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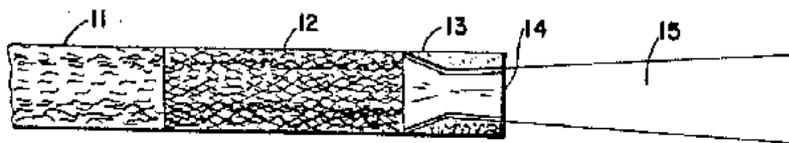
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(54) Cigaret mouthpiece.

(57) The flow of filtered, diluted smoke from a cigaret mouthpiece is given improved sensory effect by concentrating it into a narrow, collimated, preferably centralized pattern. This can be achieved by fitting the filter 12 of the cigaret with a mouthpiece 13 having a restricted channel opening at an orifice 14 of smaller cross sectional area than the filter. The effect is most useful with cigarets having relatively low delivery of particulate matter.

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CIGARET MOUTHPIECE

Many filters, mouthpieces, or holders for smoking products have provided for a localized exit orifice or orifices for the smoke, either central, peripheral, or in between. These were incidental and a result of the construction for filtering, cooling the smoke, or other purposes.

Examples of a filter mouthpiece which provides for partial localization of exit smoke at the periphery are certain embodiments disclosed by Kiefer et al. in U.S. 3,768,489 and by Labbe in 3,685,523. Miller, U.S. 3,062,219, discloses an offset opening to partially localize the exit smoke at one side of the filter tip.

Central orifices in cigaret mouthpieces or holders which are associated with some or substantial filtration are disclosed by Streule et al., 3,840,029, by Doppelt, 3,460,544, by Thomson et al., 3,394,713, and by Lebert, 2,954,784. Norman in 3,860,011 provides a narrow central tube for exit of non-filtered smoke, surrounded by a filter having peripheral ventilation. Ventilation is also found in the holder of Doppelt above.

The invention is a mouthpiece or exit tip baffle for a filtered cigaret or cigaret holder having a filter, which serves to focus or collimate

the exit smoke to a narrow pattern. This is done not merely with a central opening, but with a 3-dimensional funneling mouthpiece. Such a pattern improves the subjective perception of cigarettes which have a low "tar" delivery as a result of filtration, usually with air dilution.

5 In the accompanying drawings:

Figure 1 is a longitudinal cross-sectional view of the mouth end of a filter cigarette provided with a mouthpiece of the invention.

Figure 2 is a similar section of a cigarette having an alternative embodiment of the mouthpiece.

10 Figure 3 is a longitudinal cross-sectional view of the mouth end of a filter cigarette, unmodified.

Figure 4 is a similar section of a known type of filter cigarette, commonly called a recessed filter.

15 Figure 5 is a cross-sectional view of a filter cigarette provided with a different embodiment of the mouthpiece from that of Figures 1 and 2.

20 In Figure 1, the smoke from cigarette rod 11 passes through a filter 12 and is collimated by plastic mouthpiece 13 to exit through orifice 14, diameter 0.44 cm, in a stream which is shown schematically as 15 based on observations made during smoking by an automated smoking machine by using high speed cinematography.

Figure 2 shows a similar mouthpiece 16 having a very much smaller orifice 17, 0.16 cm in diameter, which produces a smoke pattern 18 converging to a focus and diverging thereafter.

25 In contrast, Figure 3 illustrates the exit pattern 19 diverging directly from an unmodified filter of a conventional 0.78 cm diameter. In Figure 4 the pattern 20 is kept nearly constant by hollow mouthpiece 22.

30 Figure 5 shows a filter cigarette equipped with an alternative mouthpiece 23 having cone-shaped baffle 24 (supported in its central location by fins or prongs not shown) and giving an exit smoke pattern 21 which is likewise cone-shaped.

35 As the trend toward cigarettes of lower delivery (i.e., lower "tar," nicotine, or the like) continues, smokers sometimes complain of too little impact, smoke flavor, or satisfaction. One solution for this is addition of

flavor above what is conventional. The present invention employs a different approach: a reinforcement of the impact perceived by the smoker through addition of a mouthpiece baffle having such a configuration that the issuing smoke is confined to a narrow stream. This configuration is not simply an orifice alone, but an orifice as a termination of a funnel-shaped mouthpiece shaped to focus the smoke stream or cause it to converge.

The convergence of the smoke may be toward a central point or into another defined exit pattern such as a cone. The result is enhancement of the subjective effect of the smoke which may have been attenuated by dilution or filtration. The effect is particularly noticeable with a centralized delivery (Figures 1 and 2).

Comparative tests with smokers have shown that the smoke pattern from a low-delivery cigaret which results from attaching the mouthpiece of the invention is more acceptable than is the pattern from the same cigaret terminating in a conventional filter. Apparently the concentration of the attenuated smoke in this fashion results in the smoker's perceiving greater impact than would otherwise be the case.

Subjective ratings of the smoke from filter cigarets of varying delivery levels were made by expert smokers. These samples ranged from 16 to 2 mg of "tar" delivery. Each was smoked unmodified (see Figure 3) and also with the mouthpiece attachment of Figure 1, 8 mm long with a 4 mm constriction length, 0.44 cm diameter orifice, and with the attachment of Figure 5, also 8 mm long. The panel of smokers found that for the lowest delivery samples (2 and 5 mg) they preferred the configuration of Figure 1. The mouthpiece of Figure 5, when attached to filter cigarets and smoked by an expert panel in comparison with comparable cigarets without mouthpieces, were said to have less burnt flavor when the cigarets were "conventional" (of relatively high delivery) and to have less green flavor with 5 mg delivery cigarets.

