper cigarette which can achieve the above object comprises a rod-like filler including a tobacco material, an inner wrapper wrapped around the filler, an outer wrapper surrounding the inner wrapper, and a perfume emitting layer provided between the inner and outer wrappers, where the perfume emitting layer includes a perfume material for weakening odor of sidestream smoke.

[0008] When this double wrapper cigarette is smoked, the perfume emitting layer emits perfume, which weakens odor of sidestream smoke. Since the perfume emitting layer is provided between the inner and outer wrappers, the perfume does not penetrate into mainstream smoke. Hence, the filler's original aroma and taste is not damaged by the perfume. Further, since the perfume emitting layer can be formed in a large area between the inner and outer wrappers, it can include a sufficient amount of the perfume material to weaken the odor of the sidestream smoke.

[0009] The inner and outer wrappers may include an additive for reducing sidestream smoke. In this case, when the double wrapper cigarette is smoked, the sidestream smoke produced therefrom is reduced.

[0010] Specifically, if the perfume material is soluble, the perfume emitting layer is formed by applying a perfume emitting liquid including the perfume material onto at least one of the inner and outer wrappers.

[0011] If the perfume material is insoluble, the perfume emitting layer may include glue for carrying the perfume material. It is favorable that the glue is polyvinyl acetate glue. In this case, it is desirable that the perfume material is in powder or grain form.

[0012] A machine for manufacturing this double wrapper cigarette comprises a first feeding path along which an inner web is fed; a second feeding path along which an outer web is fed; a wrapping section for continuously forming a tobacco rod by receiving the inner and outer webs from the first and second feeding paths, laying the inner web on the outer web to thereby form a double web, receiving a filler including a tobacco material on the double web, and wrapping the double web around the filler; a cutting section for cutting the tobacco rod formed at the wrapping section into cigarette rods of a predetermined length; and at least one perfume material supply device provided along at least one of the first and second feeding paths, where the perfume material supply device is so provided as to apply material including a perfume onto the web on the at least one of the first and second feeding paths in the form of a layer, to thereby form a perfume emitting layer between the inner and outer webs for the double web.

[0013] In the manufacturing machine, a tobacco rod is formed by wrapping a filler in a double web including a perfume emitting layer, and then, a double wrapper cigarette is produced by cutting the tobacco rod.

[0014] If a soluble perfume material is used, the perfume material supply device may include a nozzle type applicator for applying a perfume emitting liquid including the perfume material onto the web.

[0015] If an insoluble perfume material is used, the perfume material supply device may include a glue applicator for applying glue onto the web to form an adhesive surface, and a diffuser for diffusing a perfume emitting material in powder or grain form over the adhesive surface of the web.

[0016] The diffuser may include a first brush roller rotatably located under the feeding path for the web, for blowing up the perfume emitting material toward the adhesive surface of the web, and a second brush roller rotatably located downstream of the first brush roller, for removing a surplus of the perfume emitting material attached to the adhesive surface.

[0017] In this blowing-up type diffuser, the amount of the perfume emitting material to be attached to the adhesive surface of the web can be controlled easily.

[0018] A method of manufacturing a double wrapper cigarette comprises the steps of feeding an inner web and an outer web to a wrapping section of a cigarette manufacturing machine, and, at an inlet of the wrapping section, laying the inner web on the outer web to thereby form a double web; applying material including a perfume onto at least one of the inner and outer webs in the form of a layer while the inner and outer webs are being fed, to thereby form a perfume emitting layer between the inner and outer webs; supplying a filler including a tobacco material onto the

double web at the inlet of the wrapping section; forming a tobacco rod continuously by wrapping the double web around the filler while the double web is passing through the wrapping section with the filler; and then cutting the tobacco rod into cigarette rods of a predetermined length.

[0019] In the above-described machine and method for manufacturing a double wrapper cigarette, a double wrapper cigarette can be easily manufactured by forming a perfume emitting layer on at least one of inner and outer webs while the inner and outer webs are being fed to the wrapping section.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] FIG. 1 is a prospective view of a filter cigarette which includes an embodiment of a double wrapper cigarette.

[0021] FIG. 2 is a cross-sectional view of the double wrapper cigarette of FIG. 1.

[0022] FIG. 3 is an enlarged view of part III of FIG. 2.

[0023] FIG. 4 is a schematic illustration showing a machine for manufacturing the double wrapper cigarette of FIG. 1.

[0024] FIG. 5 is a cross-sectional view showing an inner wrapper and an outer wrapper supplied to an inlet of a wrapping section of the manufacturing machine of FIG. 4.

[0025] FIG. 6 is a schematic illustration showing a manufacturing machine with a supply apparatus for supplying a perfume material in powder or grain form to a web, and

[0026] FIG. 7 is a schematic illustration showing another supply apparatus.

BEST MODE OF CARRYING OUT THE INVENTION

[0027] FIG. 1 shows a filter cigarette. The filter cigarette includes a double wrapper cigarette 2. A filter tip 4 is connected to an end of the double wrapper cigarette 2 by a tip paper piece 5.

[0028] The double wrapper cigarette 2 includes an inner wrapper 6 and an outer wrapper 8. The inner wrapper 6 is directly wrapped around filler K and forms the filler K into a rod-like shape. The outer wrapper 8 surrounds the inner wrapper 6 concentrically.

[0029] As seen from FIG. 2, the opposite side edges of the outer wrapper 8 are overlapped and joined with seam glue (not shown), while the opposite side edges of the inner wrapper 6 are not overlapped. Hence, when developed, the inner wrapper 6 is smaller in width than the outer wrapper 8.

[0030] The filler K is a mixture of shredded tobacco obtained by shredding tobacco laminae and midribs thereof, shreds obtained by shredding reconstructed sheet tobacco, and expanded shredded tobacco.

[0031] The inner wrapper 6 and the outer wrapper 8 are both obtained by adding an additive for reducing sidestream smoke to flax pulp, wood pulp or other plant pulp. Here, as the additive, for example, calcium carbonate, a magnesium compound or the like is used. The inner wrapper 6 and the outer wrapper 8 may include a combustion conditioning agent such as a salt of an organic acid, and an ash condi-

tioning agent such as phosphate. The basis weight of the inner and outer wrappers 6 and 8 is 10 to 100 g/m².

[0032] As shown in FIG. 3, the double wrapper cigarette 2 also includes a perfume emitting layer 10 between the inner wrapper 6 and the outer wrapper 8. The perfume emitting layer 10 covers the entire outer circumferential surface of the inner wrapper 6 or a part thereof. The perfume emitting layer 10 includes a perfume material. When the double wrapper cigarette is smoked, the perfume material weakens odor of sidestream smoke produced at the combustion end of the double wrapper cigarette. Here, the perfume material is a substance chosen from among terpenes, esters, alcohol such as linalool, nerol and geraniol, phenols such as anetol, aldehydes such as vanillin and ethyl vanillin, lactones, plant extract, fruit extract and the like, or a mixture of some of these substances.

[0033] FIG. 4 shows a manufacturing machine for the above-described double wrapper cigarette, which will be explained below.

[0034] A roll R₁ of inner web W₁ and a roll R₂ of outer web W₂ are provided in the manufacturing machine. The inner wrapper 6 is obtained from the inner web W₁, while the outer wrapper 8 is obtained from the outer web W₂. From the rolls R₁ and R₂, extend feeding paths 12 and 14, respectively. The feeding paths 12 and 14 are formed by a plurality of guide rollers, and have ends connected to an inlet of a wrapping section 16.

[0035] The feeding paths 12 and 14 each include a feed roller (not shown) and a reservoir 15. The feed rollers feed the inner web W₁ and the outer web W₂ from the roll R₁ and the roll R₂ along the feeding path 12 and the feeding path 14 to the wrapping section 16, respectively.

[0036] The wrapping section 16 includes an endless garniture tape 18. The garniture tape 18 is wound around a driving drum 20, and passes through a forming bed in the wrapping section 16, horizontally.

[0037] When the outer web W₂ and the inner web W₁ are fed to the wrapping section 16, the outer web W₂ and the inner web W₁ are laid on the garniture tape 18 on the forming bed 22 in the wrapping section 16 in this order, as shown in FIG. 5. Thus, the outer web W₂ and the inner web W₁ form a double web.

