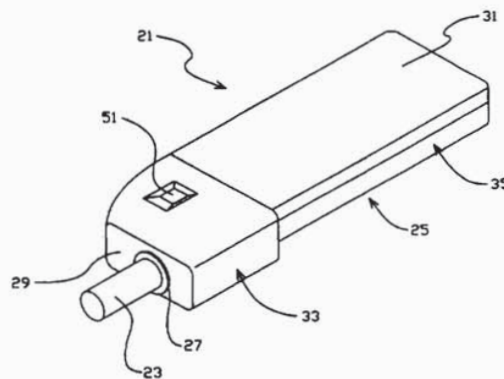




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification<sup>6</sup> : <b>A24F 47/00</b></p>	<p><b>A2</b></p>	<p>(11) International Publication Number: <b>WO 96/32854</b> (43) International Publication Date: 24 October 1996 (24.10.96)</p>
<p>(21) International Application Number: PCT/US96/05417 (22) International Filing Date: 19 April 1996 (19.04.96) (30) Priority Data: 08/425,166 20 April 1995 (20.04.95) US 08/425,837 20 April 1995 (20.04.95) US 08/426,165 20 April 1995 (20.04.95) US (71) Applicant (for all designated States except US): PHILIP MORRIS PRODUCTS INC. [US/US]; 3601 Commerce Road, Richmond, VA 23234 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): BAGGETT, James, D., Jr. [US/US]; 1825 Parkway Lane, Richmond, VA 23225 (US). CLARK, David, A. [US/US]; 2910 Newquay Lane, Richmond, VA 23236 (US). COUNTS, Mary, Ellen [US/US]; 4506 Cutshaw Avenue, Richmond, VA 23230 (US). COWLING, Patrick, C. [US/US]; 4607 Black Oak Road, Richmond, VA 23237 (US). HOUCK, Willie, G., Jr. [US/US]; 7753 Lake Forest Drive, Richmond, VA 23235 (US). MOORE, Michael, A. [US/US]; 2241 Banstead Road, Midlothian, VA 23113 (US). SANDERSON, Wesley, G. [US/US]; 10412 Redbridge Road, Richmond, VA 23226 (US). UHL, Richard, G. [US/US]; 13912 Beechwood Point</p>		<p>Rd., Midlothian, VA 23112 (US). WATKINS, Michael, L. [US/US]; 3318 Grove Avenue, Chester, VA 23831 (US). WRENN, Susan, E. [US/US]; 12130 Ivy Mill Road, Chesterfield, VA 23832 (US). FLEISCHHAUER, Grier, S. [US/US]; 1004 Lady Jean Court, Midlothian, VA 23113 (US). HAYES, Patrick, H. [US/US]; 4540 Forrestal Road, Chester, VA 23831 (US). MORGAN, Constance, H. [US/US]; 9608 Summercliff Court, Chesterfield, VA 23832 (US). HAJALIGOL, Mohammad, R. [US/US]; Apartment H, 3322 Old Courthouse Road, Richmond, VA 23236 (US). NICHOLS, Walter, A. [US/US]; 10316 Edgebrook Court, Richmond, VA 23235 (US). SHARPE, David, E. [US/US]; 6500 Glebe Point Road, Chesterfield, VA 23835 (US). (74) Agents: MAGNONE, Joseph, R. et al.; Burns, Doane, Swecker &amp; Mathis, P.O. Box 1404, Alexandria, VA 22313-1404 (US). (81) Designated States: AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, US, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> Without international search report and to be republished upon receipt of that report.</p>
<p>(54) Title: CIGARETTE AND HEATER FOR USE IN AN ELECTRICAL SMOKING SYSTEM</p>		



## (57) Abstract

A cigarette (23) comprises a tobacco rod having filled and unfilled portions arranged so that electrical heater elements (31) may overlap both portions. The rod includes a tubular tobacco web. The web is constructed by converting tobacco feedstock into a continuous sheet of tobacco web and converting the continuous sheet of tobacco web into one or more bobbins of tobacco web suitable for automated manufacture of cigarettes. A heater (25) comprises a supporting hub and electrically resistive heater blades (37) defining a receptacle (27) for an inserted cigarette (23). Each blade comprises first and second heater blade legs each having a first end and a second end, and a connecting section connecting the second end of the first leg and the first end of the second leg. The blades (37) are heated by a resistive heating circuit and heat the inserted cigarette (23). The legs are separated by a gap to permit entrainment of flavour substances upon drawing.

