

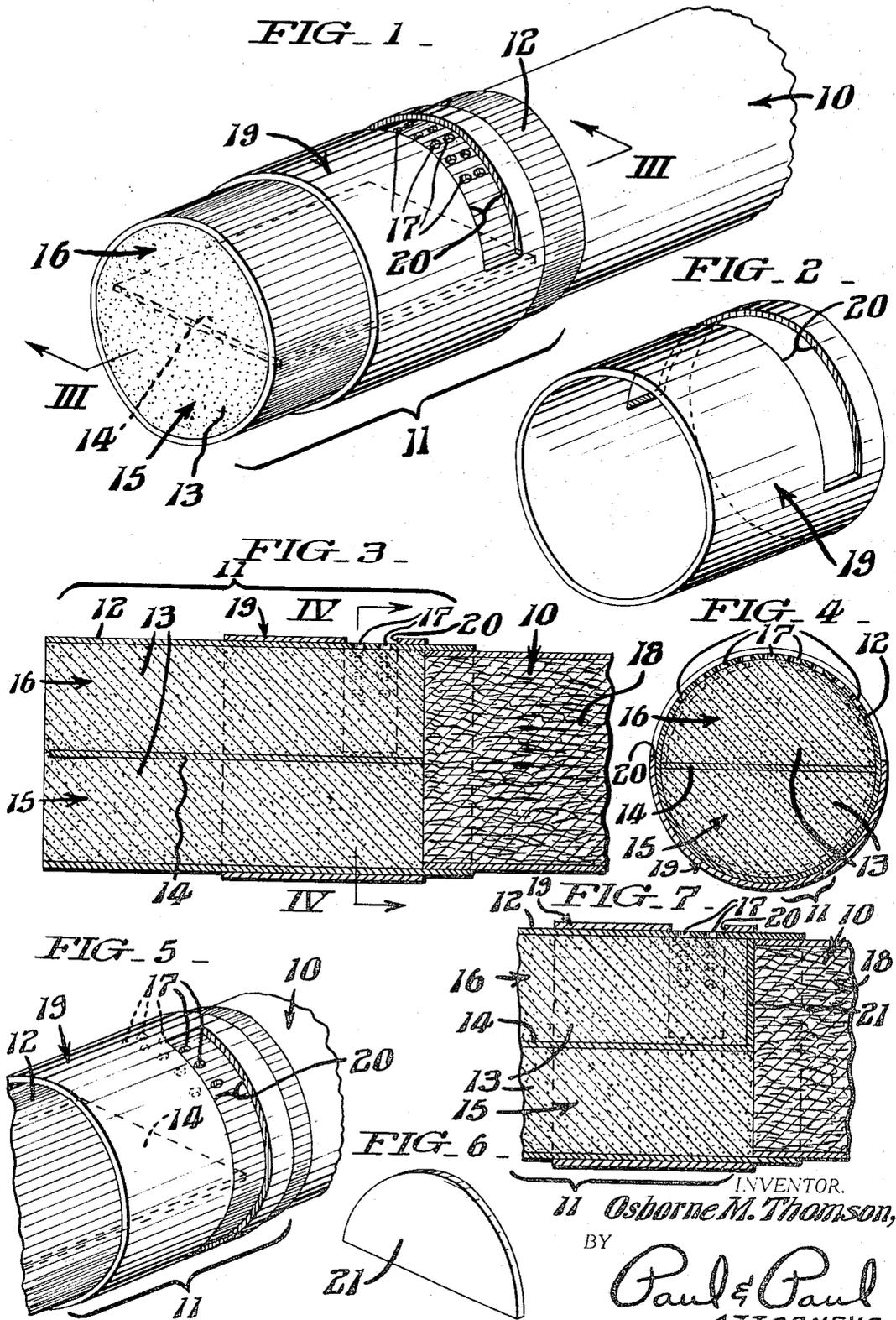
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O. M. THOMSON

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FILTER CIGARETTE

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INVENTOR.  
Osborne M. Thomson,  
BY  
Paul & Paul  
ATTORNEYS.

