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(54) Filtered smoking article.

(57) A smoking article having a tobacco rod (1) and a filter, the filter having a first filter portion proximate said tobacco rod and a second filter portion distant from said tobacco rod and attached to said first filter portion, the second filter portion being separable from said first filter portion in order to modify the smoke which passes through said filter upon burning said tobacco rod (1) said first and second filter portions are attached by a wrap (4), the wrap (4) including a break line (10) positioned part-way along the length of the filter, whereby the second filter portion can be separated from the first filter portion by severing the wrap (4) at the break line (10).

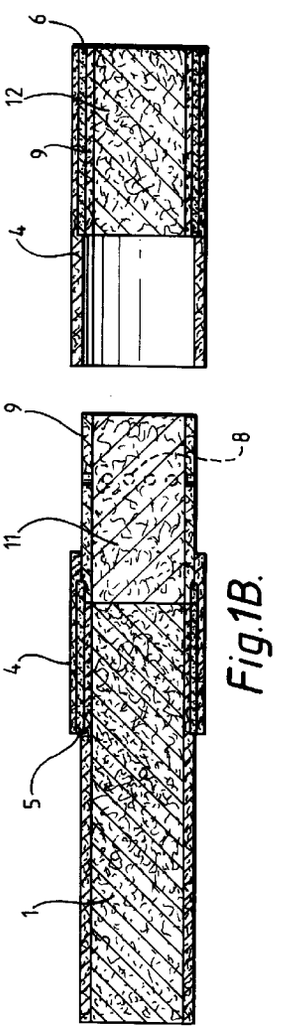

Fig.1B.

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This invention relates to filtered smoking articles.

A conventional filter for a smoking article is provided as part of the article and, in a given article, is not usually changeable in its characteristics. There have been proposals in the past for filters which are variable to the extent that they are perforated at some position along their length and a separate sleeve is provided which is rotated by the user either to obstruct or to open the perforations. When the perforations are open the smoke received by the smoker is diluted by air drawn in through those perforations and his perception of the smoke is changed. For a complex proposal of this type see US Patent 3503706.

The present invention is concerned to provide variability in the filter of a given article, but in a much simpler manner.

According to the invention a filter portion of a smoking article is delimited as having at least two discrete portions and at least one of them is separable from the smoking article by the user.

In a preferred form the delimitation is achieved by defining a break line in a wrap (such as tipping paper) of the filter and positioned part-way along the length of the filter such that a user who wants a less filtered smoke can twist off or sever the filter at that line. This line of weakening may comprise, for example, a row of perforations or a tear strip.

The filter plugs at respective sides of the line of delimitation may have different chemical and/or mechanical characteristics so that if the smoker discards the separable part he may not only get a less filtered smoke but one which has been subjected to a treatment different in its nature. For example, the separable part of the filter may have a perforated or partly porous wall such that when that part remains in the smoking article the smoker receives diluted smoke whereas if it is removed he receives undiluted smoke.

Alternatively, or additionally, the removal of the separate part of the filter and wrap may expose a perforated or partly porous region in the plugwrap of the remaining filter so that, after this adjustment, the smoker receives diluted smoke. Further alternatively, or additionally, the removable part of the filter may be flavoured whereas the permanent part may be "natural"; or alternatively both parts may be perfumed but with different perfumes. The two filter parts may be similar or may be different in chemical composition. Typically, either may be composed of cellulose acetate tow, paper or polypropylene or nylon fibres or may have activated carbon incorporated into it.

In yet other embodiments, the detached separable part of the filter may be repositionable on the cigarette and may have additional material (supplied separately) inserted into it to be entrapped longitudinally between the two filter portions when the separable part is repositioned on the cigarette. After repositioning, the perforated or partly porous region, if present in the plugwrap of the remaining filter may be either occluded or left exposed. The additional material may for example bear flavouring or may be an additional active element such as cellulose acetate tow or plug of a range of filter efficiencies, optionally bearing graphite, activated carbon, granules which may be metallized, humidifiers or the like. If desired, the insertion of the additional material within the wrap of the separable part of the filter may be accomplished by applying pressure via a piston to capsules or cartridges of the material held within an applicator tube of a size to feed within the exposed wrap of the separable part of the filter.

As an alternative to the line of weakening, the removable part of the filter may simply be removable as a plug or the like from the mouth end of the filter wrap, leaving an empty tube at that end portion.

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

Figures 1A to 5A inclusive show diametrical sections through respective embodiments of cigarettes whilst Figures 1B to 5B inclusive show the same respective embodiments of Figures 1A to 5A after removal of part of the filter assembly.

Figure 6 is a diametrical section through a further variant.

Figure 7A shows a diametrical section through yet another embodiment of the invention, while Figure 7B shows the same embodiment after removal of part of the filter assembly.