[0038] In this state, when the driving drum 20 is rotated, the garniture tape 18 travels with the double web in one direction. Thus, the double web passes through the forming bed 22 in the wrapping section 16 with the garniture tape 18. Specifically, the forming bed 22 has a forming groove (not shown) for guiding the garniture tape 18 and the double web. The width of the forming groove and the radius of curvature of the bottom of the forming groove decreases gradually from the inlet to the outlet of the wrapping section 16. At the outlet of the wrapping section 16, the forming groove has a nearly semicircular cross section.

[0039] At the inlet of the wrapping section 16, a layer of filler KL is fed onto the double web, or in other words, the inner web W₁. Specifically, the layer of filler KL is formed by sucking and thereby holding filler in a layer on the under surface of an endless tobacco band 24. As the tobacco band 24 travels, the filler layer KL is transported to the inlet of the wrapping section 16. Then, at the inlet of the wrapping section 16, the filler layer KL is separated from the tobacco band 24 by a tongue shoe 26 and transferred onto the inner web W₁.

[0040] Then, the filler layer KL passes through the tongue shoe 26, a short holder 28, a glue application nozzle 30 and a long holder 32 in the wrapping section 16, in this order, together with the double web. In this process, the filler layer KL is wrapped in the double web, so that a tobacco rod TR is formed continuously. The tobacco rod TR is transported downstream of the outlet of the wrapping section 16.

[0041] Specifically, the tongue shoe 26 compresses the filler layer KL from above to form the upper part of the filler layer KL into a semicircular cross section, while the forming groove of the forming bed 22 forms the double web into an U-like cross section, together with the help of the garniture tape 18. Thus, also the lower part of the filler layer KL is formed into a semicircular cross section. To sum up, the filler layer KL is compressed from above and below and formed into a circular cross section.

[0042] The short holder 28 bends one side edge portion of the double web, namely the inner and outer webs W₁ and W₂, into an arch shape with the help of the garniture tape 18, and puts the one side edge portion over a half of the upper part of the filler layer KL. The glue application nozzle 30 applies seam glue onto the other side edge of the double web, namely the outer web W₂.

[0043] Then, the long holder 32 bends the other side edge portion of the double web into an arch shape with the help of the garniture tape 18 likewise, and puts the other side edge portion over the other half of the upper part of the filler layer KL. Thus, the other side edge of the outer web W₂ is placed on the one side edge thereof with the seam glue between, so that the both side edges of the outer web W₂ are glued together. As a result, a tobacco rod TR is formed.

[0044] The tobacco rod TR transported from the wrapping section 16 has its seam glue dried while passing under a heater 34. Then, while the tobacco rod TR is passing through the cutting section 36, a rotary knife 38 in the cutting section 36 cuts the tobacco rod TR into pieces of a predetermined length. Thus, cigarette rods CR are formed. Here, the cigarette rod CR is twice as long as the double wrapper cigarette 2. Then, the cigarette rods CR are fed to a filter cigarette manufacturing machine (not shown) by a kicker 40.

[0045] After fed to the filter cigarette manufacturing machine, each cigarette rod CR is first cut into two double wrapper cigarettes 2, and a filter plug is placed between the two double wrapper cigarettes 2. Then, the two double wrapper cigarettes are connected with the filter plug by wrapping a tip paper piece around them. Thus, a double filter cigarette is formed. Then, the double filter cigarette is cut into two equal parts. As a result, filter cigarettes as shown in FIG. 1 are obtained.

[0046] The manufacturing machine of FIG. 4 further includes a nozzle-type applicator 42 along the feeding path 14 for the outer web W₂. Specifically, the applicator 42 is located between the reservoir 15 and the wrapping section 16.

[0047] The applicator 42 applies a perfume emitting liquid onto one surface, namely the inner surface of the outer web W₂. The area where the perfume emitting liquid is applied does not include the other side edge of the outer web W₂ to which the seam glue is applied. When the inner web W₁ is laid on the outer web W₂ with the perfume emitting liquid applied on at the inlet of the wrapping section 16, a layer 44 of the perfume emitting liquid is formed between the webs W₁ and W₂ as shown in FIG. 5.

[0048] The perfume emitting liquid is obtained by mixing the above-mentioned perfume material with EVA glue or PVAC glue as a carrier. EVA glue and PVAC glue are glues which are used as seam glue. Hence, the layer 44 functions also as an adhesive for joining the inner web W₁ and the outer web W₂ together.

[0049] As a carrier, PVAC glue is better in the capability of retaining the perfume material than EVA glue and CMC glue, and can emit the perfume into sidestream smoke better.

[0050] When the layer 44 is formed on the inner surface of the outer wrapper W₂, the layer 44 functions as the perfume emitting layer 10 of the double wrapper cigarette 2.

[0051] The invention is not limited to the above-described embodiment. Various modifications can be made.

[0052] For example, the applicator 42 may form a layer 44 consisting of a plurality of streak-like parts, on the inner surface of the outer web W₂.

[0053] If the applicator 42 is provided along the feeding path 12 as indicated by a chain double-dashed line in FIG. 4, the applicator 42 can form a layer 44 on a surface of the inner web W₁, namely the inner surface thereof which faces the outer web W₂. In this case, the layer 44 may cover the entire inner surface of the inner web W₁.

[0054] Applicators 42 may be provided along the feeding path 12 and along the feeding path 14, respectively. In this case, layers 44 are formed both on the inner wrapper W₁ and on the outer wrapper W₂, respectively, which allows a larger amount of the perfume material to be retained between the inner and outer wrappers W₁, W₂.

[0055] In place of the nozzle type applicator 42, a roller type applicator may be used. The roller type applicator includes a transfer roller, which transfers a perfume emitting liquid to the inner web W₁ or the outer web W₂ and thereby forms a layer 44.

[0056] The manufacturing machine may have a supply device for supplying a perfume emitting material in powder or grain form. Specifically, as shown in FIG. 6, the supply device includes a glue applicator 46 and a diffuser 48 provided along the feeding path 14. The diffuser 48 is located downstream of the glue applicator 46. The glue applicator 46 applies PVAC glue onto the inner surface of the outer web W₂, and thereby makes the inner surface of the outer web W₂ an adhesive surface. Then, the diffuser 48 diffuses a perfume emitting material in powder or grain form over the adhesive surface of the outer web W₂, so that the perfume emitting material is attached to the adhesive surface in the form of a layer.

[0057] As the perfume emitting material, dextrin powder, perfum, curdian powder, or powder perfume including β -cyclodextrin or the like as a carrier and any of the mentioned perfume materials can be used.

[0058] Also when the perfume emitting materials as mentioned above are used, a perfume emitting layer can be formed between the inner web W₁ and the outer web W₂, and the double wrapper cigarette described above can be obtained.

[0059] As indicated by a chain double-dashed line in FIG. 6, the supply device may be provided along the feeding path 12. The supply devices may be provided along the feeding path 12 and along the feeding path 14, respectively.

175

175

[0060] In place of the above-described supply device, a supply device shown in FIG. 7 may be used.

[0061] The supply device of FIG. 7 includes at least one glue applicator 50 provided along the feeding path 12 and/or along the feeding path 14. The glue applicator 50 includes a glue pot and a transfer roller. The transfer roller of the glue applicator 50 applies PVAC glue stored in the glue pot onto a surface of a web and thereby makes it an adhesive surface.

[0062] The feeding path includes an upward slanting part downstream of the glue applicator 50, and a blowing-up type diffuser 52 is provided along this slanting part. The diffuser 52 has a housing 54 and a cover 56 which are arranged under and over the slanting part, respectively, and extend along the slanting part. Specifically, the housing 54 is arranged under the feeding path and the top of the housing 54 is partly open. The cover 56 covers the top of the housing 54, and a web travels between the housing 54 and the cover 56.

[0063] A perfume emitting material in powder or grain form is stored in the housing 54, and two brush rollers 58 and 60 are rotatably arranged inside the housing 54. The brush rollers 58, 60 are apart from each other in the direction in which the web travels, and only the brush roller 58 is partly buried in the perfume emitting material.

[0064] As the brush rollers 58 and 60 rotate, the brush roller located upstream, namely the lower brush roller 58 blows up the perfume emitting material stored in the housing 54 toward the web, so that the perfume emitting material is attached to the adhesive surface of the web in the form of a layer. Then, the brush roller located downstream, namely the upper brush roller 60 removes a surplus of the perfume emitting material from the adhesive surface of the web. Hence, a desired amount of the perfume emitting material is attached to the web.