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgystan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

CIGARETTE AND HEATER FOR USE IN AN ELECTRICAL  
SMOKING SYSTEM

Field of Invention

The present invention relates generally to electrical smoking systems, and in particular to cigarettes adapted to cooperate with electrical lighters of electrical smoking systems, and to a heater for use in electrical smoking systems.

Background of the Invention

Traditional cigarettes deliver flavor and aroma to the smoker as a result of combustion, during which a mass of combustible material, principally tobacco, is combusted at temperatures which often exceeds 800° C during a puff. Heat is drawn through an adjacent mass of tobacco by drawing on the mouth end. During heating, inefficient oxidation of the combustible material releases various gaseous combustion products and distillates from the tobacco. As these gaseous products are drawn through the cigarette, they cool and condense to form an aerosol which provides the tastes and aromas associated with smoking.

SUBSTITUTE SHEET (RULE 26)

BAD ORIGINAL



Traditional cigarettes have various perceived drawbacks associated with them. One of these is the production of sidestream smoke during smoldering between puffs which may be objectionable to non-smokers. Once lit, they must be fully consumed or be discarded. Re-lighting a traditional cigarette is possible but is usually an unattractive proposition to a discerning smoker for subjective reasons (flavor, taste, odor).

An alternative to the more traditional cigarettes includes those in which the combustible material itself does not itself release the tobacco aerosol. Such smoking articles may comprise a combustible, carbonaceous heating element (heat source) located at or about one end of the smoking article and a bed of tobacco-laden elements located adjacent the aforementioned heating element. The heating element is ignited with a match or cigarette lighter, and when a smoker draws upon the cigarette, heat generated by the heating element is communicated to the bed of tobacco-laden elements so as to cause the bed to release a tobacco aerosol. While this type of smoking device produces little or no sidestream smoke, it still generates products of combustion at the heat source, and once its heat source is ignited, it is not readily snuffed for future use in a practical sense.

In both the more conventional and carbon heated devices described above, combustion takes place during their use. This process naturally gives rise to many by-products

SUBSTITUTE SHEET (RULE 26)

BAD ORIGINAL



as the combusted material breaks down and interacts with the surrounding atmosphere.

Copending and commonly assigned, U.S. patent applications Serial No. 08/380,718, filed September 30, 1995 (PM 1697 Cont) and Serial No. 07/943,504, filed September 11, 1992 (PM 1550) together with US patents 5,093,894, 5,225,498, 5,060,671 and 5,095,921 disclose various heating elements and flavor generating articles which significantly reduce sidestream smoke while permitting the smoker to selectively suspend and reinitiate smoking. However the cigarette articles disclosed in these patents are not very durable and may collapse, tear or break from extended or heavy handling. In certain circumstances, these prior cigarettes may crush as they are even weaker and may tear or break as they are removed from the lighter.

The aforementioned, United States patent application Serial No. 08/380,718 (PM 1697 Cont) and US 5,388,594 describe an electrical smoking system including a novel electrically powered lighter and a novel cigarette that cooperates with the lighter. The preferred embodiment of the lighter includes a plurality of metallic serpentine heaters disposed in a configuration that slidingly receives a tobacco rod portion of the cigarette.

The preferred embodiment of the cigarette in Serial No. 08/380,718 (PM 1697 Cont) and also disclosed in EP-A-0,615,411 comprises a tobacco-laden tubular carrier, a cigarette paper overwrapped about the tubular carrier, an

SUBSTITUTE SHEET (RULE 26)

BAD ORIGINAL



# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.