In Figure 1 we see a cigarette with a tobacco rod 1 wrapped in cigarette paper 2 and attached to a filter structure 3 by an overwrap (tipping paper) 4 which is conventionally glued at the mouth end 5 of the rod and at the mouth end 6 of the filter structure, but is unglued between.

This filter structure has two filter zones 11 and 12 occupied by the same or different filter materials which may be of any conventional type. There is provision for ventilation such as a porous zone or, as here, perforations 8 in the plugwrap 9 of the filter structure for ventilation of the smoke flow through the filter while a breaking line 10 preferably in the form of perforations, but which may be a tear strip, in the tipping paper 4 only (and not in the plugwrap 9) around the two filter parts 11 and 12 defines a position at which the user may separate the filter into two parts. The plugwrap is in two portions butting end to end in the plane at which filter zones 11 and 12 meet. If the user separates the filter parts, either by twisting, bending or cutting the filter at the line 10 the mouth end portion of the tipping paper 4 will come away with the filter portion 12 and part of the plugwrap 9, leaving the filter portion 11 which in this embodiment will be ventilated by perforations 8. See Figure 1B. If he does not so sever the filter he will continue to smoke through both of the portions 11 and 12 and by virtue

of perforations 8 being covered by the tipping paper 4 will receive an unventilated smoke stream.

In Figures 2 to 4 inclusive an outer plugwrap 14 is used to form a dual filter rod prior to assembly of the article; this outer plugwrap 14 is wrapped around the two filter segments but is not glued to them. There is a breaking line 15 in the outer plugwrap 14, defined by perforations. Figure 2B shows the structure after separation. Perforations 8 are formed-in the outer plugwrap 14.

In the embodiment of Figure 3, there is no breaking line in the outer plugwrap 14'. On separation, the whole of this plugwrap will be removed, as shown in Figure 3B. Perforations 8 are formed in the inner plugwrap 9.

In the embodiment of Figure 4 the outer plugwrap 14" is shortened, leaving a gap 15 in the structure. Additional glue 16 reinforces and unites the mouth end of the paper of the tobacco rod 1 with the tipping paper. On separation the situation is as seen in Figure 4B.

In the embodiment of Figure 5 the outer plugwrap 14"' is in two portions which butt together at the plane at which zones 11,12 and the portions of the inner plugwrap 9 meet. Such a structure gives the product seen in Figure 5B, upon separation.

Any of the embodiments which upon separation have a hollow projecting tube on the separated part may be reassembled onto the remaining portion of the filter if desired, and may act as a receptacle for a plug or pellet of an additional mechanically or chemically active material, which is then entrapped by the refitting of the separated portion and affects smoke appropriately.

The inner plugwraps shown in Figures 2A and 5A and the inner plugwraps of filter 12 shown in Figures 1A, 3A and 4A are optional and can be omitted if non-wrapped cellulose acetate filter segments are used.

Some of these possibilities are seen in Figures 2 to 6. Figure 6 illustrates how if the filter is unventilated, the breaking line 10' may be coplanar with the meeting plane of the zones 11 and 12 and with the parting in the plugwrap 9. Glued zones 5,6 may extend to close to that plane, the unglued region 13 being comparatively short.

A further embodiment is shown in Figure 7, in which an outer wrap of tipping paper 30 with glue zones 5,6, surrounds the tipping paper 4 and the outer plugwrap 14"". The tear strip or perforated line of weakness 29 is in the outer wrap of tipping paper 30. Thus, the tipping paper 4 of filter 11 (rather than plugwrap 9) is revealed when filter 12 is removed.

However the first embodiment, and those seen in later Figures, may alternatively be modified to provide permanent ventilation by the provision of ventilating perforations or a porous zone in the tipping paper 4 in register with such perforations or zone in the plugwrap.

Furthermore, both zones 11,12 of the filter may be ventilated.

The manufacture of selected embodiments can be carried out on standard machines, modified as noted below:

The embodiment of Figure 1A of the two filters are fed as separate segments along with tobacco rods to the assembler during manufacture. This would require modification of the standard assembly process in which it is usual to feed only one type of filter rod.

In that of Figure 2A a dual filter rod is used in the standard assembly process. However, modification of the process to manufacture the dual filter rod would be required to ensure adequate registration of the perforations 15 in the outer plugwrap.

In that of Figure 3A a dual filter rod is used in the standard assembly process but the glue-free zone 13 on the tipping paper 4 is registered over the whole length of filter zone 11. The article remaining after removal of filter 12 would be flimsy since filter 11 is not secured to the tobacco rod and is only loosely held by the tipping paper 4.

In that of Figure 4A a dual filter rod is used in the standard assembly process but the outer plugwrap 14" is wrapped around only a limited length of filter 11. Modification of the process to manufacture the dual filter rod would be required since normally these are produced with the outer plugwrap extending for the whole of the rod length.

In that of Figure 5A a standard dual filter rod is used in the assembly process but the process is modified slightly to separate filter zone 11 from filter 12 by installing additional cutting knives to a roller drum which cuts immediately prior to application of the tipping paper 4.

