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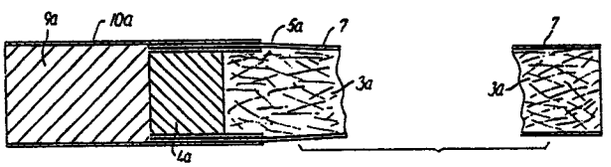
(54) A filter-tipped tobacco product with spirally applied wrapper, and a method of manufacturing the product.

(57) In order to obtain a leak-free and mechanically stable joint between the helically wound wrapper (7) and the mouthpiece paper (10a) which surrounds the filter, the latter has been divided into an inner filter plug (4a) abutting against the end face of the bunch (3a) and an outer filter plug (9a) located in extension of the inner plug. An additional, interior mouthpiece paper (5a) surrounds the inner filter plug (4a) and a portion of the bunch (3a), and the wrapper (7) is retained between the two mouthpiece papers (5a, 10a) and supported from inside by the inner filter plug (4a).

In the method a double filter plug is first placed between two bunches and an interior mouthpiece paper is applied. A wrapper is rolled around the entire length of the resulting double bunch which is then severed to form two single bunches. A further double filter plug is placed between the single bunches where-upon an exterior mounthpiece paper is applied. Finally the product is severed in the middle.



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A filter-tipped tobacco product with spirally applied wrapper, and a method of manufacturing the product.

This invention relates to a tobacco product comprising a central bunch, a wrapper wound helically thereon, and a filter tip consisting of two aligned filter plug parts surrounded by mouthpiece papers which connect the filter tip with the wrapper covered bunch.

Similar tobacco products comprising only a single filter plug are known as "filter cheroots" and are produced by a technique which in substantial points resembles the production of filter cigarettes, and consequently at a high production rate. As opposed to a filter cigarette, in which the tobacco filler is surrounded only by a paper sheath joined in a longitudinal seam, a filter cheroot comprises both a similar binder and, around the binder, a wrapper applied by helically winding (so-called spiral rolling) of a ribbon-shaped tobacco sheet made of homogenized tobacco.

A drawback of known filter cheroots is that in practice is is impossible to obtain a perfect sealing between the wrapper and the mouthpiece paper. This is due to the fact that the tobacco, which has to be relatively moist in order to permit its processing, shrinks or contracts during storage after the manufacture whereas the mouthpiece paper does not alter its internal dimension. As a consequence of the overlapping and glueing of the edge zones of the wrapper there is also formed a helically extending furrow in the surface of the wrapper which in itself results in a leak which is further increased in response to the storage induced shrinking of the tobacco. During smoking the inevitable

small leaks have the effect that an uncontrollable intake of false air which influences the enjoyment of smoking in an undesirable manner, takes place along the outer side of the wrapper, i.e. by-passing the tobacco filler.

It is an object of the present invention to remedy the drawback indicated above, and according to the invention the mouthpiece paper of the inner plug part surrounds the end portion of the bunch underneath the wrapper which extends to the outer end face of the inner plug part and is surrounded by the mouthpiece paper of the outer plug part.

In a filter cheroots of this structure that end portion of the wrapper sheet, which is overlapped by the exterior mouthpiece paper, is efficiently supported from within by the inner filter plug part which exhibits a high degree of stability in respect of shape and dimensions, and consequently both the geometric shape and the outer diameter of the wrapper portion in question will remain unchanged at varying conditions of humidity. The risk of uncontrollable inflow of false air at this location during smoking is thus eliminated, and it has been made possible to provide the cheroot with a fully controlled ventilation - thus influencing the character of the taste - viz. by perforating the mouthpiece paper of the outer plug part beyond the end edge of the wrapper. A further advantage of the invention is that in mechanical respect the connection between the exterior mouthpiece paper and the wrapper is very stable due to the supporting effect exerted on the wrapper by the inner filter plug. The necessary extra operations in the manufacturing schedule are readily compatible with the production rate obtainable in the manufacture of an otherwise similar prior art product.

