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(12) **United States Design Patent**
Wagner et al.

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(54) **BRUSH HEAD FOR ORAL CLEANSING DEVICE**

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(**) Term: **15 Years**

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(52) **U.S. Cl.**
USPC **D4/101**

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CPC A46B 2200/1066; A46B 2200/1073; A46B 2200/1086; A46B 5/02; A46B 5/0095; A46B 9/04; A61C 17/22; A61C 17/225; A61C 17/32; A61C 17/34; A61C 17/3445;

(Continued)

(56) **References Cited**

U.S. PATENT DOCUMENTS

669,402 A 3/1901 Rose
684,951 A 10/1901 Rothkranz
914,501 A 3/1909 McEachern
(Continued)

FOREIGN PATENT DOCUMENTS

CH 435553 10/1967
CH 609238 2/1979
(Continued)

OTHER PUBLICATIONS

Sonex International: Brushing with the Ultima—The World's Only Dual-Frequency Ultrasonic Toothbrush, Jul. 28, 1999, published at Sonipic.com.

(Continued)

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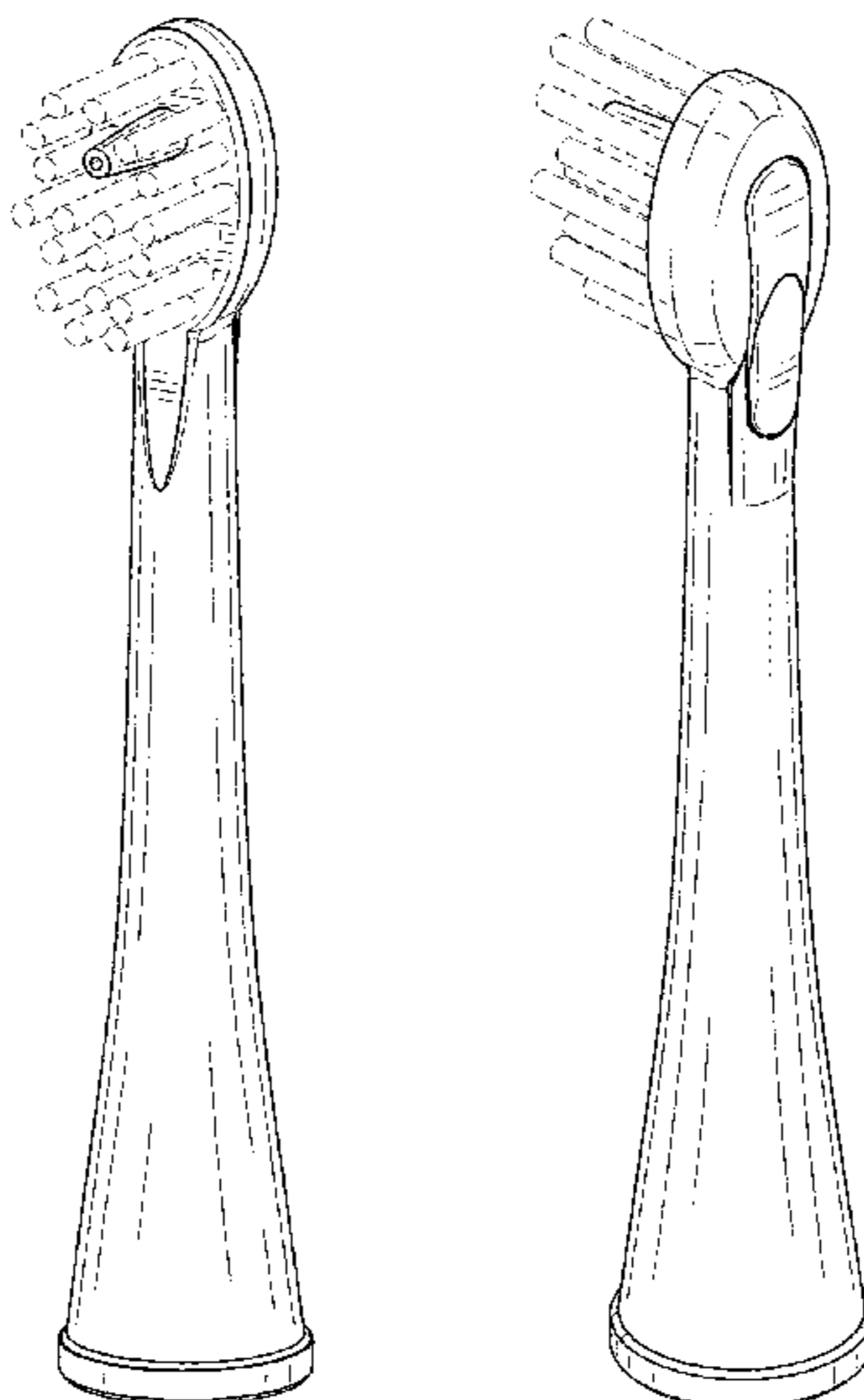
(57) **CLAIM**

We claim the ornamental design for a brush head for an oral cleansing device, as shown and described.

DESCRIPTION

FIG. 1 is a front isometric view of a brush head for an oral cleansing device, showing my new design.
FIG. 2 is a rear isometric view thereof.
FIG. 3 is a front elevation view thereof.
FIG. 4 is a rear elevation view thereof.
FIG. 5 is a right side elevation thereof.
FIG. 6 is a left side elevation view thereof.
FIG. 7 is a top plan view thereof; and,
FIG. 8 is a bottom plan view thereof.
The broken lines illustrate portions of a brush head for an oral cleansing device that form no part of the claimed design.

1 Claim, 4 Drawing Sheets



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(58) **Field of Classification Search**

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See application file for complete search history.

(56)

References Cited

U.S. PATENT DOCUMENTS

933,718 A 9/1909 Mahoney
 958,371 A 5/1910 Danek
 1,018,927 A 2/1912 Sarrazin
 1,033,819 A 7/1912 McMann
 1,059,426 A 4/1913 Barnes
 D45,199 S 2/1914 McDonagh et al.
 D45,572 S 4/1914 Sarrazin
 1,128,139 A 2/1915 Hoffman
 D49,472 S 8/1916 Dierke
 1,251,250 A 12/1917 Libby
 1,268,544 A 6/1918 Cates
 1,278,225 A 9/1918 Schamberg
 1,296,067 A 3/1919 Fuller
 1,313,490 A 8/1919 Larson
 1,337,173 A 4/1920 White
 1,355,037 A 10/1920 Dziuk
 D57,327 S 3/1921 Gibson
 1,382,681 A 6/1921 Segal
 1,424,879 A 8/1922 Carlstedt
 1,440,785 A 1/1923 Levis
 1,456,535 A 5/1923 Cartwright
 1,488,214 A 3/1924 Mason
 1,494,448 A 5/1924 Sookne
 1,497,495 A 6/1924 Fincke
 1,517,320 A 12/1924 Stoddart
 1,527,853 A 2/1925 Ferdon
 1,588,785 A 6/1926 Van Sant
 1,639,880 A 8/1927 Butler
 1,657,450 A 1/1928 Barnes
 1,676,703 A 7/1928 Nuyts
 1,696,835 A 12/1928 Burnett
 1,703,642 A 2/1929 Sticht
 1,794,711 A 3/1931 Jacobs
 1,796,641 A 3/1931 Zimmerman et al.
 1,800,993 A 4/1931 Funk
 1,832,519 A 11/1931 Wheat et al.
 1,880,617 A 10/1932 White
 1,916,641 A 7/1933 Seeliger
 1,927,365 A 9/1933 Frolio
 1,943,225 A 1/1934 McIntyre
 1,992,770 A 2/1935 Rathbun
 2,016,597 A 10/1935 Drake
 2,016,644 A 10/1935 Luball
 2,042,239 A 5/1936 Planding
 2,044,863 A 6/1936 Sticht
 D101,080 S 9/1936 Cosad
 2,114,947 A 4/1938 Warsaw
 D113,743 S 3/1939 Kahn
 D113,744 S 3/1939 Kahn
 2,158,738 A 5/1939 Baker et al.
 2,168,964 A 8/1939 Strasser
 2,206,726 A 7/1940 Lasater
 2,209,173 A 7/1940 Russell
 2,218,072 A 10/1940 Runnels
 2,226,663 A 12/1940 Hill et al.
 2,244,098 A 6/1941 Busick
 2,246,523 A 6/1941 Kulik
 2,273,717 A 2/1942 Millard et al.
 2,278,365 A 3/1942 Daniels
 2,279,355 A 4/1942 Wilensky
 2,282,700 A 5/1942 Bobbroff
 2,312,828 A 3/1943 Adamsson
 D136,156 S 8/1943 Fuller
 D139,532 S 11/1944 Trecek
 D141,350 S 5/1945 Alexander et al.