Claims

1. A smoking article having a tobacco rod (1) and a filter, the filter having a first filter portion proximate said tobacco rod (1) and a second filter portion distant from said tobacco rod (1) and attached to said first filter portion, characterized in that the second filter portion is separable from said first filter portion.

2. A smoking article according to claim 1 in which said attachment of said first and second filter portions is by a wrap (4), the wrap (4) including a break line (10) positioned part-way along the length of said filter, whereby said second filter portion can be separated from said first filter portion by severing said wrap (4) at said break line (10).

3. A smoking article according to claim 2 in which

said break line (10) is less far along the length of the filter than the end of said first filter portion which is distal from the tobacco rod (1), whereby severance of said wrap (4) at said break line (10) exposes a side region of said first filter portion, at least part of said side region being perforated or porous.

4. A smoking article according to claim 1 in which in use upon separation of said second filter portion from said first filter portion an empty tube is formed beyond said first filter portion,

a second filter portion being insertable into said tube, optionally entrapping additional material longitudinally between it and said first filter portion.

5. A smoking article according to claim 2 or claim 3 in which after separation of said second filter portion from said first filter portion, said second filter portion can be reattached to said first filter portion, optionally entrapping additional material longitudinally between the first and second filter portions.

6. A smoking article according to claim 2 in which at least one of said first and second filter portions comprises a filter zone (11, 12) and one or more plug wraps (9, 14; 9, 14^{I}; 9, 14^{II}; 9, 14^{III}; 9, 14^{IIII}) positioned between said filter zone (11, 12) and said wrap (4).

7. A smoking article according to any one of the preceding claims in which said first and second filter portions have different chemical and/or mechanical characteristics, whereby separation of said second filter portion from said first filter portion modifies the nature of the treatment which said filter performs on the smoke produced in use by burning said tobacco rod (1).

8. A filter for a smoking article, the filter including a first filter portion and a second filter portion, the filter further including separation means for separating said first and second filter portions.

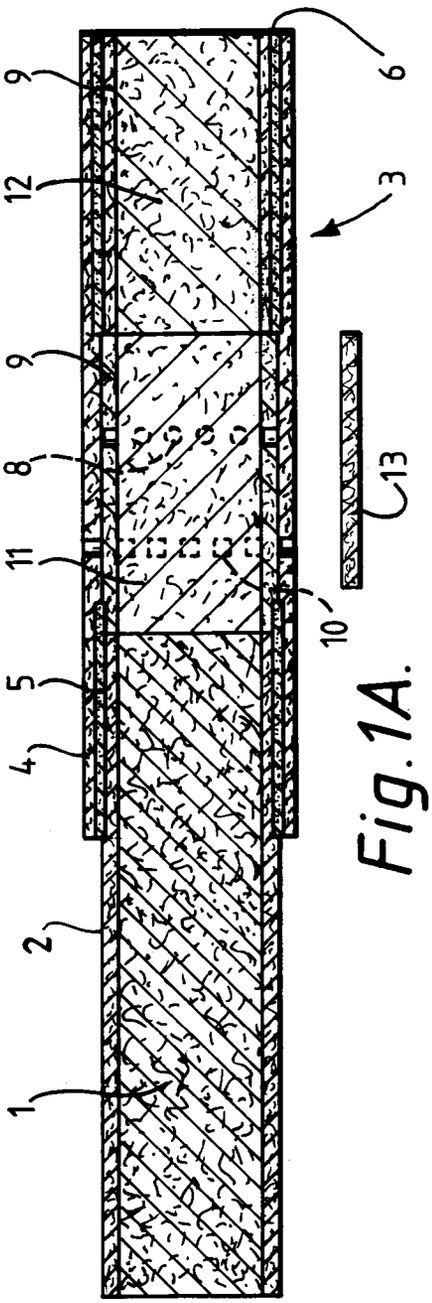

Fig.1A.

