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United States Patent [19]

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Collins et al.

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[54] **FLAVOR GENERATING ARTICLE**

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1,968,509	7/1934	Tiffany	219/38
2,057,353	10/1936	Whittemore, Jr.	219/38
2,104,266	1/1938	McCormick	131/12
2,442,004	5/1948	Hayward-Butt	128/200
2,974,669	3/1961	Ellis	131/172

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

1202378	3/1986	Canada	B23K 3/02
87/104459	2/1988	China	.
0 295 122	12/1988	European Pat. Off.	A24F 47/00
0 358 002	3/1990	European Pat. Off.	A24F 47/00
0 358 114	3/1990	European Pat. Off.	A61M 15/00
0 430 566 A2	6/1991	European Pat. Off.	A24F 47/00
0 438 862 A2	7/1991	European Pat. Off.	A24F 47/00
3 640 917	8/1988	Germany	A45D 34/02
3 735 704	5/1989	Germany	A61L 9/03
61-68061	4/1986	Japan	A61M 15/06
2 132 539	7/1984	United Kingdom	B23K 3/02
2 148 079	5/1985	United Kingdom	B23K 3/02
2 148 676	5/1985	United Kingdom	H05B 3/28
WO 86/02528	5/1986	WIPO	A24B 15/18
WO 95/05094	2/1995	WIPO	A24F 47/00

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[*] **Notice:** The portion of the term of this patent subsequent to Sep. 10, 2013, has been disclaimed.

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[22] **Filed:** May 24, 1995

[57] ABSTRACT

A smoking article is provided in which a replaceable tobacco flavor unit containing tobacco flavor material is electrically heated by a set of permanent reusable heaters to evolve flavors or other components in vapor or aerosol form for delivery to a smoker. Each heater heats only a portion of the available tobacco flavor material so that a plurality of individual puffs of tobacco flavor substance can be delivered sequentially to the smoker. The replaceable tobacco flavor unit can also include a filter to reduce the effect of residual aerosol which settles or condenses on the permanent portions of the article and which can result in undesirable flavor generation when reheated. A method and apparatus for manufacturing the replaceable tobacco flavor unit is also provided.

Related U.S. Application Data

[60] Division of Ser. No. 943,504, Sep. 11, 1992, Pat. No. 5,505,214, which is a continuation-in-part of Ser. No. 666,926, Mar. 11, 1991, abandoned.

[51] **Int. Cl.⁶** A24F 1/00

[52] **U.S. Cl.** 131/194; 131/271; 131/329; 128/200.14; 128/202.21; 128/203.27

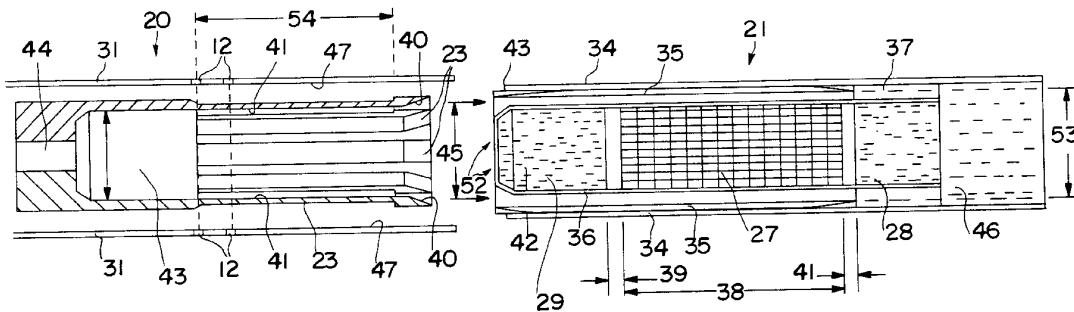
[58] **Field of Search** 131/194, 329, 131/271; 128/202.21, 203.27, 200.14

[56] References Cited

U.S. PATENT DOCUMENTS

1,771,336 7/1930 Wyss et al. .

