CONVENTION APPLICATION FOR STANDARD PATENT OR A STANDARD PATENT OF ADDITION

Registration No.: 86561/82

We, BRITISH-AMERICAN TOBACCO COMPANY LIMITED

of Westminster House, 7, Millbank, London, SW1P 3JE, England

hereby apply for the grant of a standard patent, or a standard patent of addition, for an invention entitled

"IMPROVEMENTS RELATING TO CIGARETTES"

which is described in the accompanying complete specification.

DETAILS OF BASIC APPLICATION(S)

Number(s) of Basic Application(s)

81.23698

Name(s) of Convention Country(ies) in which Basic Application(s) was/were filed

Great Britain

Date(s) of Basic Application(s)

3rd August, 1981

Our address for service is:

C/- Spruson & Ferguson

PATENT ATTORNEYS

CBA CENTRE, 60 MARGARET ST.

SYDNEY, NEW SOUTH WALES

AUSTRALIA

Dated this TWENTY SIXTH day of JULY, 1982

BRITISH-AMERICAN TOBACCO COMPANY LIMITED

By: ____________________________

Registered Patent Attorney

To: The Commissioner of Patents
COMMONWEALTH OF AUSTRALIA

Patents Act 1957-1978

DECLARATION IN SUPPORT OF THE CONVENTION APPLICATION
FOR A PATENT OR PATENT OF ADDITION

In Support of the Convention Application made
for a Patent for an Invention entitled:-

"Improvements relating to Cigarettes"

I, BRIAN GRANGER PEARSON, Company Secretary of BRITISH-AMERICAN TOBACCO COMPANY LIMITED, of Westminster House, 7, Millbank, London, SW1P 3JE, England, do hereby solemnly and sincerely declare as follows:-

1. I am authorised by BRITISH-AMERICAN TOBACCO COMPANY LIMITED the Applicants for the Patent to make this declaration on its behalf.

2. The basic Application as defined by Section 141 of the Act was made in Great Britain on the 3rd day of August 1981 under Application No. 81/23699 by BRITISH-AMERICAN TOBACCO COMPANY LIMITED.

3. That Kenneth John Hamson MACLEAN of 32, The Parkway, Bassett, Southampton SO2 3PQ, England, and Michael James WARD, of 61, Alexandra Road, Chandler's Ford, Eastleigh, Hampshire SO5 2PA, England, are the Inventors of the Invention, and the facts upon which the said BRITISH-AMERICAN TOBACCO COMPANY LIMITED is entitled to make this Application are as follows:

   The said BRITISH-AMERICAN TOBACCO COMPANY LIMITED is the Assignee of the actual inventors the said Kenneth John Hamson MACLEAN and Michael James WARD.

4. The basic Application referred to in paragraph 2 of this Declaration is the first Application made in a Convention country in respect of the Invention the subject of the Application.


To: The Commissioner of Patents
Canberra, AUSTRALIA.
DOCUMENTS
LODGED WITH
THIS APPLICATION
ARE UNSUITABLE
FOR REPRODUCTION
AND MAY BE
INSPECTED AT THE
PATENT OFFICE A.C.T.
Improvements relating to filter tip cigarettes

British-American Tobacco Company Limited

A24D 1/04 A24D 1/02

Kenneth John Hamson Macdonald and Michael James Ward

SF

Claim

1. A cigarette comprising a cigarette rod of smokable material enwrapped in a cigarette wrapper and a filter tip attached at one end of said rod by means of a tipping wrapper, said filter tip comprising smoke-filtration means and being provided at the periphery of the tip with at least one groove extending to the mouth end of said tip, said cigarette wrapper, at the region of the said rod adjacent the tip, being depressed inwardly to provide at least one cavity which is in communication with at least one said groove, and that portion of said tipping wrapper overlying said cavity permitting ingress of air into the same.
Name of Applicant: BRITISH-AMERICAN TOBACCO COMPANY LIMITED

Address of Applicant: Westminster House, 7, Millbank, London, SW1P 3JE, England

Actual Inventors: KENNETH JOHN HAMSON MACLEAN and MICHAEL JAMES WARD

Address for Service: Spruson & Ferguson, Patent Attorneys, CBA Centre 60 Margaret Street, Sydney, New South Wales, 2000 Australia

Complete Specification for the invention entitled:

"IMPROVEMENTS RELATING TO CIGARETTES"

The following statement is a full description of this invention, including the best method of performing it known to me/us:
This invention relates to ventilated filter-tipped cigarettes.

