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CA 002011324 A

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(54) Cigarettes, tobacco rods and method of making them

(57) A wrapped tobacco rod in or for a smoking article has a lined coaxial tubular channel lining the tube and the wrap of the tobacco rod are of a single continuous sheet of material, the rod is formed by wrapping the material around two major faces 3, 4 and one minor face 6 of a layer of tobacco and bending the layer round into hollow cylindrical form.

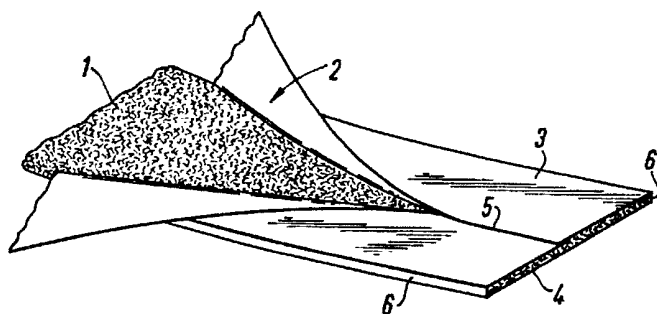


Fig. 1a

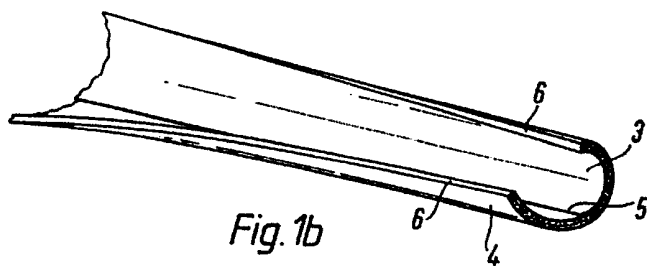


Fig. 1b

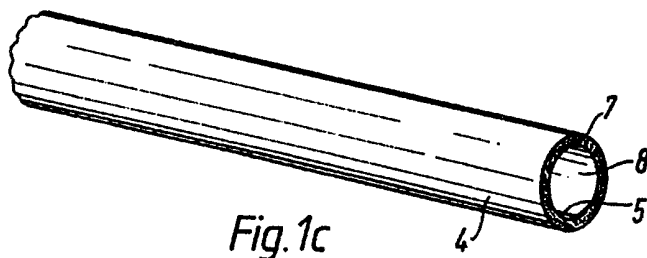


Fig. 1c

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The claims were filed later than the filing date within the period prescribed by Rule 25(1) of the Patents Rules 1990.