1. A double wrapper cigarette, comprising:

a rod-like filler including a tobacco material,

an inner wrapper wrapped around said filler,

an outer wrapper surrounding said inner wrapper, and

a perfume emitting layer provided between said inner wrapper and said outer wrapper,

said perfume emitting layer including a perfume material for weakening odor of sidestream smoke of the cigarette.

2. The double wrapper cigarette according to claim 1, wherein said inner wrapper and said outer wrapper include an additive for reducing the sidestream smoke.

3. The double wrapper cigarette according to claim 1, wherein said perfume emitting layer further includes glue for carrying the perfume material.

4. The double wrapper cigarette according to claim 3, wherein the glue is polyvinyl acetate glue.

5. The double wrapper cigarette according to claim 3, wherein the perfume material is in powder form or in grain form.

6. A manufacturing machine for manufacturing a double wrapper cigarette, comprising:

a first feeding path along which an inner web is fed,

a second feeding path along which an outer web is fed,

a wrapping section for continuously forming a tobacco rod by receiving the inner and outer webs from said first and second feeding paths, laying the inner web on the

outer web to thereby form a double web, receiving a filler including a tobacco material on the double web, and wrapping the double web around the filler,

a cutting section for cutting the tobacco rod formed at said wrapping section into pieces of a predetermined length, and

at least one perfume material supply device located along one of said first and second feeding paths,

said perfume material supply device being so provided as to apply material including a perfume onto at least one of the inner and outer webs fed along said first and second feeding paths in the form of a layer, to thereby form a perfume emitting layer between the inner and outer webs of the double web.

7. The manufacturing machine according to claim 6, wherein

said perfume material supply device includes

a nozzle type applicator for applying a perfume emitting liquid including the perfume material onto the inner web or the outer web.

8. The manufacturing machine according to claim 6, wherein

said perfume material supply device includes

a glue applicator for applying glue onto the inner web or the outer web to thereby make an adhesive surface, and

a diffuser for diffusing a perfume emitting material in powder or grain form over the adhesive surface of the inner web or the outer web.

9. The manufacturing machine according to claim 8, wherein

said diffuser includes

a first brush roller rotatably located under said feeding path, for blowing up the perfume emitting material toward said adhesive surface of the inner web or the outer web, and

a second brush roller rotatably located downstream of said first brush roller, for removing a surplus of the perfume emitting material attached to the adhesive surface.

10. A method of manufacturing a double wrapper cigarette, comprising the steps of:

feeding an inner web and an outer web to a wrapping section of a cigarette manufacturing machine, and, at an inlet of the wrapping section, laying the inner web on the outer web to thereby form a double web,

applying material including a perfume material onto at least one of the inner and outer webs in the form of a layer while the inner and outer webs are being fed, to thereby form a perfume emitting layer between the inner and outer webs of the double web,

supplying a filler including a tobacco material onto the double web at the inlet of the wrapping section,

forming a tobacco rod continuously by wrapping the double web around the filler while the double web is passing through the wrapping section together with the filler, and

cutting the tobacco rod into pieces of a predetermined length.

* * * * *

178

954



US006142154A

United States Patent [19]

Dall'Osso et al.

[11] Patent Number: 6,142,154

[45] Date of Patent: Nov. 7, 2000

[54] METHOD OF FEEDING WRAPPER
MATERIAL IN MANUFACTURING
MACHINES5,156,169 10/1992 Holmes et al.
5,220,930 6/1993 Gentry

FOREIGN PATENT DOCUMENTS

[75] Inventors: Davide Dall'Osso; Massimo Sartoni,
both of Bologna; Fiorenzo Draghetti,
Medicina, all of Italy180 901 5/1986 European Pat. O.E.
402 059 12/1990 European Pat. O.E.
35 33 275 3/1987 Germany
2 154 494 9/1985 United Kingdom

[73] Assignee: G.D. S.p.A., Bologna, Italy

[21] Appl. No.: 08/997,094

[22] Filed: Dec. 23, 1997

Foreign Application Priority Data

Dec. 24, 1996 [IT] Italy B096A0684

[51] Int. Cl.⁷ A24C 5/14; A24C 5/31

[52] U.S. Cl. 131/60, 131/67

[58] Field of Search 131/280, 60, 67

References Cited

U.S. PATENT DOCUMENTS

3,614,987 10/1971 Verbaekel
4,606,550 5/1987 Spiers et al.

13 Claims, 5 Drawing Sheets

Primary Examiner—Christopher A. Fiorilla
Attorney, Agent, or Firm—Pillsbury Madison & Suto LLP

[57]

ABSTRACT

In a method of feeding wrapper material, typically as utilized by machines for the manufacture of tobacco products, a first and a second strip presenting two longitudinal side edges and of dissimilar transverse dimensions are advanced along respective predetermined first feed lines, positioned one relative to another in a direction transverse to the respective first feed lines in such a way as to bring about their alignment along one longitudinal edge and finally joined face to face before advancing together along a predetermined common feed line toward a machine unit.

U.S. Patent

Nov. 7, 2000

Sheet 1 of 5

6,142,154

FIG. 1

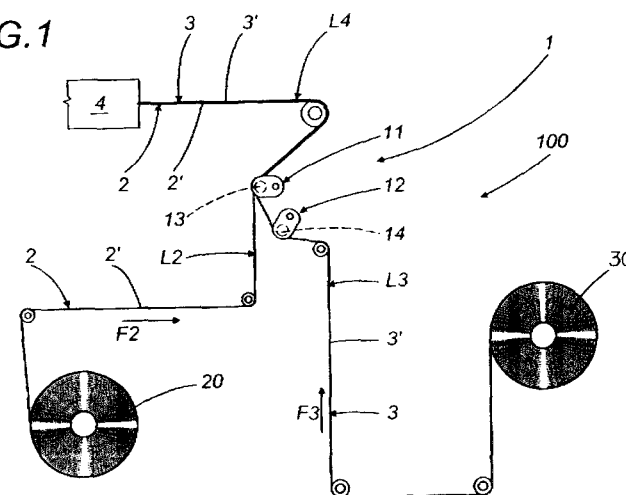
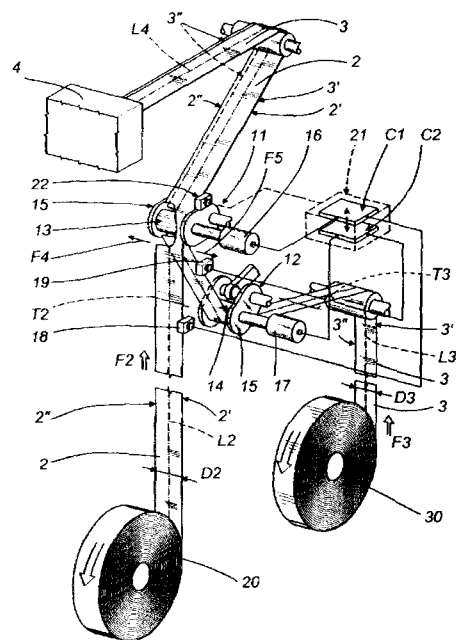
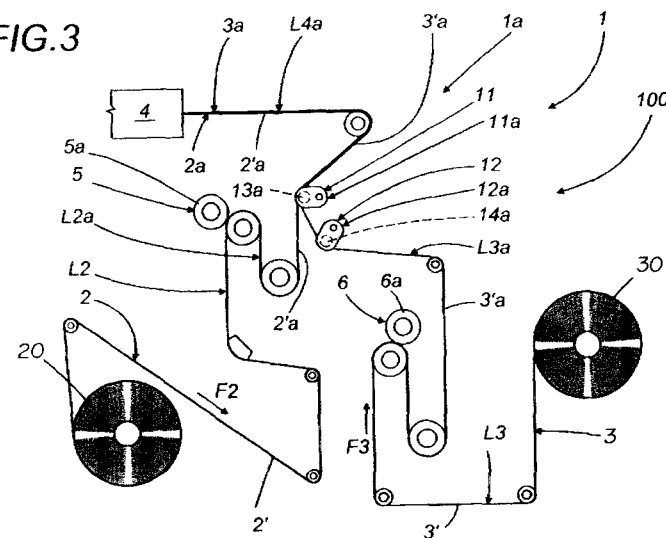


FIG. 3



METHOD OF FEEDING WRAPPER MATERIAL IN MANUFACTURING MACHINES

BACKGROUND OF THE INVENTION

The present invention relates to a method of feeding wrapper material in manufacturing machines.

