



US00D869655S

(12) **United States Design Patent** (10) **Patent No.:** **US D869,655 S**
Shelton, IV et al. (45) **Date of Patent:** **** Dec. 10, 2019**

(54) **SURGICAL FASTENER CARTRIDGE**

FOREIGN PATENT DOCUMENTS

(71) Applicant: **Ethicon LLC**, Guaynabo, PR (US)

CA 2664874 A1 * 11/2009 A61B 17/0644
EP 0169044 B1 6/1991

(Continued)

(72) Inventors: **Frederick E. Shelton, IV**, Hillsboro, OH (US); **Jason L. Harris**, Lebanon, OH (US); **Morgan R. Hunter**, Cincinnati, OH (US); **James A. Vandewalle**, Maineville, OH (US)

OTHER PUBLICATIONS

Medtronic. Link: <https://www.medtronic.com/content/dam/covidien/library/us/en/product/surgical-stapling/tri-staple-signia-multi-use-loading-unit-sell-sheet.pdf>. Visited Oct. 26, 2018. Signia Multi Use Loading Unit. (Year: 2018).*

(Continued)

(73) Assignee: **Ethicon LLC**, Guaynabo, PR (US)

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

Primary Examiner — Susan Bennett Hattan

Assistant Examiner — Lauren D McVey

(21) Appl. No.: **29/609,093**

(22) Filed: **Jun. 28, 2017**

(51) **LOC (12) Cl.** **24-02**

(52) **U.S. Cl.**
USPC **D24/145**

(58) **Field of Classification Search**
USPC D24/145, 133
CPC . A61B 17/105; A61B 17/068; A61B 17/0682; A61B 17/064; A61B 17/072; A61B 17/07207; A61B 17/07228; A61B 17/07235; A61B 17/07242; A61B 17/07285; A61B 17/07292

See application file for complete search history.

(57) **CLAIM**

The ornamental design for a surgical fastener cartridge, as shown and described.

DESCRIPTION

FIG. 1 is a perspective view of a surgical fastener cartridge. FIG. 2 is a top plan view of the surgical fastener cartridge of FIG. 1.

FIG. 3 is a bottom plan view of the surgical fastener cartridge of FIG. 1.

FIG. 4 is a left elevation view of the surgical fastener cartridge of FIG. 1.

FIG. 5 is a right elevation view of the surgical fastener cartridge of FIG. 1.

FIG. 6 is a front elevation view of the surgical fastener cartridge of FIG. 1; and,

FIG. 7 is a rear elevation view of the surgical fastener cartridge of FIG. 1.

The wire frame lines shown throughout the views are intended to indicate surface contour.

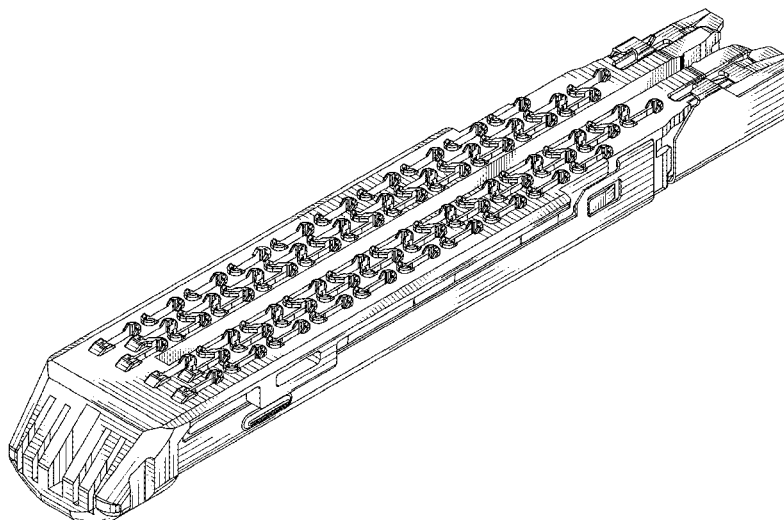
(56) **References Cited**

U.S. PATENT DOCUMENTS

66,052 A	6/1867	Smith
662,587 A	11/1900	Blake
670,748 A	3/1901	Weddeler
719,487 A	2/1903	Minor
804,229 A	11/1905	Hutchinson
951,393 A	3/1910	Hahn
1,188,721 A	6/1916	Bittner
1,306,107 A	6/1919	Elliott
1,314,601 A	9/1919	McCaskey
1,677,337 A	7/1928	Grove
1,794,907 A	3/1931	Kelly

(Continued)

1 Claim, 4 Drawing Sheets



(56)

References Cited

U.S. PATENT DOCUMENTS

1,849,427	A	3/1932	Hook	3,726,755	A	4/1973	Shannon
1,944,116	A	1/1934	Stratman	3,727,904	A	4/1973	Gabbey
1,954,048	A	4/1934	Jeffrey et al.	3,734,207	A	5/1973	Fishbein
2,037,727	A	4/1936	La Chapelle	3,740,994	A	6/1973	De Carlo, Jr.
2,132,295	A	10/1938	Hawkins	3,744,495	A	7/1973	Johnson
2,161,632	A	6/1939	Nattenheimer	3,746,002	A	7/1973	Haller
D120,434	S	5/1940	Gold	3,747,603	A	7/1973	Adler
2,211,117	A	8/1940	Hess	3,747,692	A	7/1973	Davidson
2,214,870	A	9/1940	West	3,751,902	A	8/1973	Kingsbury et al.
2,224,882	A	12/1940	Peck	3,752,161	A	8/1973	Bent
2,318,379	A	5/1943	Davis et al.	3,799,151	A	3/1974	Fukaumi et al.
2,329,440	A	9/1943	La Place	3,808,452	A	4/1974	Hutchinson
2,377,581	A	6/1945	Shaffrey	3,815,476	A	6/1974	Green et al.
2,406,389	A	8/1946	Lee	3,819,100	A	6/1974	Noiles et al.
2,441,096	A	5/1948	Happe	3,821,919	A	7/1974	Knohl
2,448,741	A	9/1948	Scott et al.	3,836,171	A	9/1974	Hayashi et al.
2,450,527	A	10/1948	Smith	3,837,555	A	9/1974	Green
2,507,872	A	5/1950	Unsinger	3,841,474	A	10/1974	Maier
2,526,902	A	10/1950	Rublee	3,851,196	A	11/1974	Hinds
2,527,256	A	10/1950	Jackson	3,863,639	A	2/1975	Kleaveland
2,578,686	A	12/1951	Fish	3,883,624	A	5/1975	McKenzie et al.
2,638,901	A	5/1953	Sugarbaker	3,885,491	A	5/1975	Curtis
2,674,149	A	4/1954	Benson	3,892,228	A	7/1975	Mitsui
2,701,489	A	2/1955	Osborn	3,894,174	A	7/1975	Cartun
2,711,461	A	6/1955	Happe	3,902,247	A	9/1975	Fleer et al.
2,742,955	A	4/1956	Dominguez	3,940,844	A	3/1976	Colby et al.
2,804,848	A	9/1957	O'Farrell et al.	3,944,163	A	3/1976	Hayashi et al.
2,808,482	A	10/1957	Zanichkowsky et al.	3,950,686	A	4/1976	Randall
2,853,074	A	9/1958	Olson	3,952,747	A	4/1976	Kimmell, Jr.
2,887,004	A	5/1959	Stewart	3,955,581	A	5/1976	Spasiano et al.
2,957,353	A	10/1960	Lewis	3,959,879	A	6/1976	Sellers
2,959,974	A	11/1960	Emrick	RE28,932	E	8/1976	Noiles et al.
3,032,769	A	5/1962	Palmer	3,972,734	A	8/1976	King
3,060,972	A	10/1962	Sheldon	3,981,051	A	9/1976	Brumlik
3,075,062	A	1/1963	Iaccarino	4,025,216	A	5/1977	Hives
3,078,465	A	2/1963	Bobrov	4,027,746	A	6/1977	Kine
3,079,606	A	3/1963	Bobrov et al.	4,034,143	A	7/1977	Sweet
3,080,564	A	3/1963	Strekopitov et al.	4,054,108	A	10/1977	Gill
3,166,072	A	1/1965	Sullivan, Jr.	4,060,089	A	11/1977	Noiles
3,180,236	A	4/1965	Beckett	4,066,133	A	1/1978	Voss
3,196,869	A	7/1965	Scholl	4,085,337	A	4/1978	Moeller
3,204,731	A	9/1965	Bent et al.	4,100,820	A	7/1978	Evett
3,266,494	A	8/1966	Brownrigg et al.	4,106,446	A	8/1978	Yamada et al.
3,269,630	A	8/1966	Fleischer	4,108,211	A	8/1978	Tanaka
3,269,631	A	8/1966	Takaro	4,111,206	A	9/1978	Vishnevsky et al.
3,275,211	A	9/1966	Hirsch et al.	4,127,227	A	11/1978	Green
3,317,103	A	5/1967	Cullen et al.	4,129,059	A	12/1978	Van Eck
3,317,105	A	5/1967	Astafjev et al.	4,132,146	A	1/1979	Uhlig
3,357,296	A	12/1967	Lefever	4,135,517	A	1/1979	Reale
3,359,978	A	12/1967	Smith, Jr.	4,154,122	A	5/1979	Severin
3,377,893	A	4/1968	Shorb	4,169,990	A	10/1979	Lerdman
3,480,193	A	11/1969	Ralston	4,180,285	A	12/1979	Reneau
3,490,675	A	1/1970	Green et al.	4,185,701	A	1/1980	Boys
3,494,533	A	2/1970	Green et al.	4,190,042	A	2/1980	Sinnreich
3,499,591	A	3/1970	Green	4,198,734	A	4/1980	Brumlik
3,503,396	A	3/1970	Pierie et al.	4,198,982	A	4/1980	Fortner et al.
3,509,629	A	5/1970	Kidokoro	4,207,898	A	6/1980	Becht
3,551,987	A	1/1971	Wilkinson	4,213,562	A	7/1980	Garrett et al.
3,568,675	A	3/1971	Harvey	4,226,242	A	10/1980	Jarvik
3,572,159	A	3/1971	Tschanz	4,239,431	A	12/1980	Davini
3,583,393	A	6/1971	Takahashi	4,241,861	A	12/1980	Fleischer
3,589,589	A	6/1971	Akopov	4,244,372	A	1/1981	Kapitanov et al.
3,598,943	A	8/1971	Barrett	4,250,436	A	2/1981	Weissman
3,608,549	A	9/1971	Merrill	4,261,244	A	4/1981	Becht et al.
3,618,842	A	11/1971	Bryan	4,272,002	A	6/1981	Moshofsky
3,638,652	A	2/1972	Kelley	4,272,662	A	6/1981	Simpson
3,640,317	A	2/1972	Panfilii	4,274,304	A	6/1981	Curtiss
3,643,851	A	2/1972	Green et al.	4,274,398	A	6/1981	Scott, Jr.
3,650,453	A	3/1972	Smith, Jr.	4,275,813	A	6/1981	Noiles
3,661,666	A	5/1972	Foster et al.	4,278,091	A	7/1981	Borzzone
3,662,939	A	5/1972	Bryan	4,289,131	A	9/1981	Mueller
3,688,966	A	9/1972	Perkins et al.	4,289,133	A	9/1981	Rothfuss
3,695,646	A	10/1972	Mommsen	4,290,542	A	9/1981	Fedotov et al.
3,709,221	A	1/1973	Riely	D261,356	S	10/1981	Robinson
3,717,294	A	2/1973	Green	4,296,654	A	10/1981	Mercer
				4,296,881	A	10/1981	Lee
				4,304,236	A	12/1981	Conta et al.
				4,305,539	A	12/1981	Korolkov et al.
				4,312,363	A	1/1982	Rothfuss et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