1

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**FILTER CIGARETTE**

Osborne M. Thomson, R.D. 4, Coatesville, Pa. 19320

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**ABSTRACT OF THE DISCLOSURE**

A cigarette filter is provided with a divider extending substantially from side to side and lengthwise within the filter, said divider being constructed of a material which is impervious to smoke, thus forming separate filter channels. A plurality of holes are formed in the outer wall of one of the filter channels so that when drawing on the filter, air will be drawn into one channel only. A movable sleeve having an opening therein is positioned over the external surface of the filter and is adjustable whereby the number of holes subject to the inward flow of air may be varied on movement of the sleeve. In an alternative embodiment of the invention a second impervious divider is transversely positioned across the filter channel which has the aforementioned holes in its outer wall.

This invention relates to a filter cigarette having separated channels formed in the filter element, one for cigarette smoke and the other for ambient air.

Various devices in the form of cigarette holders, filters and the like have been suggested in the prior art for mixing air with tobacco smoke in order to reduce the smoke concentration in the stream as delivered to the smoker, and to regulate the ratio of smoke to air in said stream. The present invention is directed to providing a filter cigarette having an integral filter portion adapted to deliver to the mouth of the cigarette user a stream of filtered air simultaneously with a stream of filtered tobacco smoke. These streams are kept separate from one another until they come together in the oral cavity of the user. Filtered smoke and filtered air are thus intermixed subsequent to the point of emergence from the filter element of the cigarette instead of the usual mixture of smoke and air appearing in the delivered stream by the devices of the prior art.

A further object of the present invention is to provide a cigarette having an integral filter element having two physically separated filter channels, one for the passage of cigarette smoke through the filter material, and the other for passage of ambient air through the filter material contained in the air channel.

A still further object is to provide such a cigarette having means for adjusting and controlling the volume of ambient air drawn through the air filter channel relative to the volume of tobacco smoke drawn through the smoke filter channel.

Preferred embodiments of the present invention for achieving the above objects are shown in the appended drawings wherein:

FIG. 1 is an enlarged fragmentary perspective view taken from the filter end of the filter cigarette of the present invention;

FIG. 2 is an enlarged perspective view of a movable mask for adjusting and controlling the relative volume of air flow through an air filter channel;

FIG. 3 is a cross section taken along the lines III-III of FIG. 1;

FIG. 4 is a cross section taken through the filter element of the present invention along the lines IV-IV of FIG. 3;

FIG. 5 is an enlarged fragmentary perspective view of the filter portion of FIG. 1 with the control mask moved to a position substantially restricting the flow of air through the filter;

2

FIG. 6 is a perspective view of a separation disk constituting a part of the modification shown in FIG. 7;

FIG. 7 is a cross section showing the application of the separation disk of FIG. 6 to the structure of FIG. 3.

Turning to FIGS. 1 to 5 inclusive, the filter cigarette of the present invention comprises broadly a tobacco portion 10 to which there is integrally attached a filter portion 11 made up of an impervious retaining wall 12 and filled with the usual and well-known filter material 13. Positioned within the filter element and embedded in the filter material is a divider 14 which may consist of any thin material impervious to air and smoke. A thin paper or plastic material may be employed for this purpose. Divider 14 is supported in a generally central position within the filter portion 11 and is held in place by the filter material itself and the frictional contact along the side walls of the filter section 11. There are thus formed two separate channels within the filter portion 11, the first being a smoke channel 15 and the second being an air channel 16. In the external wall 12 of the air channel 16 there are located a number of holes or perforations 17 which are of relatively small or pin hole diameter as shown in the figures. It will be noted that the pin holes 17 are positioned in the wall of the air channel 16 near the juncture of body portion and filter section downstream from the tobacco 18 contained in the body 10. Fitted over the external retaining wall 12 of the filter portion 11 is a sleeve 19 having an open slot 20. Sleeve 19 is adjustable both axially and circumferentially with respect to pin holes 17 as shown in FIG. 5. Control is thus provided over the number of holes 17 through which ambient air will be drawn when a negative pressure is applied to the downstream end of the cigarette.