D144,163 S 3/1946 Dolnick
 2,401,186 A 5/1946 Price
 2,405,029 A 7/1946 Gallanty et al.
 D146,271 S 1/1947 Stavely
 2,414,775 A 1/1947 Stavely
 2,429,740 A 10/1947 Aufsesser
 2,450,635 A 10/1948 Dembenski
 D154,598 S 7/1949 Gass
 D155,668 S 10/1949 Zandberg et al.
 D157,669 S 3/1950 Graves, Jr.
 D160,101 S 9/1950 MacDonald
 2,533,345 A 12/1950 Bennett
 2,543,999 A 3/1951 Voss
 D163,707 S 6/1951 Pifer
 2,558,332 A 6/1951 Artale
 2,567,080 A 9/1951 Pifer
 2,577,597 A 12/1951 Wright et al.
 2,583,750 A 1/1952 Runnels
 2,598,275 A 5/1952 Lakin
 2,618,003 A 11/1952 Robey
 D169,131 S 3/1953 Fay
 2,651,068 A 9/1953 Seko
 D170,680 S 10/1953 Del Mas
 D172,693 S 7/1954 Wibbelsman et al.
 D173,616 S 12/1954 Hernandez
 2,705,335 A 4/1955 Glassman et al.
 2,709,227 A 5/1955 Foley et al.
 2,722,703 A 11/1955 Green
 2,728,928 A 1/1956 Beeren
 2,734,139 A 2/1956 Murphy
 2,806,235 A 9/1957 Carstairs et al.
 2,819,482 A 1/1958 Applegate
 2,868,215 A 1/1959 Mechem
 2,875,458 A 3/1959 Tsuda
 2,917,758 A 12/1959 Held et al.
 2,931,371 A 4/1960 Petitta
 2,946,072 A 7/1960 Filler et al.
 2,962,033 A 11/1960 Lew
 2,977,614 A 4/1961 Demanuele
 2,977,682 A 4/1961 Flatray
 3,103,027 A 9/1963 Birch
 3,104,405 A 9/1963 Perrinjaquet
 3,106,216 A 10/1963 Kirby
 D197,048 S 12/1963 Troy
 D197,208 S 12/1963 Cassidy et al.
 3,143,697 A 8/1964 Springer
 3,145,404 A 8/1964 Fiedler
 D199,560 S 11/1964 Thompson
 D199,893 S 12/1964 Bond et al.
 3,159,859 A 12/1964 Rasmussen
 3,160,902 A 12/1964 Aymar
 3,168,834 A 2/1965 Smithson
 3,181,189 A 5/1965 Leyden
 3,183,538 A 5/1965 Hubner
 3,195,537 A 7/1965 Blasi
 D202,873 S 11/1965 Husted
 3,220,039 A 11/1965 Dayton et al.
 3,229,318 A 1/1966 Clemens
 3,230,562 A 1/1966 Birch
 D204,127 S 3/1966 Syvertson
 3,258,805 A 7/1966 Rossnan
 3,270,416 A 9/1966 Massa
 3,278,963 A 10/1966 Bond
 3,289,681 A 12/1966 Chambers
 3,311,116 A 3/1967 Foster
 3,335,443 A 8/1967 Parisi et al.
 3,346,748 A 10/1967 McNair
 3,358,309 A 12/1967 Richardson
 3,358,314 A 12/1967 Matibag
 3,359,588 A 12/1967 Kobler
 3,364,576 A 1/1968 Kern, Jr.
 D210,066 S 2/1968 Johnson
 3,369,265 A 2/1968 Halberstadt et al.
 3,371,260 A 2/1968 Jackson et al.
 D210,349 S 3/1968 Boldt
 3,375,820 A 4/1968 Kuris et al.
 3,394,277 A 7/1968 Satkunas et al.
 D212,208 S 9/1968 Rogers
 3,418,552 A 12/1968 Holmes

(56)

References Cited

U.S. PATENT DOCUMENTS

3,421,524 A	1/1969	Waters	4,303,064 A	12/1981	Buffa
3,430,279 A	3/1969	Hintze	4,307,740 A	12/1981	Florindez et al.
3,463,994 A	8/1969	Spohr	4,319,377 A	3/1982	Tarrson et al.
3,466,689 A	9/1969	Aurelio et al.	4,319,595 A	3/1982	Ulrich
3,472,045 A	10/1969	Nelsen et al.	4,326,547 A	4/1982	Verplank
3,472,247 A	10/1969	Borsum et al.	4,326,548 A	4/1982	Wagner
3,474,799 A	10/1969	Cappello	4,326,549 A	4/1982	Hinding
3,509,874 A	5/1970	Stillman	4,331,422 A	5/1982	Heyman
3,535,726 A	10/1970	Sawyer	4,333,197 A	6/1982	Kuris
3,536,065 A	10/1970	Moret	4,336,622 A	6/1982	Teague, Jr. et al.
3,538,359 A	11/1970	Barowski	D265,515 S	7/1982	Levine
3,552,022 A	1/1971	Axelsson	4,338,957 A	7/1982	Meibauer
3,559,292 A	2/1971	Weissman	D265,698 S	8/1982	Roth
3,563,233 A	2/1971	Bodine	4,346,492 A	8/1982	Solow
3,588,936 A	6/1971	Duve	4,347,839 A	9/1982	Youngclaus, Jr.
3,590,814 A	7/1971	Bennett et al.	4,353,141 A	10/1982	Teague, Jr. et al.
D221,823 S	9/1971	Cook	4,356,585 A	11/1982	Protell et al.
3,608,548 A	9/1971	Lewis	4,381,478 A	4/1983	Saijo et al.
3,642,344 A	2/1972	Corker	4,395,665 A	7/1983	Buchas
3,651,576 A	3/1972	Massa	4,397,327 A	8/1983	Hadary
3,660,902 A	5/1972	Axelsson	D270,972 S	10/1983	Rosofsky
3,667,483 A	6/1972	McCabe	D272,565 S	2/1984	Levine
3,672,378 A	6/1972	Silverman	D272,680 S	2/1984	Stocchi
3,676,218 A	7/1972	Sawyer	4,429,997 A	2/1984	Matthews
3,685,080 A	8/1972	Hubner	4,432,729 A	2/1984	Fattaleh
3,722,020 A	3/1973	Hills	4,434,806 A	3/1984	Givens
3,742,549 A	7/1973	Scopp et al.	4,442,830 A	4/1984	Markau
3,759,274 A	9/1973	Warner	D274,018 S	5/1984	Usui
3,760,799 A	9/1973	Crowson	4,450,599 A	5/1984	Scheller et al.
3,792,504 A	2/1974	Smith	4,455,704 A	6/1984	Williams
3,809,977 A	5/1974	Balamuth et al.	4,458,702 A	7/1984	Grollimund
3,831,611 A	8/1974	Hendricks	D276,936 S *	12/1984	Fattaleh D24/146
3,840,932 A	10/1974	Balamuth et al.	4,488,327 A	12/1984	Snider
3,847,167 A	11/1974	Brien	4,490,114 A	12/1984	Kleesattel
3,851,984 A	12/1974	Crippa	4,505,678 A	3/1985	Andersson
D234,518 S	3/1975	Gerlich	4,517,701 A	5/1985	Stanford, Jr.
3,882,364 A	5/1975	Wright et al.	4,519,111 A	5/1985	Cavazza
3,902,510 A	9/1975	Roth	4,522,355 A	6/1985	Moran
3,903,601 A	9/1975	Anderson et al.	4,522,595 A	6/1985	Selvidge
3,939,599 A	2/1976	Henry et al.	4,530,369 A	7/1985	Adams
3,967,617 A	7/1976	Krolik	4,543,679 A	10/1985	Rosofsky et al.
3,973,558 A	8/1976	Stouffer et al.	D281,202 S	11/1985	Thompson
3,977,084 A	8/1976	Sloan	4,562,413 A	12/1985	Mishiro et al.
3,978,852 A	9/1976	Annoni	4,564,794 A	1/1986	Kilen et al.
3,980,906 A	9/1976	Kuris et al.	4,571,768 A	2/1986	Kawashima
4,004,344 A	1/1977	Gold et al.	4,576,190 A	3/1986	Youssef
4,005,722 A	2/1977	Bragg	4,577,649 A	3/1986	Shimenkov
4,008,728 A	2/1977	Sanchez	4,578,033 A	3/1986	Mossle et al.
4,010,509 A	3/1977	Huish	D283,374 S	4/1986	Cheuk-Yiu
4,014,354 A	3/1977	Garrett	4,585,415 A	4/1986	Hommann
4,019,522 A	4/1977	Elbreder	4,586,521 A	5/1986	Urso
4,033,008 A	7/1977	Warren et al.	D284,236 S	6/1986	Collet
4,048,723 A	9/1977	Thorup	D284,528 S	7/1986	Jurado
4,051,571 A	10/1977	Ayers	4,603,448 A	8/1986	Middleton et al.
4,064,883 A	12/1977	Oldham	4,605,025 A	8/1986	McSpadden
4,133,339 A	1/1979	Naslund	4,608,019 A	8/1986	Kumabe et al.
4,141,352 A	2/1979	Ebner et al.	4,610,043 A	9/1986	Vezjak
4,156,620 A	5/1979	Clemens	4,617,695 A	10/1986	Amos et al.
4,177,434 A	12/1979	Ida	4,617,718 A	10/1986	Andersson
D254,162 S	2/1980	Barker	4,619,009 A	10/1986	Rosenstatter
4,192,035 A	3/1980	Kuris	D287,073 S	12/1986	Thompson
4,203,431 A	5/1980	Abura et al.	4,634,376 A	1/1987	Mossle et al.
4,205,664 A	6/1980	Baccialon	4,644,937 A	2/1987	Hommann
4,219,619 A	8/1980	Zarow	4,655,198 A	4/1987	Hommann
4,235,253 A	11/1980	Moore	4,672,706 A	6/1987	Hill
4,245,658 A	1/1981	Lecouturier	D292,448 S	10/1987	Vianello
RE30,536 E	3/1981	Perdreux, Jr.	4,698,869 A	10/1987	Mierau et al.
4,255,693 A	3/1981	Keidl	4,706,322 A	11/1987	Nicolas
4,265,257 A	5/1981	Salyer	4,706,695 A	11/1987	Urso
4,268,933 A	5/1981	Papas	D294,885 S	3/1988	Mollenhoff
4,271,382 A	6/1981	Maeda et al.	4,729,142 A	3/1988	Yoshioka
4,271,854 A	6/1981	Bengtsson	D297,467 S	8/1988	McCann
4,275,363 A	6/1981	Mishiro et al.	4,766,630 A	8/1988	Hegemann
4,288,883 A	9/1981	Dolinsky	4,776,054 A	10/1988	Rauch
4,289,486 A	9/1981	Sargeant	4,787,847 A	11/1988	Martin et al.
			4,791,940 A	12/1988	Hirshfeld et al.
			4,800,608 A	1/1989	Key
			4,802,255 A	2/1989	Breuer et al.
			4,811,445 A	3/1989	Lagieski et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