4,312,685	A	1/1982	Riedl	4,532,927	A	8/1985	Mikszs, Jr.
4,317,451	A	3/1982	Cerwin et al.	4,540,202	A	9/1985	Amphoux et al.
4,319,576	A	3/1982	Rothfuss	4,548,202	A	10/1985	Duncan
4,321,002	A	3/1982	Froehlich	4,556,058	A	12/1985	Green
4,321,746	A	3/1982	Grinage	4,560,915	A	12/1985	Soultanian
4,328,839	A	5/1982	Lyons et al.	4,565,109	A	1/1986	Tsay
4,331,277	A	5/1982	Green	4,565,189	A	1/1986	Mabuchi
4,340,331	A	7/1982	Savino	4,566,620	A	1/1986	Green et al.
4,347,450	A	8/1982	Colligan	4,569,346	A	2/1986	Poirier
4,349,028	A	9/1982	Green	4,569,469	A	2/1986	Mongeon et al.
4,350,151	A	9/1982	Scott	4,571,213	A	2/1986	Ishimoto
4,353,371	A	10/1982	Cosman	4,573,468	A	3/1986	Conta et al.
4,357,940	A	11/1982	Muller	4,573,469	A	3/1986	Golden et al.
4,361,057	A	11/1982	Kochera	4,573,622	A	3/1986	Green et al.
4,366,544	A	12/1982	Shima et al.	4,576,165	A	3/1986	Green et al.
4,373,147	A	2/1983	Carlson, Jr.	4,576,167	A	3/1986	Noiles
4,376,380	A	3/1983	Burgess	4,580,712	A	4/1986	Green
4,379,457	A	4/1983	Gravener et al.	4,585,153	A	4/1986	Failla et al.
4,380,312	A	4/1983	Landrus	4,586,501	A	5/1986	Claracq
4,382,326	A	5/1983	Rabuse	4,586,502	A	5/1986	Bedi et al.
4,383,634	A	5/1983	Green	4,589,416	A	5/1986	Green
4,393,728	A	7/1983	Larson et al.	4,589,582	A	5/1986	Bilotti
4,396,139	A	8/1983	Hall et al.	4,589,870	A	5/1986	Citrin et al.
4,397,311	A	8/1983	Kanshin et al.	4,591,085	A	5/1986	Di Giovanni
4,402,445	A	9/1983	Green	RE32,214	E	7/1986	Schramm
4,406,621	A	9/1983	Bailey	4,597,753	A	7/1986	Turley
4,408,692	A	10/1983	Sigel et al.	4,600,037	A	7/1986	Hatten
4,409,057	A	10/1983	Molenda et al.	4,604,786	A	8/1986	Howie, Jr.
4,415,112	A	11/1983	Green	4,605,001	A	8/1986	Rothfuss et al.
4,416,276	A	11/1983	Newton et al.	4,605,004	A	8/1986	Di Giovanni et al.
4,417,890	A	11/1983	Dennehey et al.	4,606,343	A	8/1986	Conta et al.
4,423,456	A	12/1983	Zaidenweber	4,607,638	A	8/1986	Crainich
4,428,376	A	1/1984	Mericle	4,608,981	A	9/1986	Rothfuss et al.
4,429,695	A	2/1984	Green	4,610,250	A	9/1986	Green
4,430,997	A	2/1984	DiGiovanni et al.	4,610,383	A	9/1986	Rothfuss et al.
4,434,796	A	3/1984	Karapetian et al.	4,612,933	A	9/1986	Brinkerhoff et al.
4,438,659	A	3/1984	Desplats	D286,180	S	10/1986	Korthoff
4,442,964	A	4/1984	Becht	D286,442	S	10/1986	Korthoff et al.
4,448,194	A	5/1984	DiGiovanni et al.	4,617,914	A	10/1986	Ueda
4,451,743	A	5/1984	Suzuki et al.	4,619,262	A	10/1986	Taylor
4,452,376	A	6/1984	Klieman et al.	4,619,391	A	10/1986	Sharkany et al.
4,454,887	A	6/1984	Kruger	D287,278	S	12/1986	Spreckelmeier
4,461,305	A	7/1984	Cibley	4,628,459	A	12/1986	Shinohara et al.
4,467,805	A	8/1984	Fukuda	4,629,107	A	12/1986	Fedotov et al.
4,468,597	A	8/1984	Baumard et al.	4,632,290	A	12/1986	Green et al.
4,469,481	A	9/1984	Kobayashi	4,633,861	A	1/1987	Chow et al.
4,470,414	A	9/1984	Imagawa et al.	4,633,874	A	1/1987	Chow et al.
4,471,780	A	9/1984	Menges et al.	4,634,419	A	1/1987	Kreizman et al.
4,471,781	A	9/1984	Di Giovanni et al.	4,635,638	A	1/1987	Weintraub et al.
4,473,077	A	9/1984	Noiles et al.	4,641,076	A	2/1987	Linden
4,475,679	A	10/1984	Fleury, Jr.	4,642,618	A	2/1987	Johnson et al.
4,478,220	A	10/1984	Di Giovanni et al.	4,643,173	A	2/1987	Bell et al.
4,480,641	A	11/1984	Failla et al.	4,643,731	A	2/1987	Eckenhoff
4,485,816	A	12/1984	Krumme	4,646,722	A	3/1987	Silverstein et al.
4,485,817	A	12/1984	Swiggett	4,646,745	A	3/1987	Noiles
4,486,928	A	12/1984	Tucker et al.	4,652,820	A	3/1987	Maresca
4,488,523	A	12/1984	Shichman	4,654,028	A	3/1987	Suma
4,489,875	A	12/1984	Crawford et al.	4,655,222	A	4/1987	Florez et al.
4,493,983	A	1/1985	Taggart	4,662,555	A	5/1987	Thornton
4,499,895	A	2/1985	Takayama	4,663,874	A	5/1987	Sano et al.
4,500,024	A	2/1985	DiGiovanni et al.	4,664,305	A	5/1987	Blake, III et al.
D278,081	S	3/1985	Green	4,665,916	A	5/1987	Green
4,503,842	A	3/1985	Takayama	4,667,674	A	5/1987	Korthoff et al.
4,505,272	A	3/1985	Utyamyshev et al.	4,669,647	A	6/1987	Storace
4,505,273	A	3/1985	Braun et al.	4,671,278	A	6/1987	Chin
4,505,414	A	3/1985	Filipi	4,671,280	A	6/1987	Dorband et al.
4,506,671	A	3/1985	Green	4,671,445	A	6/1987	Barker et al.
4,512,038	A	4/1985	Alexander et al.	4,672,964	A	6/1987	Dee et al.
4,520,817	A	6/1985	Green	4,675,944	A	6/1987	Wells
4,522,327	A	6/1985	Korthoff et al.	4,676,245	A	6/1987	Fukuda
4,526,174	A	7/1985	Froehlich	4,679,460	A	7/1987	Yoshigai
4,527,724	A	7/1985	Chow et al.	4,679,719	A	7/1987	Kramer
4,530,357	A	7/1985	Pawloski et al.	4,684,051	A	8/1987	Akopov et al.
4,530,453	A	7/1985	Green	4,688,555	A	8/1987	Wardle
4,531,522	A	7/1985	Bedi et al.	4,691,703	A	9/1987	Auth et al.
				4,693,248	A	9/1987	Failla
				4,698,579	A	10/1987	Richter et al.
				4,700,703	A	10/1987	Resnick et al.
				4,705,038	A	11/1987	Sjostrom et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