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1/2

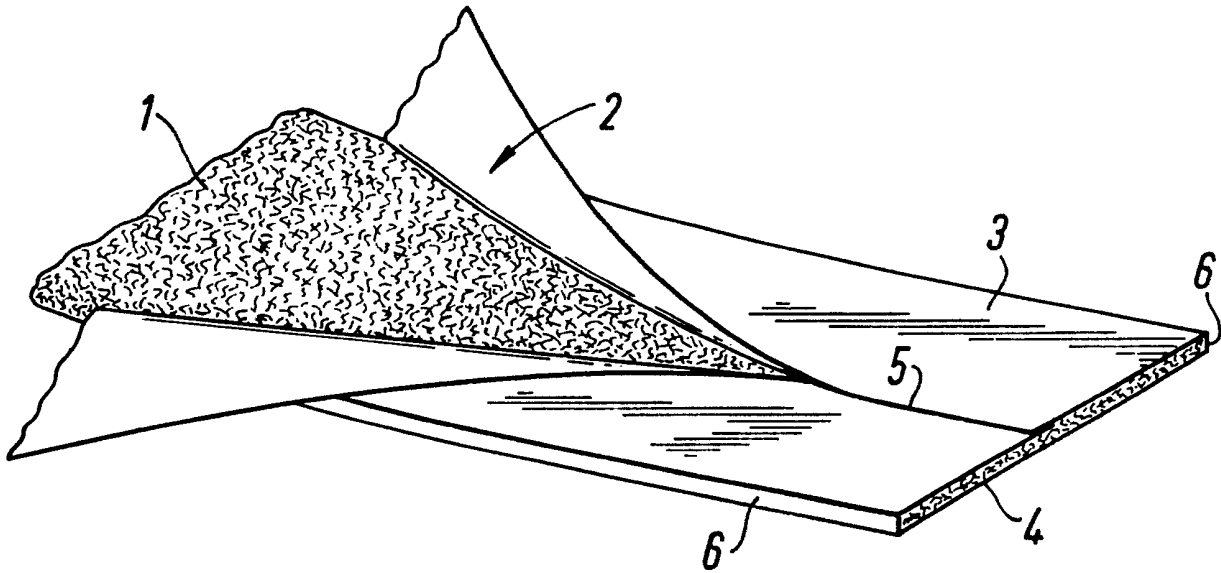


Fig. 1a

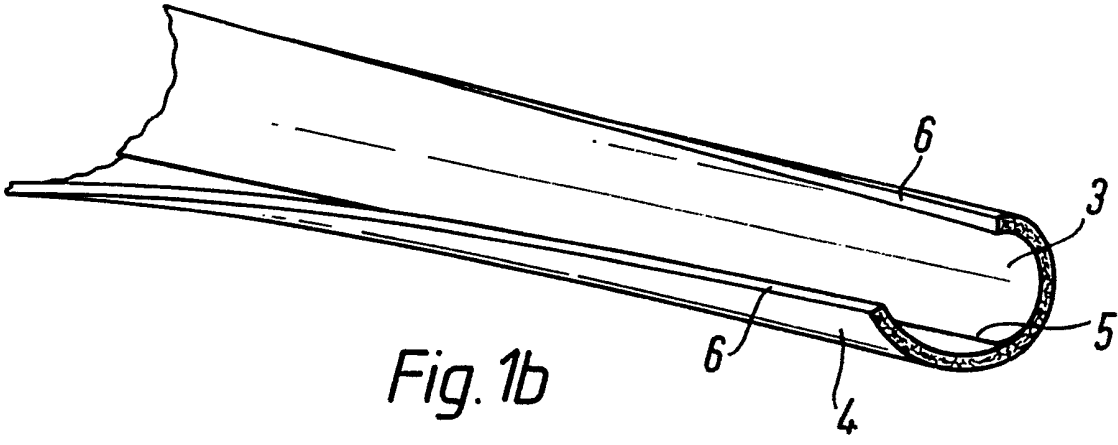