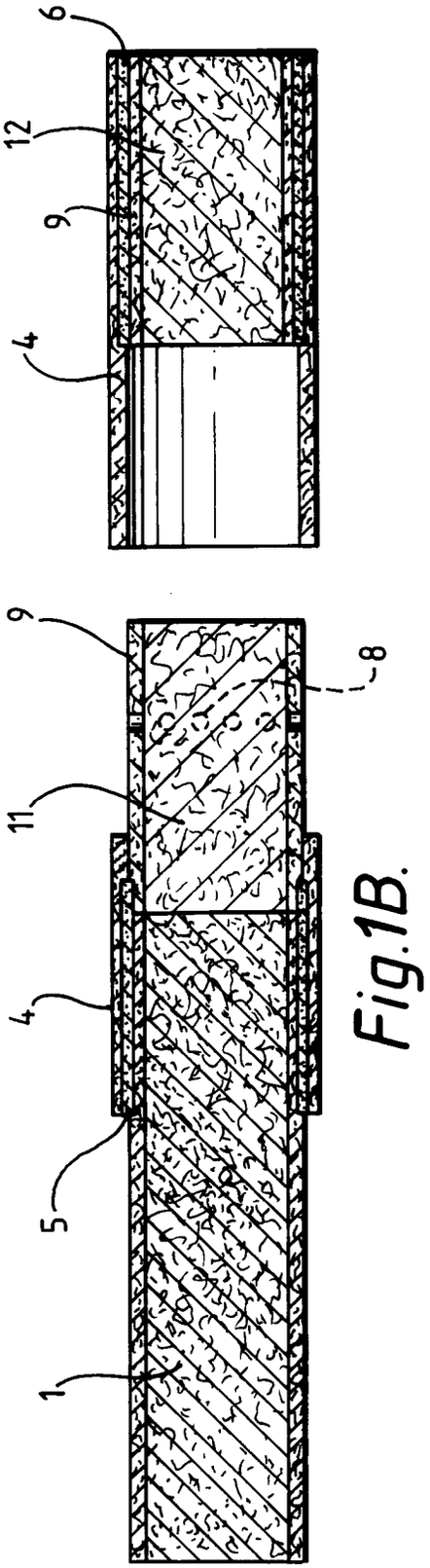

Fig.1B.

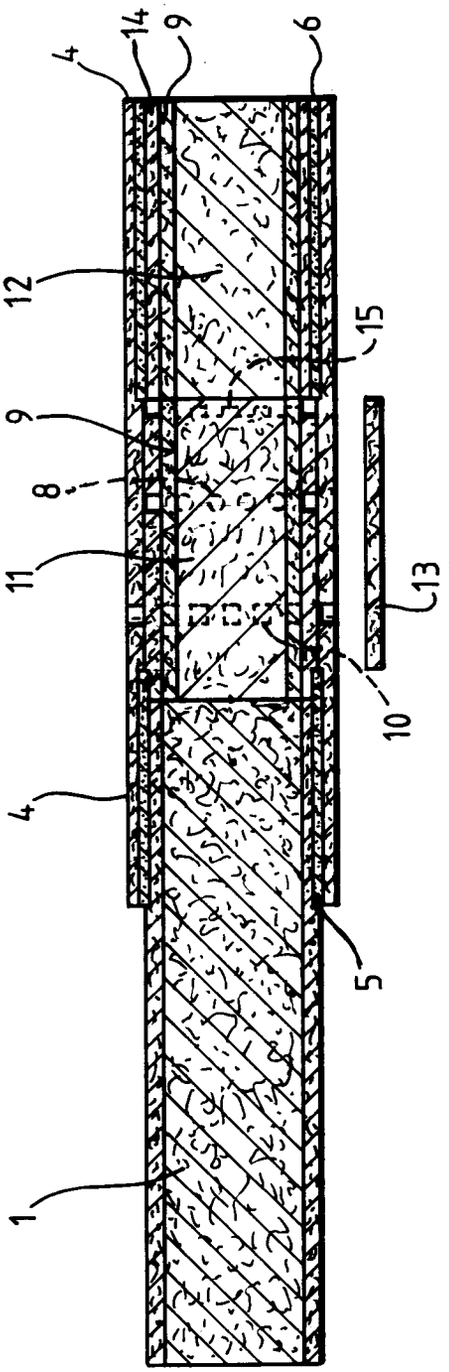

Fig.2A.