The present invention finds application in machines for the manufacture of tobacco products, typically cigarettes, and relates in particular to a method by which a wrapper material consisting of two continuous strips joined face to face and positioned one relative to the other is fed to a machine unit, while reference is made specifically herein to the use of such a method in cigarette manufacturing machines, no limitation in general scope is implied.

A cigarette manufacturing machine of conventional type comprises a forming station appearing essentially as a beam, of which the function is to assemble and shape a continuous cigarette rod, or a plurality of such rods generated parallel one with another. The station affords an entry point where at least one ribbon of tobacco filler is dispensed onto a looped conveyor belt slidably supporting a strip of cigarette paper. The paper for each cigarette rod is advanced and at the same time forced by the conveyor belt to envelop the tobacco filler, thus fashioning a single wrapper around the tobacco and creating a continuous cigarette cylinder or rod, which will then be divided into single cigarettes by a cutting device.

The prior art, as reflected in EP 402 059, embraces cigarettes furnished with two skins of paper wrapped one over the other around the tobacco filler, which are designed to minimize the lateral flow of smoke through the cigarette.

The object of the present invention is to provide a method that will allow of fashioning cigarettes with a double skin of wrapper material automatically, while ensuring speed and precision.

SUMMARY OF THE INVENTION

The stated object and others are realized in a method of feeding wrapper material in manufacturing machines according to the present invention, which comprises: advancing at least a first and a second strip of wrapper material along respective predetermined first feed lines, each strip presenting two longitudinal side edges, and one strip exhibiting a transverse dimension greater than the transverse dimension of the other; positioning the first and the second strip mutually in a predetermined manner along a direction transverse to the respective predetermined first feed lines; joining the first and second strips together face to face and advancing both along a predetermined common feed line toward a machine unit.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in detail, by way of example, with the aid of the accompanying drawings, in which:

FIG. 1 is a diagrammatic side view showing one portion of a manufacturing machine equipped with a positioning device designed to implement the method of the present invention, illustrated in a first embodiment;

FIG. 2 is an enlarged perspective view of FIG. 1;

FIG. 3 is a diagrammatic side view showing a portion of a manufacturing machine as in FIG. 1, equipped with a positioning device designed to implement the method of the present invention, illustrated in a second embodiment;

FIG. 4 is an enlarged perspective view of FIG. 3;

FIG. 5 is the perspective view of a positioning device according to the present invention, illustrated in a further embodiment;

FIG. 6 is a detail of FIG. 4 illustrated in perspective and in a first possible embodiment;

FIG. 7 is the front elevation of a cigarette with a double skin of wrapper material obtained by the method according to the present invention;

FIG. 8 is a detail of FIG. 7;

FIG. 9 is a detail of FIG. 4 illustrated in perspective and in a second possible embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

With reference to FIGS. 1 and 2 of the accompanying drawings, 100 denotes a portion of a manufacturing machine furnished among other elements with a device, denoted 1 in its entirety, of which the function is to position a first strip 2 and a second strip 3 of wrapper material one in relation to another.

The portion 100 in question establishes two first feed lines of which one, denoted 12, is followed by the first strip 2 and the other 13, is followed by the second strip 3. In operation, the two strips 2 and 3 are decoiled from bulk rolls 20 and 30 and directed along their predetermined feed lines 12 and 13 toward the positioning device 1. The transverse dimension D2 of the first strip 2, as measured between the two respective longitudinal edges 2' and 2'', is greater than the corresponding transverse dimension D3 of the second strip 3, measured likewise between the respective longitudinal edges 3' and 3''.

As discernible from FIG. 1 and FIG. 2, the positioning device 1 comprises diverter means 11 and 12 consisting respectively in a first guide roller 13 and a second guide roller 14, each fitted bilaterally with flanges 15 acting as restraints respectively for one of the two longitudinal edges 2' or 2'' of the first strip 2 and for the longitudinal edges 3' and 3'' of the second strip 3, as the running strips 2 and 3 pass over the respective rollers 13 and 14.

The two rollers 13 and 14 are coupled to respective first and second double acting linear actuators 16 and 17 of which the function is to shift each roller 13 and 14 selectively along a corresponding direction 12 and 13 transverse to the relative feed line 12 and 13, effecting a forward stroke 14 or a return stroke 15 as indicated in FIG. 2.

Still referring to FIG. 2, the positioning device 1 comprises a first sensor 18 and a second sensor 19 offered respectively to the first strip 2 and to the second strip 3 and designed to monitor the position occupied by each strip 2 and 3 along the respective transverse directions 12 and 13. The outputs of the first and second sensors 18 and 19 are connected to the input of a central control unit 21, which in turn is connected on the output side to the inputs of the first and second actuators 16 and 17. In particular, the central control unit 21 comprises a first and a second monitoring and control module denoted C1 and C2 respectively, and it is to these that the outputs of the first and second sensors 18 and 19 are connected. As discernible from FIG. 2, the second monitoring and control module C2 is interlocked operationally to the first monitoring and control module C1.

In the interests of providing a full specification and ensuring that the embodiment and operation of the positioning device 1 are readily comprehended, a brief account will now be given of what occurs beyond the guide rollers 13 and 14.

The two strips 2 and 3 advancing along the two respective feed lines 12 and 13 are joined face to face at the guide rollers 13 and 14 and directed thereafter along a predetermined common feed line, denoted 14 in FIG. 1, toward a machine unit 4 that forms part of the selfsame portion 100 of the machine.

In operation, referring to FIGS. 1 and 2, each of the strips 2 and 3 is decoiled from a respective roll 20 and 30 and caused to advance along the respective feed line 12 and 13 in a predetermined direction denoted F2 and F3 respectively. The second strip 3 is directed initially over the second guide roller 14, wrapping around a portion of the surface, then onto the first guide roller 13.

At the same time, the first strip 2 is routed directly onto the first guide roller 13, wrapping around a part of the surface, and in the process laid over the second strip 3 in flush contact, face to face.

The two strips 2 and 3 are positioned one relative to the other in the following manner.

The first sensor 18 detects the position of the one strip 2 in the corresponding transverse direction 12, relative to the feed line 12, and relays a first signal to the first monitoring and control module C1. Similarly, the second sensor 19 detects the position of the other strip 3 along the corresponding transverse direction 13 relative to the feed line 13 and relays a second signal to the second monitoring and control module C2 which, to reiterate, is interlocked to the first monitoring and control module C1.

The central control unit 21 compares the two signals and, according to the type of positional arrangement programmed for the two strips 2 and 3, generates an output signal from the second monitoring and control module C2 to activate the respective actuator 17, with the result that the corresponding guide roller 14 is displaced along the transverse direction 13.

The strip 3 is thus shifted together with the guide roller 14, moving transversely to the feed line 13, and centered on a given pass line calculated to bring about the required positional relationship with the first strip 2.

The two strips 2 and 3 are joined face to face at the first diverter means 11 and caused to advance as one along a common feed line 14, toward the machine unit 4.

Clearly, the step of positioning the strips 2 and 3 relative to one another might be effected differently. For example, the first actuator 16 could be operated rather than the second actuator 17, in such a way as to shift the first strip 2 in the relative transverse direction 12 and thus adapt its position to that of the second strip 3. Alternatively, both of the guide rollers 13 and 14 could be adjusted so as to move the strips 2 and 3 more rapidly into the required mutual positions.

The positioning device 1 also comprises a sensor 22 offered to the first and second strips 2 and 3 at a point beyond the first and second guide rollers 13 and 14 in the feed direction, along the common feed line 14, and connected to the central control unit 21. The function of this sensor 22 is to verify the correct positioning of the first strip 2 and the second strip 3 one in relation to another.

In the example of FIG. 2, the two strips 2 and 3 are aligned along one of the two longitudinal edges 2' or 2'' of the first strip 2, or similarly along one of the two edges 3' or 3'' of the second strip 3.