4,820,153 A	4/1989	Romhild et al.	5,174,314 A	12/1992	Charatan
4,820,154 A	4/1989	Romhild et al.	5,176,157 A	1/1993	Mazza
4,827,550 A	5/1989	Graham et al.	5,177,826 A	1/1993	Vrignaud et al.
4,827,551 A	5/1989	Maser et al.	5,180,363 A	1/1993	Idemoto et al.
4,827,552 A	5/1989	Bojar et al.	D332,873 S	2/1993	Hall
4,832,063 A	5/1989	Smole	5,183,063 A	2/1993	Ringle et al.
D301,770 S	6/1989	Bethany	5,183,156 A	2/1993	Bruno
4,844,104 A	7/1989	Martin	5,184,368 A	2/1993	Holland
4,845,795 A	7/1989	Crawford et al.	5,184,632 A	2/1993	Gross et al.
4,856,133 A	8/1989	Sanchez	5,186,191 A	2/1993	Loubier
4,864,676 A	9/1989	Schaiper	5,188,133 A	2/1993	Romanus
D303,876 S	10/1989	Clemens et al.	5,189,751 A	3/1993	Giuliani et al.
4,871,396 A	10/1989	Tsujita et al.	5,193,678 A	3/1993	Janocik et al.
4,873,496 A	10/1989	Ohgihara et al.	5,198,732 A	3/1993	Morimoto
4,875,265 A	10/1989	Yoshida	D334,472 S	4/1993	Curtis et al.
4,877,934 A	10/1989	Spinello	5,201,092 A	4/1993	Colson
4,879,781 A	11/1989	Desimone	D335,579 S	5/1993	Chuang
4,880,382 A	11/1989	Moret et al.	5,207,773 A	5/1993	Henderson
4,887,052 A	12/1989	Murakami et al.	5,213,434 A	5/1993	Hahn
4,892,191 A	1/1990	Nakamara	5,214,819 A	6/1993	Kirchner
4,908,902 A	3/1990	McNab et al.	5,217,031 A	6/1993	Santoro
4,913,133 A	4/1990	Tichy	5,224,500 A	7/1993	Stella
4,913,176 A	4/1990	DeNiro	5,226,206 A	7/1993	Davidovitz et al.
4,922,936 A	5/1990	Buzzi et al.	5,236,358 A	8/1993	Sieffert
D308,765 S	6/1990	Johnson	5,245,117 A	9/1993	Withers et al.
4,974,278 A	12/1990	Hommann	5,246,022 A	9/1993	Israel et al.
4,984,173 A	1/1991	Imam et al.	5,247,716 A	9/1993	Bock
4,989,287 A	2/1991	Scherer	5,253,382 A	10/1993	Beny
4,991,249 A	2/1991	Suroff	5,261,430 A	11/1993	Mochel
4,995,403 A	2/1991	Beckman et al.	5,263,218 A	11/1993	Giuliani et al.
5,000,684 A	3/1991	Odrich	D341,943 S	12/1993	Si-Hoe
5,002,487 A	3/1991	Tichy	D342,160 S	12/1993	Curtis et al.
5,007,127 A	4/1991	Paolo	D342,161 S	12/1993	Curtis et al.
5,016,660 A	5/1991	Boggs	D342,162 S	12/1993	Curtis et al.
5,020,179 A	6/1991	Scherer	5,267,579 A	12/1993	Bushberger
5,033,150 A	7/1991	Gross et al.	D343,064 S	1/1994	Reno
D318,918 S	8/1991	Hartwein	5,279,314 A	1/1994	Poulos et al.
D319,363 S	8/1991	Uemura et al.	5,289,604 A	3/1994	Kressner
5,046,212 A	9/1991	O'Conke	5,293,886 A	3/1994	Czapor
5,050,625 A	9/1991	Siekmann	5,294,896 A	3/1994	Kjellander et al.
5,054,149 A	10/1991	Si-Hoe et al.	D346,212 S	4/1994	Hosl
D321,285 S	11/1991	Hirabayashi	5,299,723 A	4/1994	Hempel
5,062,797 A	11/1991	Gonser	5,301,381 A	4/1994	Klupt
5,067,223 A	11/1991	Bruno	5,304,010 A	4/1994	Hsing-San
D321,986 S	12/1991	Snyder et al.	5,305,492 A	4/1994	Giuliani et al.
5,068,939 A	12/1991	Holland	D346,697 S	5/1994	O'Conke
5,069,233 A	12/1991	Ritter	5,309,590 A	5/1994	Giuliani et al.
5,069,621 A	12/1991	Paradis	5,309,591 A	5/1994	Hägele et al.
5,071,348 A	12/1991	Woog	5,311,632 A	5/1994	Center
5,072,477 A	12/1991	Pai	5,311,633 A	5/1994	Herzog et al.
5,072,482 A	12/1991	Bojar et al.	5,315,731 A	5/1994	Millar
5,077,855 A	1/1992	Ambasz	D347,943 S	6/1994	Perry
5,085,236 A	2/1992	Odneal et al.	5,323,796 A	6/1994	Urso
5,088,145 A	2/1992	Whitefield	5,335,389 A	8/1994	Curtis et al.
D324,957 S	3/1992	Piano	5,337,435 A	8/1994	Krasner et al.
5,094,256 A	3/1992	Barth	5,339,482 A	8/1994	Desimone et al.
5,095,470 A	3/1992	Oka et al.	5,341,534 A	8/1994	Serbinski et al.
5,100,321 A	3/1992	Coss et al.	5,341,537 A	8/1994	Curtis et al.
5,120,225 A	6/1992	Amit	5,351,358 A	10/1994	Larrimore
5,123,841 A	6/1992	Millner	5,353,460 A	10/1994	Bauman
5,125,837 A	6/1992	Warrin et al.	5,354,246 A	10/1994	Gotman
5,133,661 A	7/1992	Euvsard	5,355,638 A	10/1994	Hoffman
5,138,733 A	8/1992	Bock	5,358,328 A	10/1994	Inoue et al.
5,145,369 A	9/1992	Lustig et al.	D352,396 S	11/1994	Curtis et al.
5,146,643 A	9/1992	Bojar et al.	D352,829 S	11/1994	Perry
5,150,492 A	9/1992	Suroff	5,359,747 A	11/1994	Amakasu
5,151,030 A	9/1992	Comeaux	5,365,627 A	11/1994	Jousson et al.
D330,116 S	10/1992	Crawford et al.	D353,490 S	12/1994	Hartwein
D330,286 S	10/1992	Curtis et al.	5,369,831 A	12/1994	Bock
D330,458 S	10/1992	Curtis et al.	5,371,915 A	12/1994	Key
5,152,394 A	10/1992	Hughes	5,373,602 A	12/1994	Bang
5,163,375 A	11/1992	Withers et al.	D354,168 S	1/1995	Hartwein
5,167,193 A	12/1992	Withers et al.	5,378,153 A	1/1995	Giuliani et al.
5,169,313 A	12/1992	Kline	5,383,242 A	1/1995	Bigler et al.
5,170,809 A	12/1992	Imai et al.	5,392,483 A	2/1995	Heinzelman et al.
			5,393,229 A	2/1995	Ram
			5,396,678 A	3/1995	Bredall et al.
			5,398,368 A	3/1995	Elder
			5,400,811 A	3/1995	Meibauer

(56)