4,708,141	A	11/1987	Inoue et al.	4,930,674	A	6/1990	Barak
4,709,120	A	11/1987	Pearson	4,931,047	A	6/1990	Broadwin et al.
4,715,520	A	12/1987	Roehr, Jr. et al.	4,931,737	A	6/1990	Hishiki
4,719,917	A	1/1988	Barrows et al.	4,932,960	A	6/1990	Green et al.
4,721,099	A	1/1988	Chikama	4,933,800	A	6/1990	Yang
4,724,840	A	2/1988	McVay et al.	4,933,843	A	6/1990	Scheller et al.
4,727,308	A	2/1988	Huljak et al.	D309,350	S	7/1990	Sutherland et al.
4,728,020	A	3/1988	Green et al.	4,938,408	A	7/1990	Bedi et al.
4,728,876	A	3/1988	Mongeon et al.	4,941,623	A	7/1990	Pruitt
4,729,260	A	3/1988	Dudden	4,943,182	A	7/1990	Hoblingre
4,730,726	A	3/1988	Holzwarth	4,944,443	A	7/1990	Oddsens et al.
4,741,336	A	5/1988	Failla et al.	4,946,067	A	8/1990	Kelsall
4,743,214	A	5/1988	Tai-Cheng	4,948,327	A	8/1990	Crupi, Jr.
4,744,363	A	5/1988	Hasson	4,949,707	A	8/1990	LeVahn et al.
4,747,820	A	5/1988	Hornlein et al.	4,951,860	A	8/1990	Peters et al.
4,750,902	A	6/1988	Wuchinich et al.	4,951,861	A	8/1990	Schulze et al.
4,752,024	A	6/1988	Green et al.	4,955,959	A	9/1990	Tompkins et al.
4,754,909	A	7/1988	Barker et al.	4,957,212	A	9/1990	Duck et al.
4,761,326	A	8/1988	Barnes et al.	4,962,877	A	10/1990	Hervas
4,763,669	A	8/1988	Jaeger	4,964,559	A	10/1990	Deniega et al.
4,767,044	A	8/1988	Green	4,964,863	A	10/1990	Kanshin et al.
D297,764	S *	9/1988	Hunt D24/145	4,965,709	A	10/1990	Ngo
4,773,420	A	9/1988	Green	4,973,274	A	11/1990	Hirukawa
4,777,780	A	10/1988	Holzwarth	4,973,302	A	11/1990	Armour et al.
4,781,186	A	11/1988	Simpson et al.	4,978,049	A	12/1990	Green
4,784,137	A	11/1988	Kulik et al.	4,978,333	A	12/1990	Broadwin et al.
4,787,387	A	11/1988	Burbank, III et al.	4,979,952	A	12/1990	Kubota et al.
D298,967	S *	12/1988	Hunt D24/145	4,984,564	A	1/1991	Yuen
4,790,225	A	12/1988	Moody et al.	4,986,808	A	1/1991	Broadwin et al.
4,790,314	A	12/1988	Weaver	4,987,049	A	1/1991	Komamura et al.
4,805,617	A	2/1989	Bedi et al.	4,988,334	A	1/1991	Hornlein et al.
4,805,823	A	2/1989	Rothfuss	4,995,877	A	2/1991	Ams et al.
4,807,628	A	2/1989	Peters et al.	4,995,959	A	2/1991	Metzner
4,809,695	A	3/1989	Gwathmey et al.	4,996,975	A	3/1991	Nakamura
4,815,460	A	3/1989	Porat et al.	5,002,543	A	3/1991	Bradshaw et al.
4,817,643	A	4/1989	Olson	5,002,553	A	3/1991	Shiber
4,817,847	A	4/1989	Redtenbacher et al.	5,005,754	A	4/1991	Van Overloop
4,819,853	A	4/1989	Green	5,009,661	A	4/1991	Michelson
4,821,939	A	4/1989	Green	5,012,411	A	4/1991	Policastro et al.
4,827,911	A	5/1989	Broadwin et al.	5,014,898	A	5/1991	Heidrich
4,828,542	A	5/1989	Hermann	5,014,899	A	5/1991	Presty et al.
4,828,944	A	5/1989	Yabe et al.	5,015,227	A	5/1991	Broadwin et al.
4,830,855	A	5/1989	Stewart	5,018,515	A	5/1991	Gilman
4,832,158	A	5/1989	Farrar et al.	5,018,657	A	5/1991	Pedlick et al.
4,833,937	A	5/1989	Nagano	5,024,652	A	6/1991	Dumenek et al.
4,834,720	A	5/1989	Blinkhorn	5,024,671	A	6/1991	Tu et al.
4,838,859	A	6/1989	Strassmann	5,025,559	A	6/1991	McCullough
4,844,068	A	7/1989	Arata et al.	5,027,834	A	7/1991	Pruitt
4,848,637	A	7/1989	Pruitt	5,030,226	A	7/1991	Green et al.
4,856,078	A	8/1989	Konopka	5,031,814	A	7/1991	Tompkins et al.
4,860,644	A	8/1989	Kohl et al.	5,035,040	A	7/1991	Kerrigan et al.
4,862,891	A	9/1989	Smith	5,038,109	A	8/1991	Goble et al.
4,863,423	A	9/1989	Wallace	5,038,247	A	8/1991	Kelley et al.
4,865,030	A	9/1989	Polyak	5,040,715	A	8/1991	Green et al.
4,868,530	A	9/1989	Ahs	5,042,707	A	8/1991	Taheri
4,869,414	A	9/1989	Green et al.	5,061,269	A	10/1991	Muller
4,869,415	A	9/1989	Fox	5,062,491	A	11/1991	Takeshima et al.
4,873,977	A	10/1989	Avant et al.	5,062,563	A	11/1991	Green et al.
4,875,486	A	10/1989	Rapoport et al.	5,065,929	A	11/1991	Schulze et al.
4,880,015	A	11/1989	Nierman	5,071,052	A	12/1991	Rodak et al.
4,890,613	A	1/1990	Golden et al.	5,071,430	A	12/1991	de Salis et al.
4,892,244	A	1/1990	Fox et al.	5,074,454	A	12/1991	Peters
4,893,622	A	1/1990	Green et al.	5,077,506	A	12/1991	Krause
4,894,051	A	1/1990	Shiber	5,079,006	A	1/1992	Urquhart
4,896,584	A	1/1990	Stoll et al.	5,080,556	A	1/1992	Carreno
4,896,678	A	1/1990	Ogawa	5,083,695	A	1/1992	Foslien et al.
4,900,303	A	2/1990	Lemelson	5,084,057	A	1/1992	Green et al.
4,903,697	A	2/1990	Resnick et al.	5,088,979	A	2/1992	Filipi et al.
4,909,789	A	3/1990	Taguchi et al.	5,088,997	A	2/1992	Delahuerga et al.
4,915,100	A	4/1990	Green	5,089,606	A	2/1992	Cole et al.
4,919,679	A	4/1990	Averill et al.	5,094,247	A	3/1992	Hernandez et al.
4,921,479	A	5/1990	Grayzel	5,098,004	A	3/1992	Kerrigan
4,925,082	A	5/1990	Kim	5,098,360	A	3/1992	Hirota
4,928,699	A	5/1990	Sasai	5,100,042	A	3/1992	Gravener et al.
4,930,503	A	6/1990	Pruitt	5,100,420	A	3/1992	Green et al.
				5,104,025	A	4/1992	Main et al.
				5,104,397	A	4/1992	Vasconcelos et al.
				5,104,400	A	4/1992	Berguer et al.
				5,106,008	A	4/1992	Tompkins et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,108,368	A	4/1992	Hammerslag et al.	5,258,008	A	11/1993	Wilk
5,109,722	A	5/1992	Hufnagle et al.	5,258,009	A	11/1993	Connors
5,111,987	A	5/1992	Moeinzadeh et al.	5,258,010	A	11/1993	Green et al.
5,116,349	A	5/1992	Aranyi	5,258,012	A	11/1993	Luscombe et al.
D327,323	S	6/1992	Hunt	5,259,366	A	11/1993	Reydel et al.
5,119,009	A	6/1992	McCaleb et al.	5,259,835	A	11/1993	Clark et al.
5,122,156	A	6/1992	Granger et al.	5,260,637	A	11/1993	Pizzi
5,124,990	A	6/1992	Williamson	5,261,877	A	11/1993	Fine et al.
5,129,570	A	7/1992	Schulze et al.	5,261,922	A	11/1993	Hood
5,137,198	A	8/1992	Nobis et al.	5,263,629	A	11/1993	Trumbull et al.
5,139,513	A	8/1992	Segato	5,263,937	A	11/1993	Shipp
5,141,144	A	8/1992	Foslien et al.	5,263,973	A	11/1993	Cook
5,142,932	A	9/1992	Moya et al.	5,264,218	A	11/1993	Rogozinski
5,155,941	A	10/1992	Takahashi et al.	5,268,622	A	12/1993	Philipp
5,156,315	A	10/1992	Green et al.	5,271,543	A	12/1993	Grant et al.
5,156,609	A	10/1992	Nakao et al.	5,271,544	A	12/1993	Fox et al.
5,156,614	A	10/1992	Green et al.	RE34,519	E	1/1994	Fox et al.
5,158,567	A	10/1992	Green	5,275,322	A	1/1994	Brinkerhoff et al.
D330,699	S	11/1992	Gill	5,275,323	A	1/1994	Schulze et al.
5,163,598	A	11/1992	Peters et al.	5,275,608	A	1/1994	Forman et al.
5,168,605	A	12/1992	Bartlett	5,279,416	A	1/1994	Malec et al.
5,170,925	A	12/1992	Madden et al.	5,281,216	A	1/1994	Klicek
5,171,247	A	12/1992	Hughett et al.	5,282,806	A	2/1994	Haber et al.
5,171,249	A	12/1992	Stefanchik et al.	5,282,829	A	2/1994	Hermes
5,171,253	A	12/1992	Klieman	5,284,128	A	2/1994	Hart
5,173,053	A	12/1992	Swanson et al.	5,285,381	A	2/1994	Iskarous et al.
5,173,133	A	12/1992	Morin et al.	5,285,945	A	2/1994	Brinkerhoff et al.
5,176,677	A	1/1993	Wuchinich	5,286,253	A	2/1994	Fucci
5,176,688	A	1/1993	Narayan et al.	5,289,963	A	3/1994	McGarry et al.
5,187,422	A	2/1993	Izenbaard et al.	5,290,271	A	3/1994	Jernberg
5,188,102	A	2/1993	Idemoto et al.	5,290,310	A	3/1994	Makower et al.
5,188,111	A	2/1993	Yates et al.	5,292,053	A	3/1994	Bilotti et al.
5,190,517	A	3/1993	Zieve et al.	5,293,024	A	3/1994	Sugahara et al.
5,190,544	A	3/1993	Chapman et al.	5,297,714	A	3/1994	Kramer
5,190,560	A	3/1993	Woods et al.	5,304,204	A	4/1994	Bregen
5,190,657	A	3/1993	Heagle et al.	D347,474	S	5/1994	Olson
5,192,288	A	3/1993	Thompson et al.	5,307,976	A	5/1994	Olson et al.
5,195,505	A	3/1993	Josefsen	5,308,576	A	5/1994	Green et al.
5,195,968	A	3/1993	Lundquist et al.	5,309,387	A	5/1994	Mori et al.
5,197,648	A	3/1993	Gingold	5,309,927	A	5/1994	Welch
5,197,649	A	3/1993	Bessler et al.	5,312,023	A	5/1994	Green et al.
5,197,966	A	3/1993	Sommerkamp	5,312,024	A	5/1994	Grant et al.
5,197,970	A	3/1993	Green et al.	5,312,329	A	5/1994	Beaty et al.
5,200,280	A	4/1993	Karasa	5,313,935	A	5/1994	Kortenbach et al.
5,201,750	A	4/1993	Hoherl et al.	5,313,967	A	5/1994	Lieber et al.
5,205,459	A	4/1993	Brinkerhoff et al.	5,314,424	A	5/1994	Nicholas
5,207,697	A	5/1993	Carusillo et al.	5,314,445	A	5/1994	Heidmueller nee Degwitz et al.
5,209,747	A	5/1993	Knoepfler	5,314,466	A	5/1994	Stern et al.
5,209,756	A	5/1993	Seedhom et al.	5,318,221	A	6/1994	Green et al.
5,211,649	A	5/1993	Kohler et al.	5,320,627	A	6/1994	Sorensen et al.
5,211,655	A	5/1993	Hasson	D348,930	S	7/1994	Olson
5,217,457	A	6/1993	Delahuerga et al.	5,326,013	A	7/1994	Green et al.
5,217,478	A	6/1993	Rexroth	5,329,923	A	7/1994	Lundquist
5,219,111	A	6/1993	Bilotti et al.	5,330,487	A	7/1994	Thornton et al.
5,220,269	A	6/1993	Chen et al.	5,330,502	A	7/1994	Hassler et al.
5,221,036	A	6/1993	Takase	5,331,971	A	7/1994	Bales et al.
5,221,281	A	6/1993	Klicek	5,332,142	A	7/1994	Robinson et al.
5,222,945	A	6/1993	Basnight	5,333,422	A	8/1994	Warren et al.
5,222,963	A	6/1993	Brinkerhoff et al.	5,333,772	A	8/1994	Rothfuss et al.
5,222,975	A	6/1993	Crainich	5,333,773	A	8/1994	Main et al.
5,222,976	A	6/1993	Yoon	5,334,183	A	8/1994	Wuchinich
5,223,675	A	6/1993	Taft	5,336,130	A	8/1994	Ray
D338,729	S	8/1993	Sprecklemeier et al.	5,336,229	A	8/1994	Noda
5,234,447	A	8/1993	Kaster et al.	5,336,232	A	8/1994	Green et al.
5,236,269	A	8/1993	Handy	5,339,799	A	8/1994	Kami et al.
5,236,424	A	8/1993	Imran	5,341,724	A	8/1994	Vatel
5,236,440	A	8/1993	Hlavacek	5,341,807	A	8/1994	Nardella
5,239,981	A	8/1993	Anapliotis	5,341,810	A	8/1994	Dardel
5,240,163	A	8/1993	Stein et al.	5,342,380	A	8/1994	Hood
5,242,457	A	9/1993	Akopov et al.	5,342,381	A	8/1994	Tidemand
5,244,462	A	9/1993	Delahuerga et al.	5,342,385	A	8/1994	Norelli et al.
5,246,156	A	9/1993	Rothfuss et al.	5,342,395	A	8/1994	Jarrett et al.
5,246,443	A	9/1993	Mai	5,342,396	A	8/1994	Cook
5,253,793	A	10/1993	Green et al.	5,343,382	A	8/1994	Hale et al.
5,258,007	A	11/1993	Spetzler et al.	5,343,391	A	8/1994	Mushabac
				5,344,059	A	9/1994	Green et al.
				5,344,060	A	9/1994	Gravener et al.
				5,344,454	A	9/1994	Clarke et al.
				5,346,504	A	9/1994	Ortiz et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,348,259	A	9/1994	Blanco et al.	5,413,107	A	5/1995	Oakley et al.
5,350,355	A	9/1994	Sklar	5,413,267	A	5/1995	Solyntjes et al.
5,350,388	A	9/1994	Epstein	5,413,268	A	5/1995	Green et al.
5,350,391	A	9/1994	Iacovelli	5,413,272	A	5/1995	Green et al.
5,350,400	A	9/1994	Esposito et al.	5,413,573	A	5/1995	Koivukangas
5,352,229	A	10/1994	Goble et al.	5,415,334	A	5/1995	Williamson et al.
5,352,235	A	10/1994	Koros et al.	5,415,335	A	5/1995	Knodell, Jr.
5,352,238	A	10/1994	Green et al.	5,417,203	A	5/1995	Tovey et al.
5,354,250	A	10/1994	Christensen	5,417,361	A	5/1995	Williamson, IV
5,354,303	A	10/1994	Spaeth et al.	5,419,766	A	5/1995	Chang et al.
5,356,006	A	10/1994	Alpern et al.	5,421,829	A	6/1995	Olichney et al.
5,356,064	A	10/1994	Green et al.	5,422,567	A	6/1995	Matsunaga
5,358,506	A	10/1994	Green et al.	5,423,471	A	6/1995	Mastri et al.
5,358,510	A	10/1994	Luscombe et al.	5,423,809	A	6/1995	Klicek
5,359,231	A	10/1994	Flowers et al.	5,423,835	A	6/1995	Green et al.
D352,780	S	11/1994	Glaeser et al.	5,425,745	A	6/1995	Green et al.
5,359,993	A	11/1994	Slater et al.	5,427,298	A	6/1995	Tegtmeier
5,360,305	A	11/1994	Kerrigan	5,431,322	A	7/1995	Green et al.
5,360,428	A	11/1994	Hutchinson, Jr.	5,431,323	A	7/1995	Smith et al.
5,364,001	A	11/1994	Bryan	5,431,654	A	7/1995	Nic
5,364,002	A	11/1994	Green et al.	5,431,668	A	7/1995	Burbank, III et al.
5,364,003	A	11/1994	Williamson, IV	5,433,721	A	7/1995	Hooven et al.
5,366,133	A	11/1994	Geiste	5,437,681	A	8/1995	Meade et al.
5,366,134	A	11/1994	Green et al.	5,438,302	A	8/1995	Goble
5,366,479	A	11/1994	McGarry et al.	5,438,997	A	8/1995	Sieben et al.
5,368,015	A	11/1994	Wilk	5,439,155	A	8/1995	Viola
5,368,592	A	11/1994	Stern et al.	5,439,156	A	8/1995	Grant et al.
5,369,565	A	11/1994	Chen et al.	5,439,479	A	8/1995	Shichman et al.
5,370,645	A	12/1994	Klicek et al.	5,441,191	A	8/1995	Linden
5,372,124	A	12/1994	Takayama et al.	5,441,193	A	8/1995	Gravener
5,372,596	A	12/1994	Klicek et al.	5,441,483	A	8/1995	Avitall
5,372,602	A	12/1994	Burke	5,441,494	A	8/1995	Ortiz
5,374,277	A	12/1994	Hassler	5,443,197	A	8/1995	Malis et al.
5,375,588	A	12/1994	Yoon	5,443,463	A	8/1995	Stern et al.
5,376,095	A	12/1994	Ortiz	5,444,113	A	8/1995	Sinclair et al.
5,379,933	A	1/1995	Green et al.	5,445,155	A	8/1995	Sieben
5,381,649	A	1/1995	Webb	5,445,304	A	8/1995	Plyley et al.
5,381,782	A	1/1995	DeLaRama et al.	5,445,604	A	8/1995	Lang
5,381,943	A	1/1995	Allen et al.	5,445,644	A	8/1995	Pietrafitta et al.
5,382,247	A	1/1995	Cimino et al.	5,447,265	A	9/1995	Vidal et al.
5,383,880	A	1/1995	Hooven	5,447,417	A	9/1995	Kuhl et al.
5,383,881	A	1/1995	Green et al.	5,447,513	A	9/1995	Davison et al.
5,383,882	A	1/1995	Buess et al.	5,449,355	A	9/1995	Rhum et al.
5,383,888	A	1/1995	Zvenyatsky et al.	5,449,365	A	9/1995	Green et al.
5,383,895	A	1/1995	Holmes et al.	5,449,370	A	9/1995	Vaitekunas
5,388,568	A	2/1995	van der Heide	5,452,836	A	9/1995	Huitema et al.
5,389,098	A	2/1995	Tsuruta et al.	5,452,837	A	9/1995	Williamson, IV et al.
5,389,102	A	2/1995	Green et al.	5,454,378	A	10/1995	Palmer et al.
5,389,104	A	2/1995	Hahnen et al.	5,454,822	A	10/1995	Schob et al.
5,391,180	A	2/1995	Tovey et al.	5,454,827	A	10/1995	Aust et al.
5,392,979	A	2/1995	Green et al.	5,456,401	A	10/1995	Green et al.
5,395,030	A	3/1995	Kuramoto et al.	5,456,917	A	10/1995	Wise et al.
5,395,033	A	3/1995	Byrne et al.	5,458,279	A	10/1995	Plyley
5,395,034	A	3/1995	Allen et al.	5,458,579	A	10/1995	Chodorow et al.
5,395,312	A	3/1995	Desai	5,462,215	A	10/1995	Viola et al.
5,395,384	A	3/1995	Duthoit et al.	5,464,013	A	11/1995	Lemelson
5,397,046	A	3/1995	Savage et al.	5,464,144	A	11/1995	Guy et al.
5,397,324	A	3/1995	Carroll et al.	5,464,300	A	11/1995	Crainich
5,400,267	A	3/1995	Denen et al.	5,465,819	A	11/1995	Weilant et al.
5,403,276	A	4/1995	Schechter et al.	5,465,894	A	11/1995	Clark et al.
5,403,312	A	4/1995	Yates et al.	5,465,895	A	11/1995	Knodel et al.
5,404,106	A	4/1995	Matsuda	5,465,896	A	11/1995	Allen et al.
5,404,870	A	4/1995	Brinkerhoff et al.	5,466,020	A	11/1995	Page et al.
5,404,960	A	4/1995	Wada et al.	5,467,911	A	11/1995	Tsuruta et al.
5,405,072	A	4/1995	Zlock et al.	5,468,253	A	11/1995	Bezwada et al.
5,405,073	A	4/1995	Porter	5,470,006	A	11/1995	Rodak
5,405,344	A	4/1995	Williamson et al.	5,470,007	A	11/1995	Plyley et al.
5,405,360	A	4/1995	Tovey	5,470,008	A	11/1995	Rodak
5,407,293	A	4/1995	Crainich	5,470,009	A	11/1995	Rodak
5,408,409	A	4/1995	Glassman et al.	5,470,010	A	11/1995	Rothfuss et al.
5,409,498	A	4/1995	Braddock et al.	5,471,129	A	11/1995	Mann
5,409,703	A	4/1995	McAnalley et al.	5,472,132	A	12/1995	Savage et al.
D357,981	S	5/1995	Green et al.	5,472,442	A	12/1995	Klicek
5,411,481	A	5/1995	Allen et al.	5,473,204	A	12/1995	Temple
5,411,508	A	5/1995	Bessler et al.	5,474,057	A	12/1995	Makower et al.
				5,474,223	A	12/1995	Viola et al.
				5,474,566	A	12/1995	Alesi et al.
				5,474,570	A	12/1995	Kockerling et al.
				5,476,206	A	12/1995	Green et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,476,479	A	12/1995	Green et al.	5,553,624	A	9/1996	Francesse et al.
5,476,481	A	12/1995	Schondorf	5,553,675	A	9/1996	Pitzen et al.
5,478,003	A	12/1995	Green et al.	5,553,765	A	9/1996	Knodel et al.
5,478,354	A	12/1995	Tovey et al.	5,554,148	A	9/1996	Aebischer et al.
5,480,089	A	1/1996	Blewett	5,554,169	A	9/1996	Green et al.
5,480,409	A	1/1996	Riza	5,556,020	A	9/1996	Hou
5,482,197	A	1/1996	Green et al.	5,556,416	A	9/1996	Clark et al.
5,483,952	A	1/1996	Aranyi	5,558,533	A	9/1996	Hashizawa et al.
5,484,095	A	1/1996	Green et al.	5,558,665	A	9/1996	Kieturakis
5,484,398	A	1/1996	Stoddard	5,558,671	A	9/1996	Yates
5,484,451	A	1/1996	Akopov et al.	5,560,530	A	10/1996	Bolanos et al.
5,485,947	A	1/1996	Olson et al.	5,560,532	A	10/1996	DeFonzo et al.
5,485,952	A	* 1/1996	Fontayne A61B 17/07207 227/111	5,561,881	A	10/1996	Klinger et al.
5,487,499	A	1/1996	Sorrentino et al.	5,562,239	A	10/1996	Boiarski et al.
5,487,500	A	1/1996	Knodel et al.	5,562,241	A	10/1996	Knodel et al.
5,489,058	A	2/1996	Plyley et al.	5,562,682	A	10/1996	Oberlin et al.
5,489,256	A	2/1996	Adair	5,562,690	A	10/1996	Green et al.
5,489,290	A	2/1996	Furnish	5,562,701	A	10/1996	Huitema et al.
5,490,819	A	2/1996	Nicholas et al.	5,562,702	A	10/1996	Huitema et al.
5,492,671	A	2/1996	Krafft	5,563,481	A	10/1996	Krause
5,496,312	A	3/1996	Klicek	5,564,615	A	10/1996	Bishop et al.
5,496,317	A	3/1996	Goble et al.	5,569,161	A	10/1996	Ebling et al.
5,497,933	A	3/1996	DeFonzo et al.	5,569,270	A	10/1996	Weng
5,498,838	A	3/1996	Furman	5,569,284	A	10/1996	Young et al.
5,501,654	A	3/1996	Failla et al.	5,571,090	A	11/1996	Sherts
5,503,320	A	4/1996	Webster et al.	5,571,100	A	11/1996	Goble et al.
5,503,635	A	4/1996	Sauer et al.	5,571,116	A	11/1996	Bolanos et al.
5,503,638	A	4/1996	Cooper et al.	5,571,285	A	11/1996	Chow et al.
5,505,363	A	4/1996	Green et al.	5,571,488	A	11/1996	Beerstecher et al.
5,507,425	A	4/1996	Ziglioli	5,573,169	A	11/1996	Green et al.
5,507,426	A	4/1996	Young et al.	5,573,543	A	11/1996	Akopov et al.
5,509,596	A	4/1996	Green et al.	5,574,431	A	11/1996	McKeown et al.
5,509,916	A	4/1996	Taylor	5,575,054	A	11/1996	Klinzing et al.
5,511,564	A	4/1996	Wilk	5,575,789	A	11/1996	Bell et al.
5,514,129	A	5/1996	Smith	5,575,799	A	11/1996	Bolanos et al.
5,514,149	A	5/1996	Green et al.	5,575,803	A	11/1996	Cooper et al.
5,514,157	A	5/1996	Nicholas et al.	5,575,805	A	11/1996	Li
5,518,163	A	5/1996	Hooven	5,577,654	A	11/1996	Bishop
5,518,164	A	5/1996	Hooven	5,578,052	A	11/1996	Koros et al.
5,520,609	A	5/1996	Moll et al.	5,579,978	A	12/1996	Green et al.
5,520,634	A	5/1996	Fox et al.	5,580,067	A	12/1996	Hamblin et al.
5,520,678	A	5/1996	Heckele et al.	5,582,611	A	12/1996	Tsuruta et al.
5,520,700	A	5/1996	Beyar et al.	5,582,617	A	12/1996	Klieman et al.
5,522,817	A	6/1996	Sander et al.	5,582,907	A	12/1996	Pall
5,522,831	A	6/1996	Sleister et al.	5,583,114	A	12/1996	Barrows et al.
5,527,264	A	6/1996	Moll et al.	5,584,425	A	12/1996	Savage et al.
5,527,320	A	6/1996	Carruthers et al.	5,586,711	A	12/1996	Plyley et al.
5,529,235	A	6/1996	Boiarski et al.	5,588,579	A	12/1996	Schnut et al.
D372,086	S	7/1996	Grasso et al.	5,588,580	A	12/1996	Paul et al.
5,531,305	A	7/1996	Roberts et al.	5,588,581	A	12/1996	Conlon et al.
5,531,744	A	7/1996	Nardella et al.	5,591,170	A	1/1997	Spievack et al.
5,531,856	A	7/1996	Moll et al.	5,591,187	A	1/1997	Dekel
5,533,521	A	7/1996	Granger	5,597,107	A	1/1997	Knodel et al.
5,533,581	A	7/1996	Barth et al.	5,599,151	A	2/1997	Daum et al.
5,533,661	A	7/1996	Main et al.	5,599,279	A	2/1997	Slotman et al.
5,535,934	A	7/1996	Boiarski et al.	5,599,344	A	2/1997	Paterson
5,535,935	A	7/1996	Vidal et al.	5,599,350	A	2/1997	Schulze et al.
5,535,937	A	7/1996	Boiarski et al.	5,599,852	A	2/1997	Scopelianos et al.
5,540,375	A	7/1996	Bolanos et al.	5,601,224	A	2/1997	Bishop et al.
5,540,705	A	7/1996	Meade et al.	5,601,573	A	2/1997	Fogelberg et al.
5,541,376	A	7/1996	Ladtkow et al.	5,601,604	A	2/1997	Vincent
5,541,489	A	7/1996	Dunstan	5,602,449	A	2/1997	Krause et al.
5,542,594	A	8/1996	McKean et al.	5,603,443	A	2/1997	Clark et al.
5,542,949	A	8/1996	Yoon	5,605,272	A	2/1997	Witt et al.
5,543,119	A	8/1996	Sutter et al.	5,605,273	A	2/1997	Hamblin et al.
5,543,695	A	8/1996	Culp et al.	5,607,094	A	3/1997	Clark et al.
5,544,802	A	8/1996	Crainich	5,607,095	A	3/1997	Smith et al.
5,547,117	A	8/1996	Hamblin et al.	5,607,433	A	3/1997	Polla et al.
5,549,583	A	8/1996	Sanford et al.	5,607,450	A	3/1997	Zvenyatsky et al.
5,549,621	A	8/1996	Bessler et al.	5,607,474	A	3/1997	Athanasidou et al.
5,549,627	A	8/1996	Kieturakis	5,609,285	A	3/1997	Grant et al.
5,549,628	A	8/1996	Cooper et al.	5,609,601	A	3/1997	Kolesa et al.
5,549,637	A	8/1996	Crainich	5,611,709	A	3/1997	McAnulty
5,551,622	A	9/1996	Yoon	5,613,499	A	3/1997	Palmer et al.
				5,613,937	A	3/1997	Garrison et al.
				5,613,966	A	3/1997	Makower et al.
				5,614,887	A	3/1997	Buchbinder
				5,615,820	A	4/1997	Viola
				5,618,294	A	4/1997	Aust et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,618,303	A	4/1997	Marlow et al.	5,692,668	A	12/1997	Schulze et al.
5,618,307	A	4/1997	Donlon et al.	5,693,020	A	12/1997	Rauh
5,619,992	A	4/1997	Guthrie et al.	5,693,042	A	12/1997	Boiarski et al.
5,620,289	A	4/1997	Curry	5,693,051	A	12/1997	Schulze et al.
5,620,326	A	4/1997	Younker	5,695,494	A	12/1997	Becker
5,620,452	A	4/1997	Yoon	5,695,502	A	12/1997	Pier et al.
5,624,398	A	4/1997	Smith et al.	5,695,504	A	12/1997	Gifford, III et al.
5,624,452	A	4/1997	Yates	5,695,524	A	12/1997	Kelley et al.
5,626,587	A	5/1997	Bishop et al.	5,697,542	A	12/1997	Knodel et al.
5,626,595	A	5/1997	Sklar et al.	5,697,543	A	12/1997	Burdorff
5,628,446	A	5/1997	Geiste et al.	5,697,909	A	12/1997	Eggers et al.
5,628,743	A	5/1997	Cimino	5,697,943	A	12/1997	Sauer et al.
5,628,745	A	5/1997	Bek	5,700,270	A	12/1997	Peysen et al.
5,630,539	A	5/1997	Plyley et al.	5,700,276	A	12/1997	Benecke
5,630,540	A	5/1997	Blewett	5,702,387	A	12/1997	Arts et al.
5,630,541	A	5/1997	Williamson, IV et al.	5,702,408	A	12/1997	Wales et al.
5,630,782	A	5/1997	Adair	5,702,409	A	12/1997	Rayburn et al.
5,632,432	A	5/1997	Schulze et al.	5,704,087	A	1/1998	Strub
5,632,433	A	5/1997	Grant et al.	5,704,534	A	1/1998	Huitema et al.
5,633,374	A	5/1997	Humphrey et al.	5,706,997	A	1/1998	Green et al.
5,634,584	A	6/1997	Okorochoa et al.	5,706,998	A	1/1998	Plyley et al.
5,636,779	A	6/1997	Palmer	5,707,392	A	1/1998	Kortenbach
5,636,780	A	6/1997	Green et al.	5,709,334	A	1/1998	Sorrentino et al.
5,639,008	A	6/1997	Gallagher et al.	5,709,335	A	1/1998	Heck
D381,077	S	7/1997	Hunt	5,709,680	A	1/1998	Yates et al.
5,643,291	A	7/1997	Pier et al.	5,709,706	A	1/1998	Kienzle et al.
5,643,294	A	7/1997	Tovey et al.	5,711,472	A	1/1998	Bryan
5,643,319	A	7/1997	Green et al.	5,712,460	A	1/1998	Carr et al.
5,645,209	A	7/1997	Green et al.	5,713,128	A	2/1998	Schrenk et al.
5,647,526	A	7/1997	Green et al.	5,713,505	A	2/1998	Huitema
5,647,869	A	7/1997	Goble et al.	5,713,895	A	2/1998	Lontine et al.
5,649,937	A	7/1997	Bito et al.	5,713,896	A	2/1998	Nardella
5,649,956	A	7/1997	Jensen et al.	5,713,920	A	2/1998	Bezwada et al.
5,651,491	A	7/1997	Heaton et al.	5,715,604	A	2/1998	Lanzoni
5,651,762	A	7/1997	Bridges	5,715,987	A	2/1998	Kelley et al.
5,651,821	A	7/1997	Uchida	5,715,988	A	2/1998	Palmer
5,653,373	A	8/1997	Green et al.	5,716,366	A	2/1998	Yates
5,653,374	A	8/1997	Young et al.	5,718,359	A	2/1998	Palmer et al.
5,653,677	A	8/1997	Okada et al.	5,718,360	A	2/1998	Green et al.
5,653,721	A	8/1997	Knodel et al.	5,718,548	A	2/1998	Cotellessa
5,655,698	A	8/1997	Yoon	5,718,714	A	2/1998	Livneh
5,657,417	A	8/1997	Di Troia	5,720,744	A	2/1998	Eggleston et al.
5,657,429	A	8/1997	Wang et al.	D393,067	S	3/1998	Geary et al.
5,657,921	A	8/1997	Young et al.	5,724,025	A	3/1998	Tavori
5,658,238	A	8/1997	Suzuki et al.	5,725,536	A	3/1998	Oberlin et al.
5,658,281	A	8/1997	Heard	5,725,554	A	3/1998	Simon et al.
5,658,298	A	8/1997	Vincent et al.	5,728,110	A	3/1998	Vidal et al.
5,658,300	A	8/1997	Bito et al.	5,728,113	A	3/1998	Sherts
5,658,307	A	8/1997	Exconde	5,728,121	A	3/1998	Bimbo et al.
5,662,258	A	9/1997	Knodel et al.	5,730,758	A	3/1998	Allgeyer
5,662,260	A	9/1997	Yoon	5,732,821	A	3/1998	Stone et al.
5,662,662	A	9/1997	Bishop et al.	5,732,871	A	3/1998	Clark et al.
5,662,667	A	9/1997	Knodel	5,732,872	A	3/1998	Bolduc et al.
5,665,085	A	9/1997	Nardella	5,733,308	A	3/1998	Daugherty et al.
5,667,517	A	9/1997	Hooven	5,735,445	A	4/1998	Vidal et al.
5,667,526	A	9/1997	Levin	5,735,848	A	4/1998	Yates et al.
5,667,527	A	9/1997	Cook	5,735,874	A	4/1998	Measamer et al.
5,669,544	A	9/1997	Schulze et al.	5,738,474	A	4/1998	Blewett
5,669,904	A	9/1997	Platt, Jr. et al.	5,738,629	A	4/1998	Moll et al.
5,669,907	A	9/1997	Platt, Jr. et al.	5,738,648	A	4/1998	Lands et al.
5,669,918	A	9/1997	Balazs et al.	5,741,271	A	4/1998	Nakao et al.
5,673,840	A	10/1997	Schulze et al.	5,743,456	A	4/1998	Jones et al.
5,673,841	A	10/1997	Schulze et al.	5,747,953	A	5/1998	Philipp
5,673,842	A	10/1997	Bittner et al.	5,749,889	A	5/1998	Bacich et al.
5,674,286	A	10/1997	D'Alessio et al.	5,749,893	A	5/1998	Vidal et al.
5,678,748	A	10/1997	Plyley et al.	5,749,896	A	5/1998	Cook
5,680,981	A	10/1997	Mililli et al.	5,749,968	A	5/1998	Melanson et al.
5,680,982	A	10/1997	Schulze et al.	5,752,644	A	5/1998	Bolanos et al.
5,680,983	A	10/1997	Plyley et al.	5,752,965	A	5/1998	Francis et al.
5,681,341	A	10/1997	Lunsford et al.	5,752,970	A	5/1998	Yoon
5,683,349	A	11/1997	Makower et al.	5,755,717	A	5/1998	Yates et al.
5,685,474	A	11/1997	Seeber	5,758,814	A	6/1998	Gallagher et al.
5,686,090	A	11/1997	Schilder et al.	5,762,255	A	6/1998	Chrisman et al.
5,688,270	A	11/1997	Yates et al.	5,762,256	A	6/1998	Mastri et al.
5,690,269	A	11/1997	Bolanos et al.	5,766,188	A	6/1998	Igaki
				5,766,205	A	6/1998	Zvenyatsky et al.
				5,769,303	A	6/1998	Knodel et al.
				5,769,748	A	6/1998	Eyerly et al.
				5,769,791	A	6/1998	Benaron et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,769,892	A	6/1998	Kingwell	5,843,097	A	12/1998	Mayenberger et al.
5,772,379	A	6/1998	Evensen	5,843,122	A	12/1998	Riza
5,772,578	A	6/1998	Heimberger et al.	5,843,132	A	12/1998	Ilvento
5,772,659	A	6/1998	Becker et al.	5,843,169	A	12/1998	Taheri
5,773,991	A	6/1998	Chen	5,846,254	A	12/1998	Schulze et al.
5,776,130	A	7/1998	Buysse et al.	5,847,566	A	12/1998	Marritt et al.
5,778,939	A	7/1998	Hok-Yin	5,849,011	A	12/1998	Jones et al.
5,779,130	A	7/1998	Alesi et al.	5,849,020	A	12/1998	Long et al.
5,779,131	A	7/1998	Knodel et al.	5,849,023	A	12/1998	Mericle
5,779,132	A	7/1998	Knodel et al.	5,851,179	A	12/1998	Ritson et al.
5,782,396	A	7/1998	Mastri et al.	5,851,212	A	12/1998	Zirps et al.
5,782,397	A	7/1998	Koukline	5,853,366	A	12/1998	Dowlatsahi
5,782,748	A	7/1998	Palmer et al.	5,855,311	A	1/1999	Hamblin et al.
5,782,749	A	7/1998	Riza	5,855,583	A	1/1999	Wang et al.
5,782,859	A	7/1998	Nicholas et al.	5,860,581	A	1/1999	Robertson et al.
5,784,934	A	7/1998	Izumisawa	5,860,975	A	1/1999	Goble et al.
5,785,232	A	7/1998	Vidal et al.	5,865,361	A	2/1999	Milliman et al.
5,785,647	A	7/1998	Tompkins et al.	5,865,638	A	2/1999	Trafton
5,787,897	A	8/1998	Kieturakis	5,868,361	A	2/1999	Rinderer
5,791,231	A	8/1998	Cohn et al.	5,868,760	A	2/1999	McGuckin, Jr.
5,792,135	A	8/1998	Madhani et al.	5,868,790	A	2/1999	Vincent et al.
5,792,162	A	8/1998	Jolly et al.	5,871,135	A	2/1999	Williamson, IV et al.
5,792,165	A	8/1998	Klieman et al.	5,873,885	A	2/1999	Weidenbenner
5,792,573	A	8/1998	Pitzen et al.	5,876,401	A	3/1999	Schulze et al.
5,794,834	A	8/1998	Hamblin et al.	5,878,193	A	3/1999	Wang et al.
5,796,188	A	8/1998	Bays	5,878,607	A	3/1999	Nunes et al.
5,797,536	A	8/1998	Smith et al.	5,878,937	A	3/1999	Green et al.
5,797,537	A	8/1998	Oberlin et al.	5,878,938	A	3/1999	Bittner et al.
5,797,538	A	8/1998	Heaton et al.	5,881,777	A	3/1999	Bassi et al.
5,797,637	A	8/1998	Ervin	5,891,094	A	4/1999	Masterson et al.
5,797,906	A	8/1998	Rhum et al.	5,891,160	A	4/1999	Williamson, IV et al.
5,797,927	A	8/1998	Yoon	5,891,558	A	4/1999	Bell et al.
5,797,941	A	8/1998	Schulze et al.	5,893,506	A	4/1999	Powell
5,797,959	A	8/1998	Castro et al.	5,893,835	A	4/1999	Witt et al.
5,799,857	A	9/1998	Robertson et al.	5,893,878	A	4/1999	Pierce
5,800,379	A	9/1998	Edwards	5,894,979	A	4/1999	Powell
5,800,423	A	9/1998	Jensen	5,897,552	A	4/1999	Edwards et al.
5,804,726	A	9/1998	Geib et al.	5,897,562	A	4/1999	Bolanos et al.
5,804,936	A	9/1998	Brodsky et al.	5,899,824	A	5/1999	Kurtz et al.
5,806,676	A	9/1998	Wasgien	5,899,914	A	5/1999	Zirps et al.
5,807,376	A	9/1998	Viola et al.	5,901,895	A	5/1999	Heaton et al.
5,807,378	A	9/1998	Jensen et al.	5,902,312	A	5/1999	Frater et al.
5,807,393	A	9/1998	Williamson, IV et al.	5,903,117	A	5/1999	Gregory
5,809,441	A	9/1998	McKee	5,904,647	A	5/1999	Ouchi
5,810,721	A	9/1998	Mueller et al.	5,904,693	A	5/1999	Dicesare et al.
5,810,811	A	9/1998	Yates et al.	5,904,702	A	5/1999	Ek et al.
5,810,846	A	9/1998	Virnich et al.	5,906,577	A	5/1999	Beane et al.
5,810,855	A	9/1998	Rayburn et al.	5,906,625	A	5/1999	Bitto et al.
5,813,813	A	9/1998	Daum et al.	5,907,211	A	5/1999	Hall et al.
5,814,055	A	9/1998	Knodel et al.	5,908,402	A	6/1999	Blythe
5,814,057	A	9/1998	Oi et al.	5,908,427	A	6/1999	McKean et al.
5,816,471	A	10/1998	Plyley et al.	5,909,062	A	6/1999	Krietzman
5,817,084	A	10/1998	Jensen	5,911,353	A	6/1999	Bolanos et al.
5,817,091	A	10/1998	Nardella et al.	5,915,616	A	6/1999	Viola et al.
5,817,093	A	10/1998	Williamson, IV et al.	5,916,225	A	6/1999	Kugel
5,817,109	A	10/1998	McGarry et al.	5,918,791	A	7/1999	Sorrentino et al.
5,817,119	A	10/1998	Klieman et al.	5,919,198	A	7/1999	Graves, Jr. et al.
5,820,009	A	10/1998	Melling et al.	5,921,956	A	7/1999	Grinberg et al.
5,823,066	A	10/1998	Huitema et al.	5,924,864	A	7/1999	Loge et al.
5,824,333	A	10/1998	Scopelianos et al.	5,928,137	A	7/1999	Green
5,826,776	A	10/1998	Schulze et al.	5,928,256	A	7/1999	Riza
5,827,271	A	10/1998	Buysse et al.	5,931,847	A	8/1999	Bittner et al.
5,827,298	A	10/1998	Hart et al.	5,931,853	A	8/1999	McEwen et al.
5,829,662	A	11/1998	Allen et al.	5,937,951	A	8/1999	Izuchukwu et al.
5,830,598	A	11/1998	Patterson	5,938,667	A	8/1999	Peysen et al.
5,833,690	A	11/1998	Yates et al.	5,941,442	A	8/1999	Geiste et al.
5,833,695	A	11/1998	Yoon	5,941,890	A	8/1999	Voegele et al.
5,833,696	A	11/1998	Whitfield et al.	5,944,172	A	8/1999	Hannula
5,836,503	A	11/1998	Ehrenfels et al.	5,944,715	A	8/1999	Goble et al.
5,836,960	A	11/1998	Kolesa et al.	5,946,978	A	9/1999	Yamashita
5,839,369	A	11/1998	Chatterjee et al.	5,947,984	A	9/1999	Whipple
5,839,639	A	11/1998	Sauer et al.	5,947,996	A	9/1999	Logeman
5,841,284	A	11/1998	Takahashi	5,948,030	A	9/1999	Miller et al.
5,843,021	A	12/1998	Edwards et al.	5,948,429	A	9/1999	Bell et al.
5,843,096	A	12/1998	Igaki et al.	5,951,301	A	9/1999	Younker
				5,951,516	A	9/1999	Bunyan
				5,951,552	A	9/1999	Long et al.
				5,951,574	A	9/1999	Stefanchik et al.
				5,951,575	A	9/1999	Bolduc et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