Fig. 1b

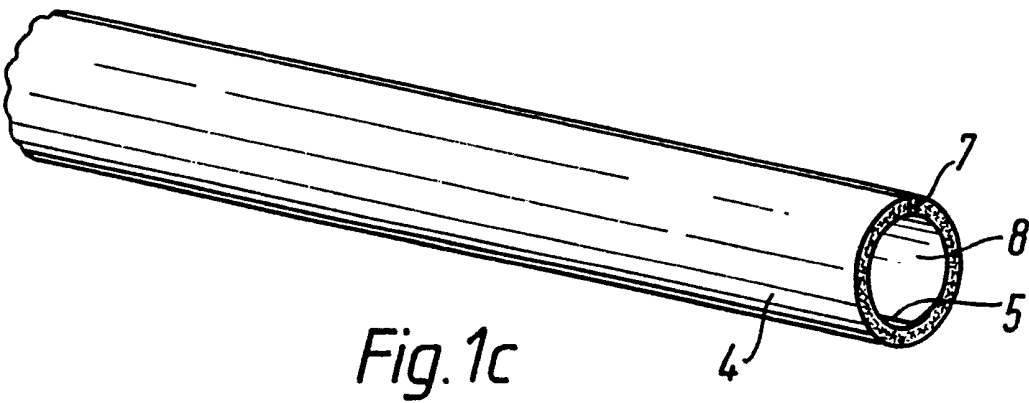


Fig. 1c

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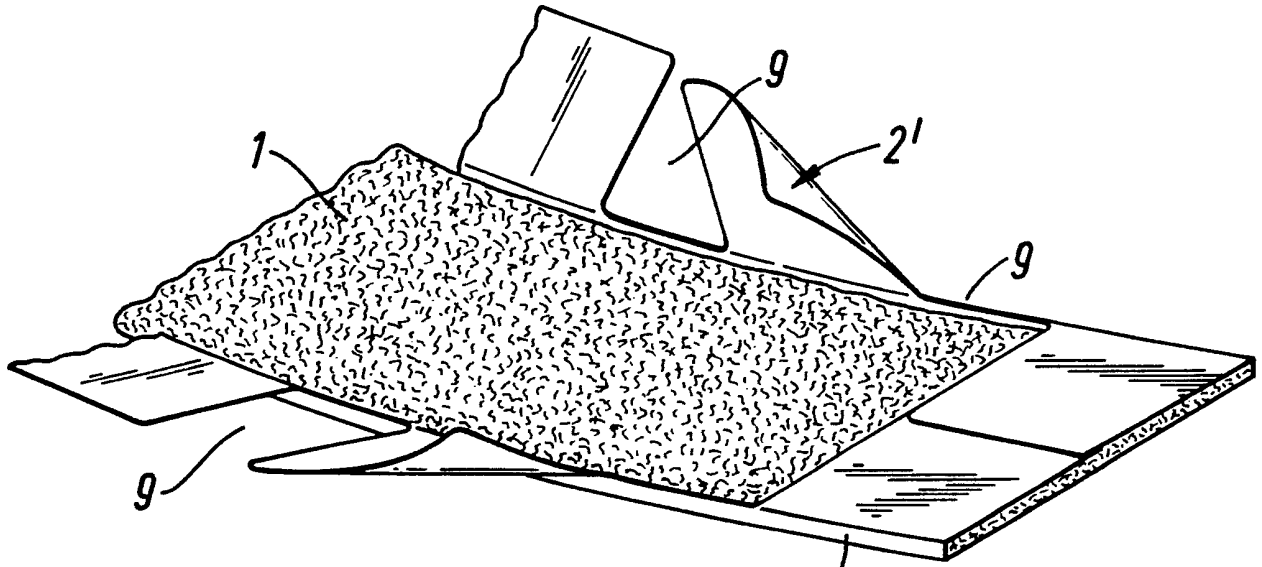