References Cited

U.S. PATENT DOCUMENTS

5,404,608 A	4/1995	Hommann	5,735,011 A	4/1998	Asher
5,406,664 A	4/1995	Hukuba	5,738,575 A	4/1998	Bock
5,406,965 A	4/1995	Levine	5,742,972 A	4/1998	Bredall et al.
D358,486 S	5/1995	Loew	5,749,380 A	5/1998	Zebuhr
D358,713 S	5/1995	Perry	5,762,078 A	6/1998	Zebuhr
D358,801 S	5/1995	Vos	5,775,346 A	7/1998	Szyszkowski
5,411,041 A	5/1995	Ritter	5,784,742 A	7/1998	Giuliani et al.
5,412,827 A	5/1995	Muller et al.	5,784,743 A	7/1998	Shek
5,416,942 A	5/1995	Baldacci et al.	D397,251 S	8/1998	Eguchi et al.
5,419,346 A	5/1995	Tipp	D397,254 S	8/1998	Moskovich
5,419,703 A	5/1995	Warrin et al.	5,787,908 A	8/1998	Robinson
D358,938 S	6/1995	Schneider et al.	5,794,295 A	8/1998	Shen
5,421,726 A	6/1995	Okada	5,815,872 A	10/1998	Meginnis, III et al.
5,435,032 A	7/1995	McDougall	5,816,271 A	10/1998	Urso
5,438,726 A	8/1995	Leite	5,822,821 A	10/1998	Sham
5,446,940 A	9/1995	Curtis et al.	5,827,064 A	10/1998	Bock
D363,605 S	10/1995	Kou et al.	D400,713 S	11/1998	Solanki
5,459,898 A	10/1995	Bacolot	5,836,030 A	11/1998	Hazeu et al.
5,461,744 A	10/1995	Merbach	5,842,244 A	12/1998	Hilfinger et al.
5,467,494 A	11/1995	Muller et al.	5,850,655 A	12/1998	Göcking et al.
5,467,495 A	11/1995	Boland et al.	5,851,514 A	12/1998	Hassan et al.
5,482,466 A	1/1996	Haynes	D403,511 S	1/1999	Serbinski
5,484,281 A	1/1996	Renow et al.	5,855,216 A	1/1999	Robinson
5,496,256 A	3/1996	Bock et al.	5,862,558 A	1/1999	Hilfinger et al.
5,499,420 A	3/1996	Boland	5,864,911 A	2/1999	Arnoux
5,504,958 A	4/1996	Herzog	5,864,915 A	2/1999	Ra
5,504,959 A	4/1996	Yukawa et al.	5,867,856 A	2/1999	Herzog
5,511,270 A	4/1996	Eliachar et al.	5,875,797 A	3/1999	Chiang et al.
5,511,275 A	4/1996	Volpenhein et al.	5,893,175 A	4/1999	Cooper
D370,125 S	5/1996	Craft et al.	5,896,614 A	4/1999	Flewitt
5,518,012 A	5/1996	Dolan et al.	5,896,615 A	4/1999	Zaksenberg
D370,347 S	6/1996	Heinzelman et al.	5,899,693 A	5/1999	Himeno et al.
5,529,494 A	6/1996	Vlacancich	5,900,230 A	5/1999	Cutler
D371,242 S	7/1996	Shimatsu et al.	5,901,397 A	5/1999	Hafele et al.
5,530,981 A	7/1996	Chen	D410,787 S	6/1999	Barre et al.
5,544,382 A	8/1996	Giuliani et al.	5,908,038 A	6/1999	Bennett
5,545,968 A	8/1996	Hilfinger et al.	D411,769 S	7/1999	Wright
5,546,624 A	8/1996	Bock	5,921,254 A	7/1999	Carlucci et al.
5,546,626 A	8/1996	Chung	5,927,300 A	7/1999	Boland et al.
5,561,881 A	10/1996	Klinger et al.	5,927,976 A	7/1999	Wu
D375,841 S	11/1996	Serbinski	5,930,858 A	8/1999	Jung
5,573,020 A	11/1996	Robinson	5,931,170 A	8/1999	Wu
5,577,285 A	11/1996	Drossler	5,934,908 A	8/1999	Woog et al.
D376,695 S	12/1996	Tveras	5,943,723 A	8/1999	Hilfinger et al.
5,579,786 A	12/1996	Wolk et al.	5,944,033 A	8/1999	Robinson
5,584,690 A	12/1996	Maassarani	D413,694 S	9/1999	Bennett
5,588,452 A	12/1996	Peck	D414,937 S	10/1999	Cornu et al.
5,606,984 A	3/1997	Gao	D414,939 S	10/1999	Pedro, Jr. et al.
5,609,170 A	3/1997	Roth	5,974,613 A	11/1999	Herzog
5,613,258 A	3/1997	Hilfinger et al.	5,974,615 A	11/1999	Schwarz-Hartmann et al.
5,613,259 A	3/1997	Craft et al.	5,980,541 A	11/1999	Tenzer
5,617,601 A	4/1997	McDougall	5,987,681 A	11/1999	Hahn et al.
5,617,602 A	4/1997	Okada	5,991,957 A	11/1999	Watanabe
5,618,275 A	4/1997	Bock	D417,960 S	12/1999	Moskovich et al.
5,619,766 A	4/1997	Zhadanov et al.	6,000,083 A	12/1999	Blaustein et al.
5,623,746 A	4/1997	Ichiro	6,009,589 A	1/2000	Driesen et al.
5,625,916 A	5/1997	McDougall	6,021,538 A	2/2000	Kressner et al.
5,628,082 A	5/1997	Moskovich	6,026,828 A	2/2000	Altshuler
D380,903 S	7/1997	Moskovich	6,032,313 A	3/2000	Tsang
D381,468 S	7/1997	Dolan et al.	6,035,476 A	3/2000	Underwood et al.
5,651,157 A	7/1997	Hahn	6,047,429 A	4/2000	Wu
D382,407 S	8/1997	Craft et al.	6,047,711 A	4/2000	Wagner
5,652,990 A	8/1997	Driesen et al.	6,050,818 A	4/2000	Boland et al.
5,653,591 A	8/1997	Loge	RE36,699 E	5/2000	Murayama
5,678,274 A	10/1997	Liu	D423,784 S	5/2000	Joulin
5,678,578 A	10/1997	Kossak et al.	6,065,176 A	5/2000	Watanabe et al.
D386,314 S	11/1997	Moskovich	6,081,957 A	7/2000	Webb
5,687,446 A	11/1997	Chen et al.	6,092,252 A	7/2000	Fischer et al.
5,697,117 A	12/1997	Craft	6,095,811 A	8/2000	Stearns
5,700,146 A	12/1997	Kucar	6,102,700 A	8/2000	Haczek et al.
RE35,712 E	1/1998	Murayama	6,106,294 A	8/2000	Daniel
5,704,087 A	1/1998	Strub	6,138,310 A	10/2000	Porper et al.
5,709,233 A	1/1998	Boland et al.	6,140,723 A	10/2000	Matsui et al.
5,718,667 A	2/1998	Sugimoto et al.	6,148,462 A	11/2000	Zseng
5,732,433 A	3/1998	Göcking et al.	D434,563 S	12/2000	Lim et al.
			6,154,912 A	12/2000	Li
			6,162,202 A	12/2000	Sicurelli et al.
			6,164,967 A	12/2000	Sale et al.
			D437,090 S	1/2001	Lang et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