In the embodiment of FIGS. 3 and 4, the first strip 2 and the second strip 3 are decoiled from respective rolls 20 and 30 and advanced along corresponding feed lines 12 and 13 in exactly the same way as already indicated with reference to FIGS. 1 and 2, following the same respective directions F2 and F3.

For each strip 2 and 3 advancing along a respective feed line 12 and 13 in this solution, the positioning device 1 comprises cutting means 5 and 6 that consist respectively in a first rotating disc cutter 5a by which the first strip 2 is divided longitudinally to generate a first pair 7 of first strips 2a and 2b, and a second rotating disc cutter 6a by which the second strip 3 is divided longitudinally to generate a second pair 8 of second strips 3a and 3b. Located following each disc cutter 5a and 6a along the respective feed direction are diverging means 9 and 10 respectively comprising two divergently skew rollers denoted 9a and 9b and two divergently skew rollers denoted 10a and 10b.

The two first strips 2a and 2b are spread apart transversely by the rollers 9a and 9b and made thus to advance along respective predetermined second feed lines denoted 12a and 12b in FIG. 4. Similarly, the two second strips 3a and 3b are spread apart transversely by the relative rollers 10a and 10b and made to advance along respective predetermined second feed lines denoted 13a and 13b in FIG. 4.

It will be observed that each first strip 2a and 2b exhibits a transverse dimension greater than the same dimension of the corresponding second strip 3a and 3b. The two longitudinal edges of one first strip 2a are denoted 2a' and 2a'' and the two longitudinal edges of the other first strip 2b denoted 2b' and 2b'', whilst the two longitudinal edges of one second strip 3a are denoted 3a' and 3a'' and the two longitudinal edges of the other second strip 3b denoted 3b' and 3b''.

Thus in the example of FIG. 4 use is made of a double positioning device 1 that consists effectively of a first positioning device 1a and a second positioning device 1b. The function of the one device 1a is to position one set of first and second strips 2a and 3a one relative to another, and the function of the other device 1b to position the remaining set of first and second strips 2b and 3b one in relation to the other.

In entirely the same way as described above for the solution illustrated in FIGS. 1 and 2, the positioning devices 1a and 1b in the example of FIG. 4 comprise first diverter means 11a and 12a respectively engaging the two first strips 2a and 3a, and second diverter means 11b and 12b respectively engaging the two second strips 3a and 3b.

Diverter means 11a, 11b and 12a, 12b again consist in respective first guide rollers 13a, 13b and second guide rollers 14a, 14b each furnished bilaterally with restraining flanges 15 and associated with respective double acting first linear actuators 16a, 16b and second linear actuators 17a, 17b capable of effecting a forward stroke 14 and a return stroke 15 by which the relative guide rollers 13a, 13b and 14a, 14b are caused to shift in the transverse direction.

Each positioning device 1a and 1b comprises a first and a second sensor, denoted 18a and 18b respectively in the case of those associated with the first pair 7 of first strips 2a and 2b, and denoted 19a and 19b respectively in the case of those associated with the second pair 8 of second strips 3a and 3b. The function of each sensor 18a, 18b, 19a and 19b is to detect the position occupied by the respective strip 2a, 2b, 3a and 3b in the direction 12a, 12b, 13a and 13b transverse to the corresponding feed line 12a, 12b, 13a and 13b.

The outputs of the sensors 18a, 18b and 19a, 19b are connected to the inputs of respective central control units 21a and 21b, each comprising first and second monitoring and control modules denoted C1a and C2a and C1b and C2b respectively, which are connected on the output side to the corresponding inputs of the first actuators 16a, 16b and the second actuators 17a, 17b.

As discernible in FIG. 4, each second monitoring and control module C2a, C2b is interlocked operationally to the respective first monitoring and control module C1a, C1b.

Likewise in this solution the positioning devices 1a and 1b comprise respective sensors 22a and 22b monitoring the first and second strips 2a, 2b and 3a, 3b at points beyond the guide rollers 13a, 13b and 14a, 14b, along the respective common feed lines 14a and 14b, which serve to verify the correct relative positioning of the first and second strips 2a, 2b and 3a, 3b.

In operation, observing FIGS. 3 and 4 and recalling the foregoing description of the solution illustrated in FIGS. 1 and 2, the first and second strips 2 and 3 are decoiled from two rolls 20 and 30 (not indicated in FIG. 4) and drawn along respective feed lines 1.2 and 1.3 in predetermined directions respectively denoted F2 and F3. Advancing along the relative feed line 1.2, the first strip 2 initially encounters the rotating disc cutter 5a and is divided into the two first strips 2a and 2b which proceed along their predetermined feed lines 1.2a and 1.2b, passing around the respective skew rollers 9a and 9b and spreading apart transversely. Similarly, advancing along the relative feed line 1.3, the second strip 3 encounters the disc cutter 6a and is divided into the two second strips 3a and 3b which proceed along their predetermined feed lines 1.3a and 1.3b, passing around the respective skew rollers 10a and 10b and spreading apart transversely.

As to the subsequent steps whereby the pairs 7 and 8 of first strips 2a, 2b and second strips 3a, 3b are positioned relative to one another by the respective devices 1a and 1b, the principle remains the same as already described in connection with the embodiment of FIGS. 1 and 2, and accordingly, the positioning steps relating to the example of FIGS. 3 and 4 will not be described further.

It will be noted nonetheless that in this solution, as in the first described, the mutual positioning of the pairs 7 and 8 of strips will involve aligning the first strips 2a, 2b and the second strips 3a, 3b along one of the two longitudinal edges 2', 2a" or 2'b, 2'b" of each first strip 2a or 2b or along one of the two longitudinal edges 3', 3a" or 3'b, 3'b" of each second strip 3a or 3b.

In the example of FIG. 5, the single rolls 20 and 30 are replaced by pairs of rolls denoted 20a, 20b and 30a, 30b respectively. The first strips 2a and 2b are decoiled respectively from the one pair of rolls 20a and 20b, and the second strips 3a and 3b respectively from the other pair of rolls 30a and 30b.

The step of dividing a first and second strip 2 and 3 longitudinally by means of respective rotating disc cutters 5a and 6a is dispensed with in this example, while the positioning step, which remains entirely the same as described already with reference to the example of FIGS. 1 and 2, consists in positioning the first strips 2a, 2b and the second strips 3a, 3b one with respect to the other, through the agency of the relative device 1a and 1b, in a manner that does not involve aligning the strips along one of the two longitudinal edges.

FIG. 6 indicates the machine unit 4 as comprising a station 23 for the formation of one or more continuous cigarette rods, denoted 24 and 25 respectively. The two first strips 2a, 2b and the corresponding second strips 3a, 3b enter the forming station 23 joined face to face, advancing along the common feed lines 1.4a and 1.4b, having passed around a roller 50 and onto the top branches of two looped conveyor belts 26 and 27 which run slidably on two parallel guides or channels 29 and 30 of a substantially horizontal platform

28a afforded by a beam 28. The two sets of strips 2a, 3a and 2b, 3b pass onto the platform 28a with the strip denoted 3a on top of that denoted 2a and the strip denoted 3b on top of that denoted 2b. Shredded tobacco fillers (not illustrated) are dispensed in conventional manner onto the two uppermost strips 3a and 3b during the course of their passage across the platform 28a.

The two sets of strips 2a, 3a and 2b, 3b are caused by the two channels 29 and 30 to wrap gradually around the tobacco fillers, forming two continuous cigarette rods 25 and 24 that will be divided subsequently into single cigarettes 40. As discernible from FIG. 7, each cigarette 40 generated in this manner will exhibit two skins 42 and 43 obtained by wrapping the two matched strips 2a, 3a and 2b, 3b about the respective tobacco fillers.

Still referring to FIG. 7, and observing the detail of FIG. 8, each cigarette appears with the inner and outer skins 42 and 43 aligned along one longitudinal edge 44 and 45.

In the example of FIG. 9, the machine unit 4 consists in a coiling station 31 where the sets of first and second strips 2a, 3a and 2b, 3b, matched and mutually positioned, are wound onto respective rolls 32 and 33 carried by respective support arms 34 and 35.

The two rolls 32 and 33 obtained in this way are thus ready to feed respective preassembled first and second strips 2a, 3a and 2b, 3b to any given machine unit 4 of any given manufacturing machine.