For the sake of completeness it should be mentioned that German Spcification No. 932,894 discloses a

filter cheroot of the type referred to in the foregoing and including two aligned filter plug parts with separate mouthpiece papers which connect the filter tip with the helically wound bunch. However, in this case the mouthpiece paper of the filter plug which is first incorporated is wrapped around the end section of a bunch which has already been provided with a tobacco wrapper so that the paper surrounds the portion of this wrapper which abuts on the filter plug and is only supported by the filler tobacco of the bunch. Accordingly, the above drawbacks of filter cheroots having only one filter plug will also appear in the known tobacco articles with a double filter plug.

The outer plug part of the tobacco product of the invention may expediently be longer than the inner plug part and the possible perforation, mentioned above, of the exterior mouthpiece paper, which is intended to ensure a controllable ventilation, may then be located further from the outer end face of the filter so that the perforations are not so easily covered by the smoker's lips. The ventilation may be obtained by a technique which is identical or substantially identical with a technique employed for manufacturing filter cigarettes which makes a high production rate possible.

The two filter plug parts may be made from the same filter material or from different filter materials. In the latter case it is possible, in a simple manner, to effect an adjustment of the total filter effect if this should prove expedient or necessary in order to comply with varying customers' taste desires. As an example a carbon filter and an acetate filter may be combined.

The invention also relates to a method of manufacturing the tobacco product from a continuously advancing rod consisting of a filler and a binder, which

rod is severed into bunches around which a wrapper is helically rolled and to one end of which a filter tip comprising two plug parts with mouthpiece papers is applied. The method is characterized in that the rod is severed before the wrapper rolling step, that a first filter plug is placed between two bunches and a first mouthpiece paper is wrapped around the filter plug and adjoining portions of the bunches, that a wrapper is rolled around the resulting double bunch which is then severed by a transverse cut through the first filter plug, that a second filter plug is placed between the bunches resulting from the severing and a second mouthpiece paper is wrapped around the second filter plug and adjoining portions of each wrapper covered bunch, and that the bunches which thus have been connected together, are separated by a transverse cut through the second filter plug.

The invention will now be described in more detail with reference to entirely schematical drawings, in which

Figs. 1a-1h illustrate successive stages in a process for manufacturing tobacco products according to the invention,

Figs. 2a-2c more specifically illustrate three suboperations of the process, and

Fig. 3 shows the finished product in a partly cut-away longitudinal section and on a larger scale.

An endless rod 1 (Fig. 1a) consisting of a filler of e.g. shredded or cut tobacco and a binder made from ribbon tobacco and glued in a longitudinal lap joint 2, is produced, in a traditional manner, in an apparatus not shown, and is intermittently severed into bunches 3 of predetermined length (Fig. 1b). Each bunch 3 is severed in the middle and the two halves 3a and 3b are pulled so far apart that a filter plug 4 can be

placed between them. A first mouthpiece paper 5 is then wrapped around filter plug 4 and the immediately adjoining longitudinal portion of bunches 3a and 3b (Fig. 1c and Fig. 2a).

In this way there has been formed a double bunch 6, see Fig. 2b, which in a subsequent operation is wrapped into a tobacco wrapper 7. Wrapper 7 is wound helically and is continuous throughout the length of the double bunch 6 and it is glued in a suitably wide lap joint (Fig. 1d and Fig. 2b). After trimming of the wrapper sheet at the ends of the wrapped double bunch 8, the bunch is severed in the middle by a transverse cut resulting in two separate bunches 8a and 8b (Fig. 1e). These bunches are pulled apart axially and between them there is placed a second filter plug 9 (Fig. 1f) around which a second mouthpiece paper 10 is wrapped immediately after (Fig. 1g and Fig. 2c). As shown in Fig. 2c two longitudinal rows of perforations 11 may be provided in the web from which the mouthpiece paper 10 is formed, and arranged such in the transverse direction of the web that after application of the mouthpiece paper they encircle filter plug 9.