D437,091 S	1/2001	Lang et al.	6,735,803 B2	5/2004	Kuo
6,178,579 B1	1/2001	Blaustein et al.	6,735,804 B2	5/2004	Carlucci et al.
D437,663 S	2/2001	Lang et al.	6,739,012 B2	5/2004	Grez et al.
D437,976 S	2/2001	Narayanan et al.	6,751,823 B2	6/2004	Biro et al.
D437,977 S	2/2001	Lang et al.	6,760,945 B2	7/2004	Ferber et al.
D438,306 S	2/2001	Narayanan	6,760,946 B2	7/2004	DePuydt
6,183,254 B1	2/2001	Cohen	6,766,548 B1	7/2004	Lukas et al.
6,195,828 B1	3/2001	Fritsch	6,766,549 B2	7/2004	Klupt
6,202,242 B1	3/2001	Salmon et al.	6,766,807 B2	7/2004	Piccolo et al.
6,203,320 B1	3/2001	Williams et al.	6,779,126 B1	8/2004	Lin et al.
6,220,857 B1	4/2001	Abels	6,779,215 B2	8/2004	Hartman et al.
6,230,354 B1	5/2001	Sproat	6,785,926 B2	9/2004	Green
6,230,717 B1	5/2001	Marx et al.	6,785,929 B2	9/2004	Fritsch et al.
6,233,773 B1	5/2001	Karge et al.	6,792,640 B2	9/2004	Lev
6,237,178 B1	5/2001	Krammer et al.	6,795,993 B2	9/2004	Lin
D444,629 S	7/2001	Etter et al.	6,798,169 B2	9/2004	Stratmann et al.
6,253,404 B1	7/2001	Boland et al.	6,799,346 B2	10/2004	Jeng et al.
6,267,593 B1	7/2001	Haczek et al.	6,802,097 B2	10/2004	Hafliger et al.
6,299,444 B1	10/2001	Cohen	6,808,331 B2	10/2004	Hall et al.
6,308,358 B2	10/2001	Gruber et al.	6,810,550 B1	11/2004	Wuelknitz et al.
6,308,359 B2	10/2001	Fritsch et al.	6,813,793 B2	11/2004	Eliav
6,341,400 B1	1/2002	Kobayashi et al.	6,813,794 B2	11/2004	Weng
6,343,396 B1	2/2002	Simovitz et al.	6,821,119 B2	11/2004	Shortt et al.
6,343,400 B1	2/2002	Massholder et al.	6,823,875 B2	11/2004	Hotta et al.
6,347,425 B1	2/2002	Fattori et al.	6,827,910 B2	12/2004	Chen
6,349,442 B1	2/2002	Cohen et al.	6,829,801 B2	12/2004	Schutz
6,353,956 B1	3/2002	Berge	6,832,819 B1	12/2004	Weihrauch
6,360,395 B2	3/2002	Blaustein et al.	D500,599 S	1/2005	Callaghan
6,360,398 B1	3/2002	Wiegner et al.	D501,084 S	1/2005	Schaefer et al.
6,363,565 B1	4/2002	Paffrath	6,836,917 B2	1/2005	Blaustein et al.
6,365,108 B1	4/2002	Philyaw	6,845,537 B2	1/2005	Wong
6,367,108 B1	4/2002	Fritsch et al.	6,848,141 B2	2/2005	Eliav et al.
6,374,448 B2	4/2002	Seifert	6,851,150 B2	2/2005	Chiang
6,375,459 B1	4/2002	Kamen et al.	6,851,153 B2	2/2005	Lehman
6,381,795 B1	5/2002	Hofmann et al.	6,854,965 B2	2/2005	Ebner et al.
6,401,288 B1	6/2002	Porper et al.	6,862,771 B1	3/2005	Muller
6,421,865 B1	7/2002	McDougall	6,871,373 B2	3/2005	Driesen et al.
6,421,866 B1	7/2002	McDougall	6,874,509 B2	4/2005	Bergman
6,421,867 B1	7/2002	Weihrauch	6,886,207 B1	5/2005	Solanki
6,422,867 B2	7/2002	Lang et al.	6,889,401 B2	5/2005	Fattori et al.
6,434,773 B1	8/2002	Kuo	6,889,829 B2	5/2005	Lev et al.
D463,627 S	9/2002	Lang et al.	6,892,412 B2	5/2005	Gatzemeyer et al.
6,446,294 B1	9/2002	Specht	6,892,413 B2	5/2005	Blaustein et al.
6,446,295 B1	9/2002	Calabrese	6,895,625 B2	5/2005	Lev et al.
6,447,293 B1	9/2002	Sokol et al.	6,895,629 B1	5/2005	Wenzler
6,453,497 B1	9/2002	Chiang et al.	6,902,337 B1	6/2005	Kuo
6,453,498 B1	9/2002	Wu	6,907,636 B2	6/2005	Hafemann
6,453,499 B1	9/2002	Leuermann	6,918,153 B2	7/2005	Gruber
6,463,615 B1	10/2002	Gruber et al.	6,920,659 B2	7/2005	Cacka et al.
6,490,747 B1	12/2002	Metwally	6,920,660 B2	7/2005	Lam
6,497,237 B1	12/2002	Ali	6,928,685 B1	8/2005	Blaustein et al.
6,510,575 B2	1/2003	Calabrese	6,931,688 B2	8/2005	Moskovich et al.
6,526,994 B1	3/2003	Santoro	6,938,293 B2	9/2005	Eliav et al.
6,536,066 B2	3/2003	Dickie	6,938,294 B2	9/2005	Fattori et al.
6,564,940 B2	5/2003	Blaustein et al.	6,944,901 B2	9/2005	Gatzemeyer et al.
6,571,804 B2	6/2003	Adler	6,945,397 B2	9/2005	Brattasani et al.
6,574,820 B1	6/2003	DePuydt et al.	6,948,209 B2	9/2005	Chan
6,581,233 B1	6/2003	Cheng	6,952,854 B2	10/2005	Blaustein et al.
6,581,234 B2	6/2003	Lee et al.	6,952,855 B2	10/2005	Lev et al.
6,588,042 B2	7/2003	Fritsch et al.	6,954,961 B2	10/2005	Ferber et al.
6,599,048 B2	7/2003	Kuo	6,955,539 B2	10/2005	Shortt et al.
6,609,527 B2	8/2003	Brown	6,957,468 B2	10/2005	Driesen et al.
6,609,910 B2	8/2003	Narayanan	6,957,469 B2	10/2005	Davies
6,622,333 B1	9/2003	Rehkemper et al.	6,966,093 B2	11/2005	Eliav et al.
6,647,577 B2	11/2003	Tam	6,973,694 B2	12/2005	Schutz et al.
D484,311 S	12/2003	Cacka et al.	6,983,507 B2	1/2006	McDougall
6,654,979 B2	12/2003	Calabrese	6,988,777 B2	1/2006	Pfenniger et al.
6,659,674 B2	12/2003	Carlucci et al.	6,990,706 B2	1/2006	Broecker et al.
6,665,901 B2	12/2003	Driesen et al.	D515,318 S	2/2006	Chan et al.
6,689,078 B1	2/2004	Rehkemper et al.	6,993,803 B2	2/2006	Chan
6,691,363 B2	2/2004	Huen	6,997,191 B2	2/2006	Nudo, Sr.
6,701,565 B2	3/2004	Hafemann	7,007,331 B2	3/2006	Davies et al.
6,709,185 B2	3/2004	Lefevre	7,008,225 B2	3/2006	Ito et al.
6,721,986 B2	4/2004	Zhuan	7,020,925 B1	4/2006	Gitelis
6,725,490 B2	4/2004	Blaustein et al.	7,021,851 B1	4/2006	King
			7,024,717 B2	4/2006	Hilscher et al.
			7,024,718 B2	4/2006	Chu
			7,036,180 B2	5/2006	Hanlon
			7,055,205 B2	6/2006	Aoyama

(56)