Fig. 2a

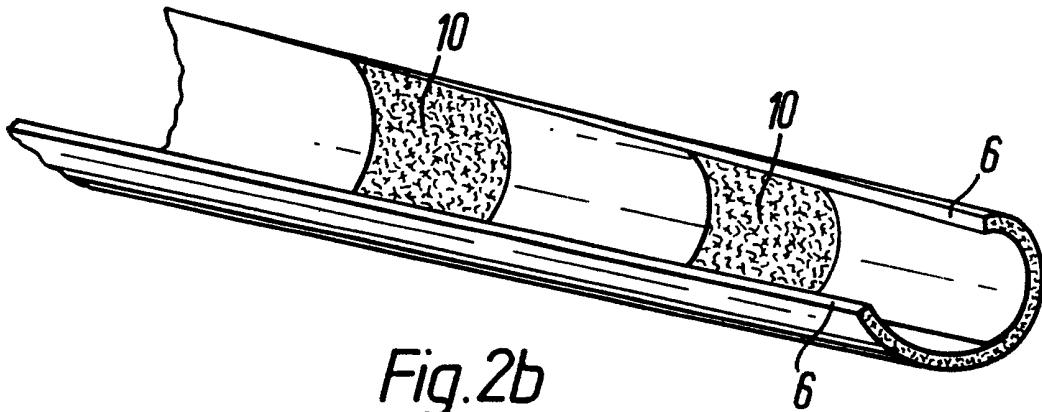


Fig. 2b

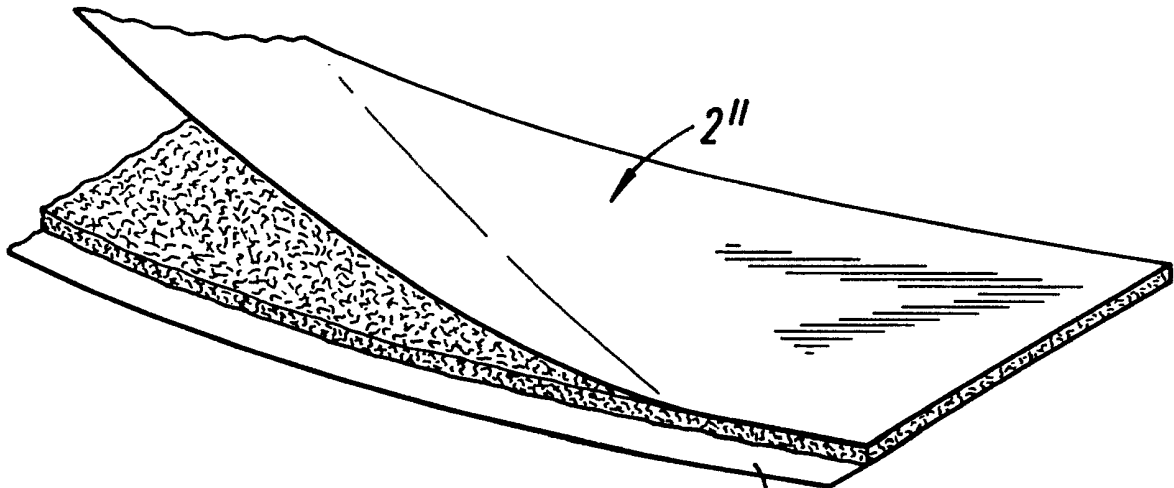


Fig. 3

CIGARETTES, TOBACCO RODS AND METHOD
OF MAKING THEM

5 This invention relates to cigarettes, tobacco rods and methods of making them.

 It has for very many years been known to be desirable for various purposes such as modification or dilution of the smoke, that the whole or part of the tobacco rod of a cigarette should be "tubed", that is to
10 say, should have along at least part of its length a longitudinal passage which is either devoid of smoking material or is filled with materials contrasting from those of the rest of the tobacco rod.

15 The earliest proposal for such a cigarette appears to be in UK Patent 16566 of 1886.

 According to the different primary purpose of the tubing the tube may permit through-flow of air or of smoke, may be positioned in different parts of the
20 length of the tobacco rod, or over the whole of its length and, as mentioned above, may be void or may be filled with smoking or flavouring materials contrasting with those of the tobacco rod.

 Most of the literature concerned with such
25 tubed cigarettes appears to ignore the problem of practical production of such cigarettes. For the most

part a pre-formed tobacco rod is penetrated by a mandrel, after which a pre-formed tube may be inserted in the hole made, as in GB 16566/1886. For recent examples see DE-A-2 715 994 and 2 709 825.

5 However, what is needed is a method of manufacture which is operable on a conventional continuous cigarette making machine, preferably with a minimum of modification.

 There are some proposals for continuous
10 methods of forming tubed cigarettes. In GB-A-880 950, lining for a tubular bore is provided by a second web of cigarette paper or the like, distinct from that providing the outer wrap of the cigarette, fed into a groove compressed into the tobacco material. In the
15 case of DE-A-4 009 657 a tobacco rod is first formed and then a tube inserted into it and in the continuous method of GB-A-2 170 692 an inner rod is pre-formed and a tobacco rod is then formed around it.