What is claimed:

1. A method of feeding wrapper material in manufacturing machines, comprising:

advancing at least a first and a second strip of wrapper material along respective first and second feed lines, each strip presenting two longitudinal side edges and one strip exhibiting a transverse dimension greater than the transverse dimension of the other strip;

positioning the first and the second strip mutually along a direction transverse to the respective first and second feed lines;

joining the first and second strips together face to face and advancing both along a common feed line toward a machine unit;

decoiling each strip initially from a respective roll; dividing each of the first and second strips longitudinally by respective cutters to generate a first pair of first strips and a second pair of second strips;

causing each of the two first strips and each of the two second strips to spread apart transversely one from another and to advance thereafter along respective second feed lines;

positioning each first strip of the first pair and each second strip of the second pair relative to one another in overlapping relation, in sets of two, along a direction transverse to the respective pre-determined second feed line;

joining each first strip of the first pair face to face with a corresponding second strip of the second pair and advancing both together along a respective predetermined common feed line.

2. A method as in claim 1, wherein the positioning further comprises aligning each strip with the corresponding strip along one of the respective two longitudinal side edges of the strips.

3. A method as in claim 1, wherein the strips are positioned relative to one another by a positioning device comprising respective diverters associated with the strips,

which are constructed and arranged to displace at least one of the first and second strips along a direction transverse to the respective feed line.

4. A method as in claim 3, wherein each diverter comprises a first and a second guide roller fitted bilaterally with flanges serving to restrain at least one of the two longitudinal side edges of each first and second strip, which are coupled to a respective first and second actuator and capable thus of movement in the transverse direction, the movement generated by a forward stroke and a return stroke of the relative actuator.

5. A method as in claim 4, wherein at least one of the first and second guide rollers is displaced along the transverse direction during positioning of the first and the second strip in such a manner that on completion of the positioning operation, the first and second strips occupy overlapping positions one relative to another.

6. A method as in claim 4, wherein at least one of the first and second guide rollers is displaced along the transverse direction during positioning of the first and the second strip in such a way that on completion of the positioning operation, the first and second strips occupy relative positions in which each first or second strip is aligned with the corresponding second or first strip along at least one of the respective two longitudinal side edges presented by the first or second strip.

7. A method as in claim 4, wherein the positioning device comprises a first and a second position sensor constructed and arranged to monitor the respective first and second strip in such a way as to detect the position of the strip in the transverse direction, and connected to a central control unit which on receiving signals from the first sensor and second sensor is designed to control the operation of at least one of the actuators to displace the associated guide roller along the transverse direction.

8. A method as in claim 7, wherein the central control unit comprises a first and a second monitoring and control module connected respectively on an input side to the first and second sensors and on an output side to the first and second actuators, and in such a way that the operation of one of the first and second monitoring and control modules is interlocked to the other monitoring and control module.

9. A method according to claim 8, wherein the positioning device comprises a sensor constructed and arranged to monitor the first and second strips at a point beyond the first and second guide rollers in the feed direction, along the

common feed line, and constructed and arranged to verify the correct positioning of the first and second strips.

10. A method as in claim 7, wherein the positioning device comprises a sensor constructed and arranged to monitor the first and second strips at a point beyond the first and second guide rollers in the feed direction, along the common feed line, and constructed and arranged to verify the correct positioning of the first and second strips.

11. A method as in claim 1, wherein the machine unit further comprises a forming station by which one or more continuous cigarette rods are generated.

12. A method as in claim 1, wherein the machine unit further comprises a coiling station at which the first and second strips advancing along each common feed line, joined face to face and positioned one relative to the other, are wound into respective rolls.

13. A method of feeding wrapper material in manufacturing machines, comprising:

advancing at least a first and a second strip of wrapper material along respective first and second feed lines, each strip presenting two longitudinal side edges and one strip exhibiting a transverse dimension greater than the transverse dimension of the other strip;

positioning the first and the second strip mutually along a direction transverse to the respective first and second feed lines;

joining the first and second strips together face to face and advancing both along a common feed line toward a machine unit;

decoiling each of the two first strips of the first pair and each of the two second strips of the second pair from a respective roll;

advancing each of the two first strips of the first pair and each of the two second strips of the second pair along a respective predetermined second feed line;

positioning each first strip of the first pair and each second strip of the second pair relative to one another in overlapping relation in sets of two along a direction transverse to the respective predetermined second feed line;

joining each first strip of the first pair face to face with the corresponding second strip of the second pair and advancing both together along a common feed line toward a machine unit.