References Cited

U.S. PATENT DOCUMENTS							
7,059,334	B2	6/2006	Dougan et al.	2002/0178519	A1	12/2002	Zarlengo
7,065,821	B2	6/2006	Fattori	2003/0005544	A1	1/2003	Felix
RE39,185	E	7/2006	Noe et al.	2003/0033679	A1	2/2003	Fattori et al.
7,070,354	B1	7/2006	Gutierrez-Caro	2003/0033680	A1	2/2003	Davies et al.
7,080,980	B2	7/2006	Klupt	2003/0041396	A1	3/2003	Dickie
7,082,638	B2	8/2006	Koh	2003/0064348	A1	4/2003	Sokol et al.
7,082,950	B2	8/2006	Kossak et al.	2003/0066145	A1	4/2003	Prineppi
7,086,111	B2	8/2006	Hilscher et al.	2003/0074751	A1	4/2003	Wu
7,089,621	B2	8/2006	Hohlbein	2003/0079305	A1	5/2003	Takahata et al.
7,120,960	B2	10/2006	Hilscher et al.	2003/0084525	A1	5/2003	Blaustein et al.
7,122,921	B2	10/2006	Hall et al.	2003/0084526	A1	5/2003	Brown et al.
7,124,461	B2	10/2006	Blaustein et al.	2003/0084527	A1	5/2003	Brown et al.
7,124,462	B2	10/2006	Lee	2003/0097723	A1	5/2003	Li
7,128,492	B1	10/2006	Thames, Jr.	2003/0099502	A1	5/2003	Lai
7,140,058	B2	11/2006	Gatzemeyer et al.	2003/0101526	A1	6/2003	Hilscher
7,146,675	B2	12/2006	Ansari et al.	2003/0106565	A1	6/2003	Andrews
7,162,764	B2	1/2007	Drossler et al.	2003/0140435	A1	7/2003	Eliav et al.
7,162,767	B2	1/2007	Pfenniger et al.	2003/0140437	A1	7/2003	Eliav et al.
7,168,122	B1	1/2007	Riddell	2003/0140937	A1	7/2003	Cook
7,168,125	B2	1/2007	Hohlbein	2003/0150474	A1	8/2003	Doyscher
7,174,596	B2	2/2007	Fischer et al.	2003/0154567	A1	8/2003	Drossler et al.
7,175,238	B1	2/2007	Barman	2003/0154568	A1	8/2003	Boland et al.
7,181,799	B2	2/2007	Gavney, Jr. et al.	2003/0163881	A1	9/2003	Driesen et al.
7,185,383	B2	3/2007	Gatzemeyer et al.	2003/0163882	A1	9/2003	Blaustein et al.
7,186,226	B2	3/2007	Woolley	2003/0182743	A1	10/2003	Gatzemeyer et al.
D540,542	S	4/2007	Harada	2003/0182746	A1	10/2003	Fattori et al.
7,198,487	B2	4/2007	Luetzgen et al.	2003/0192139	A1	10/2003	Fattori et al.
7,207,080	B2	4/2007	Hilscher et al.	2003/0196283	A1	10/2003	Eliav et al.
7,210,184	B2	5/2007	Eliav et al.	2003/0196677	A1	10/2003	Wiseman
7,213,293	B1	5/2007	Schrage	2003/0213075	A1	11/2003	Hui et al.
7,213,995	B2	5/2007	Bravo-Loubriel	2003/0221267	A1	12/2003	Chan
7,217,332	B2	5/2007	Brown, Jr. et al.	2003/0221269	A1	12/2003	Zhuan
7,222,381	B2	5/2007	Kraemer	2003/0226223	A1	12/2003	Chan
7,222,382	B2	5/2007	Choi et al.	2004/0010870	A1	1/2004	McNair
7,225,494	B2	6/2007	Chan et al.	2004/0010871	A1	1/2004	Nishinaka et al.
7,228,583	B2	6/2007	Chan et al.	2004/0016068	A1	1/2004	Lee
7,234,192	B2	6/2007	Barbar	2004/0016069	A1	1/2004	Lee
7,401,373	B2	7/2008	Tybinkowski et al.	2004/0034951	A1	2/2004	Davies et al.
7,469,440	B2	12/2008	Boland et al.	2004/0045106	A1	3/2004	Lam
7,554,225	B2	6/2009	Kraus et al.	2004/0045107	A1	3/2004	Egeresi
7,732,952	B1	6/2010	Taylor	2004/0049867	A1	3/2004	Hui
7,857,623	B2	12/2010	Grez	2004/0049868	A1	3/2004	Ng
8,032,964	B2	10/2011	Farrell et al.	2004/0060137	A1	4/2004	Eliav
D648,941	S	11/2011	Leung	2004/0063603	A1	4/2004	Dave et al.
8,196,245	B2	6/2012	Schwarz-Hartmann et al.	2004/0068811	A1	4/2004	Fulop et al.
8,256,979	B2	9/2012	Hilscher et al.	2004/0074026	A1	4/2004	Blaustein et al.
8,418,300	B2	4/2013	Miller et al.	2004/0083566	A1	5/2004	Blaustein et al.
8,453,285	B2	6/2013	Dickie	2004/0087882	A1	5/2004	Roberts et al.
8,769,758	B2	7/2014	Jungnickel et al.	2004/0088806	A1	5/2004	DePuydt et al.
D715,057	S *	10/2014	Adriaenssen D4/101	2004/0088807	A1	5/2004	Blaustein et al.
9,468,511	B2 *	10/2016	Garrigues A61C 17/3481	2004/0091834	A1	5/2004	Rizoiu et al.
D793,738	S	8/2017	Nguyen et al.	2004/0107521	A1	6/2004	Chan et al.
9,987,109	B2	6/2018	Sokol et al.	2004/0119344	A1	6/2004	Lau et al.
2001/0035194	A1	11/2001	Narayanan	2004/0123409	A1	7/2004	Dickie
2001/0039955	A1	11/2001	Winters et al.	2004/0128778	A1	7/2004	Wong
2001/0054563	A1	12/2001	Lang et al.	2004/0129296	A1	7/2004	Treacy et al.
2002/0017474	A1	2/2002	Blaustein et al.	2004/0134001	A1	7/2004	Chan
2002/0029988	A1	3/2002	Blaustein et al.	2004/0143917	A1	7/2004	Ek
2002/0032941	A1	3/2002	Blaustein et al.	2004/0154112	A1	8/2004	Braun et al.
2002/0039720	A1	4/2002	Marx et al.	2004/0163191	A1	8/2004	Cuffaro et al.
2002/0059685	A1	5/2002	Paffrath	2004/0168269	A1	9/2004	Kunita et al.
2002/0078514	A1	6/2002	Blaustein et al.	2004/0168272	A1	9/2004	Prineppi
2002/0084707	A1	7/2002	Tang	2004/0177458	A1	9/2004	Chan et al.
2002/0088068	A1	7/2002	Levy et al.	2004/0187889	A1	9/2004	Kemp et al.
2002/0090252	A1	7/2002	Hall et al.	2004/0200016	A1	10/2004	Chan et al.
2002/0092104	A1	7/2002	Ferber	2005/0004498	A1	1/2005	Klupt
2002/0095734	A1	7/2002	Wong	2005/0008986	A1	1/2005	Sokol et al.
2002/0100134	A1	8/2002	Dunn et al.	2005/0102773	A1	5/2005	Obermann et al.
2002/0106607	A1	8/2002	Horowitz	2005/0144745	A1	7/2005	Russell
2002/0137728	A1	9/2002	Montgomery	2005/0189000	A1	9/2005	Cacka et al.
2002/0138926	A1	10/2002	Brown, Jr. et al.	2005/0255427	A1	11/2005	Shortt et al.
2002/0152563	A1	10/2002	Sato	2005/0266376	A1	12/2005	Sokol et al.
2002/0152564	A1	10/2002	Blaustein et al.	2005/0278878	A1	12/2005	Liao et al.
2002/0152565	A1	10/2002	Klupt	2006/0010624	A1	1/2006	Cleland
2002/0174498	A1	11/2002	Li	2006/0078844	A1	4/2006	Goldman et al.
				2007/0151051	A1	7/2007	Filsouf
				2007/0209127	A1	9/2007	DeVitis
				2008/0213731	A1	9/2008	Fishburne
				2008/0307591	A1	12/2008	Farrell et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2009/0070949	A1	3/2009	Sagel et al.
2009/0113643	A1	5/2009	Tybinkowski et al.
2009/0113648	A1	5/2009	Vaynberg et al.
2009/0119859	A1	5/2009	Podolsky
2009/0178215	A1	7/2009	Gall
2009/0211042	A1	8/2009	Bock
2010/0055634	A1	3/2010	Spaulding et al.
2010/0132139	A1	6/2010	Jungnickel
2010/0186179	A1	7/2010	Miller
2011/0010874	A1	1/2011	Dickie
2011/0041268	A1	2/2011	Iwahori et al.
2011/0047729	A1	3/2011	Iwahori
2011/0083288	A1	4/2011	Kressner
2012/0112566	A1	5/2012	Doll
2012/0198635	A1	8/2012	Hilscher
2012/0216358	A1	8/2012	Kloster
2012/0279002	A1	11/2012	Sokol
2013/0239342	A1	9/2013	Hilscher et al.
2014/0157532	A1	6/2014	Hilscher et al.
2014/0259474	A1	9/2014	Sokol et al.
2015/0107035	A1	4/2015	Sokol et al.
2015/0297327	A1	10/2015	Miller
2015/0327965	A1	11/2015	Garrigues
2017/0007384	A1	1/2017	Wagner
2017/0189151	A1	7/2017	Fischer et al.
2017/0319311	A1	11/2017	Luetngen et al.
2018/0008388	A1	1/2018	Lee
2018/0049854	A1	2/2018	Hall
2018/0140404	A1	5/2018	Schaefer et al.
2018/0279765	A1	12/2018	Zimmerman

FOREIGN PATENT DOCUMENTS

CN	1658807	8/2005
CN	1886885	12/2006
CN	102026588	4/2011
CN	102111032	6/2011
DE	2019003	11/1971
DE	3431481	2/1986
DE	3512190	10/1986
DE	8626725	5/1987
DE	3736308	7/1989
DE	4142404	7/1991
DE	4003305	8/1991
DE	4223195	1/1994
DE	4223196	1/1994
DE	4226658	2/1994
DE	4226659	2/1994
DE	4241576	6/1994

DE	4309078	9/1994
DE	29715234	12/1997
DE	29919053	12/2000
DE	19961447	7/2001
DE	102006061381	6/2008
EP	0210094	1/1987
EP	0354352	2/1990
EP	0661025	7/1995
EP	0704180	4/1996
EP	0968686	1/2000
FR	429447	9/1911
FR	1171337	1/1959
GB	477799	1/1938
GB	500517	2/1939
GB	838564	6/1960
GB	899618	6/1962
GB	2175494	12/1986
GB	2250428	6/1992
JP	53033753	3/1978
JP	3222905	10/1991
WO	WO 91/19437	12/1991
WO	WO 92/10146	6/1992
WO	WO 92/16160	10/1992
WO	WO 93/10721	6/1993
WO	WO 93/15628	8/1993
WO	WO 94/04093	3/1994
WO	WO 94/26144	11/1994
WO	WO 95/02375	1/1995
WO	WO 95/33419	12/1995
WO	WO 98/47443	10/1998
WO	WO 01/28452	4/2001
WO	WO 01/45582	6/2001
WO	WO 02/071970	9/2002
WO	WO 02/071971	9/2002
WO	WO 05/063143	7/2005
WO	WO 2006/012974	2/2006
WO	WO 2008/070730	6/2008
WO	WO 2014/145890	9/2014
WO	WO 2014/150418	9/2014

OTHER PUBLICATIONS

Teledyne Water Pik "Plaque Control 3000" plaque removal instrument (Jul. 1991).

American Dentronics Incorporated "Soniplak" sonic plaque removal system (May 1993).

Teledyne Water Pik "Sensonic" Toothbrush, sales brochure (at least as early as Sep. 1994).

International Search Report and Written Opinion, PCT Application No. PCT/US2012/036092, 7 pages, dated Jul. 10, 2012.

