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(54) **DOUBLE-LAYERED HEATING CIGARETTE, AND PREPARATION METHOD THEREFOR AND USE THEREOF**

(57) The present invention is in the technical field of heated cigarettes and in particular relates to a double-layer heated cigarette, and a preparation method and use thereof. The heated cigarette includes an empty tube (2) and an aesthetic paper layer (3) wrapped on the outer layer of the empty tube (2), an end of the empty tube (3) far away from the lip being sealed with a sealing piece (1), and a lateral end of the sealing piece (1) being wrapped by the aesthetic paper layer (3). In the present invention, the aesthetic paper layer is wrapped on the outer layer of the empty tube and the aesthetic paper layer wraps the lateral end of the sealing piece, at the moment, the lateral end of a sealing film/sealing sleeve is not exposed to the outside, which prevents the sealing film/sealing sleeve from falling off the empty tube when the lateral end of the sealing film/sealing sleeve is forced during transport or filling of the cigarette. In addition, the

cigarette empty tube is generally a stiffer paper tube and cannot be printed with a pattern. After the outer layer of the empty tube is wrapped with the aesthetic paper layer, the pattern is easily printed and the cigarette becomes more aesthetic.

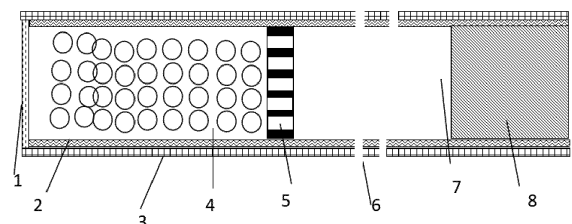


Fig. 2

Description

TECHNICAL FIELD

[0001] The present invention belongs to the technical field of heated cigarettes and in particular relates to a double-layer heated cigarette, and a preparation method and use thereof.

BACKGROUND

[0002] With the improvement of living standards, people pay more and more attention to their own health problems. In recent years, there has been a high degree of concern about smoking health problems. In order to meet the changing consumer demand, major enterprises at home and abroad have developed a variety of heated non-burning cigarettes to replace traditional cigarettes.

[0003] The heated non-burning cigarette produces smoke from the smoking section of the heated cigarette, which has a good acceptance of the taste of the smoke. At present, the commercialized heated non-burning cigarette mainly includes the smoking section, the hollow support section, the cooling section and the filter tip section. The forms of tobacco in the smoking section include: reconstituted tobacco leaf flakes, cut tobacco, granular tobacco substances, block tobacco substances, etc. filled in order or disorder. When the tobacco in the smoking section is heated, the essence, spice and smoke agent loaded on the tobacco are evaporated to produce smoke.

[0004] In the process of implementing the invention, the inventor found that the existing technology usually uses tobacco particles to fill the smoking particle segment of the cigarette or cigarette cartridge with cigarette particles, for example, the end of the smoking particle segment far away from the lip is sealed by a sealing film/sealing sleeve and the other end is sealed by a perforated sealing piece. This setting will bring some problems: in order to facilitate the filling of tobacco particles, the granular cigarette directly uses an empty tube as the outermost drum. The sealing film/sealing sleeve is fixed on the end of the empty tube of the cigarette by the adhesive or extrusion. The side end of the sealing film/sealing sleeve is exposed to the outside. When the cigarette is transported or loaded, the exposed part of the cigarette is easy to rub with the outside and bear force. When the lateral end of the sealing film/sealing sleeve is stressed, the sealing film/sealing sleeve is easy to fall off from the empty tube.

SUMMARY

[0005] The first aspect of the present invention provides a double-layered heated cigarette including an empty tube 2 and an aesthetic paper layer 3 wrapped on the outer layer of the empty tube 2, an end of the empty tube 3 far away from the lip being sealed with a sealing

piece 1, and a lateral end of the sealing piece 1 being wrapped by the aesthetic paper layer 3.