5,951,581	A	9/1999	Saadat et al.	6,063,095	A	5/2000	Wang et al.
5,954,259	A	9/1999	Viola et al.	6,063,097	A	5/2000	Oi et al.
5,964,394	A	10/1999	Robertson	6,063,098	A	5/2000	Houser et al.
5,964,774	A	10/1999	McKean et al.	6,065,679	A	5/2000	Levie et al.
5,966,126	A	10/1999	Szabo	6,065,919	A	5/2000	Peck
5,971,916	A	10/1999	Koren	6,066,132	A	5/2000	Chen et al.
5,973,221	A	10/1999	Collyer et al.	6,066,151	A	5/2000	Miyawaki et al.
D416,089	S	11/1999	Barton et al.	6,068,627	A	5/2000	Orszulak et al.
5,976,122	A	11/1999	Madhani et al.	6,071,233	A	6/2000	Ishikawa et al.
5,977,746	A	11/1999	Hershberger et al.	6,074,386	A	6/2000	Goble et al.
5,980,248	A	11/1999	Kusakabe et al.	6,074,401	A	6/2000	Gardiner et al.
5,984,949	A	11/1999	Levin	6,077,280	A	6/2000	Fossum
5,988,479	A	11/1999	Palmer	6,077,286	A	6/2000	Cuschieri et al.
5,990,379	A	11/1999	Gregory	6,077,290	A	6/2000	Marini
5,993,466	A	11/1999	Yoon	6,079,606	A	6/2000	Milliman et al.
5,997,528	A	12/1999	Bisch et al.	6,080,181	A	6/2000	Jensen et al.
5,997,552	A	12/1999	Person et al.	6,082,577	A	7/2000	Coates et al.
6,001,108	A	12/1999	Wang et al.	6,083,191	A	7/2000	Rose
6,003,517	A	12/1999	Sheffield et al.	6,083,223	A	7/2000	Baker
6,004,319	A	12/1999	Goble et al.	6,083,234	A	7/2000	Nicholas et al.
6,004,335	A	12/1999	Vaitekunas et al.	6,083,242	A	7/2000	Cook
6,007,521	A	12/1999	Bidwell et al.	6,086,544	A	7/2000	Hibner et al.
6,010,054	A	1/2000	Johnson et al.	6,086,600	A	7/2000	Kortenbach
6,010,513	A	1/2000	Tormala et al.	6,090,106	A	7/2000	Goble et al.
6,010,520	A	1/2000	Pattison	6,093,186	A	7/2000	Goble
6,012,494	A	1/2000	Balazs	6,099,537	A	8/2000	Sugai et al.
6,013,076	A	1/2000	Goble et al.	6,099,551	A	8/2000	Gabbay
6,015,406	A	1/2000	Goble et al.	6,102,271	A	8/2000	Longo et al.
6,015,417	A	1/2000	Reynolds, Jr.	6,104,162	A	8/2000	Sainsbury et al.
6,017,322	A	1/2000	Snoke et al.	6,104,304	A	8/2000	Clark et al.
6,017,354	A	1/2000	Culp et al.	6,106,511	A	8/2000	Jensen
6,017,356	A	1/2000	Frederick et al.	6,109,500	A	8/2000	Alli et al.
6,018,227	A	1/2000	Kumar et al.	6,110,187	A	8/2000	Donlon
6,019,745	A	2/2000	Gray	6,113,618	A	9/2000	Nic
6,022,352	A	2/2000	Vandewalle	6,117,148	A	9/2000	Ravo et al.
6,023,641	A	2/2000	Thompson	6,117,158	A	9/2000	Measamer et al.
6,024,708	A	2/2000	Bales et al.	6,119,913	A	9/2000	Adams et al.
6,024,741	A	2/2000	Williamson, IV et al.	6,120,433	A	9/2000	Mizuno et al.
6,024,748	A	2/2000	Manzo et al.	6,120,462	A	9/2000	Hibner et al.
6,024,750	A	2/2000	Mastri et al.	6,123,241	A	9/2000	Walter et al.
6,024,764	A	2/2000	Schroepfel	6,123,701	A	9/2000	Nezhat
6,027,501	A	2/2000	Goble et al.	H1904	H	10/2000	Yates et al.
6,030,384	A	2/2000	Nezhat	6,126,058	A	10/2000	Adams et al.
6,032,849	A	3/2000	Mastri et al.	6,126,359	A	10/2000	Dittrich et al.
6,033,105	A	3/2000	Barker et al.	6,126,670	A	10/2000	Walker et al.
6,033,378	A	3/2000	Lundquist et al.	6,131,789	A	10/2000	Schulze et al.
6,033,399	A	3/2000	Gines	6,131,790	A	10/2000	Piraka
6,033,427	A	3/2000	Lee	6,132,368	A	10/2000	Cooper
6,036,667	A	3/2000	Manna et al.	6,139,546	A	10/2000	Koenig et al.
6,037,724	A	3/2000	Buss et al.	6,142,149	A	11/2000	Steen
6,037,927	A	3/2000	Rosenberg	6,142,933	A	11/2000	Longo et al.
6,039,733	A	3/2000	Buysse et al.	6,147,135	A	11/2000	Yuan et al.
6,039,734	A	3/2000	Goble	6,149,660	A	11/2000	Lauffer et al.
6,042,601	A	3/2000	Smith	6,151,323	A	11/2000	O'Connell et al.
6,042,607	A	3/2000	Williamson, IV et al.	6,152,935	A	11/2000	Kammerer et al.
6,043,626	A	3/2000	Snyder et al.	6,155,473	A	12/2000	Tompkins et al.
6,045,560	A	4/2000	McKean et al.	6,156,056	A	12/2000	Kearns et al.
6,047,861	A	4/2000	Vidal et al.	6,157,169	A	12/2000	Lee
6,049,145	A	4/2000	Austin et al.	6,159,146	A	12/2000	El Gazayerli
6,050,172	A	4/2000	Corves et al.	6,159,200	A	12/2000	Verdura et al.
6,050,472	A	4/2000	Shibata	6,159,224	A	12/2000	Yoon
6,050,989	A	4/2000	Fox et al.	6,162,208	A	12/2000	Hippis
6,050,990	A	4/2000	Tankovich et al.	6,162,220	A	12/2000	Nezhat
6,050,996	A	4/2000	Schmaltz et al.	6,162,537	A	12/2000	Martin et al.
6,053,390	A	4/2000	Green et al.	6,165,175	A	12/2000	Wampler et al.
6,053,899	A	4/2000	Slanda et al.	6,165,184	A	12/2000	Verdura et al.
6,053,922	A	4/2000	Krause et al.	6,165,188	A	12/2000	Saadat et al.
6,054,142	A	4/2000	Li et al.	6,167,185	A	12/2000	Smiley et al.
RE36,720	E	5/2000	Green et al.	6,168,605	B1	1/2001	Measamer et al.
6,056,735	A	5/2000	Okada et al.	6,171,305	B1	1/2001	Sherman
6,056,746	A	5/2000	Goble et al.	6,171,316	B1	1/2001	Kovac et al.
6,059,806	A	5/2000	Hoegerle	6,171,330	B1	1/2001	Benchetrit
6,062,360	A	5/2000	Shields	6,171,330	B1	1/2001	Russo
6,063,025	A	5/2000	Bridges et al.	6,173,074	B1	1/2001	Russo
6,063,050	A	5/2000	Manna et al.	6,174,308	B1	1/2001	Goble et al.
				6,174,309	B1	1/2001	Wrublewski et al.
				6,174,318	B1	1/2001	Bates et al.
				6,175,290	B1	1/2001	Forsythe et al.
				6,179,195	B1	1/2001	Adams et al.
				6,179,776	B1	1/2001	Adams et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

