This invention relates to improvements in cigarettes.

The primary object of this invention is the provision of improved means embodied in a cigarette construction for the purpose of reducing the temperature of the smoke in order to permit proper condensation and filtering of harmful tar, oils, nicotine and other ingredients in an efficient manner.

A further object of this invention is the provision of an improved cigarette construction embodying the usual tobacco filled paper and portion of the cigarette and an absorbent filter construction at the mouth tip of the cigarette, with an improved cooling means located between the filter and the body portion of the cigarette for conveying the heat of passing smoke to a location externally of the cigarette whereby to permit efficient removal of the harmful ingredients in the smoke, as it passes through a cooling compartment and through the filter construction.

Other objects and advantages of this invention will be apparent during the course of the following detailed description.

In the accompanying drawing, forming a part of this specification, and wherein similar reference characters designate corresponding parts throughout the several views.

FIG. 1 is a fragmentary vertical cross sectional view taken through one form of the improved cigarette.

FIG. 2 is a fragmentary side elevation of the cigarette shown in FIG. 1.

FIG. 3 is a transverse cross sectional view taken substantially on the line 3-3 of FIG. 2.

FIG. 4 is a perspective view of the improved cooler used in the cigarette of FIG. 1.

FIG. 5 is a vertical fragmentary cross sectional view taken through a somewhat modified form of cigarette, showing a different form of cooler assembly.

FIG. 6 is a fragmentary side elevation of the cigarette shown in FIG. 5.

FIG. 7 is a transverse cross sectional view taken substantially on the line 7-7 of FIG. 6, through the cooler assembly of the cigarette shown in that view.

In the drawing, wherein for the purpose of illustration are shown different forms of the invention, the letters A may generally designate a preferred form, as shown in FIGS. 1 to 4 inclusive, and B a modified form of cigarette as shown in FIGS. 5, 6 and 7.

Referring to the form of invention A, the numeral 10 may designate the body portion of the cigarette, including tobacco 11, and the usual paper casing or cylinder 12. The cigarette A furthermore includes a filter 13, comprising a preferably stiff paper or cardboard cylinder 14, the passageway of which is fitted with filter material 15 of any approved type, adapted to filter the harmful ingredients from the tobacco smoke as it passes therethrough. The cigarette A furthermore includes a cooling assembly 16, comprising a preferably somewhat stiff paper or cardboard cylinder 17, which is connected and assembled between the body portion of the cigarette and the filter. One method of such assembly is to insert the ends of the cylinder 17 into the paper cylinders supplied by the cigarette body 10 and the filter 13; any suitable adhesive being used, if found desirable, to secure the cooler cylinder 17 in such position. The chamber 20 of the cylinder 17 is entirely unobstructed, with the exception of a heat conductor 21, shown best in perspective in FIG. 4, and which preferably consists of vanes 22 radially extended from the axis thereof and at their outer ends each having an accurate or segmental portion 23 which overlies the external surface of the cylinder 17; the latter being provided with slots 24 therein to permit the segments of the conductor to lie externally of the cardboard cylinder 17, as shown in FIG. 5, of the drawing. The heat conducting material may vary, but preferably will be thin metal foil, either flexible or semi rigid. The only material disposed in the compartment 20 of the cooler cylinder 17 consists of the vanes 22, which are provided in any desired number, but with sufficient spaces therebetween to permit the smoke to pass therethrough and be cooled, through transmission of the high temperature from the smoke, to the vanes and to the external segments 23. Thus, the smoke is cooled prior to entering the filter. This reduction in temperature permits efficient condensing and trapping of the harmful ingredients of the smoke in the filter.

Referring to the form of cigarette B, the same reference numerals have been given to the tobacco supporting body of this cigarette B and to the filter as has been given in the form of invention A, but the cooler construction 30 is of different formation. It has a cylinder 31 which is assembled in the same manner as described for the form of invention A, in the ends of the body paper of cylinder 12 and the filter cylinder 14. However, the metal foil or other heat conducting material 32 is spirally disposed in the passageway 33 of the cylinder 31, extending from the axis of said cylinder 31 and spiralling outwardly with increasing size. The various convolutions do not contact each other, and are disposed in the compartment 33 in relatively spaced relation. The spiral portion of the metal foil 32 passes through a slot 35 in the cylinder 31, as shown in FIG. 7, and then is applied externally (by an adhesive if found desirable) and circumferentially about the cylinder 31, for substantially the entire circumference of the cylinder 31. It thus forms a cylinder 36 which enables the heat to be transmitted from the spiral convolutions and dissipated externally of the cigarette.

In both forms of invention the smoke together with any harmful ingredients entrained therein are first drawn into the cooling compartment. The heat of the smoke is transmitted by the metal foil to the exterior of the cigarette, and by the time the smoke reaches the filter it is relatively cool, enabling proper absorption of the harmful ingredients of the smoke in the filter.

It is within contemplation of the invention to provide other cooling means in the cigarette than that described; one of the most important features of the assembly being that the smoke can freely pass through the cooling compartment where the same is cooled through transmission of the heat to a location externally of the cigarette prior to the smoke passing into the filter body.

Various changes in and to the size, shape and arrangement of parts of the invention may be made without departing from the spirit of the invention or the scope of the claims.

I claim:

1. A cigarette comprising a cylindrical shaped elongated casing structure of tubular formation having a lower portion thereof provided with smoking tobacco packed therein and having an upper portion provided with a filter disposed in the casing structure in spaced relation from the packed smoking tobacco to provide a chamber between the smoking tobacco and the filter, and quick heat transfer material mounted in said chamber and which material consists of metal foil in the form of relatively spaced vanes extending laterally and longi-
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3. Radially in the chamber to permit free flow of smoke through the spaces between said vanes from the tobacco portion to the filter, said casing structure having lateral openings therethrough from said chamber and opening to the exterior of the cigarette and said vanes of metal foil extending through said openings and being exposed to the atmosphere externally around the casing structure for the purpose of dissipating heat from the cigarette to the atmosphere below the filter.

4. As an article of manufacture, a cooler for use on cigarette ends comprising a supporting cylinder adapted to be connected to a cigarette and having a passageway therethrough and having lateral slots opening to said passageway, and heat transfer metal foil disposed in said passageway and comprising a plurality of relatively spaced vanes extending from the axis of the cylinder and disposed transversely of the cylinder through slots in the cylinder and externally upon the cylinder having exposed heat conducting segments.

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