It is known to provide cigarettes with filters comprising smoke-filtration means, commonly in the form of a plug of fibrous filtration material, and ventilation-passage means extending to the mouth end of the filter, the outer wrapper enwrapping the filter being such as to permit ingress of air into the passage means. When a cigarette provided with such a filter is smoked, air wholly or substantially unmixed with tobacco smoke enters the smoker's mouth from the passage means together with tobacco smoke from the filtration means. It has been found that the segregation of air and smoke in this manner enhances the smoking characteristics of the cigarette.

A problem for the cigarette manufacturer in ensuring that the smoker obtains the benefit derivable from a segregated-ventilation filter is that, in holding the cigarette at the tip end, the smoker may obturate the ventilation means provided in the outer wrapper of the filter, thus reducing or preventing the ingress of air into the passage means. It is an object of the present invention to provide a cigarette having a segregated ventilation filter wherein the incidence of this problem is eliminated or at least significantly reduced.

The present invention provides a cigarette comprising a rod of smokable material enwrapped in a cigarette wrapper.
and a filter tip attached at one end of said rod by means of a tipping wrapper, said filter tip comprising smoke-filtration means and being provided at the periphery of the tip with at least one groove extending to the mouth end of said tip, said cigarette wrapper, in the region of the rod adjacent the tip, being deformed inwardly to provide at least one cavity, which cavity is in communication with at least one said groove, and that portion of said tipping wrapper overlying said cavity permitting ingress of air into said cavity.

The tipping wrapper may extend to the mouth end of the filter tip or it may have the form of a comparatively narrow tipping band.

The cavity formed by deformation of the cigarette paper may take the form of one or more grooves or it may be provided by drawing down the cross-section of the cigarette rod, suitably in uniform manner, so as to provide an annular cavity.

Preferably the cigarette paper is heat-deformable.

For this purpose it may comprise a proportion, advantageously not less than 50%, of thermoplastic fibres or filaments. If the cigarette paper used is of orthodox, non-heat deformable, type, an end zone thereof may be rendered heat-deformable by for example the application at said zone of a suitable material. Thus, for example, there may be applied over the zone an additional wrapper of heat deformable material. Alternatively the end zone of the
cigarette paper may be coated or impregnated with a material rendering the zone heat-deformable. The cigarette paper may be heat deformable in the sense that by the application of heat thereto the cavity may be obtained by thermally setting the cigarette paper in the requisite conformation. Alternatively it may be heat deformable in the sense of having the property of shrinking when subjected to a sufficient degree of heating.

It is also conceivable to set a required deformation in the cigarette paper by the application thereto of an impregnant in a volatile vehicle.

In order that the invention may be clearly understood and readily carried into effect, reference will now be made, by way of example, to the accompanying diagrammatic drawings, in which:

Figure 1 shows a double-length filter-tipped cigarette, partly in axial cross-section;

Figure 2 shows a cross-sectional view taken at A-A of Figure 1;

Figure 3 shows a differently formed, single filter tipped cigarette, with the cigarette rod thereof in axial section and the filter portion recited with the tipping wrapper partly removed;

Figures 4 and 5 show respective cross-sectional views taken at B-B and C-C of Figure 3;

Figure 6 shows, to a somewhat larger scale, part of a filter-tipped cigarette, with the cigarette rod thereof
in axial section and the filter portion depicted with
the tipping wrapper partly removed;

Figures 7 and 8 show respective cross-sectional
views taken at D-D and E-E of Figure 6; and

Figure 9 is a view similar to that of Figure 6 of a
different form of cigarette.

The double cigarette of Figures 1 and 2 comprises a
double unit length filter plug 1, first and second cigarette
rods 2 and 3, and a paper tipping wrapper 4 serving to
interattach the plug 1 and the cigarette rods 2, 3. Each
of the cigarette rods 2, 3 comprises a filler of smokable
material (that of the rod 2 being designated by reference
numeral 5) enwrapped in a heat deformable, low air-
permeability paper wrapper 6, 7 formed of an 80:20 by
weight mixture of polyethylene and cellulose fibres.