6,181,105	B1	1/2001	Cutolo et al.	6,320,123	B1	11/2001	Reimers
6,182,673	B1	2/2001	Kindermann et al.	6,322,494	B1	11/2001	Bullivant et al.
6,185,356	B1	2/2001	Parker et al.	6,324,339	B1	11/2001	Hudson et al.
6,186,142	B1	2/2001	Schmidt et al.	6,325,799	B1	12/2001	Goble
6,187,003	B1	2/2001	Buysse et al.	6,325,805	B1	12/2001	Ogilvie et al.
6,190,386	B1	2/2001	Rydell	6,325,810	B1	12/2001	Hamilton et al.
6,193,129	B1	2/2001	Bittner et al.	6,328,498	B1	12/2001	Mersch
6,197,042	B1	3/2001	Ginn et al.	6,330,965	B1	12/2001	Milliman et al.
6,200,330	B1	3/2001	Benderev et al.	6,331,181	B1	12/2001	Tierney et al.
6,202,914	B1	3/2001	Geiste et al.	6,331,761	B1	12/2001	Kumar et al.
6,206,894	B1	3/2001	Thompson et al.	6,333,029	B1	12/2001	Vyakarnam et al.
6,206,897	B1	3/2001	Jamiolkowski et al.	6,334,860	B1	1/2002	Dorn
6,206,904	B1	3/2001	Ouchi	6,334,861	B1	1/2002	Chandler et al.
6,209,414	B1	4/2001	Uneme	6,336,926	B1	1/2002	Goble
6,210,403	B1	4/2001	Klicek	6,338,737	B1	1/2002	Toledano
6,213,999	B1	4/2001	Platt, Jr. et al.	6,343,731	B1	2/2002	Adams et al.
6,214,028	B1	4/2001	Yoon et al.	6,346,077	B1	2/2002	Taylor et al.
6,220,368	B1	4/2001	Ark et al.	6,348,061	B1	2/2002	Whitman
6,221,007	B1	4/2001	Green	D454,951	S	3/2002	Bon
6,221,023	B1	4/2001	Matsuba et al.	6,352,503	B1	3/2002	Matsui et al.
6,223,100	B1	4/2001	Green	6,352,532	B1	3/2002	Kramer et al.
6,223,835	B1	5/2001	Habedank et al.	6,355,699	B1	3/2002	Vyakarnam et al.
6,224,617	B1	5/2001	Saadat et al.	6,356,072	B1	3/2002	Chass
6,228,080	B1	5/2001	Gines	6,358,224	B1	3/2002	Tims et al.
6,228,081	B1	5/2001	Goble	6,358,263	B2	3/2002	Mark et al.
6,228,083	B1	5/2001	Lands et al.	6,358,459	B1	3/2002	Ziegler et al.
6,228,084	B1	5/2001	Kirwan, Jr.	6,364,877	B1	4/2002	Goble et al.
6,228,089	B1	5/2001	Wahrburg	6,364,888	B1	4/2002	Niemeyer et al.
6,228,098	B1	5/2001	Kayan et al.	6,366,441	B1	4/2002	Ozawa et al.
6,231,565	B1	5/2001	Tovey et al.	6,370,981	B2	4/2002	Watarai
6,234,178	B1	5/2001	Goble et al.	6,371,114	B1	4/2002	Schmidt et al.
6,237,604	B1	5/2001	Burnside et al.	6,373,152	B1	4/2002	Wang et al.
6,238,384	B1	5/2001	Peer	6,377,011	B1	4/2002	Ben-Ur
6,241,139	B1	6/2001	Milliman et al.	6,383,201	B1	5/2002	Dong
6,241,140	B1	6/2001	Adams et al.	6,387,092	B1	5/2002	Burnside et al.
6,241,723	B1	6/2001	Heim et al.	6,387,113	B1	5/2002	Hawkins et al.
6,245,084	B1	6/2001	Mark et al.	6,387,114	B2	5/2002	Adams
6,248,116	B1	6/2001	Chevillon et al.	6,391,038	B2	5/2002	Vargas et al.
6,248,117	B1	6/2001	Blatter	6,392,854	B1	5/2002	O'Gorman
6,249,076	B1	6/2001	Madden et al.	6,394,998	B1	5/2002	Wallace et al.
6,249,105	B1	6/2001	Andrews et al.	6,398,779	B1	6/2002	Buysse et al.
6,250,532	B1	6/2001	Green et al.	6,398,781	B1	6/2002	Goble et al.
6,251,485	B1	6/2001	Harris et al.	6,398,797	B2	6/2002	Bombard et al.
D445,745	S	7/2001	Norman	6,402,766	B2	6/2002	Bowman et al.
6,254,534	B1	7/2001	Butler et al.	6,406,440	B1	6/2002	Stefanchik
6,254,619	B1	7/2001	Garabet et al.	6,406,472	B1	6/2002	Jensen
6,254,642	B1	7/2001	Taylor	6,409,724	B1	6/2002	Penny et al.
6,258,107	B1	7/2001	Balazs et al.	H2037	H	7/2002	Yates et al.
6,261,286	B1	7/2001	Goble et al.	6,412,639	B1	7/2002	Hickey
6,261,679	B1	7/2001	Chen et al.	6,413,274	B1	7/2002	Pedros
6,264,086	B1	7/2001	McGuckin, Jr.	6,416,486	B1	7/2002	Wampler
6,264,087	B1	7/2001	Whitman	6,416,509	B1	7/2002	Goble et al.
6,264,617	B1	7/2001	Bales et al.	6,419,695	B1	7/2002	Gabbay
6,270,508	B1	8/2001	Klieman et al.	6,423,079	B1	7/2002	Blake, III
6,270,916	B1	8/2001	Sink et al.	RE37,814	E	8/2002	Allgeyer
6,273,876	B1	8/2001	Klima et al.	6,428,070	B1	8/2002	Takanashi et al.
6,273,897	B1	8/2001	Dalessandro et al.	6,428,487	B1	8/2002	Burdorff et al.
6,277,114	B1	8/2001	Bullivant et al.	6,429,611	B1	8/2002	Li
6,280,407	B1	8/2001	Manna et al.	6,430,298	B1	8/2002	Kettl et al.
6,283,981	B1	9/2001	Beaupre	6,432,065	B1	8/2002	Burdorff et al.
6,293,927	B1	9/2001	McGuckin, Jr.	6,436,097	B1	8/2002	Nardella
6,293,942	B1	9/2001	Goble et al.	6,436,107	B1	8/2002	Wang et al.
6,296,640	B1	10/2001	Wampler et al.	6,436,110	B2	8/2002	Bowman et al.
6,302,311	B1	10/2001	Adams et al.	6,436,115	B1	8/2002	Beaupre
6,302,743	B1	10/2001	Chiu et al.	6,436,122	B1	8/2002	Frank et al.
6,305,891	B1	10/2001	Burlingame	6,439,439	B1	8/2002	Rickard et al.
6,306,134	B1	10/2001	Goble et al.	6,439,446	B1	8/2002	Perry et al.
6,306,149	B1	10/2001	Meade	6,440,146	B2	8/2002	Nicholas et al.
6,306,424	B1	10/2001	Vyakarnam et al.	6,441,577	B2	8/2002	Blumenkranz et al.
6,309,397	B1	10/2001	Julian et al.	D462,758	S	9/2002	Epstein et al.
6,309,400	B2	10/2001	Beaupre	6,443,973	B1	9/2002	Whitman
6,309,403	B1	10/2001	Minor et al.	6,445,530	B1	9/2002	Baker
6,312,435	B1	11/2001	Wallace et al.	6,447,518	B1	9/2002	Krause et al.
6,315,184	B1	11/2001	Whitman	6,447,523	B1	9/2002	Middleman et al.
6,319,510	B1	11/2001	Yates	6,447,799	B1	9/2002	Ullman
				6,447,864	B2	9/2002	Johnson et al.
				6,450,391	B1	9/2002	Kayan et al.
				6,450,989	B2	9/2002	Dubrul et al.
				6,454,781	B1	9/2002	Witt et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