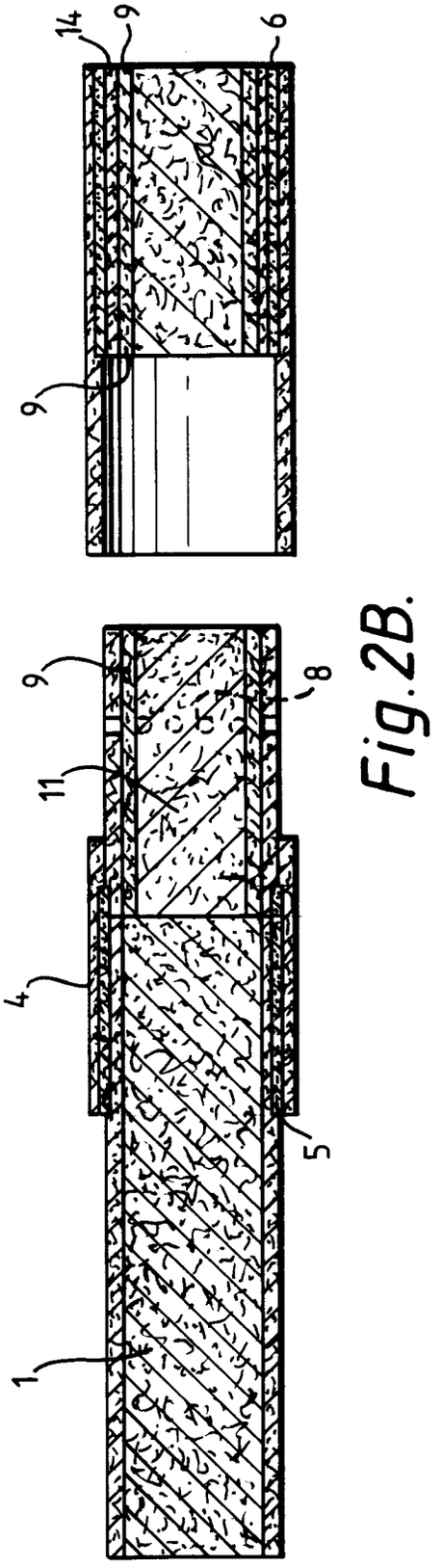

Fig.2B.

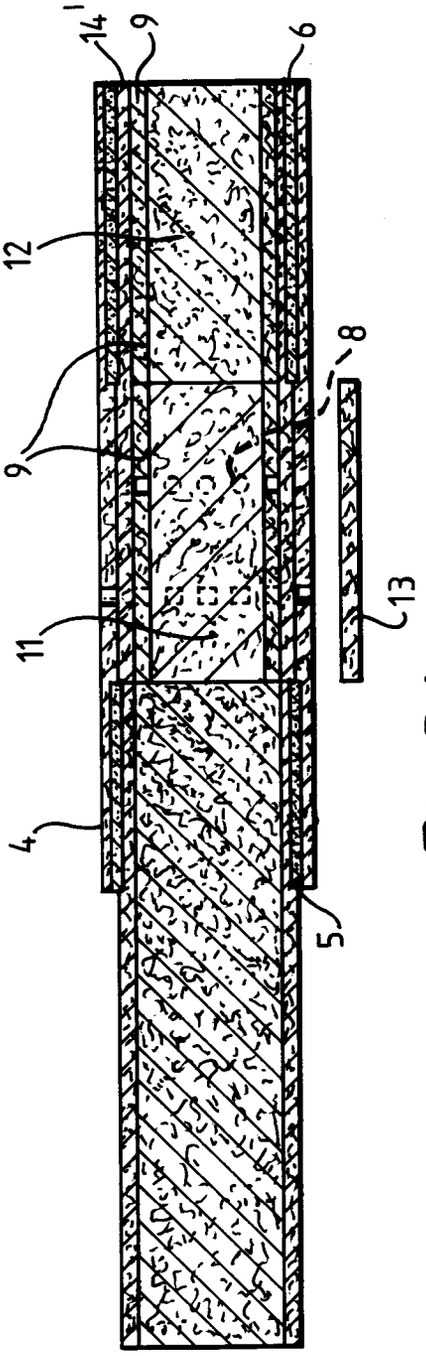

Fig.3A.

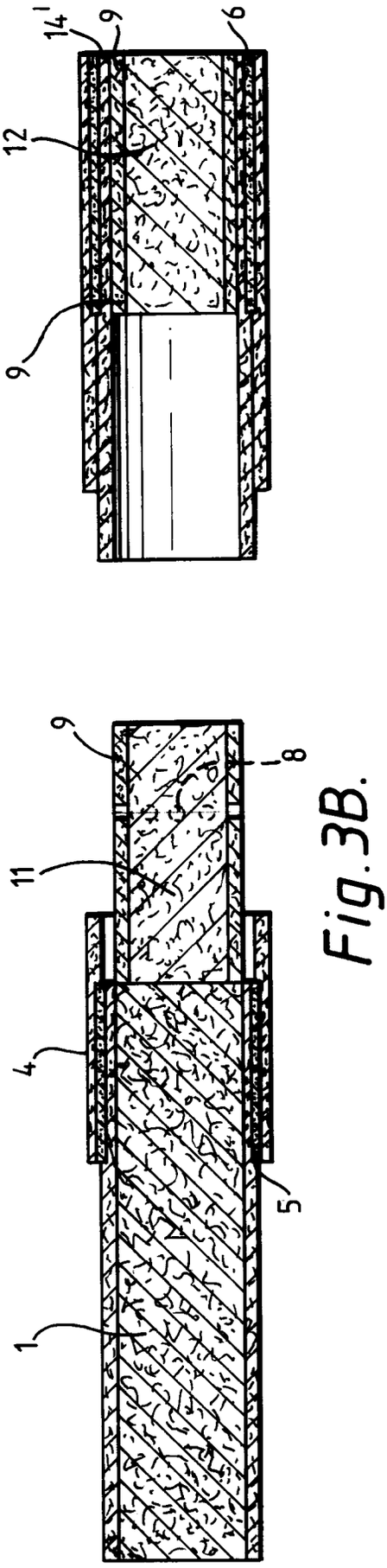

Fig.3B.