C L A I M S

1. A cigaret filter having a mouthpiece with an inlet end adjacent to the filter and a channel connecting said inlet end to at least one outlet orifice at the opposite end the mouthpiece, characterized in that the orifice or orifices are of smaller area in transverse section than the filter, and that said channel is of substantially the same area at the inlet end as the filter and is of substantially unchanging or slightly diminishing transverse sectional width from the orifice to a point approximately midway between the outlet and inlet ends.

2. A filter according to Claim 1 characterized in that said orifice is a circular hole centred on the longitudinal axis of the filter.

3. A filter according to Claim 1 characterized in that said orifice is an annular opening centered on the longitudinal axis of the filter, said channel being defined from the orifice to said midway point by a frustrum of a cone with apex at said midway point.

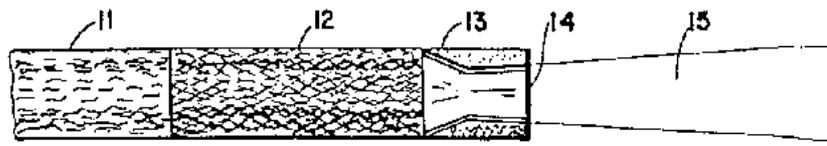


Fig. 1

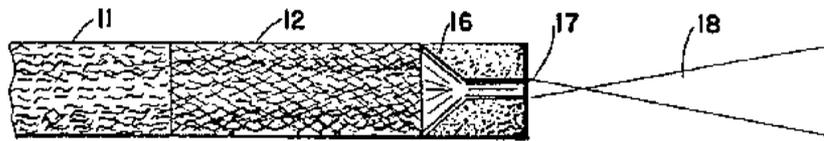


Fig. 2

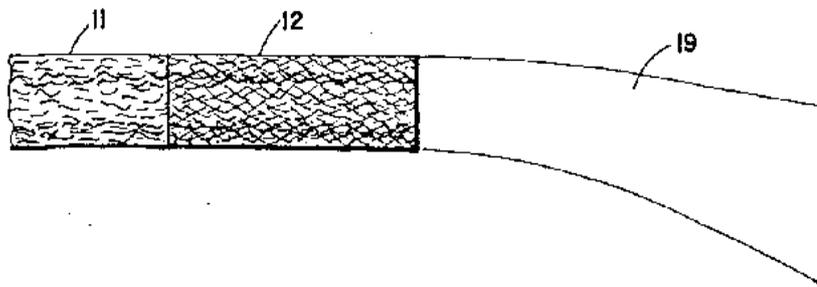


Fig. 3

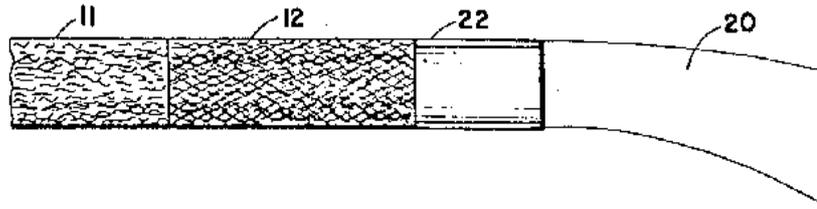


Fig. 4

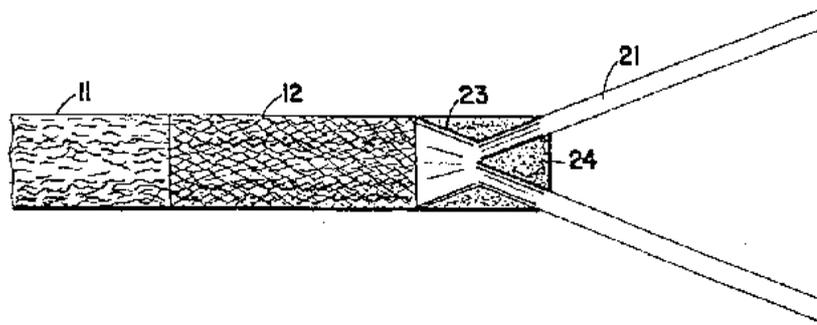


Fig. 5



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EUROPEAN SEARCH REPORT

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EP 80 30 3027

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl.)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
	<p>US - A - 3 789 855 (VELLO NORMAN)</p> <p>* Figure 2; column 3, line 24 to column 4, line 62 *</p> <p>--</p>	1-2	<p>A 24 D 3/18</p> <p>A 24 D 1/04</p>
	<p>DE - U - 1 975 669 (BEYERMANN)</p> <p>* Figures 2,3; pages 83-84 *</p> <p>--</p>	1-3	
	<p>US - A - 1 945 207 (THOMAS)</p> <p>* Whole document *</p> <p>--</p>	1-2	<p>TECHNICAL FIELDS SEARCHED (Int. Cl.)</p>
	<p>DE - B - 1 110 070 (GEPPERT)</p> <p>* Figures 1-4; column 3, line 32 to column 4, line 13 *</p> <p>--</p>	1-2	<p>A 24 C</p> <p>A 24 F</p> <p>A 24 D</p>
	<p>US - A - 4 016 887 (UROSHEVICH)</p> <p>* Figure 1; column 1, lines 48-65 *</p> <p>---</p>	1-2	
			<p>CATEGORY OF CITED DOCUMENTS</p> <p>X: particularly relevant</p> <p>A: technological background</p> <p>O: non-written disclosure</p> <p>P: intermediate document</p> <p>T: theory or principle underlying the invention</p> <p>E: conflicting application</p> <p>D: document cited in the application</p> <p>L: citation for other reasons</p>
<p><input checked="" type="checkbox"/> The present search report has been drawn up for all claims</p>			<p>B: member of the same patent family.</p> <p>corresponding document</p>
Place of search	Date of completion of the search	Examiner	
The Hague	12-12-1980	RIEGEL	