Prior to their assembly with the filter plug 1, the
cigarette rods 2, 3, at the ends thereof intended to abut
the plug 1, are provided with annular half-grooves.
Reference numeral 8 designates the annular half-groove
formed at the end of rod 2. The peripheral conformation
of the cigarette rods 2, 3 is modified to provide the
annular half-grooves at the respective ends thereof by
moving the rods 2, 3 in contact with heated forming means
of appropriate shape whilst moving the rods in a direction
transverse to their axes. In United Kingdom Patent
Specification No. 1,507,765 there is described an apparatus
suitable for shaping rods of smoke-filtering material. The
apparatus comprises a drum-shaped inner rotor for supporting and conveying the rods and a heatable arcuate outer stator past which the rods may be carried by the rotor in a direction perpendicular to their axes while simultaneously being caused to rotate about their axes. An apparatus constructed and operable according to the same principle could be employed for forming the annular half-grooves at the inner ends of the cigarette rods 2, 3. Conveniently a full annular groove is formed at the mid point of a double length cigarette rod, which is then severed centrally of the groove to provide the rods 2, 3.

Prior to its having been assembled with the cigarette rods 2, 3, the filter plug 1, which is formed of cellulose acetate and has a self-bonded construction, is subjected to a forming process resulting in the provision of four equi-angularly spaced grooves 9 extending for the full length of the plug 1. The forming process may conveniently be performed on apparatus similar to that disclosed in the patent specification referred to above, but having heatable stator means extending parallel to the axis of the rotor. At the time that the filter plug 1 is subjected to the forming process it may constitute a portion of a rod the length of which is equivalent to a multiple of a double unit length plug, the rod being subsequently cut into the constituent double unit length plugs.

After the tipping wrapper 4 has been applied to the three element assembly of plug 1 and rods 2, 3, it is
provided with two encircling rows of ventilation holes, one of which rows is designated by reference numeral 10, in register respectively with the annular half-groove 8 of the cigarette rod 2 and the corresponding groove at the inner end of the cigarette rod 3. The double length cigarette is then severed at the plane I-I to provide two completed individual cigarettes. When these cigarettes are smoked, ventilation air is drawn in through the ventilation holes into the annular half-groove and then passes along the filter plug grooves to the smoker's mouth, whereas the smoke from the cigarette rod passes through the interior of the filter plug.

As an alternative to a filter plug of self-bonded construction, a filter plug comprising a heat deformable plug wrap could be used in the double length cigarette of Figure 1. Wrapped smoke-filter rods suitable for forming filter plugs similar to the filter plug 1 of Figure 1 are disclosed in United Kingdom Patent Specifications Nos. 2,056,841A and 2,058,543A.

The cigarette diagrammatically depicted in Figures 3-5 comprises a cigarette rod 11, constituted by a filler 12 of smokable material enwrapped in a heat deformable paper wrapper 13 formed substantially wholly of polyethylene, and a filter plug 14, of self-bonded cellulose acetate fibres, secured to the rod 11 by means of a paper tipping wrapper 15. Before the rod 11 is assembled with the filter plug 14, three equi-angularly spaced grooves 16 are formed
in the wrapper 13 by rolling the rod 11 in contact with a suitably shaped heated former means. As may be seen from Figure 3, the grooves 16 extend longitudinally of the cigarette rod 11 from the end of the rod abutting the filter plug 14.

The filter plug 14 is provided, before assembly with the rod 11, with three equi-angularly spaced peripheral grooves 17 which extend from the mouth end of the plug 14 to an annular half-groove 18 formed at the opposite end of the plug 14.

After the paper tipping wrapper 15 has been applied to the juxtaposed filter plug 14 and cigarette rod 11, it is provided with a row of ventilation holes 19 overlying the grooves 16 formed in the cigarette rod 11, the arrangement being such that at least one hole communicates with each of the grooves 16. When a cigarette as depicted in Figure 3 is smoked, ventilation air flows into the grooves 16 through the ventilation holes 19. The ventilation air flows from the grooves 16 via the annular groove 18 of the plug 14, to the groove 17 thereof and from there to the smoker's mouth.