6,458,077	B1	10/2002	Boebel et al.	6,585,144	B2	7/2003	Adams et al.
6,458,147	B1	10/2002	Cruise et al.	6,585,664	B2	7/2003	Burdorff et al.
6,460,627	B1	10/2002	Below et al.	6,586,898	B2	7/2003	King et al.
6,468,275	B1	10/2002	Wampler et al.	6,587,750	B2	7/2003	Gerbi et al.
6,468,286	B2	10/2002	Mastri et al.	6,588,277	B2	7/2003	Giordano et al.
6,471,106	B1	10/2002	Reining	6,588,643	B2	7/2003	Bolduc et al.
6,471,659	B2	10/2002	Eggers et al.	6,588,931	B2	7/2003	Betzner et al.
6,478,210	B2	11/2002	Adams et al.	6,589,118	B1	7/2003	Soma et al.
6,482,200	B2	11/2002	Shippert	6,589,164	B1	7/2003	Flaherty
6,482,217	B1	11/2002	Pintor et al.	6,592,538	B1	7/2003	Hotchkiss et al.
6,485,490	B2	11/2002	Wampler et al.	6,592,597	B2	7/2003	Grant et al.
6,485,503	B2	11/2002	Jacobs et al.	6,594,552	B1	7/2003	Nowlin et al.
6,485,667	B1	11/2002	Tan	6,596,296	B1	7/2003	Nelson et al.
6,486,286	B1	11/2002	McGall et al.	6,596,304	B1	7/2003	Bayon et al.
6,488,196	B1	12/2002	Fenton, Jr.	6,596,432	B2	7/2003	Kawakami et al.
6,488,197	B1	12/2002	Whitman	6,599,323	B2	7/2003	Melican et al.
6,488,659	B1	12/2002	Rosenman	D478,665	S	8/2003	Isaacs et al.
6,491,201	B1	12/2002	Whitman	D478,986	S	8/2003	Johnston et al.
6,491,690	B1	12/2002	Goble et al.	6,601,749	B2	8/2003	Sullivan et al.
6,491,701	B2	12/2002	Tierney et al.	6,602,252	B2	8/2003	Mollenauer
6,492,785	B1	12/2002	Kasten et al.	6,602,262	B2	8/2003	Griego et al.
6,494,882	B1	12/2002	Lebouitz et al.	6,603,050	B2	8/2003	Heaton
6,494,885	B1	12/2002	Dhindsa	6,605,078	B2	8/2003	Adams
6,494,896	B1	12/2002	D'Alessio et al.	6,605,669	B2	8/2003	Awokola et al.
6,498,480	B1	12/2002	Manara	6,605,911	B1	8/2003	Klesing
6,500,176	B1	12/2002	Truckai et al.	6,607,475	B2	8/2003	Doyle et al.
6,500,194	B2	12/2002	Benderev et al.	6,611,793	B1	8/2003	Burnside et al.
6,503,139	B2	1/2003	Coral	6,613,069	B2	9/2003	Boyd et al.
6,503,257	B2	1/2003	Grant et al.	6,616,686	B2	9/2003	Coleman et al.
6,503,259	B2	1/2003	Huxel et al.	6,619,529	B2	9/2003	Green et al.
6,505,768	B2	1/2003	Whitman	6,620,111	B2	9/2003	Stephens et al.
6,506,197	B1	1/2003	Rollero et al.	6,620,166	B1	9/2003	Wenstrom, Jr. et al.
6,510,854	B2	1/2003	Goble	6,625,517	B1	9/2003	Bogdanov et al.
6,511,468	B1	1/2003	Cragg et al.	6,626,834	B2	9/2003	Dunne et al.
6,512,360	B1	1/2003	Goto et al.	H2086	H	10/2003	Amsler
6,514,252	B2	2/2003	Nezhat et al.	6,629,630	B2	10/2003	Adams
6,516,073	B1	2/2003	Schulz et al.	6,629,974	B2	10/2003	Penny et al.
6,517,528	B1	2/2003	Pantages et al.	6,629,988	B2	10/2003	Weadock
6,517,535	B2	2/2003	Edwards	6,635,838	B1	10/2003	Kornelson
6,517,565	B1	2/2003	Whitman et al.	6,636,412	B2	10/2003	Smith
6,517,566	B1	2/2003	Hovland et al.	6,638,108	B2	10/2003	Tachi
6,520,971	B1	2/2003	Perry et al.	6,638,285	B2	10/2003	Gabbay
6,520,972	B2	2/2003	Peters	6,638,297	B1	10/2003	Huitema
6,522,101	B2	2/2003	Malackowski	RE38,335	E	11/2003	Aust et al.
6,524,180	B1	2/2003	Simms et al.	6,641,528	B2	11/2003	Torii
6,527,782	B2	3/2003	Hogg et al.	6,644,532	B2	11/2003	Green et al.
6,527,785	B2	3/2003	Sancoff et al.	6,645,201	B1	11/2003	Utley et al.
6,532,958	B1	3/2003	Buan et al.	6,646,307	B1	11/2003	Yu et al.
6,533,157	B1	3/2003	Whitman	6,648,816	B2	11/2003	Irion et al.
6,533,723	B1	3/2003	Lockery et al.	6,648,901	B2	11/2003	Fleischman et al.
6,533,784	B2	3/2003	Truckai et al.	6,652,595	B1	11/2003	Nicolo
6,535,764	B2	3/2003	Imran et al.	D484,243	S	12/2003	Ryan et al.
6,539,297	B2	3/2003	Weiberle et al.	D484,595	S	12/2003	Ryan et al.
D473,239	S	4/2003	Cockerill	D484,596	S	12/2003	Ryan et al.
6,539,816	B2	4/2003	Kogiso et al.	6,656,177	B2	12/2003	Truckai et al.
6,543,456	B1	4/2003	Freeman	6,656,193	B2	12/2003	Grant et al.
6,545,384	B1	4/2003	Pelrine et al.	6,659,940	B2	12/2003	Adler
6,547,786	B1	4/2003	Goble	6,663,623	B1	12/2003	Oyama et al.
6,550,546	B2	4/2003	Thurler et al.	6,663,641	B1	12/2003	Kovac et al.
6,551,333	B2	4/2003	Kuhns et al.	6,666,854	B1	12/2003	Lange
6,554,861	B2	4/2003	Knox et al.	6,666,875	B1	12/2003	Sakurai et al.
6,555,770	B2	4/2003	Kawase	6,667,825	B2	12/2003	Lu et al.
6,558,378	B2	5/2003	Sherman et al.	6,669,073	B2	12/2003	Milliman et al.
6,558,379	B1	5/2003	Batchelor et al.	6,670,806	B2	12/2003	Wendt et al.
6,558,429	B2	5/2003	Taylor	6,671,185	B2	12/2003	Duval
6,561,187	B2	5/2003	Schmidt et al.	D484,977	S	1/2004	Ryan et al.
6,565,560	B1	5/2003	Goble et al.	6,676,660	B2	1/2004	Wampler et al.
6,566,619	B2	5/2003	Gillman et al.	6,677,687	B2	1/2004	Ho et al.
6,569,085	B2	5/2003	Kortenbach et al.	6,679,269	B2	1/2004	Swanson
6,569,171	B2	5/2003	DeGuillebon et al.	6,679,410	B2	1/2004	Wursch et al.
6,578,751	B2	6/2003	Hartwick	6,681,978	B2	1/2004	Geiste et al.
6,582,364	B2	6/2003	Butler et al.	6,681,979	B2	1/2004	Whitman
6,582,427	B1	6/2003	Goble et al.	6,682,527	B2	1/2004	Strul
6,582,441	B1	6/2003	He et al.	6,682,528	B2	1/2004	Frazier et al.
6,583,533	B2	6/2003	Pelrine et al.	6,682,544	B2	1/2004	Mastri et al.
				6,685,698	B2	2/2004	Morley et al.
				6,685,727	B2	2/2004	Fisher et al.
				6,689,153	B1	2/2004	Skiba
				6,692,507	B2	2/2004	Pugsley et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