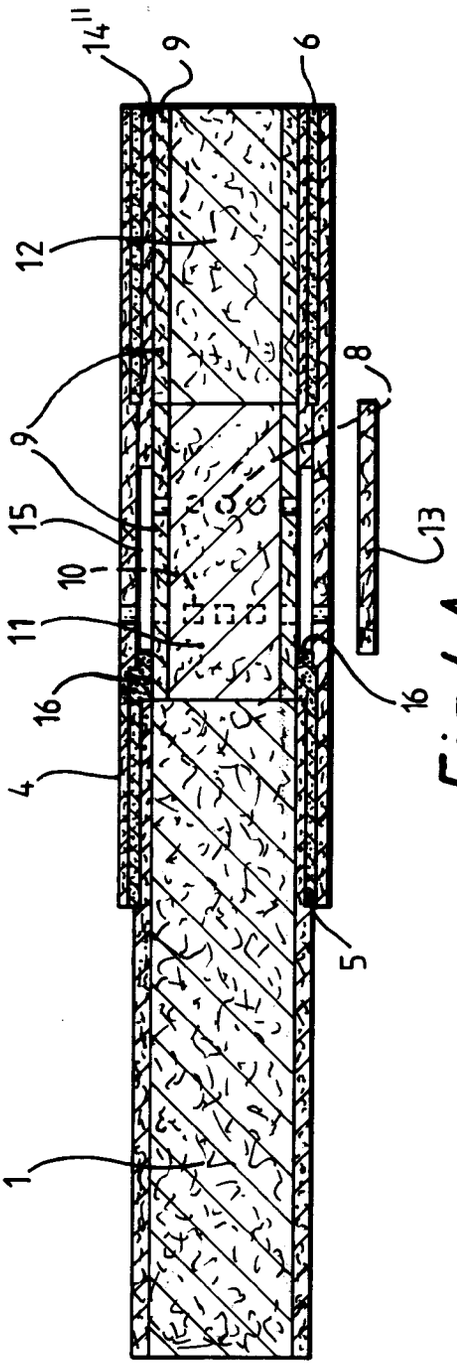

Fig.4A.

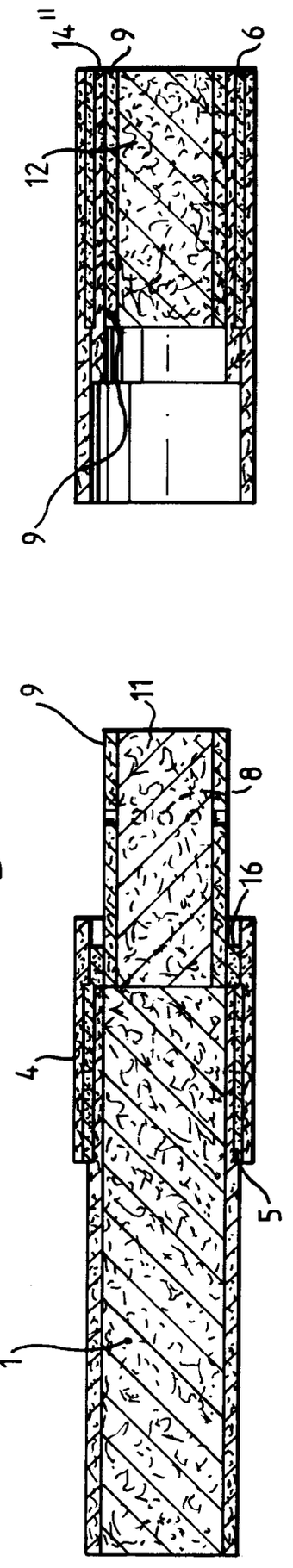

Fig.4B.

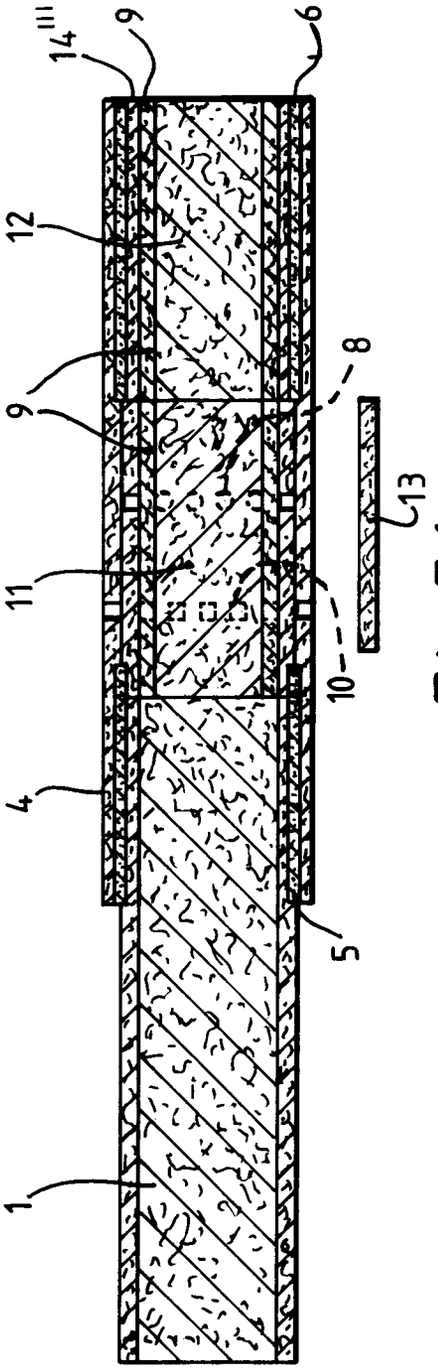

Fig.5A.