The cigarette of Figures 6-8 comprises a cigarette rod 20, constituted by a filler 21 of smokable material enwrapped in a cigarette wrapper 22 of conventional cigarette paper, and a filter plug 23, of self-bonded cellulose acetate fibres, secured to the rod 20 by means of a tipping wrapper 24.
The filter plug 23 is provided, at the end thereof, abutting the cigarette rod 20, with an annular half-groove 25 and, at diametrically opposed locations, with grooves 26 which extend from the half-groove 25 to the mouth end of the plug 23.

Before being assembled with the filter plug 23, the cigarette rod 20 forms one half of a double length cigarette rod of plain cylindrical form. There is wrapped about a central zone of the double length cigarette rod a heat deformable wrapper one half of which appears in Figures 6 and 7 designated 27. The double length cigarette is then subjected to a hot forming process to provide, within the bounds of the central zone, two grooves 28 disposed at diametrically opposed locations, after which the double length rod is severed to provide two individual cigarette rods.

As will be appreciated, the provision of the heat deformable wrapper renders the rod heat deformable at the wrapped zone. Various thermoplastic materials may be used to provide the wrapper. A suitable such material is polyethylene.

The tipping wrapper 24 is provided with an encircling row of ventilation holes 29, at least one of which communicates with each of the grooves 28.

In the cigarette of Figure 9 the filter plug 30 is provided with four equi-angularly spaced grooves 31, which grooves extend from end-to-end of the plug 30. Instead
of providing grooves in the surface of the cigarette rod 32, an approximately frusto-conical form is imparted to the end of the rod adjacent the plug 30. As in the case of the cigarette of Figure 6, conventional cigarette paper 33 of the rod 32 is rendered heat deformable by the presence of an additional wrapper 34 of thermoplastic material. There is thus provided an annular cavity 35 in communication with the grooves 31 of the filter plug 30. Tipping 36 is provided with an encircling row of ventilation holes 37 in register with the cavity 35.

As an alternative to the additional wrapper 34 being of a thermoplastic nature, it may instead be of a heat-shrink material. The wrapper is applied to a double length cigarette rod and is then heated to cause it to shrink and thus to produce a waisted effect in the double rod, which is then severed at the mid plane to provide individual rods as per rod 32. A cigarette rod comprising a heat-shrink wrapper is disclosed in U.K. Patent Specification No. 1,378,145, but the wrapper is not pre-shrunk in that case.
CLAIMS
The claims defining this invention are as follows:

1. A cigarette comprising a cigarette rod of smokable material enwrapped in a cigarette wrapper and a filter tip attached at one end of said rod by means of a tipping wrapper, said filter tip comprising smoke-filtration means and being provided at the periphery of the tip with at least one groove extending to the mouth end of said tip, said cigarette wrapper, at the region of the said rod adjacent the tip, being depressed inwardly to provide at least one cavity which is in communication with at least one said groove, and that portion of said tipping wrapper overlying said cavity permitting ingress of air into the same.

2. A cigarette according to claim 1, wherein the tipping wrapper extends to the mouth end of the filter tip.

3. A cigarette according to claim 1 or 2, wherein the said cavity comprises at least one annular groove in the said cigarette rod.

4. A cigarette according to claim 1 or 2, wherein the said cavity is formed by a drawing down of the cross section of the cigarette rod to provide an annular cavity.

5. A cigarette according to any one of the preceding claims, wherein the cigarette wrapper is of heat-deformable paper.

6. A cigarette according to claim 5, wherein the cigarette wrapper comprises a proportion of thermoplastic fibres or filaments.
7. A cigarette according to claims 1 to 6, wherein the cross section of the cigarette rod is drawn down to provide the said cavity by means of an additional wrapper of heat-deformable material.

8. A cigarette according to claim 4, wherein the cross section of the cigarette rod is drawn down to provide the said cavity by means of an additional wrapper of heat-shrink material.

9. A cigarette according to claim 1 and substantially as hereinbefore described with reference to Figures 1 and 2, Figures 3 to 4, Figures 6 to 8 or Figure 9 of the accompanying drawings.

DATED this TWENTY SIXTH day of JULY, 1982

BRITISH-AMERICAN TOBACCO COMPANY LIMITED

Patent Attorneys for the Applicant
SPRUNSON & FERGUSON
The following statement is a full description of this invention, including the best method of performing it known to me/us:

FIG. 1

FIG. 2

FIG. 3

FIG. 4

FIG. 5
a rod of smokable material enwrapped in a cigarette wrapper
END