6,692,692	B2	2/2004	Stetzel	6,805,273	B2	10/2004	Bilotti et al.
6,695,198	B2	2/2004	Adams et al.	6,806,808	B1	10/2004	Watters et al.
6,695,199	B2	2/2004	Whitman	6,808,525	B2	10/2004	Latterell et al.
6,695,774	B2	2/2004	Hale et al.	6,810,359	B2	10/2004	Sakaguchi
6,696,814	B2	2/2004	Henderson et al.	6,814,154	B2	11/2004	Chou
6,697,048	B2	2/2004	Rosenberg et al.	6,814,741	B2	11/2004	Bowman et al.
6,698,643	B2	3/2004	Whitman	6,817,508	B1	11/2004	Racenet et al.
6,699,177	B1	3/2004	Wang et al.	6,817,509	B2	11/2004	Geiste et al.
6,699,214	B2	3/2004	Gellman	6,817,974	B2	11/2004	Cooper et al.
6,699,235	B2	3/2004	Wallace et al.	6,818,018	B1	11/2004	Sawhney
6,704,210	B1	3/2004	Myers	6,820,791	B2	11/2004	Adams
6,705,503	B1	3/2004	Pedicini et al.	6,821,273	B2	11/2004	Mollenauer
6,709,445	B2	3/2004	Boebel et al.	6,821,282	B2	11/2004	Perry et al.
6,712,773	B1	3/2004	Viola	6,821,284	B2	11/2004	Sturtz et al.
6,716,223	B2	4/2004	Leopold et al.	6,827,246	B2	12/2004	Sullivan et al.
6,716,232	B1	4/2004	Vidal et al.	6,827,712	B2	12/2004	Tovey et al.
6,716,233	B1	4/2004	Whitman	6,827,725	B2	12/2004	Batchelor et al.
6,720,734	B2	4/2004	Norris	6,828,902	B2	12/2004	Casden
6,722,550	B1	4/2004	Ricordi et al.	6,830,174	B2	12/2004	Hillstead et al.
6,722,552	B2	4/2004	Fenton, Jr.	6,831,629	B2	12/2004	Nishino et al.
6,723,087	B2	4/2004	O'Neill et al.	6,832,998	B2	12/2004	Goble
6,723,091	B2	4/2004	Goble et al.	6,834,001	B2	12/2004	Myono
6,723,109	B2	4/2004	Solingen	6,835,173	B2	12/2004	Couvillon, Jr.
6,726,697	B2	4/2004	Nicholas et al.	6,835,199	B2	12/2004	McGuckin, Jr. et al.
6,726,706	B2	4/2004	Dominguez	6,835,336	B2	12/2004	Watt
6,729,119	B2	5/2004	Schnipke et al.	6,836,611	B2	12/2004	Popovic et al.
6,736,825	B2	5/2004	Blatter et al.	6,837,846	B2	1/2005	Jaffe et al.
6,736,854	B2	5/2004	Vadurro et al.	6,837,883	B2	1/2005	Moll et al.
6,740,030	B2	5/2004	Martone et al.	6,838,493	B2	1/2005	Williams et al.
6,743,230	B2	6/2004	Lutze et al.	6,840,423	B2	1/2005	Adams et al.
6,744,385	B2	6/2004	Kazuya et al.	6,841,967	B2	1/2005	Kim et al.
6,747,121	B2	6/2004	Gogolewski	6,843,403	B2	1/2005	Whitman
6,747,300	B2	6/2004	Nadd et al.	6,843,789	B2	1/2005	Goble
6,749,560	B1	6/2004	Konstorum et al.	6,843,793	B2	1/2005	Brock et al.
6,749,600	B1	6/2004	Levy	6,846,307	B2	1/2005	Whitman et al.
6,752,768	B2	6/2004	Burdorff et al.	6,846,308	B2	1/2005	Whitman et al.
6,752,816	B2	6/2004	Culp et al.	6,846,309	B2	1/2005	Whitman et al.
6,754,959	B1	6/2004	Guiette, III et al.	6,847,190	B2	1/2005	Schaefer et al.
6,755,195	B1	6/2004	Lemke et al.	6,849,071	B2	2/2005	Whitman et al.
6,755,338	B2	6/2004	Hahnen et al.	6,850,817	B1	2/2005	Green
6,755,843	B2	6/2004	Chung et al.	6,852,122	B2	2/2005	Rush
6,756,705	B2	6/2004	Pulford, Jr.	6,852,330	B2	2/2005	Bowman et al.
6,758,846	B2	7/2004	Goble et al.	6,853,879	B2	2/2005	Sunaoshi
6,761,685	B2	7/2004	Adams et al.	6,858,005	B2	2/2005	Ohline et al.
6,762,339	B1	7/2004	Klun et al.	6,859,882	B2	2/2005	Fung
6,764,445	B2	7/2004	Ramans et al.	RE38,708	E	3/2005	Bolanos et al.
6,766,957	B2	7/2004	Matsuura et al.	D502,994	S	3/2005	Blake, III
6,767,352	B2	7/2004	Field et al.	6,861,142	B1	3/2005	Wilkie et al.
6,767,356	B2	7/2004	Kanner et al.	6,861,954	B2	3/2005	Levin
6,769,590	B2	8/2004	Vresh et al.	6,863,668	B2	3/2005	Gillespie et al.
6,769,594	B2	8/2004	Orban, III	6,863,694	B1	3/2005	Boyce et al.
6,770,027	B2	8/2004	Banik et al.	6,866,178	B2	3/2005	Adams et al.
6,770,070	B1	8/2004	Balbierz	6,866,671	B2	3/2005	Tierney et al.
6,770,072	B1	8/2004	Truckai et al.	6,867,248	B1	3/2005	Martin et al.
6,773,409	B2	8/2004	Truckai et al.	6,869,430	B2	3/2005	Balbierz et al.
6,773,438	B1	8/2004	Knodel et al.	6,869,435	B2	3/2005	Blake, III
6,775,575	B2	8/2004	Bommannan et al.	6,872,214	B2	3/2005	Sonnenschein et al.
6,777,838	B2	8/2004	Miekka et al.	6,874,669	B2	4/2005	Adams et al.
6,780,151	B2	8/2004	Grabover et al.	6,877,647	B2	4/2005	Green et al.
6,780,180	B1	8/2004	Goble et al.	6,878,106	B1	4/2005	Herrmann
6,783,524	B2	8/2004	Anderson et al.	6,884,392	B2	4/2005	Malkin et al.
6,786,382	B1	9/2004	Hoffman	6,884,428	B2	4/2005	Binette et al.
6,786,864	B2	9/2004	Matsuura et al.	6,886,730	B2	5/2005	Fujisawa et al.
6,786,896	B1	9/2004	Madhani et al.	6,887,710	B2	5/2005	Call et al.
6,788,018	B1	9/2004	Blumenkranz	6,889,116	B2	5/2005	Jinno
6,790,173	B2	9/2004	Saadat et al.	6,893,435	B2	5/2005	Goble
6,793,652	B1	9/2004	Whitman et al.	6,894,140	B2	5/2005	Roby
6,793,661	B2	9/2004	Hamilton et al.	6,895,176	B2	5/2005	Archer et al.
6,793,663	B2	9/2004	Kneifel et al.	6,899,538	B2	5/2005	Matoba
6,793,669	B2	9/2004	Nakamura et al.	6,899,593	B1	5/2005	Moeller et al.
6,796,921	B1	9/2004	Buck et al.	6,905,057	B2	6/2005	Swayze et al.
6,799,669	B2	10/2004	Fukumura et al.	6,905,497	B2	6/2005	Truckai et al.
6,802,822	B1	10/2004	Dodge	6,905,498	B2	6/2005	Hooven
6,802,843	B2	10/2004	Truckai et al.	6,908,472	B2	6/2005	Wiener et al.
6,802,844	B2	10/2004	Ferree	6,911,033	B2	6/2005	de Guillebon et al.
				6,911,916	B1	6/2005	Wang et al.
				6,913,579	B2	7/2005	Truckai et al.
				6,913,608	B2	7/2005	Liddicoat et al.
				6,913,613	B2	7/2005	Schwarz et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