The manufacturing process is terminated by the article shown in Fig. 1g being severed in the middle and thus divided into two finished filter cheroots, the internal structure of which has been illustrated in Fig. 3 where, inter alia, the thicknesses of the wrapper and the mouthpiece papers have been somewhat exaggerated relative to the other dimensions, for the sake of clarity.

Is is clearly seen from Fig. 3 how the wrapper 7 is efficiently supported from within by the inner filter plug 4a along a substantial part of the length of the end portion in which the wrapper is joined to the exterior mouthpiece paper 10a. As explained above the

inherent stability of the filter plug in respect of shape and dimensions results in a corresponding stability of the shape and dimensions of the outer surface of wrapper 7 at this location of the cheroot length, which ensures that the joint between the wrapper and the exterior mouthpiece paper 10a remains tight even during an extended period of storage.

It will be seen from the above explanation that the additional suboperations determined by the addition of a further filter plug with the associated further mouthpiece paper, are of exactly the same character as the operations related to the insertion of a single filter plug incorporated in the known products, so that they can be carried out by the same machinery. Since the wrapping operation illustrated in Figs. 1d and 2b is carried out on the severed bunches rather than on a continuous rod, as in the prior art, a certain modification of the wrapping apparatus may become necessary.

PATENT CLAIMS

1. A tobacco product comprising a central bunch (3a), a wrapper wound helically thereon and a filter tip consisting of two aligned filter plug parts (4a, 9a) surrounded by mouthpiece papers (5a, 10a) which connect the filter tip with the wrapper covered central bunch, characterized in that the mouthpiece paper (5a) of the inner plug part (4a) surrounds the end portion of the bunch (3a) underneath the wrapper (7) which extends to the outer end face of the inner plug part and is surrounded by the mouthpiece paper (10a) of the outer plug part (9a).

2. A tobacco product as claimed in claim 1, characterized in that perforations (11) for ventilation purposes are provided in the mouthpiece paper (10a) of the outer plug part (9a) beyond the end edge of the wrapper (7).

3. A tobacco product as claimed in claim 1 or 2, characterized in that the outer plug part (9a) is longer than the inner plug part (4a) whereby a ventilated product can be made by a normal cigarette making technique.

4. A method of manufacturing a tobacco product as claimed in any of claims 1-3 from a continuously advancing rod (1) consisting of a filler and a binder, which rod is severed into bunches (3) around which a wrapper (7) is helically rolled and to one end of which a filter tip comprising two plug parts (4, 9) with mouthpiece papers (5, 10) is applied, characterized in that the rod (1) is severed before the wrapper rolling step,

that a first filter plug (4) is placed between two bunches (3a, 3b) and a first mouthpiece paper (5) is

wrapped around the filter plug and adjoining portions of the bunches,

that a wrapper (7) is rolled around the resulting double bunch (6) which is then severed by a transverse cut through the first filter plug (4),

that a second filter plug (9) is placed between the bunches (8a, 8b) resulting from the severing and a second mouthpiece paper (10) is wrapped around the second filter plug and adjoining portions of each wrapper covered bunch, and

that the bunches (8a, 8b), which thus have been connected together, are separated by a transverse cut through the second filter plug (9).