75 Claims, 12 Drawing Sheets



RAI Strategic Holdings, Inc.
 Exhibit 2018
 Philip Morris Products, S.A. v. RAI Strategic Holdings, Inc.
 IPR2020-00919

U.S. PATENT DOCUMENTS

3,200,819	8/1965	Gilbert	128/208	4,637,407	1/1987	Bonnano et al.	131/175
3,255,760	6/1966	Selke	131/8	4,659,912	4/1987	Derbyshire	219/535
3,363,633	1/1968	Weber	131/178	4,682,010	7/1987	Drapeau et al.	219/381
3,402,723	9/1968	Hu	131/185	4,686,353	8/1987	Spector	219/275
3,482,580	12/1969	Hollebaugh	131/178	4,692,590	9/1987	Spector	219/275
3,496,336	2/1970	Hingorany et al.	219/464	4,694,824	9/1987	Ruderian	128/203
3,591,753	7/1971	Gartner	219/464	4,735,217	4/1988	Gerth et al.	131/273
3,608,560	9/1971	Briskin	131/2	4,771,796	9/1988	Myer et al.	131/273
3,738,374	6/1973	Bennett	131/2	4,776,353	10/1988	Lilja et al.	131/297
3,744,496	7/1973	McCarty et al.	131/8	4,837,421	6/1989	Luthy	219/272
3,804,100	4/1974	Fariello	131/173	4,846,199	7/1989	Rose	131/329
3,889,690	6/1975	Guarnieri	131/185	4,848,376	7/1989	Lilja et al.	131/352
4,016,061	4/1977	Wasa et al.	204/192	4,874,924	10/1989	Yamamoto et al.	219/274
4,068,672	1/1978	Guerra	131/170	4,877,989	10/1989	Drews et al.	310/323
4,077,784	3/1978	Vayrynen	55/146	4,922,901	5/1990	Brooks et al.	128/203.26
4,131,119	12/1978	Blasutti	131/187	4,945,931	8/1990	Gori	131/335
4,141,369	2/1979	Buuruss	131/171	4,947,874	8/1990	Brooks et al.	131/329
4,164,230	8/1979	Pearlman	131/171	4,947,875	8/1990	Brooks et al.	131/330
4,193,411	3/1980	Faris et al.	131/171	4,966,171	10/1990	Seranno et al.	131/194
4,194,108	3/1980	Nakajima et al.	219/216	4,981,522	1/1991	Nichols et al.	131/274
4,203,025	5/1980	Nakatani et al.	219/216	4,991,606	2/1991	Serrano et al.	131/359
4,215,708	8/1980	Bron	131/262	4,998,541	3/1991	Perfetti et al.	131/336
4,219,032	8/1980	Tabatznik et al.	131/170	5,016,656	5/1991	McMurtrie	131/364
4,246,913	1/1981	Ogden et al.	131/771	5,040,552	8/1991	Schleich et al.	131/359
4,256,945	3/1981	Carter et al.	219/10.75	5,042,510	8/1991	Curtiss et al.	131/273
4,259,564	3/1981	Ohkubo	219/216	5,060,671	10/1991	Counts et al.	131/329
4,259,970	4/1981	Green, Jr.	131/330	5,076,296	12/1991	Nystrom et al.	131/359
4,303,083	12/1981	Burruss, Jr.	131/271	5,093,894	3/1992	Deevi	392/390
4,319,591	3/1982	Keith et al.	131/359	5,095,921	3/1992	Losee et al.	131/194
4,393,884	7/1983	Jacobs	131/273	5,144,962	9/1992	Counts et al.	131/194
4,431,903	2/1984	Riccio	219/238	5,159,940	11/1992	Hayward et al.	131/194
4,436,100	3/1984	Green, Jr.	131/330	5,179,966	1/1993	Losee et al.	131/351
4,463,247	7/1984	Lawrence et al.	219/236	5,188,130	2/1993	Hajaligol et al.	131/359
4,505,282	3/1985	Cogbill et al.	131/334	5,224,498	7/1993	Deevi et al.	131/194
4,562,337	12/1985	Lawrence	219/421	5,235,157	8/1993	Blackburn	219/268
4,570,646	2/1986	Herron	131/185	5,249,586	10/1993	Morgan et al.	131/194
4,580,583	4/1986	Green, Jr.	131/330	5,269,327	12/1993	Counts et al.	131/194
4,621,649	11/1986	Osterrath	131/185	5,274,214	12/1993	Blackburn	219/268
4,623,401	11/1986	Derbyshire et al.	148/13	5,285,050	2/1994	Blackburn	219/268
4,629,604	12/1986	Spector	422/124	5,388,594	2/1995	Counts et al.	131/194 X
				5,479,948	1/1996	Counts et al.	131/194