[0006] Preferably, the inside of the empty tube 2 includes a smoking segment 4 and a limiting segment 5 in sequence from the end far away from the lip to an end in contact with the lip.

[0007] Preferably, the inside of the empty tube 2 includes a smoking segment 4, a limiting segment 5, a hollow cooling segment 7, and a filter segment 8 in sequence from the end far away from the lip to the end in contact with the lip.

[0008] Preferably, the inside of the smoking segment 4 includes granular smoke-emitting substances.

[0009] Preferably, the sealing piece 1 is a puncturable sealing film, a breathable sealing film, a puncturable sealing sleeve or a breathable sealing sleeve; or a heat generating element insertion hole is arranged in the sealing piece 1; or a gas hole is arranged in the sealing piece 1.

[0010] Preferably, at least two rows of vent holes are arranged on the empty tube 2 and the aesthetic paper layer 3 axially corresponding to the hollow cooling section 7 to connect a hollow cavity of the hollow cooling section 7 with the outside.

[0011] Preferably, the limiting segment 5 is a perforated cylinder or a perforated disc, the hollow cooling segment 7 is a cavity and the filter segment 8 is a polymer fiber tow segment.

[0012] The second aspect of the invention provides the use of the double-layer heated cigarette according to the first aspect for avoiding fall-off of the sealing piece 1.

[0013] The third aspect of the invention provides a method of preparing the double-layer heated cigarette according to the first aspect, including the steps of: sealing a sealing piece 1 at an end far away from the lip of an empty tube 3 and then wrapping an aesthetic paper layer 3 at the outermost layer such that a lateral end of the sealing piece 1 is wrapped by the aesthetic paper layer 3.

[0014] The present invention has the following beneficial effects over the prior art:

In the present invention, the aesthetic paper layer is wrapped on the outer layer of the empty tube and the aesthetic paper layer wraps the lateral end of the sealing piece 1, at the moment, the lateral end of a sealing film/sealing sleeve is not exposed to the outside, which prevents the sealing film/sealing sleeve from falling off the empty tube when the lateral end of the sealing film/sealing sleeve is forced during transport or filling of the cigarette. In addition, the cigarette empty tube is generally a stiffer paper tube and cannot be printed with a pattern. After the outer layer of the empty tube is wrapped with the aesthetic paper layer, the pattern is easily printed and the cigarette becomes more aesthetic.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015]

Fig. 1 is a schematic diagram of a heated cigarette without an aesthetic paper layer 3.

Fig. 2 is a schematic diagram of a heated cigarette with an aesthetic paper layer 3 according to the present invention.

[0016] A list of reference signs:

1, sealing piece, 2, empty tube, 3, aesthetic paper layer, 4, smoking segment, 5, limiting segment, 6, vent hole, 7, hollow cooling segment, 8, filter segment.

DETAILED DESCRIPTION

[0017] The present invention is described in further detail below in connection with embodiments.

[0018] Those skilled in the art will understand that the following embodiments are only used to illustrate the invention and should not be regarded as limiting the scope of the invention. If the specific technology or condition is not indicated in the embodiment, it shall be carried out according to the technology or condition described in the literature in the art or according to the product specification. The materials or equipment used without indicating the manufacturer are conventional products that can be purchased.

[0019] Those skilled in the art can understand that the singular forms "a", "an", "the" and "side" used herein may also include the plural forms unless specifically stated. It should be further understood that the word "including" used in the description of the invention refers to the existence of the features, integers, steps, operations, elements and/or components, but does not exclude the existence or addition of one or more other features, integers, steps, operations, elements, components and/or their groups. It should be understood that when we say that an element is "connected" to another element, the element can be directly connected to other elements, or there can be intermediate elements. In addition, the "connection" used here may include a wireless connection.

[0020] In the description of the present invention, unless otherwise stated, "a plurality" means two or more. The orientation or state relationship indicated by the terms "inside", "up", "down", etc. is based on the orientation or state relationship shown in the attached drawings. It is only for the convenience of describing the invention and simplifying the description, but not for indicating or implying that the device or element referred to must have a particular orientation, be constructed and operate in a particular orientation, and therefore cannot be interpreted as limiting the present invention.