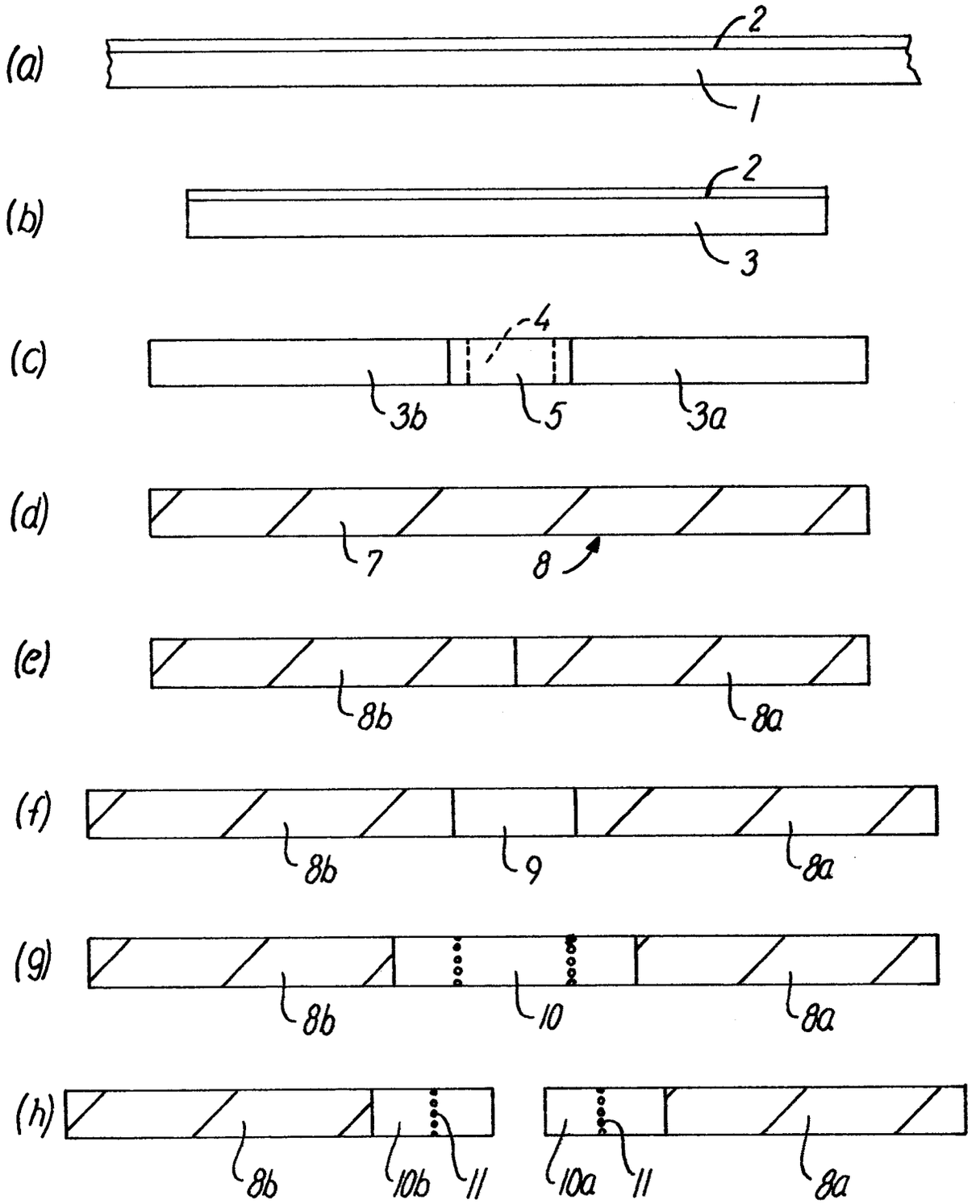

FIG. 1

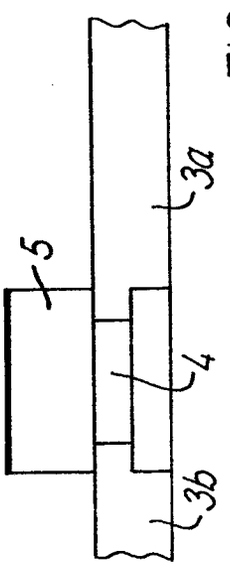

FIG. 2a

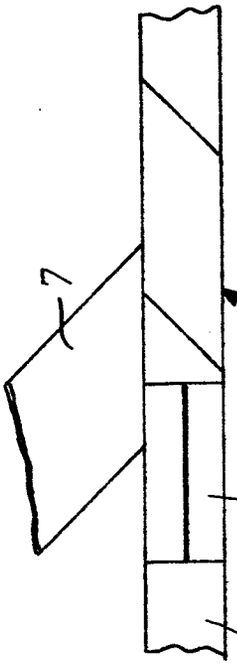

FIG. 2b

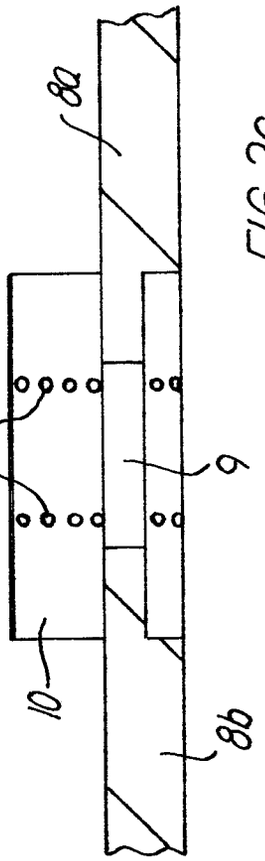

FIG. 2c

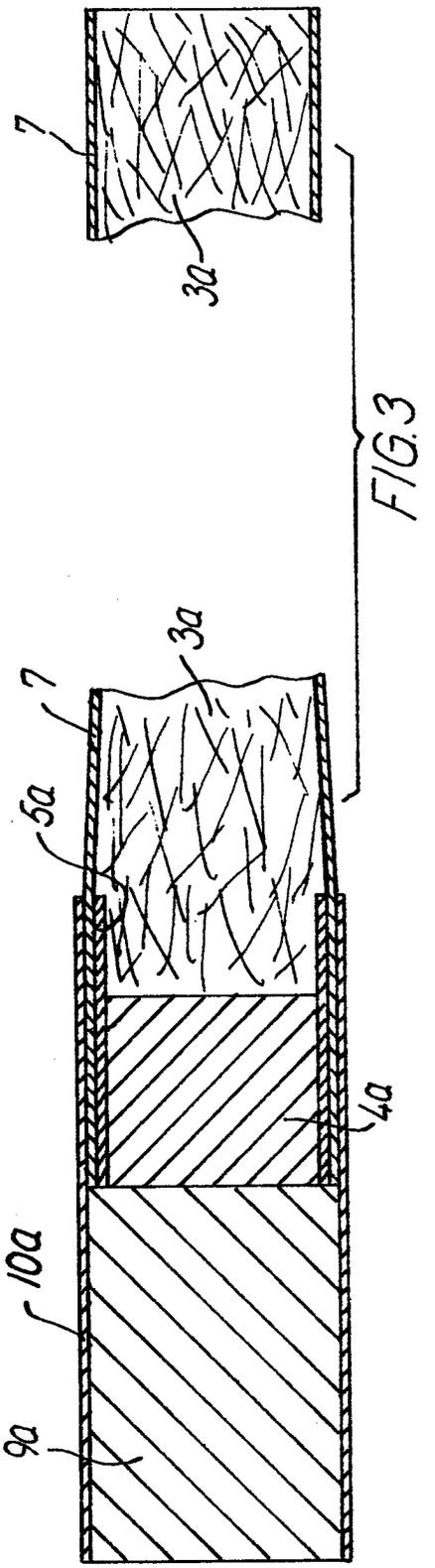

FIG. 3

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Application number

EP 86 30 5287

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EUROPEAN SEARCH REPORT

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.4)
A	FR-A-2 269 876 (SERVICE D'EXPLOITATION INDUSTRIELLE DES TABACS ET DES ALLUMETTES) * Figures 1-3; page 3, line 10 - page 4 *	1	A 24 D 1/04 A 24 C 5/47 A 24 C 5/58
A	BE-A- 501 385 (GAUTSCHI ET HAURI) * Figure 6; page 2, lines 51-54 *	1	
A	LU-A- 30 241 (ALTO) * Whole document *	1	
A	DE-B-1 062 601 (KÖRBER) * Whole document *	4	
A,D	DE-C- 932 894 (KÖRBER) * Whole document *	4	TECHNICAL FIELDS SEARCHED (Int. Cl.4) A 24 D A 24 C
A	US-A-4 256 124 (HIGGINS)		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	22-10-1986	RIEGEL R.E.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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