* cited by examiner

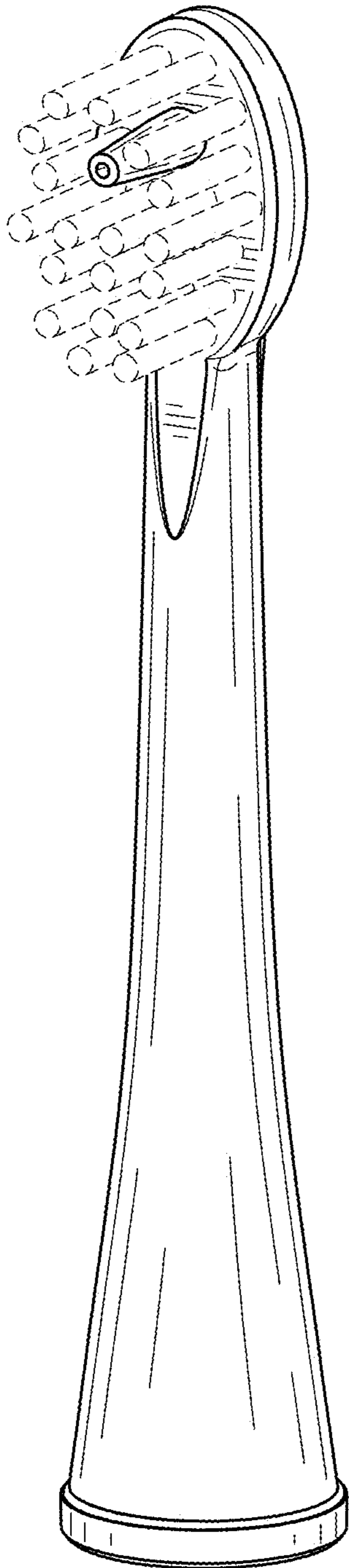


FIG. 1

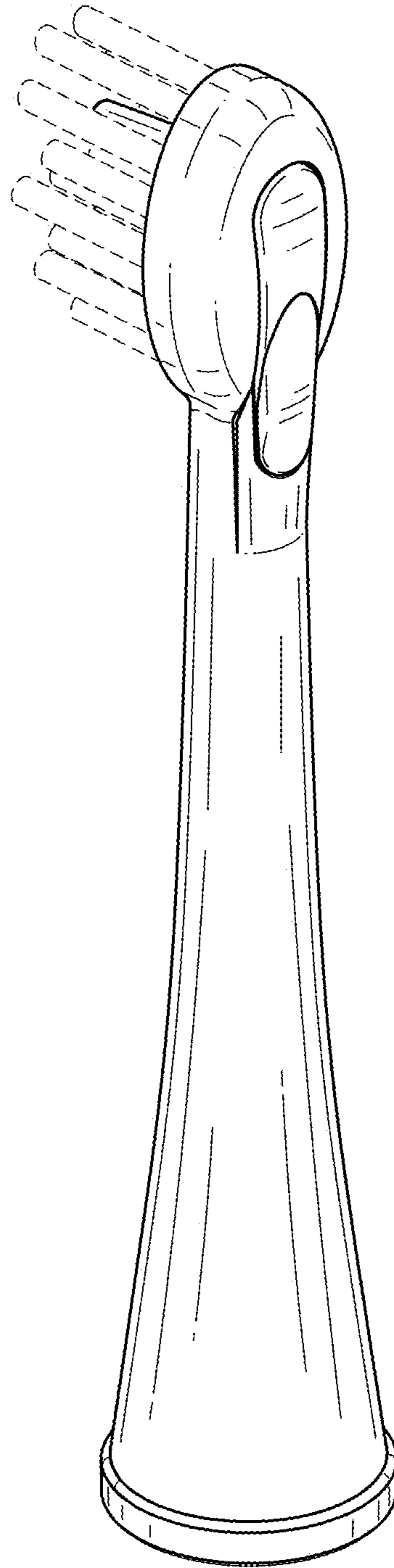


FIG. 2

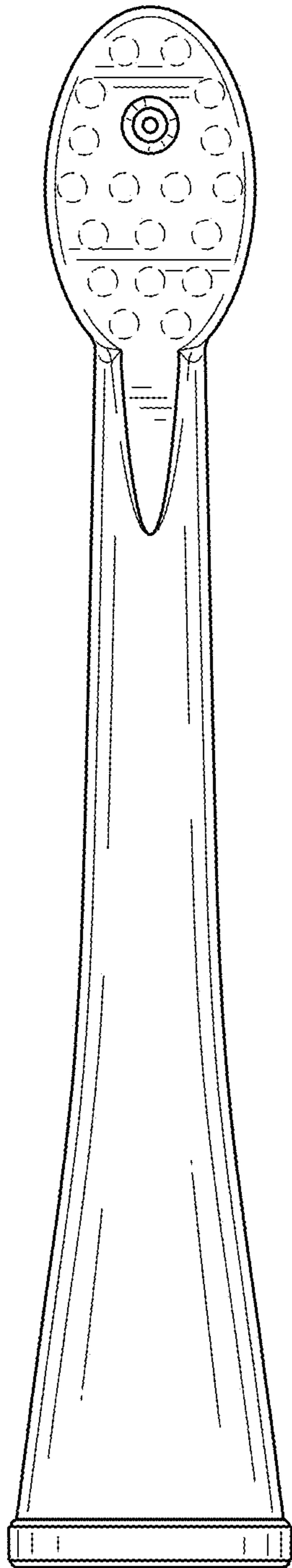


FIG. 3

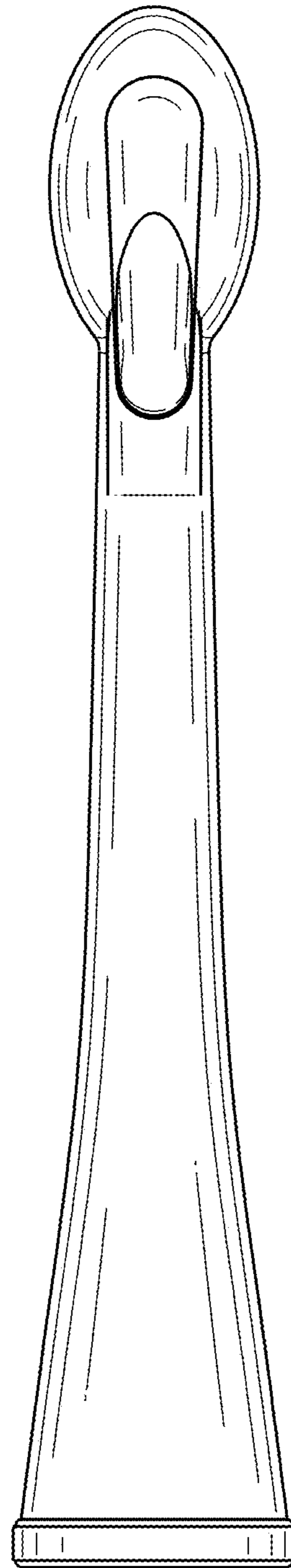