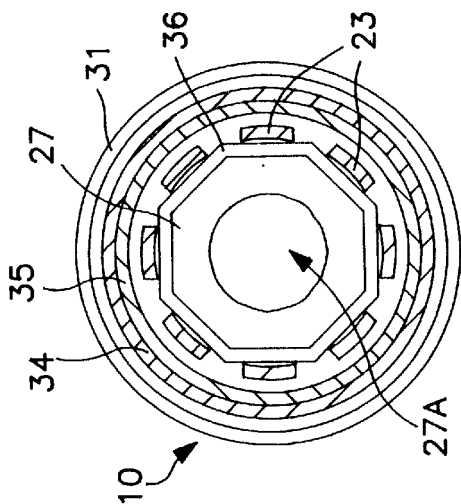


FIG. 3A

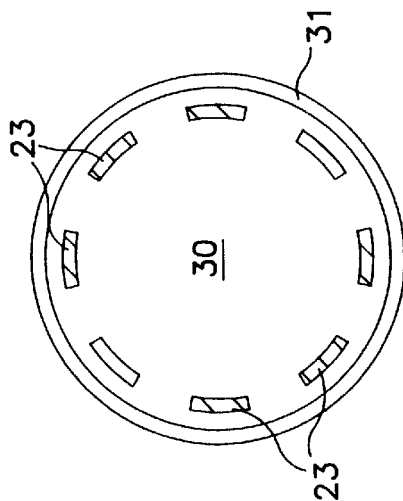


FIG. 3

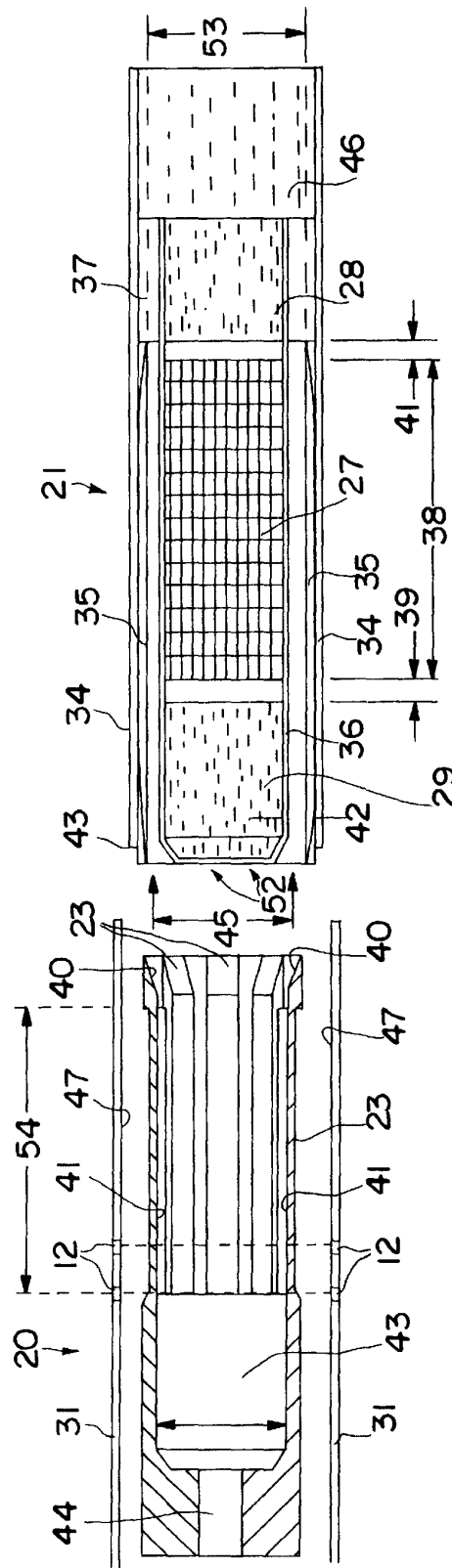


FIG. 4

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