[0021] In the description of the present invention, it should be noted that unless otherwise specified and limited, the terms "installation", "connection" and "provided" should be understood in a broad sense, for example, the connection can be fixed connection, removable connection, or integrated connection; the connection can be mechanical connection or electrical connection; the connection can be direct connection or indirect connection

through an intermediate medium. Those skilled in the art understand the specific meaning of the above terms in the invention according to the specific situation.

[0022] Those skilled in the art can understand that, unless otherwise defined, all terms used herein, including technical terms and scientific terms, have the same meaning as those generally understood by those skilled in the art to which the invention belongs. It should also be understood that terms such as those defined in the general dictionary should be understood to have the meaning consistent with the meaning in the context of the prior art, and unless defined as here, they will not be interpreted with idealized or overly formal meaning.

Embodiment 1

[0023] A double-layer heated cigarette including an empty tube 2 and an aesthetic paper layer 3 wrapped on the outer layer of the empty tube 2, an end of the empty tube 3 far away from the lip being sealed with a sealing piece 1, and a lateral end of the sealing piece 1 being wrapped by the aesthetic paper layer 3.

[0024] The inside of the empty tube 2 includes a smoking segment 4, a limiting segment 5, a hollow cooling segment 7, and a filter segment 8 in sequence from the end far away from the lip to the end in contact with the lip. The inside of the smoking segment 4 includes granular smoke-emitting substances.

[0025] The sealing piece 1 is a breathable sealing film. At least two rows of vent holes are arranged on the empty tube 2 and the aesthetic paper layer 3 axially corresponding to the hollow cooling section 7 to connect a hollow cavity of the hollow cooling section 7 with the outside. The limiting segment 5 is a perforated cylinder or a perforated disc, the hollow cooling segment 7 is a cavity and the filter segment 8 is a polymer fiber tow segment.

Comparative example 1

[0026] A heated cigarette, which differs from Embodiment 1 only in that the empty tube 2 is not wrapped with the aesthetic paper layer 3.

Application example 1

[0027] A batch of 200 double-layer heated cigarettes of Embodiment 1 and a batch of 200 heated cigarettes of Comparative Example 1 were prepared, respectively, and dispensed into cigarette cases and shipped to the preparation site. The cigarette cases were then opened and checked, The fall-off rate of the sealing pieces 1 of the double-layer heating cigarettes in Embodiment 1 is 0, and the fall-off rate of the sealing pieces 1 of the heating cigarettes in Comparative Example 1 is 5%.

[0028] Therefore, the technical solution of the present invention makes it possible to significantly reduce the fall-off rate rate of the sealing piece 1.

Claims

1. A double-layer heated cigarette, **characterized in that** the heated cigarette comprises an empty tube (2) and an aesthetic paper layer (3) wrapped on the outer layer of the empty tube (2), an end of the empty tube (3) far away from the lip being sealed with a sealing piece (1), and a lateral end of the sealing piece (1) being wrapped by the aesthetic paper layer (3). 5
10
2. The double-layer heated cigarette according to claim 1, **characterized in that** the inside of the empty tube (2) comprises a smoking segment (4) and a limiting segment (5) in sequence from the end far away from the lip to an end in contact with the lip. 15
3. The double-layer heated cigarette according to claim 1, **characterized in that** the inside of the empty tube (2) comprises a smoking segment (4), a limiting segment (5), a hollow cooling segment (7), and a filter segment (8) in sequence from the end far away from the lip to the end in contact with the lip.. 20
4. The double-layer heated cigarette according to any one of the claims 1 to 3, **characterized in that** the inside of the smoking segment (4) comprises granular smoke-emitting substances. 25
5. The double-layer heated cigarette according to any one of claims 1 to 3, **characterized in that** the sealing piece (1) is a puncturable sealing film, a breathable sealing film, a puncturable sealing sleeve or a breathable sealing sleeve; or a heat generating element insertion hole is arranged in the sealing piece (1); or a gas hole is arranged in the sealing piece (1). 30
35
6. The double-layer heated cigarette according to any one of the claims 1 to 3, **characterized in that** at least two rows of vent holes are arranged on the empty tube (2) and the aesthetic paper layer (3) axially corresponding to the hollow cooling section (7) to connect a hollow cavity of the hollow cooling section (7) with the outside. 40
45
7. The double-layer heated cigarette according to claim 3, **characterized in that** the limiting segment (5) is a perforated cylinder or a perforated disc, the hollow cooling segment (7) is a cavity and the filter segment (8) is a polymer fiber tow segment. 50
8. Use of the double-layer heated cigarette according to claim 1 for avoiding fall-off of a sealing piece (1).
9. A method for preparing the double-layer heated cigarette according to claim 1, **characterized by** comprising the steps of: 55
sealing a sealing piece (1) at an end far away from