 Only in CA-A-2 011 324 are we aware of any
20 proposal for the formation of a tubed cigarette in which the tube is lined by material continuous with that of the outer wrap. Here, however, the inventor was only capable of producing a marginal tube, at one radius of the cigarette, since he was forming his tube by
25 effectively a displaced overlap of the outer paper. A marginal tube is aesthetically unpleasing and clearly

gives results which are assymetrical.

The object of the present invention therefore is to provide an efficient and simple process for the production of an at least partially lined coaxial tube in a tobacco rod in or for a cigarette, being a process
5 which is controllable and adaptable so as to provide such a tube of adjustable diameter and relative length, filled or not, and with continuous through-flow or not.

The invention provides also tobacco rod
10 lengths and cigarettes made by this method.

The invention provides a method therefore in which first there is formed a layer of tobacco having two major and generally parallel faces, one of which is completely covered, and the other of which is at least
15 partly covered by sheet material, the sheet material continuing around at least one minor edge so that it is continuous between the two major faces, bending the layer into a hollow cylindrical tobacco rod so that the two minor edges are brought together and the necessarily
20 completely covered major face is outward, and securing the rod thus formed in its cylindrical shape at or in the region of the minor faces.

Thus there is formed a cylindrical rod wholly covered on its outer surface by the sheet material and
25 with a coaxial tube at least partly defined by the sheet material.

It can be seen that the sheet material being continuous between the two major faces is unitary and only a single step is involved in its introduction into the rod. This does not prevent the sheet material
5 having different characteristics or being of different composition as between the portions which respectively are to be on the two major faces. For example the major face which is necessarily wholly covered may be covered by a portion of the sheet which is conventional
10 cigarette paper while the portion of the sheet overlying the other major face may be of thicker paper, which may be perforated or porous, or may be of different sheet material as for example of tobacco sheet material.

The forming of the layer and its bending into
15 a tube are readily accomplished in conventional garnitures of a cigarette making machine at which stage it is also easy to insert into the tube additives, further tobacco or a blockage (for example, a lump of adhesive) if it is desired that the tube shall not be
20 one which permits axial through-flow of air or smoke.

It is recognised that the forming of the initial layer into a tube will mean that the relative dimensions of the two faces will alter; this can be accommodated by for example making the minor edges non-
25 parallel so that the layer in cross-section is trapezoidal.

The securing of the cigarette in its tubular form may be achieved by butt adhesion of the two minor edges and/or by adhesion of an overlapping portion of the sheet material on the surface which is outer and/or
5 by overwrapping the whole.

The tobacco rod or cigarette according to the invention has a coaxial tube which is at least partly lined by sheet material and is characterised by the fact that along at least a portion of the length of the rod
10 or cigarette sheet material extends from the lining of the tube to the wrapping of the cigarette and is continuous with each. As is made clear above, this does not necessarily mean that the outer wrapping and the lining need be of the same material or have the same
15 characteristics.

A particular embodiment of the invention will now be described with reference to the accompanying drawings, wherein:

Figure 1 shows diagrammatically;

20 In Figure 1a a first step in the formation of a cigarette;

In Figure 1b a second step; and

In Figure 1c a third step, all seen in perspective.

25 Figure 2 shows a modification with Figure 2a and 2b being analogous to Figure 1a and 1b.

Figure 3 shows a further modification.

As seen in the figures, in a first garniture of a cigarette making machine a planar-sided layer of tobacco 1 is formed and is wrapped in conventional cigarette paper 2. The layer has upper and lower major faces 3 and 4 which are parallel to each other and as shown in this figure an overlap 5 of the paper 2 is arranged along the middle of the width of the upper major face 3. The layer need not have planar major faces but could be curved in lateral cross-section.

Minor edge faces 6 are also covered by the paper 2.

In a second garniture of the conventional machine the layer is bent around into hollow cylindrical form with the lower major face 4 outward and the upper major face 3 inward until the minor edge faces 6 are brought into contact with each other. They are then secured together as in Figure 1c by a conventional adhesive, forming a seam 7. We thus have a cigarette with a central tube 8 lined by the sheet material 2 which was on the major face 3 of the layer and surrounded by the sheet material which was on the major face 4.