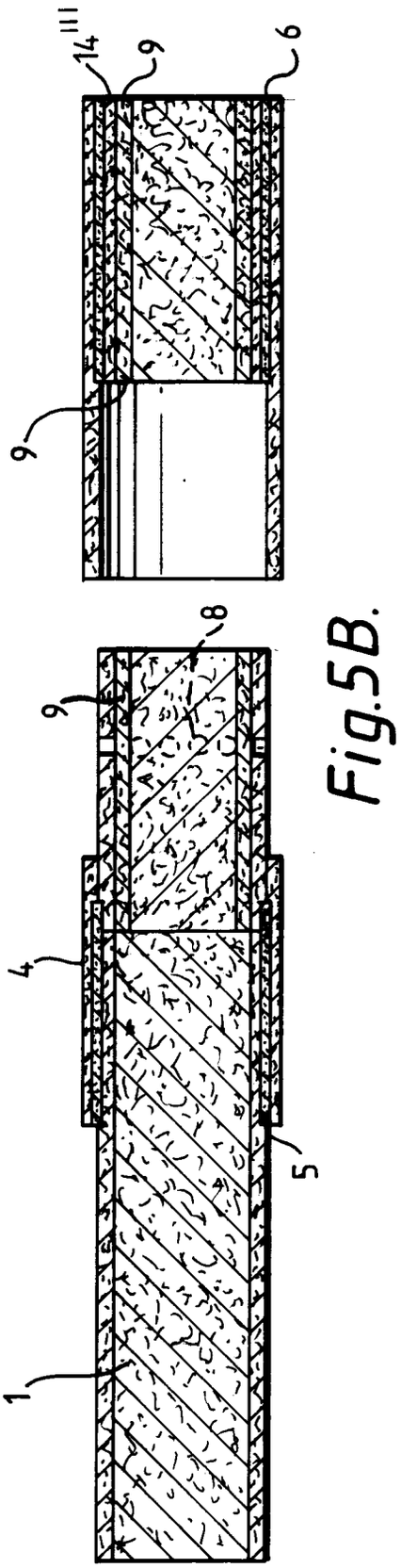

Fig.5B.

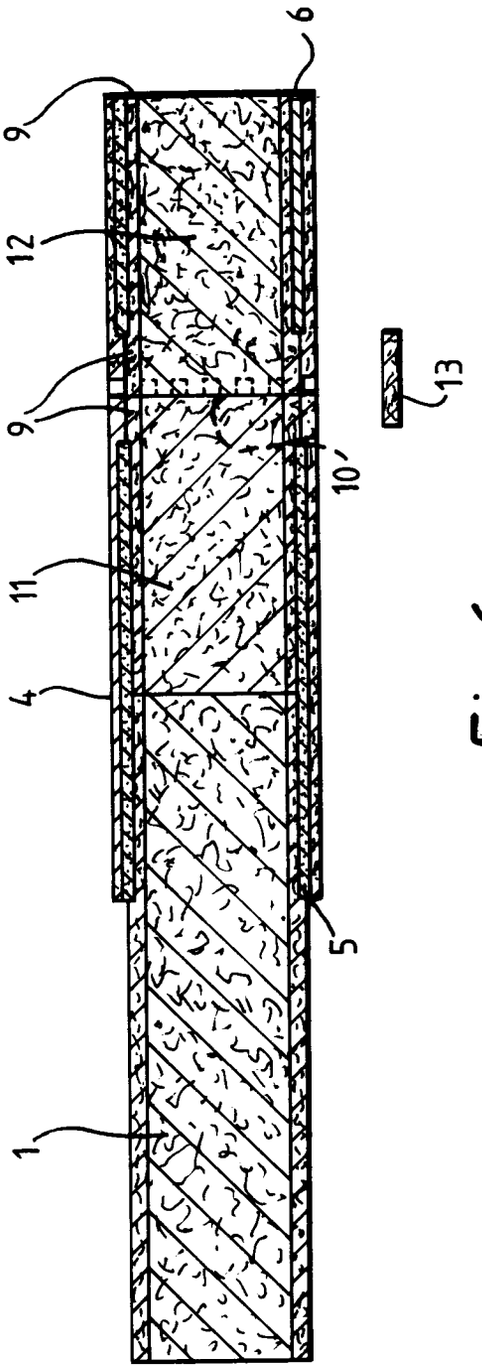

Fig.6.