The modification shown in FIGS. 6 and 7 consists of a semi-circular disk 21 which is impervious to smoke and is transversely positioned across the air filter channel at the juncture of the body portion 10 and the filter section 11, thus providing a barrier for any traces of smoke which might penetrate the filter material 13 in air channel 16.

In operation, the present invention provides a smoke channel 15 in the filter element 11 separated from an air channel 16 likewise containing filter material, whereby a stream of filtered ambient air is delivered to the mouth of the user simultaneously with a separate stream of filtered tobacco smoke. When the sleeve 19 is positioned to expose a substantial number of the pin holes 17 to ambient air at atmospheric pressure, the pressure drop from the upstream end of air channel 16 to its downstream delivery end will be substantially less than the pressure drop from the corresponding ends of the smoke channel 15 when a negative pressure is applied to the delivery end of the cigarette. Consequently, in this mode of operation, all or substantially all of the smoke appearing at the downstream end of the tobacco contained in the body 10 will pass through the smoke channel 15. As sleeve 19 is moved to positions obstructing more of holes 17, the pressure drops through the channels 15 and 16 will come progressively toward an ultimate equality which will occur when all of the holes 17 are covered. Thus, in the embodiment of the invention shown in FIG. 3, the user at his option may select a mode of operation which will deliver two separate streams of filtered smoke and filtered air or he may adjust the sleeve 19 to provide a filtered smoke stream or intermediate mixtures of air and smoke.

In the embodiment shown in FIGS. 6 and 7, the user may select a mode of operation which will deliver two separate streams of filtered smoke and filtered air in a controlled smoke to air ratio; or he may adjust the sleeve 19 to provide a single stream of filtered smoke which has traversed just the smoke channel of the filter element 11.

3

From the above description, it will be seen that I have provided a filter cigarette which is simple in construction while at the same time capable of delivering separated streams of filtered air and filtered tobacco smoke. The ambient air which normally contains some tobacco smoke is, therefore, filtered and arrives in a filtered condition prior to the time when the tobacco smoke and filtered air are intermixed in the oral cavity just prior to inhaling. This provides a cooling effect and at the same time there is furnished a constant supply of filtered fresh air for admixture with filtered smoke just prior to inhaling.

While I have illustrated and described preferred embodiments of the present invention, these are to be regarded as illustrative rather than as limitations or restrictions of the invention, since the invention may be embodied in other forms without departing from the spirit and scope of the invention.

I claim:

1. A filter cigarette comprising a body portion substantially filled with tobacco, a filter section attached to one end of said body portion, an outer wall for said filter section, a filter material substantially filling said filter section, a divider substantially impervious to smoke and air positioned in the filter material and extending substantially from side to side and lengthwise of the filter section thereby forming two filter channels separated one from the other by the divider, a second impervious divider transversely positioned across one of said filter channels substantially at the juncture of said body portion and said filter section and extending substantially across the interface between said one channel and said body portion, and a plurality of holes formed in the outer wall of said one filter channel.

2. The filter cigarette of claim 1 having a movable sleeve positioned over the filter section for controlling the

4

volume of air flow through the holes formed in the outer wall of said filter section.

3. A filter cigarette, comprising: a body portion containing tobacco; an integrally attached filter section having an outer wall; a filter material substantially filling said filter section; at least one divider means positioned within said filter section and extending substantially side to side and lengthwise thereof to form a plurality of separated filter channels; a plurality of holes formed in the outer wall of said filter section, said holes being disposed to communicate with at least one, but not all, of said plurality of separated filter channels; and a second divider means disposed within said filter positioned transversely across at least one of said filter channels which are in communication with said holes formed in the outer wall of said filter, said second divider means positioned with respect to the flow of smoke through said cigarette and said filter section upstream of said holes to prevent smoke from entering said chamber.

4. A filter cigarette as in claim 3 wherein means is disposed about the outer wall of said filter section to adjustably control the inward flow of air through said holes.

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LUCIE H. LAUDENSLAGER, *Primary Examiner*.