* * * * *

179

179

FIG. 2

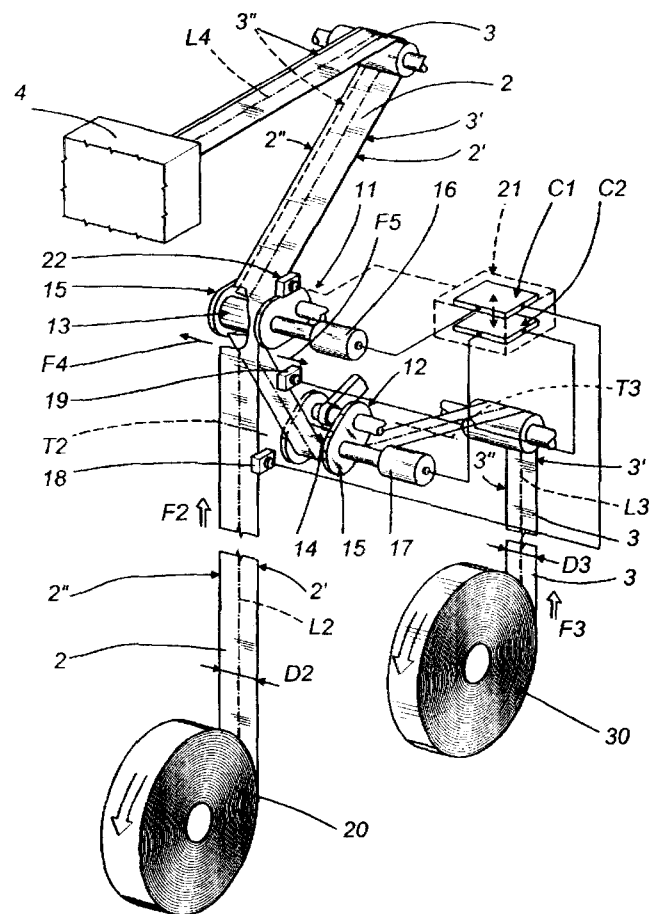


FIG. 4

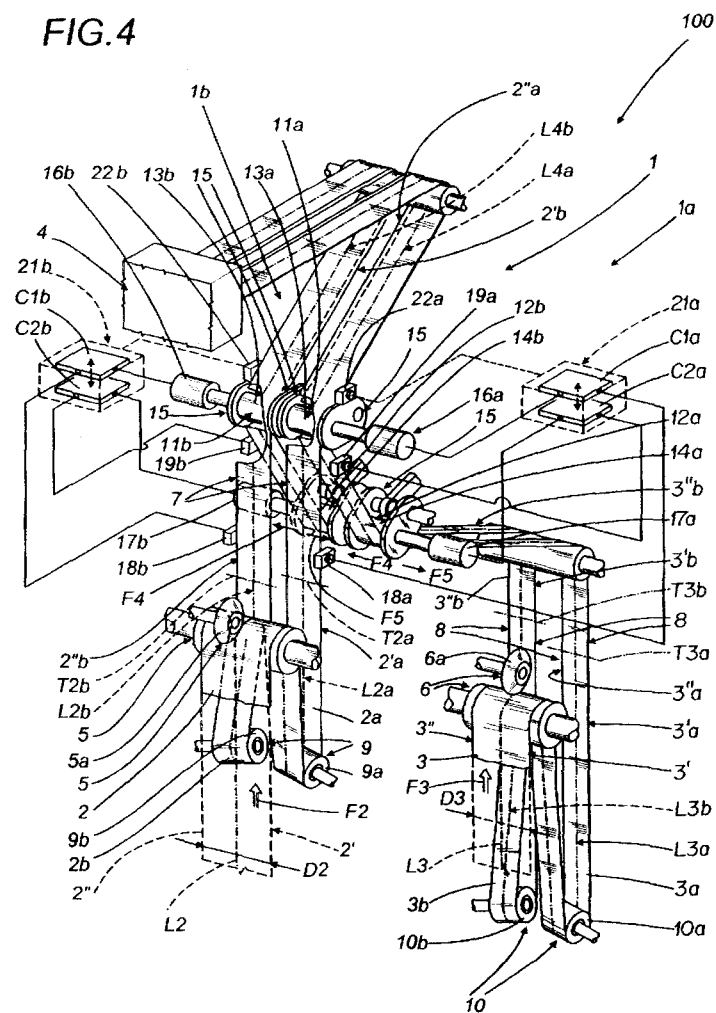


FIG. 5

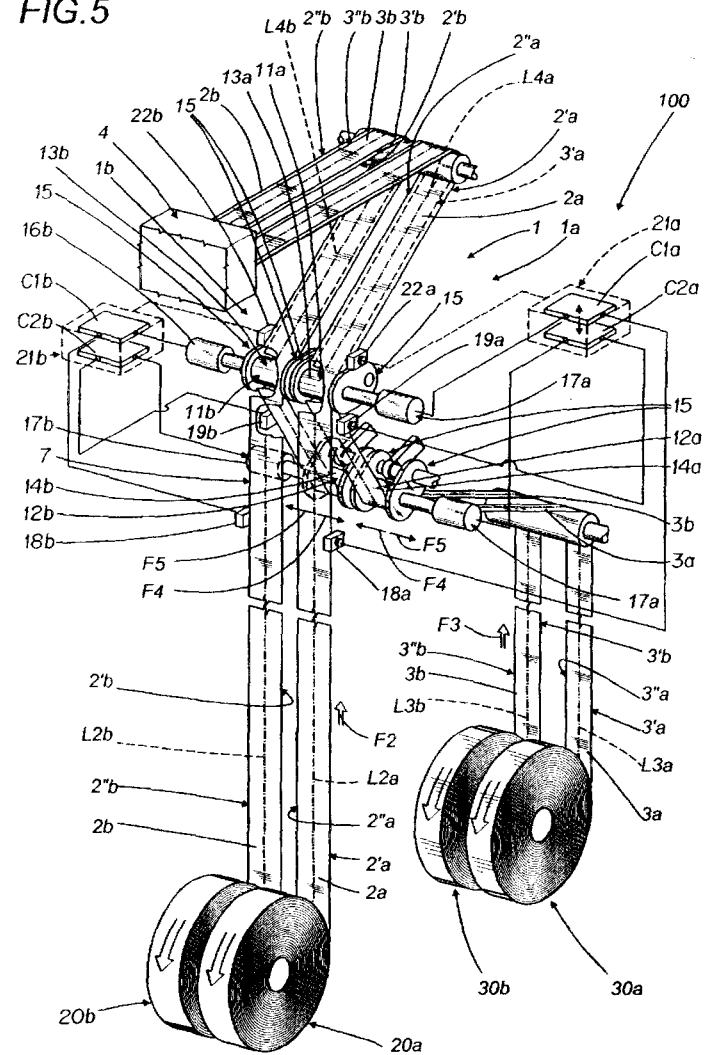


FIG. 6

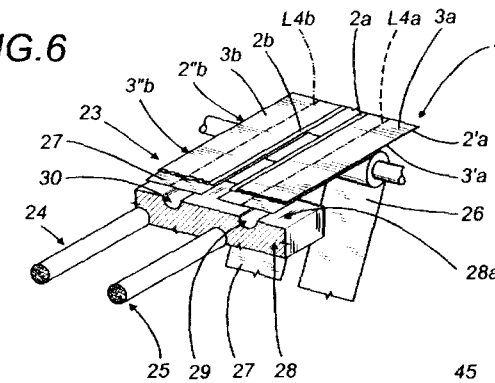


FIG. 8

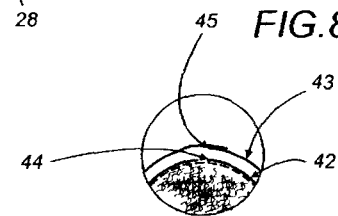


FIG. 7

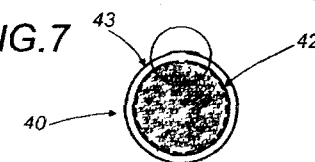
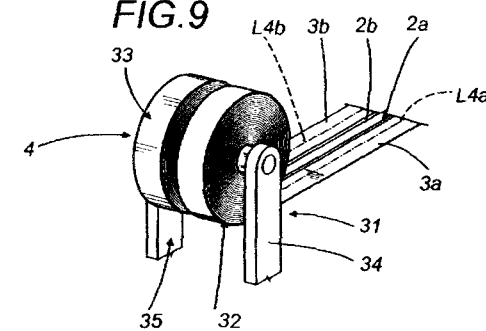


FIG. 9



182

182

**SUPERINTENDENCIA DE INDUSTRIA Y COMERCIO
DIRECCION DE NUEVAS CREACIONES**

2020

Abogado

ALVARO CORREA ORDOÑEZ

ASUNTO

Radicación 06-96297

Trámite 011

Evento 378

Actuación 430

Oficio

Folios 05

202278

Patente de Invención

☒

Patente de Modelo de Utilidad

☐

Vía PCT (fase nacional)

☒

Cap. I

☒

Cap. II

☐

No. Sol. Internacional:

PCT/GB2005/000669Fecha de Presentación Internacional: 2 de Febrero de 2005

Como resultado del examen de fondo, realizado con fundamento en el artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le comunica:

1. Documentos estudiados

Descripción:

Folios: 61 a 115 como se radicó inicialmente

Reivindicaciones:

Folios: 116 a 126 como se radicó inicialmente

Folios: 130 a 141 corregidas

Figuras:

Folios: 128 a 129 como se radicó inicialmente

Prioridad:

27 de febrero de 2004, GB 0404324.6

2. Objeto de la invención

Titulo de la invención:

Artículo y aparato para fumar y proceso para la elaboración de un artículo para fumar (folio 1).

El problema planteado en esta solicitud consiste en lograr un artículo para fumar con saborizantes estabilizados y reducción del material de partícula en el humo.

Para solucionar el anterior problema la solicitud plantea un articulo para fumar con una barra de material fumable, una envoltura alrededor de dicha barra y un material de red que comprende un material absorbente, donde el material de red esta ubicado entre dicha barra de material fumable y dicha envoltura.

Clasificación Internacional de Patentes (IPC) A24D1/02.

3. De la solicitud de PatenteReivindicaciones (artículo 30 D 486)

- La reivindicación 1 presenta como una característica técnica esencial un efecto

establecer cómo se llegó a tal resultado. No se aceptan reivindicaciones que caractericen resultados, usos, ventajas o efectos.

- Los términos “al menos”, “mayor” y “sustancialmente” utilizados en las reivindicaciones 43, 46 y 54, no proporcionan precisión ni concisión a las características técnicas de la invención.
- Las reivindicaciones 54 a 57 no definen la materia que se desea proteger, dado que los dibujos nunca pueden tomarse como una característica técnica esencial, es así como estas reivindicaciones deben eliminarse.

En conclusión, el capítulo reivindicatorio no cumpliría con el requisito de claridad de acuerdo con el artículo 30 de la Decisión 486.

4. Unidad de invención (artículo 25 D 486)

La presente solicitud presenta dos conceptos inventivos diferentes así:

- Grupo I: Reivindicaciones 1-45. Artículo, método y aparato para fabricar un artículo para fumar.
- Grupo II: Reivindicaciones 46-53. Método para saborizar un material de red.

Los conceptos inventivos de los dos grupos inventivos no definen un concepto inventivo general, dado que cada grupo define un método que obtiene como producto o resultado diferente, en los cuales no se evidencia un “elemento técnico particular” idéntico o correspondiente entre ellos.

Se le sugiere al solicitante restringir la materia a patentar en un solo concepto común inventivo especificando el avance tecnológico sobre el estado de la técnica. Esto se logra entre otras formas definiendo las características esenciales de la invención y mostrando las otras características particulares como dependientes, pero sin perjuicio de la concisión de las nuevas reivindicaciones tanto independientes como dependientes.