FIG. 4

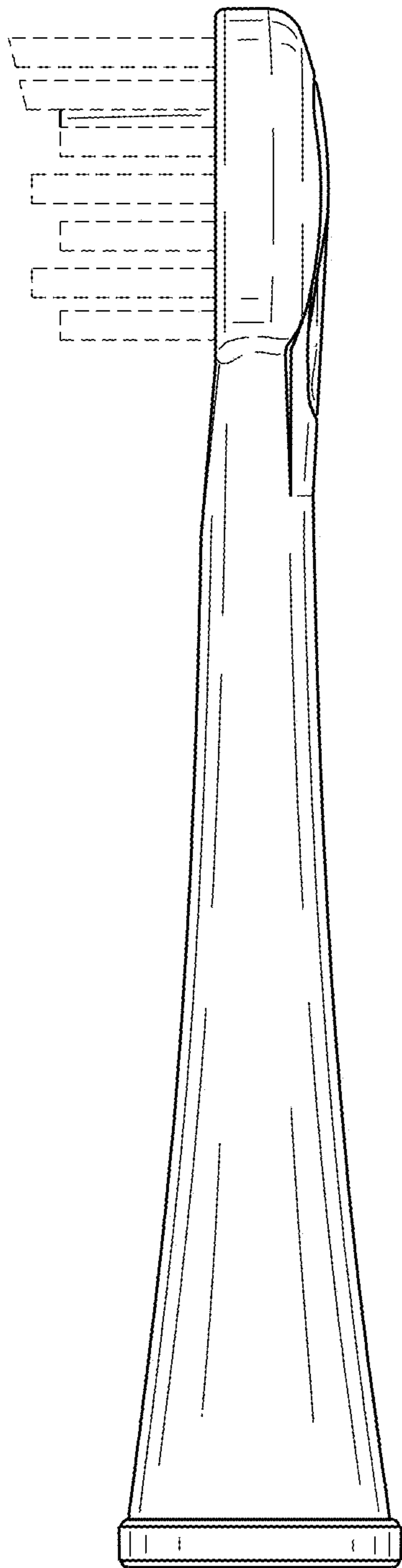


FIG. 5

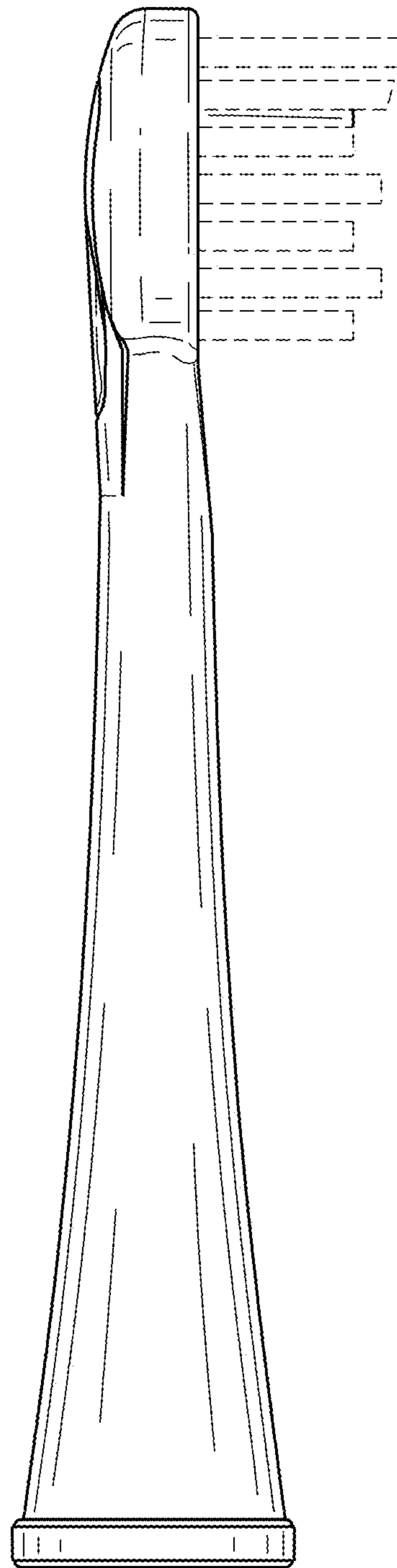


FIG. 6

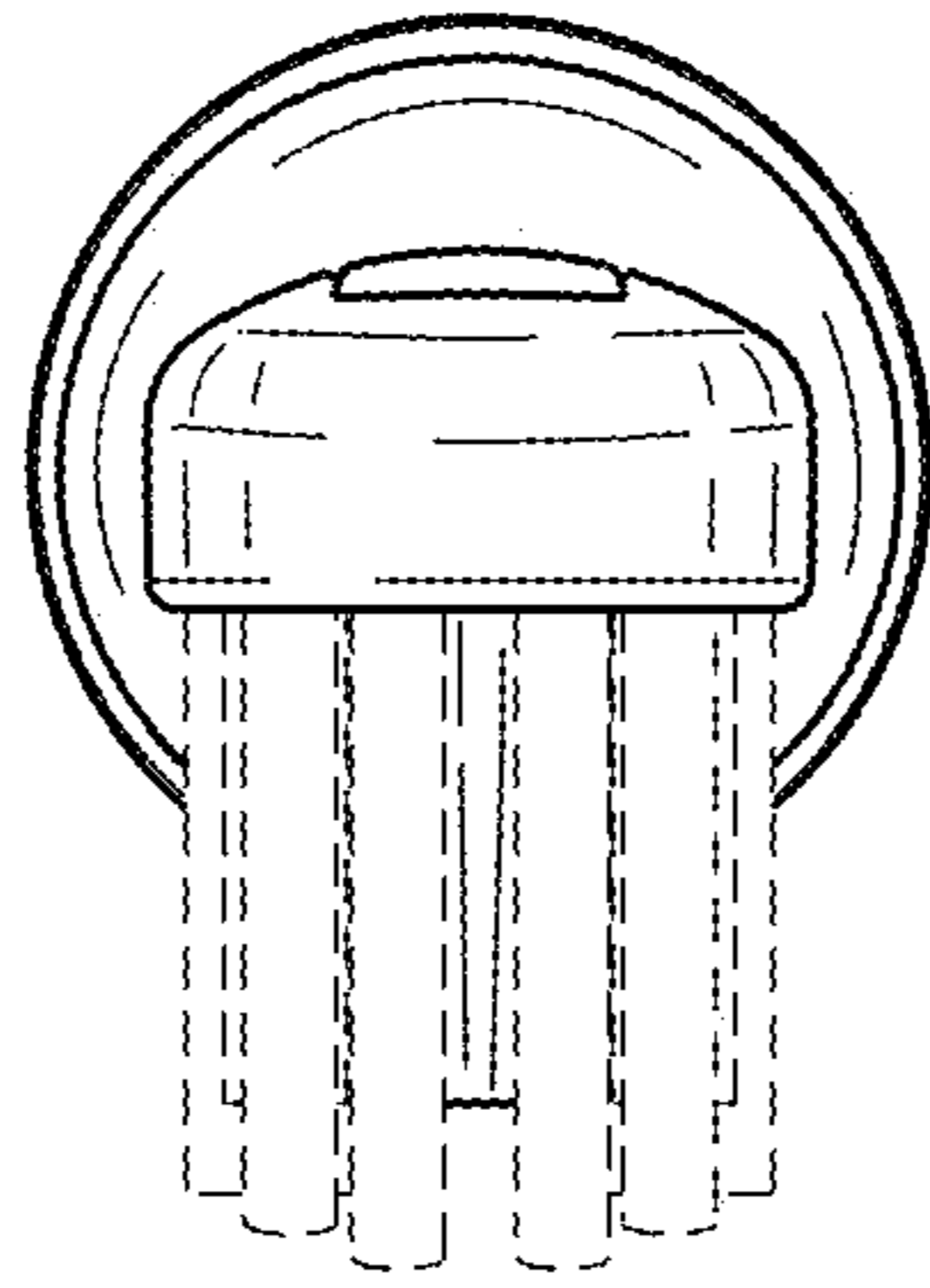


FIG. 7

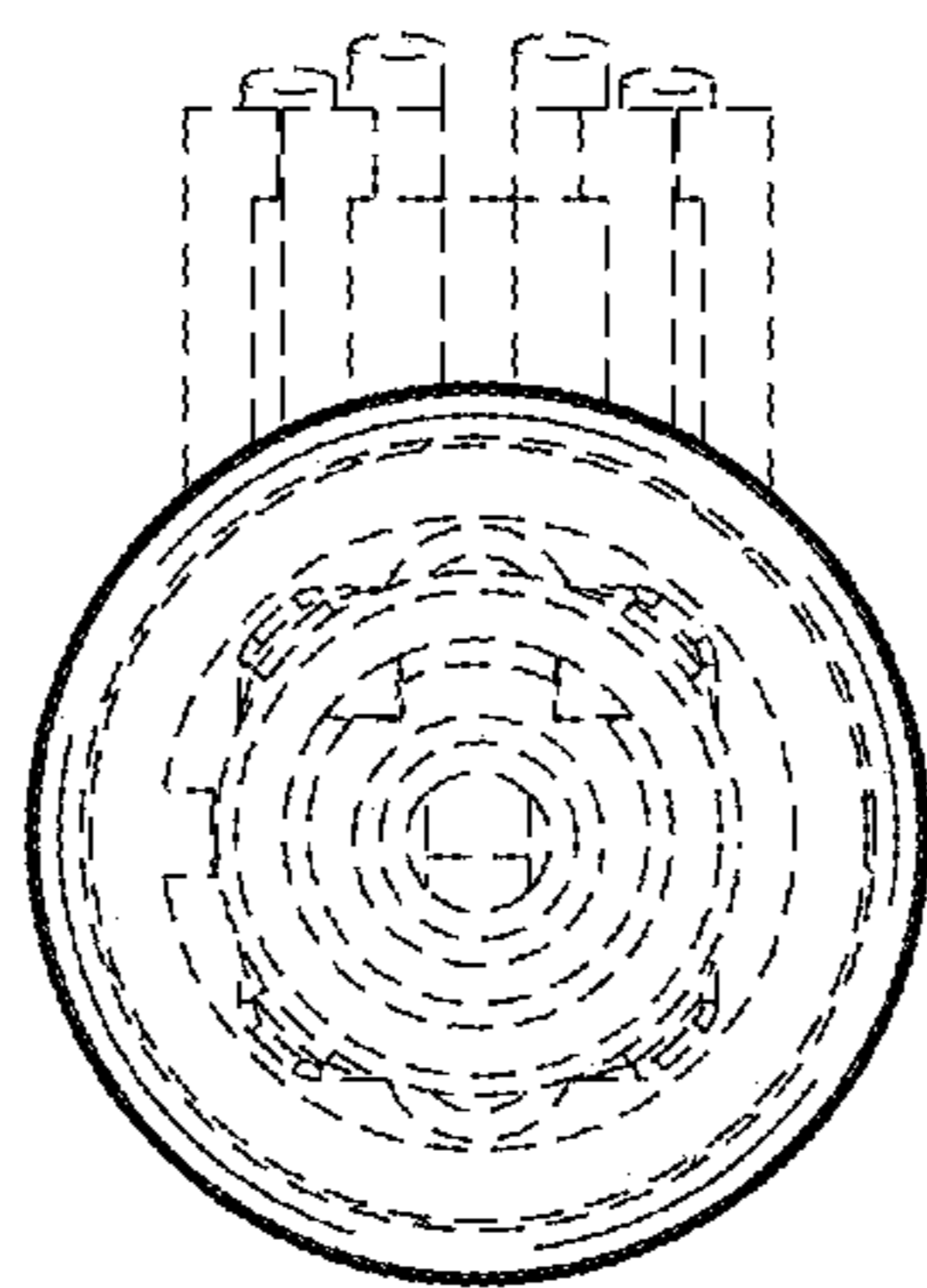


FIG. 8