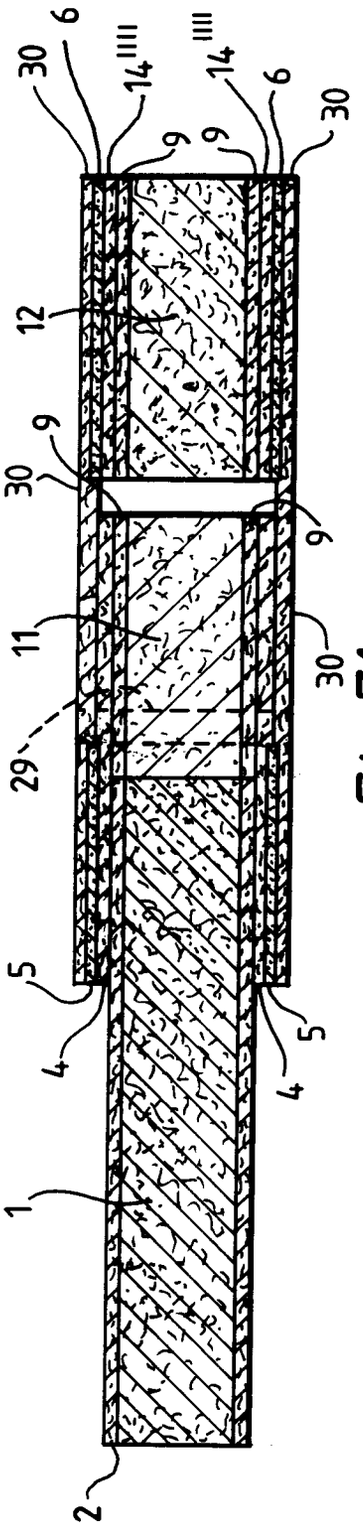

Fig.7A.

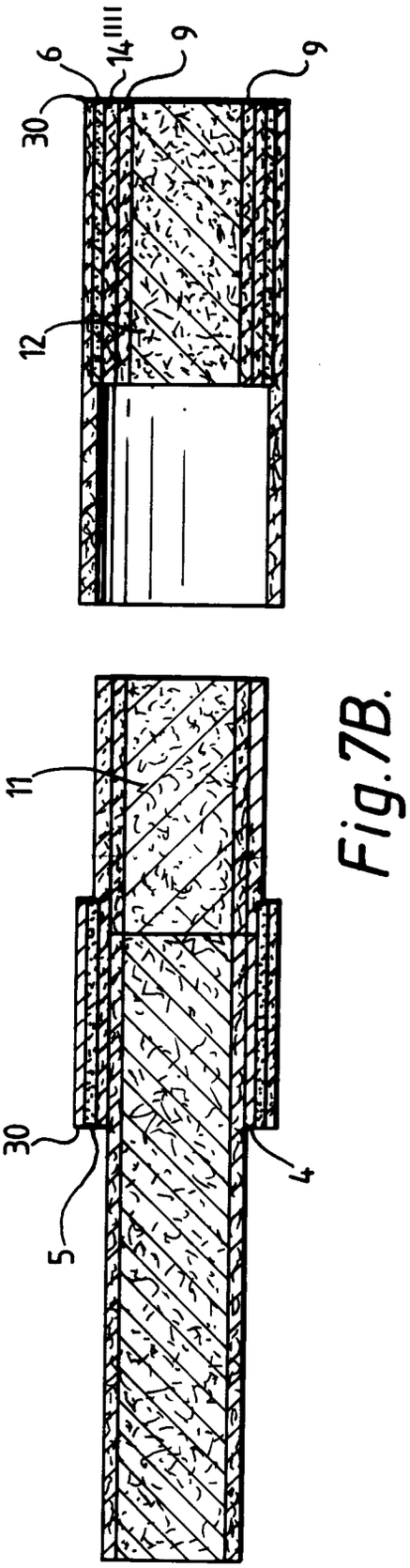

Fig.7B.

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 95 30 0278

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	CH-A-467 031 (CELFIL COMPANY ESTABLISHMENT) * the whole document *	1,2,6-8	A24D3/04 A24D1/04
X	CH-A-362 638 (FABRIQUES DE TABAC REUNIES S.A.) * the whole document *	1,2,6-8	
X	US-A-2 747 579 (GAGE) * the whole document *	1,2,6-8	
X	DE-A-37 29 759 (HILDEBRANDT) * the whole document *	1,2,6-8	
X	DE-A-29 09 432 (SCHÄFER) * the whole document *	1,2,7,8	
A	US-A-4 319 590 (PATARRA) * the whole document *	1,4	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

A24D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 April 1995	Riegel, R

CATEGORY OF CITED DOCUMENTS

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