El solicitante también puede realizar una o más de las divisionales de acuerdo a los grupos de conceptos técnicos inventivos presentados en esta solicitud, esto claro, sin ampliar el objeto inicial de la invención.

5. Determinación del Estado de la Técnica

Considerando que la fecha de presentación de la primera solicitud de patente de la cual se reivindica prioridad es: 27 de febrero de 2004, se buscaron documentos del estado de la técnica relacionados, con fecha de publicación anterior a esta.

Nº	Documento	Título	Fecha de publicación
D1	US3744496	CARBON FILLED WRAPPER FOR SMOKING ARTICLE	1973-07-10
D2	US5307823	ROD OF SMOKING MATERIAL AND CIGARETTES MADE THEREFROM	1994-05-03
D3	US2004154630*	DOUBLE WRAPPER CIGARETTE, MACHINE AND METHOD FOR MANUFACTURING THE SAME	2003-02-20
D4	US6142154	METHOD OF FEEDING WRAPPER MATERIAL IN MANUFACTURING MACHINES	2000-11-07

*Perteneciente a la misma familia de patentes WO03013284

D1 describe un artículo para fumar con un empaque que contiene carbón. Este

cigarrillos. El papel del empaque es particularmente útil para introducir medios para varios saborizantes para cigarrillos (Resumen).

D2 describe un material para fumar que tiene un empaque interno para reducir el papel lateral que contiene carbón que es parte del relleno interno del cigarrillo (Resumen).

D3 describe un cigarrillo con doble empaque, su método y aparato de manufactura, el cual incluye un empaque interno (6), que se encuentra alrededor de material de tabaco, un empaque exterior (8) alrededor del empaque interno, y una lamina que emite perfume (10) localizada entre el empaque interno y externo (Resumen).

D4 describe un método para alimentar material de empaque, típicamente utilizado en la máquinas para la manufactura de productos de tabaco, una primer y segunda tiras presentan dos bordes laterales longitudinales y dos dimensiones diferentes que avanzan a los largo de las respectivas líneas predeterminadas de alimentación, posicionadas una relativamente a la otra en la dirección transversa a la respectiva primera línea de alimentación (Resumen).

6. Análisis de patentabilidad (según requisito) (artículo 14 D486)

Es importante mencionar que el siguiente análisis de patentabilidad se realizó teniendo en cuenta las objeciones de los numerales 3 y 4 de la presente comunicación.

Novedad (artículo 16 D486)

Respecto a la reivindicación 1

La reivindicación 1 hace referencia a: "Un artículo para fumar que comprende una barra de material fumable, una envoltura alrededor de dicha barra de material fumable y un material de red que comprende un material adsorbente y un saborizante, el material de red se posiciona entre dicha barra de material fumable y dicha envoltura, en donde dicho material de red se extiende sobre solo una porción de la longitud de la barra de material fumable".

Análisis de la diferencias respecto al estado de la técnica:

Características Esenciales de la Reivindicación 1	D1 US3744496	D2 US5307823	D3 US2004154630*
Un artículo para fumar que comprende	SI (Resumen, ejemplo 1, reiv. 1)	SI (Resumen)	SI (Resumen)
una barra de material fumable,	SI (Col 2 línea 6, Col 4 línea 20, Col 6 línea 34)	SI (Col 1 línea 33-35, Fig. 1 (1))	SI (Pág. 2 párrafo 0030, Fig. 2 (k))
una envoltura alrededor de dicha barra de material fumable	SI (Col 4 línea 20-21, Col 6 líneas 39-41)	SI (Col 1 línea 14-16, Fig. 1 (3))	SI (Pág. 2 párrafo 0028, Fig. 2 (8))
y un material de red que comprende un material adsorbente y un saborizante	SI (Col 3 líneas 1-3, Col 4 línea 19-20, Col 6 líneas 35-37, Col 3 líneas 54-56, Reiv. 10)	SI (Col 1 línea 11-12, Fig. 1 (2), Col 2 líneas 16-19, Reiv. 5)	SI (Pág. 2 párrafo 0028, Pág. 1 párrafo 0010, Fig. 2 (6))
el material de red se posiciona entre dicha barra de material fumable y dicha envoltura en donde dicho material de red se extiende sobre solo una porción de la longitud de la barra de material fumable	SI (Col 6 línea 42-43, Reiv. 6)	SI (Col 1 línea 20-21, Fig. 1)	SI (Pág. 2 párrafo 0028, Fig. 2)

De acuerdo al cuadro anterior, se muestra que las características técnicas de un artículo para fumar descritas en la reivindicación 1 ya eran conocidas en el estado de la técnica. Por lo tanto, esta reivindicación y sus dependientes no pueden considerarse nuevas.

Respecto a las reivindicaciones 16 y 32:

La reivindicación 16 hace referencia a: "Un método para fabricar un artículo para fumar que comprende alimentar un material de red, el material de red comprende un material adsorbente y un saborizante, a unos medios de corte, cortar dicho material de red en secciones, transferir dichas secciones sobre la envoltura y envolver una barra de material fumable con dicha envoltura".

La reivindicación 32 hace referencia a: "Un aparato para fabricar un artículo para fumar que comprende unos medios para suministrar un material de red que comprende un adsorbente y un saborizante a unos medios de corte, un medio de corte operable para cortar el material de red en secciones, un ensamble para transferir secciones de material de red sobre una envoltura, unos medios de adhesión para unir el material de red sobre una envoltura, y medios que forman el artículo para fumar".

Respecto a las reivindicaciones en estudio:

D1 es el documento mas cercano del estado de la técnica ya que describe un método y aparato para fabricar un cigarrillo con doble empaque que incluye un material de tabaco, un empaque interno con un relleno o absorbente, un empaque externo alrededor del empaque interno, y una lámina que emite perfume que se encuentra entre los dos empaque interno y externos. Donde si el material de perfume es soluble, la lamina que emite perfume se forma aplicando el perfume en a menos uno de los empaques internos externos. El método consiste en alimentar un material de red interno y externo a la zona de empaque, tender el material de red interno en el material de red externo para formar un material de red doble, aplicar un material que incluye perfumen en al menos uno de los materiales internos o externos en forma de lámina mientras los materiales internos o externos son alimentados, suministrar un relleno que incluye material de tabaco en material de red doble en el interior de la sección de empaque, formar un cigarrillo continuo al empacar el material doble alrededor del relleno mientras el material de red doble pasa a través de la sección de empaque con el relleno, y luego cortar el tabaco en cilindros de determinada longitud (párrafo 0007, 0018, 0019).

La solicitud se diferencia en D1 en el método por el paso de cortar dicho material de red en secciones y en el aparato por tener un medio de corte operable.

El problema técnico objetivo es como optimizar el uso del material de red que contiene saborizantes.

D4 soluciona el anterior problema técnico ya que afirma que las tiras de empaque (2) y (3) que el método presenta un paso de dividir estas tiras longitudinalmente por medios de discos de corte rotativos (5a) y (6a) (Col 5 líneas 49-51).

Es así como un experto en la materia enfrentado al problema de "como optimizar el uso del material de red que contiene saborizantes en un artículo para fumar", incluiría, un medio de corte por ejemplo discos rotativos para cortar el material de red (tira de empaque) que enseña D4, dentro de la invención descrita en D4, logrando de esta forma el método y aparato para fabricar el artículo para fumar objeto de las

Dado lo anterior, las características técnicas del método y aparato para fabricar un artículo para fumar, no representa un avance tecnológico sobre el estado de la técnica.

En conclusión, la materia de invención definida en las reivindicaciones 16 y 32, y sus dependientes se encuentran afectadas en su nivel inventivo de acuerdo con el artículo 18 de la Decisión 486.

6. Conclusión

Los requisitos de patentabilidad de la presente solicitud se encuentran afectados así:

N°	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	US3744496	1-15	Novedad
D2	US5307823	1-15	Novedad
D3	US2004154630*	1-15 16-46	Novedad Nivel Inventivo
D4	US6142154	16-46	Nivel Inventivo

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de 60 días contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única N° 10 de 2001.


JOSÉ LUIS SALAZAR LOPEZ
Director de Nuevas Creaciones (E)

El anterior requerimiento fue notificado por fijación en lista, de fecha

_____ 16 FEB 2011

CONCEPTO TÉCNICO No.14	EXAMINADOR TÉCNICO Código No.202090
----------------------------------	---