the lip of an empty tube (3) and then wrapping an aesthetic paper layer (3) at the outermost layer such that a lateral end of the sealing piece (1) is wrapped by the aesthetic paper layer (3).

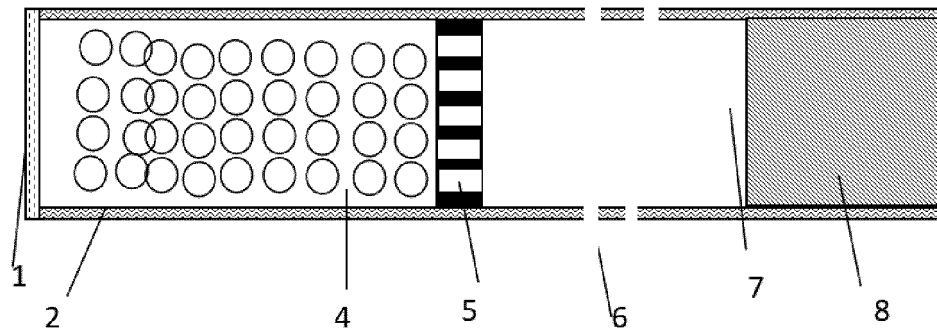


Fig. 1

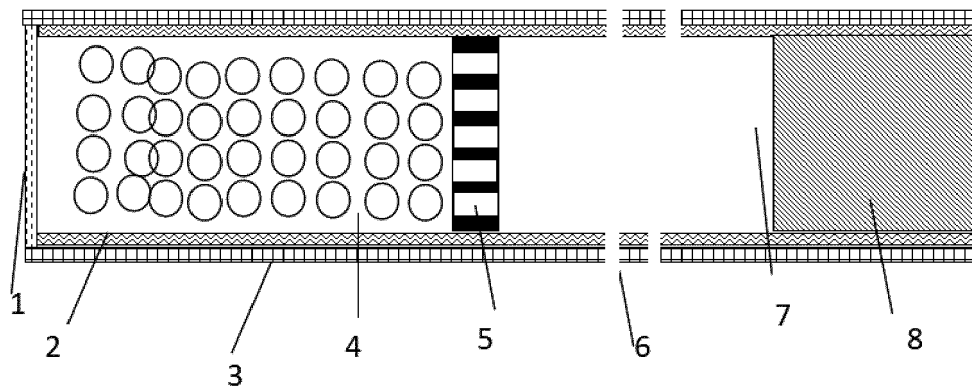


Fig. 2

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2022/098569

A. CLASSIFICATION OF SUBJECT MATTER A24D 1/20(2020.01)i According to International Patent Classification (IPC) or to both national classification and IPC																		
B. FIELDS SEARCHED																		
Minimum documentation searched (classification system followed by classification symbols) A24C; A24D Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched																		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) CNKI, CNPAT, WPI, EPODOC: 图案, 卷烟, 发烟, 空管, 包装, 接装, 包裹, 外, 纸, 装饰, 美观, PAPER, WRAP+, TABACCO, TUBE?, SEAL+																		
C. DOCUMENTS CONSIDERED TO BE RELEVANT																		
<table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>PX</td> <td>CN 216165134 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD.) 05 April 2022 (2022-04-05) claims 1-7, description, paragraphs [0005]-[0033], and figure 2</td> <td>1-9</td> </tr> <tr> <td>E</td> <td>CN 216906800 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD.) 08 July 2022 (2022-07-08) claims 1-6, description, paragraphs [0006]-[0077], and figures 1-3</td> <td>1-7</td> </tr> <tr> <td>X</td> <td>CN 108669663 A (ZHAO XUE) 19 October 2018 (2018-10-19) claims 1-12, description, paragraphs [0007]-[0030] and [0032]-[0034], and figures 1, 3-6 and 8-15</td> <td>1-9</td> </tr> <tr> <td>X</td> <td>CN 112716041 A (CHINA TOBACCO JIANGXI INDUSTRIAL CO., LTD.) 30 April 2021 (2021-04-30) claims 1-9, description, paragraphs [0005]-[0060], and figures 1-6</td> <td>1, 4, 5, 8, 9</td> </tr> <tr> <td>X</td> <td>CN 112716040 A (CHINA TOBACCO JIANGXI INDUSTRIAL CO., LTD.) 30 April 2021 (2021-04-30) claims 1-8, description, paragraphs [0005]-[0053], and figures 1-2</td> <td>1, 4, 5, 8, 9</td> </tr> </tbody> </table>	Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	PX	CN 216165134 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD.) 05 April 2022 (2022-04-05) claims 1-7, description, paragraphs [0005]-[0033], and figure 2	1-9	E	CN 216906800 U (CHINA TOBACCO YUNNAN INDUSTRIAL CO., LTD.) 08 July 2022 (2022-07-08) claims 1-6, description, paragraphs [0006]-[0077], and figures 1-3	1-7	X	CN 108669663 A (ZHAO XUE) 19 October 2018 (2018-10-19) claims 1-12, description, paragraphs [0007]-[0030] and [0032]-[0034], and figures 1, 3-6 and 8-15	1-9	X	CN 112716041 A (CHINA TOBACCO JIANGXI INDUSTRIAL CO., LTD.) 30 April 2021 (2021-04-30) claims 1-9, description, paragraphs [0005]-[0060], and figures 1-6	1, 4, 5, 8, 9	X	CN 112716040 A (CHINA TOBACCO JIANGXI INDUSTRIAL CO., LTD.) 30 April 2021 (2021-04-30) claims 1-8, description, paragraphs [0005]-[0053], and figures 1-2	1, 4, 5, 8, 9
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☒ Further documents are listed in the continuation of Box C. ☒ See patent family annex.																		
<table border="0"> <tr> <td style="vertical-align: top;"> * Special categories of cited documents: “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier application or patent but published on or after the international filing date “L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) “O” document referring to an oral disclosure, use, exhibition or other means “P” document published prior to the international filing date but later than the priority date claimed </td> <td style="vertical-align: top;"> “T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art “&” document member of the same patent family </td> </tr> </table>	* Special categories of cited documents: “A” document defining the general state of the art which is not considered to be of particular relevance “E” earlier application or patent but published on or after the international filing date “L” document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) “O” document referring to an oral disclosure, use, exhibition or other means “P” document published prior to the international filing date but later than the priority date claimed	“T” later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention “X” document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone “Y” document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art “&” document member of the same patent family																
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Date of the actual completion of the international search 19 August 2022	Date of mailing of the international search report 14 September 2022																	
Name and mailing address of the ISA/CN China National Intellectual Property Administration (ISA/CN) No. 6, Xitucheng Road, Jimenqiao, Haidian District, Beijing 100088, China Facsimile No. (86-10)62019451	Authorized officer Telephone No.																	

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INTERNATIONAL SEARCH REPORT

International application No.

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.

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