It is recognised that the deformation to a tubular state involves a relative change in the dimensions of the two major faces and this may be

compensated partially by allowing simple sliding at the overlap 5 on face 3 or by forming the minor edge faces 6 somewhat convergent upwardly so that the cross-section of the layer would be trapezoidal.

5 The change to tubular configuration also involves a change in the distribution of the tobacco which will tend to compress at the radially inner parts of the hollow rod. This may be compensated by an initially different distribution of the tobacco through
10 the thickness of the layer 1 either in respect of density in different parts of that layer or in shred orientation or both.

 It is conventional in a cigarette machine that during the formation into a cylinder different materials
15 could be inserted in the tube 8 in the course of formation and these materials could include either flavouring or other modifying materials, contrasted or additional smoking materials or, if the tube is not to permit through-flow, blocking plugs, most suitably of
20 the adhesive also used for forming the seam 7.

 Figure 2 shows how the sheet material 2' need not be the continuous undifferentiated web of Figure 1 but may have cut out portions such as 9 at predetermined repeating intervals along its length such that portions
25 of the tube 7', which is seen in course of formation in Figure 2b, will remain unlined at positions such as 10.

In this way a tube allowing lateral flow can be formed or for example tobacco may be added, which, when the continuous cylindrical rod is separated into individual cigarette rod lengths, will form a "hard plug" at an end of such lengths.

If the sheet 2" is differently disposed, as is seen in Figure 3, an overlap on one of the main faces is avoided but instead the material starts on or adjacent a minor side 5, continues around the layer and then projects outwardly at 12 beyond the minor side 5 first mentioned so as to provide an overlap which on tube formation may be conventionally secured to maintain the cylindrical rod formation.

It is clear also that provided the sheet material which is fed is unitary, it need not be uniform. For example, the portion of the web which is to form the lining of the tube 8 may be of different characteristics or different material e.g. of sheet tobacco material, from the paper which is to form the outer wrapping.

CLAIMS:

1. A method of making a smoking article or tobacco rod therefor, in which first there is formed a layer of tobacco having two major and generally parallel faces, one of which is completely covered, and the other of which is at least partly covered by sheet material, the sheet material continuing around at least one minor edge so that it is continuous between the two major faces, bending the layer into a hollow cylindrical tobacco rod so that the two minor edges are brought together and the necessarily completely covered major face is outward, and securing the rod thus formed in its cylindrical shape at or in the region of the minor faces to form a cylindrical rod wholly covered on its outer surface by the sheet material and with a coaxial tube at least partly defined by the sheet material.

2. A method according to claim 1 wherein the sheet material having different characteristics or being of different composition as between the portions which respectively are to be on the two major faces.

3. A method according to claim 1 or claim 2 which includes additives, further tobacco or a blockage inserted in the tube.

4. A method according to any one of the preceding claims wherein the minor edges of the layer are non-

parallel so that the initial cross-section of the layer is trapezoidal.

- 11 -

Relevant Technical Fields

Search Examiner
 M ELLIOTT

(i) UK Cl (Ed.M) A2C CGFC CGEE

(ii) Int Cl (Ed.5) A24C 5/18

Date of completion of Search
 18 MAY 1994

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASE WPI

Documents considered relevant following a search in respect of Claims :-
 1-4

Categories of documents

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|---|---|
| X: Document indicating lack of novelty or of inventive step. | P: Document published on or after the declared priority date but before the filing date of the present application. |
| Y: Document indicating lack of inventive step if combined with one or more other documents of the same category. | E: Patent document published on or after, but with priority date earlier than, the filing date of the present application. |
| A: Document indicating technological background and/or state of the art. | &: Member of the same patent family; corresponding document. |

Category	Identity of document and relevant passages	Relevant to claim(s)
A	CA A 2011324 (TURMAC TOBACCO CO BV) Whole document	Claim 1 at least

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).