6,921,397	B2	7/2005	Corcoran et al.	7,008,433	B2	3/2006	Voellmicke et al.
6,921,412	B1	7/2005	Black et al.	7,008,435	B2	3/2006	Cummins
6,923,093	B2	8/2005	Ullah	7,009,039	B2	3/2006	Yayon et al.
6,923,803	B2	8/2005	Goble	7,011,657	B2	3/2006	Truckai et al.
6,923,819	B2	8/2005	Meade et al.	7,014,640	B2	3/2006	Kemppainen et al.
6,925,849	B2	8/2005	Jairam	7,018,357	B2	3/2006	Emmons
6,926,716	B2	8/2005	Baker et al.	7,018,390	B2	3/2006	Turovskiy et al.
6,928,902	B1	8/2005	Eyssallenne	7,021,669	B1	4/2006	Lindermeir et al.
6,929,641	B2	8/2005	Goble et al.	7,023,159	B2	4/2006	Gorti et al.
6,929,644	B2	8/2005	Truckai et al.	7,025,064	B2	4/2006	Wang et al.
6,931,830	B2	8/2005	Liao	7,025,732	B2	4/2006	Thompson et al.
6,932,218	B2	8/2005	Kosann et al.	7,025,743	B2	4/2006	Mann et al.
6,932,810	B2	8/2005	Ryan	7,025,775	B2	4/2006	Gadberry et al.
6,936,042	B2	8/2005	Wallace et al.	7,028,570	B2	4/2006	Ohta et al.
6,936,948	B2	8/2005	Bell et al.	7,029,435	B2	4/2006	Nakao
D509,297	S	9/2005	Wells	7,029,439	B2	4/2006	Roberts et al.
D509,589	S	9/2005	Wells	7,030,904	B2	4/2006	Adair et al.
6,938,706	B2	9/2005	Ng	7,032,798	B2	4/2006	Whitman et al.
6,939,358	B2	9/2005	Palacios et al.	7,032,799	B2	4/2006	Viola et al.
6,942,662	B2	9/2005	Goble et al.	7,033,356	B2	4/2006	Latterell et al.
6,942,674	B2	9/2005	Belef et al.	7,035,716	B2	4/2006	Harris et al.
6,945,444	B2	9/2005	Gresham et al.	7,035,762	B2	4/2006	Menard et al.
6,945,981	B2	9/2005	Donofrio et al.	7,036,680	B1	5/2006	Flannery
6,951,562	B2	10/2005	Zwirnmann	7,037,314	B2	5/2006	Armstrong
6,953,138	B1	10/2005	Dworak et al.	7,037,344	B2	5/2006	Kagan et al.
6,953,139	B2	10/2005	Milliman et al.	7,041,088	B2	5/2006	Nawrocki et al.
6,953,461	B2	10/2005	McClurken et al.	7,041,102	B2	5/2006	Truckai et al.
6,957,758	B2	10/2005	Aranyi	7,041,868	B2	5/2006	Greene et al.
6,958,035	B2	10/2005	Friedman et al.	7,043,852	B2	5/2006	Hayashida et al.
6,959,851	B2	11/2005	Heinrich	7,044,350	B2	5/2006	Kameyama et al.
6,959,852	B2	11/2005	Shelton, IV et al.	7,044,352	B2	5/2006	Shelton, IV et al.
6,960,107	B1	11/2005	Schaub et al.	7,044,353	B2	5/2006	Mastri et al.
6,960,163	B2	11/2005	Ewers et al.	7,046,082	B2	5/2006	Komiya et al.
6,960,220	B2	11/2005	Marino et al.	7,048,687	B1	5/2006	Reuss et al.
6,962,587	B2	11/2005	Johnson et al.	7,048,745	B2	5/2006	Tierney et al.
6,963,792	B1	11/2005	Green	7,052,454	B2	5/2006	Taylor
6,964,363	B2	11/2005	Wales et al.	7,052,494	B2	5/2006	Goble et al.
6,966,907	B2	11/2005	Goble	7,052,499	B2	5/2006	Steger et al.
6,966,909	B2	11/2005	Marshall et al.	7,055,730	B2	6/2006	Ehrenfels et al.
6,968,908	B2	11/2005	Tokunaga et al.	7,055,731	B2	6/2006	Shelton, IV et al.
6,969,385	B2	11/2005	Moreyra	7,056,284	B2	6/2006	Martone et al.
6,969,395	B2	11/2005	Eskuri	7,056,330	B2	6/2006	Gayton
6,971,988	B2	12/2005	Orban, III	7,059,331	B2	6/2006	Adams et al.
6,972,199	B2	12/2005	Lebouitz et al.	7,059,508	B2	6/2006	Shelton, IV et al.
6,974,435	B2	12/2005	Daw et al.	7,063,671	B2	6/2006	Couvillon, Jr.
6,974,462	B2	12/2005	Sater	7,063,712	B2	6/2006	Vargas et al.
6,978,921	B2	12/2005	Shelton, IV et al.	7,064,509	B1	6/2006	Fu et al.
6,978,922	B2	12/2005	Bilotti et al.	7,066,879	B2	6/2006	Fowler et al.
6,981,628	B2	1/2006	Wales	7,066,944	B2	6/2006	Lauer et al.
6,981,941	B2	1/2006	Whitman et al.	7,067,038	B2	6/2006	Trokhan et al.
6,981,978	B2	1/2006	Gannoe	7,070,083	B2	7/2006	Jankowski
6,984,203	B2	1/2006	Tartaglia et al.	7,070,559	B2	7/2006	Adams et al.
6,984,231	B2	1/2006	Goble et al.	7,070,597	B2	7/2006	Truckai et al.
6,986,451	B1	1/2006	Mastri et al.	7,071,287	B2	7/2006	Rhine et al.
6,988,649	B2	1/2006	Shelton, IV et al.	7,075,770	B1	7/2006	Smith
6,988,650	B2	1/2006	Schwemberger et al.	7,077,856	B2	7/2006	Whitman
6,989,034	B2	1/2006	Hammer et al.	7,080,769	B2	7/2006	Vresh et al.
6,990,731	B2	1/2006	Haytayan	7,081,114	B2	7/2006	Rashidi
6,990,796	B2	1/2006	Schnipke et al.	7,083,073	B2	8/2006	Yoshie et al.
6,993,200	B2	1/2006	Tastl et al.	7,083,075	B2	8/2006	Swayze et al.
6,993,413	B2	1/2006	Sunaoshi	7,083,571	B2	8/2006	Wang et al.
6,994,708	B2	2/2006	Manzo	7,083,615	B2	8/2006	Peterson et al.
6,995,729	B2	2/2006	Govari et al.	7,083,619	B2	8/2006	Truckai et al.
6,996,433	B2	2/2006	Burbank et al.	7,083,620	B2	8/2006	Jahns et al.
6,997,931	B2	2/2006	Sauer et al.	7,083,626	B2	8/2006	Hart et al.
6,997,935	B2	2/2006	Anderson et al.	7,086,267	B2	8/2006	Dworak et al.
6,998,736	B2	2/2006	Lee et al.	7,087,049	B2	8/2006	Nowlin et al.
6,998,816	B2	2/2006	Wieck et al.	7,087,054	B2	8/2006	Truckai et al.
7,000,818	B2	2/2006	Shelton, IV et al.	7,087,071	B2	8/2006	Nicholas et al.
7,000,819	B2	2/2006	Swayze et al.	7,090,637	B2	8/2006	Danitz et al.
7,000,911	B2	2/2006	McCormick et al.	7,090,673	B2	8/2006	Dycus et al.
7,001,380	B2	2/2006	Goble	7,090,683	B2	8/2006	Brock et al.
7,001,408	B2	2/2006	Knodel et al.	7,090,684	B2	8/2006	McGuckin, Jr. et al.
7,004,174	B2	2/2006	Eggers et al.	7,091,412	B2	8/2006	Wang et al.
7,007,176	B2	2/2006	Goodfellow et al.	7,093,492	B2	8/2006	Treiber et al.
				7,094,202	B2	8/2006	Nobis et al.
				7,094,247	B2	8/2006	Monassevitch et al.
				7,094,916	B2	8/2006	DeLuca et al.
				7,096,972	B2	8/2006	Orozco, Jr.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,097,089	B2	8/2006	Marczyk	7,182,239	B1	2/2007	Myers
7,097,644	B2	8/2006	Long	7,182,763	B2	2/2007	Nardella
7,097,650	B2	8/2006	Weller et al.	7,183,737	B2	2/2007	Kitagawa
7,098,794	B2	8/2006	Lindsay et al.	7,187,960	B2	3/2007	Abreu
7,100,949	B2	9/2006	Williams et al.	7,188,758	B2	3/2007	Viola et al.
7,101,187	B1	9/2006	Deconinck et al.	7,189,207	B2	3/2007	Viola
7,101,394	B2	9/2006	Hamm et al.	7,190,147	B2	3/2007	Gileff et al.
7,104,741	B2	9/2006	Krohn	7,195,627	B2	3/2007	Amoah et al.
7,108,695	B2	9/2006	Witt et al.	7,196,911	B2	3/2007	Takano et al.
7,108,701	B2	9/2006	Evens et al.	D541,418	S	4/2007	Schechter et al.
7,108,709	B2	9/2006	Cummins	7,199,537	B2	4/2007	Okamura et al.
7,111,768	B2	9/2006	Cummins et al.	7,202,576	B1	4/2007	Dechene et al.
7,111,769	B2	9/2006	Wales et al.	7,202,653	B2	4/2007	Pai
7,112,214	B2	9/2006	Peterson et al.	7,204,404	B2	4/2007	Nguyen et al.
RE39,358	E	10/2006	Goble	7,204,835	B2	4/2007	Latterell et al.
7,114,642	B2	10/2006	Whitman	7,207,233	B2	4/2007	Wadge
7,116,100	B1	10/2006	Mock et al.	7,207,471	B2	4/2007	Heinrich et al.
7,118,020	B2	10/2006	Lee et al.	7,207,472	B2	4/2007	Wukusick et al.
7,118,528	B1	10/2006	Piskun	7,207,556	B2	4/2007	Saitoh et al.
7,118,563	B2	10/2006	Weckwerth et al.	7,208,005	B2	4/2007	Frecker et al.
7,118,582	B1	10/2006	Wang et al.	7,210,609	B2	5/2007	Leiboff et al.
7,119,534	B2	10/2006	Butzmann	7,211,081	B2	5/2007	Goble
7,121,446	B2	10/2006	Arad et al.	7,211,084	B2	5/2007	Goble et al.
7,121,773	B2	10/2006	Mikiya et al.	7,211,092	B2	5/2007	Hughett
7,122,028	B2	10/2006	Looper et al.	7,211,979	B2	5/2007	Khatib et al.
7,125,403	B2	10/2006	Julian et al.	7,213,736	B2	5/2007	Wales et al.
7,125,409	B2	10/2006	Truckai et al.	7,214,224	B2	5/2007	Goble
7,126,303	B2	10/2006	Farritor et al.	7,215,517	B2	5/2007	Takamatsu
7,126,879	B2	10/2006	Snyder	7,217,285	B2	5/2007	Vargas et al.
7,128,253	B2	10/2006	Mastri et al.	7,220,260	B2	5/2007	Fleming et al.
7,128,254	B2	10/2006	Shelton, IV et al.	7,220,272	B2	5/2007	Weadock
7,128,748	B2	10/2006	Mooradian et al.	7,225,959	B2	6/2007	Patton et al.
7,131,445	B2	11/2006	Amoah	7,225,963	B2	6/2007	Scirica
7,133,601	B2	11/2006	Phillips et al.	7,225,964	B2	6/2007	Mastri et al.
7,134,587	B2	11/2006	Schwemberger et al.	7,226,450	B2	6/2007	Athanasidou et al.
7,135,027	B2	11/2006	Delmotte	7,228,505	B2	6/2007	Shimazu et al.
7,137,980	B2	11/2006	Buysse et al.	7,229,408	B2	6/2007	Douglas et al.
7,137,981	B2	11/2006	Long	7,234,624	B2	6/2007	Gresham et al.
7,139,016	B2	11/2006	Squilla et al.	7,235,072	B2	6/2007	Sartor et al.
7,140,527	B2	11/2006	Ehrenfels et al.	7,235,089	B1	6/2007	McGuckin, Jr.
7,140,528	B2	11/2006	Shelton, IV	7,235,302	B2	6/2007	Jing et al.
7,141,055	B2	11/2006	Abrams et al.	7,237,708	B1	7/2007	Guy et al.
7,143,923	B2	12/2006	Shelton, IV et al.	7,238,195	B2	7/2007	Viola
7,143,924	B2	12/2006	Scirica et al.	7,238,901	B2	7/2007	Kim et al.
7,143,925	B2	12/2006	Shelton, IV et al.	7,239,657	B1	7/2007	Gunnarsson
7,143,926	B2	12/2006	Shelton, IV et al.	7,241,288	B2	7/2007	Braun
7,146,191	B2	12/2006	Kerner et al.	7,241,289	B2	7/2007	Braun
7,147,138	B2	12/2006	Shelton, IV	7,246,734	B2	7/2007	Shelton, IV
7,147,139	B2	12/2006	Schwemberger et al.	7,247,161	B2	7/2007	Johnston et al.
7,147,140	B2	12/2006	Wukusick et al.	7,249,267	B2	7/2007	Chapuis
7,147,637	B2	12/2006	Goble	7,252,641	B2	8/2007	Thompson et al.
7,147,648	B2	12/2006	Lin	7,252,660	B2	8/2007	Kunz
7,147,650	B2	12/2006	Lee	7,255,012	B2	8/2007	Hedtke
7,150,748	B2	12/2006	Ebbutt et al.	7,255,696	B2	8/2007	Goble et al.
7,153,300	B2	12/2006	Goble	7,256,695	B2	8/2007	Hamel et al.
7,155,316	B2	12/2006	Sutherland et al.	7,258,262	B2	8/2007	Mastri et al.
7,156,863	B2	1/2007	Sonnenschein et al.	7,258,546	B2	8/2007	Beier et al.
7,159,750	B2	1/2007	Racenet et al.	7,260,431	B2	8/2007	Libbus et al.
7,160,296	B2	1/2007	Pearson et al.	7,265,374	B2	9/2007	Lee et al.
7,160,299	B2	1/2007	Baily	7,267,677	B2	9/2007	Johnson et al.
7,161,036	B2	1/2007	Oikawa et al.	7,267,679	B2	9/2007	McGuckin, Jr. et al.
7,161,580	B2	1/2007	Bailey et al.	7,272,002	B2	9/2007	Drapeau
7,162,758	B2	1/2007	Skinner	7,273,483	B2	9/2007	Wiener et al.
7,163,563	B2	1/2007	Schwartz et al.	7,275,674	B2	10/2007	Racenet et al.
7,166,133	B2	1/2007	Evans et al.	7,276,044	B2	10/2007	Ferry et al.
7,168,604	B2	1/2007	Milliman et al.	7,276,068	B2	10/2007	Johnson et al.
7,170,910	B2	1/2007	Chen et al.	7,278,562	B2	10/2007	Mastri et al.
7,171,279	B2	1/2007	Buckingham et al.	7,278,563	B1	10/2007	Green
7,172,104	B2	2/2007	Scirica et al.	7,278,949	B2	10/2007	Bader
7,172,593	B2	2/2007	Trieu et al.	7,278,994	B2	10/2007	Goble
7,172,615	B2	2/2007	Morriss et al.	7,282,048	B2	10/2007	Goble et al.
7,174,636	B2	2/2007	Lowe	7,286,850	B2	10/2007	Frielink et al.
7,177,533	B2	2/2007	McFarlin et al.	7,287,682	B1	10/2007	Ezzat et al.
7,179,223	B2	2/2007	Motoki et al.	7,289,139	B2	10/2007	Amling et al.
7,179,267	B2	2/2007	Nolan et al.	7,293,685	B2	11/2007	Ehrenfels et al.
				7,295,893	B2	11/2007	Sunaoshi
				7,295,907	B2	11/2007	Lu et al.
				7,296,722	B2	11/2007	Ivanko
				7,296,724	B2	11/2007	Green et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,297,149	B2	11/2007	Vitali et al.	7,398,907	B2	7/2008	Racenet et al.
7,300,373	B2	11/2007	Jinno et al.	7,398,908	B2	7/2008	Holsten et al.
7,300,450	B2	11/2007	Vleugels et al.	7,400,107	B2	7/2008	Schneider et al.
7,303,106	B2	12/2007	Milliman et al.	7,400,752	B2	7/2008	Zacharias
7,303,107	B2	12/2007	Milliman et al.	7,401,000	B2	7/2008	Nakamura
7,303,108	B2	12/2007	Shelton, IV	7,401,721	B2	7/2008	Holsten et al.
7,303,502	B2	12/2007	Thompson	7,404,449	B2	7/2008	Birmingham et al.
7,303,556	B2	12/2007	Metzger	7,404,508	B2	7/2008	Smith et al.
7,306,597	B2	12/2007	Manzo	7,404,509	B2	7/2008	Ortiz et al.
7,308,998	B2	12/2007	Mastri et al.	7,404,822	B2	7/2008	Viart et al.
7,311,238	B2	12/2007	Liu	7,407,074	B2	8/2008	Ortiz et al.
7,313,430	B2	12/2007	Urquhart et al.	7,407,075	B2	8/2008	Holsten et al.
7,314,473	B2	1/2008	Jinno et al.	7,407,076	B2	8/2008	Racenet et al.
7,322,859	B2	1/2008	Evans	7,407,077	B2	8/2008	Ortiz et al.
7,322,975	B2	1/2008	Goble et al.	7,407,078	B2	8/2008	Shelton, IV et al.
7,322,994	B2	1/2008	Nicholas et al.	7,408,310	B2	8/2008	Hong et al.
7,324,572	B2	1/2008	Chang	7,410,085	B2	8/2008	Wolf et al.
7,326,203	B2	2/2008	Papineau et al.	7,410,086	B2	8/2008	Ortiz et al.
7,326,213	B2	2/2008	Benderev et al.	7,410,483	B2	8/2008	Danitz et al.
7,328,828	B2	2/2008	Ortiz et al.	7,413,563	B2	8/2008	Corcoran et al.
7,328,829	B2	2/2008	Arad et al.	7,416,101	B2	8/2008	Shelton, IV et al.
7,330,004	B2	2/2008	DeJonge et al.	7,418,078	B2	8/2008	Blanz et al.
7,331,340	B2	2/2008	Barney	RE40,514	E	9/2008	Mastri et al.
7,331,343	B2	2/2008	Schmidt et al.	7,419,080	B2	9/2008	Smith et al.
7,331,403	B2	2/2008	Berry et al.	7,419,081	B2	9/2008	Ehrenfels et al.
7,331,406	B2	2/2008	Wottreng, Jr. et al.	7,419,321	B2	9/2008	Tereschouk
7,331,969	B1	2/2008	Ingnas et al.	7,419,495	B2	9/2008	Menn et al.
7,334,717	B2	2/2008	Rethy et al.	7,422,136	B1	9/2008	Marczyk
7,334,718	B2	2/2008	McAlister et al.	7,422,138	B2	9/2008	Bilotti et al.
7,335,199	B2	2/2008	Goble et al.	7,422,139	B2	9/2008	Shelton, IV et al.
7,336,045	B2	2/2008	Clermonts	7,424,965	B2	9/2008	Racenet et al.
7,336,048	B2	2/2008	Lohr	7,427,607	B2	9/2008	Suzuki
7,336,184	B2	2/2008	Smith et al.	D578,644	S	10/2008	Shumer et al.
7,337,774	B2	3/2008	Webb	7,430,772	B2	10/2008	Van Es
7,338,505	B2	3/2008	Belson	7,431,188	B1	10/2008	Marczyk
7,338,513	B2	3/2008	Lee et al.	7,431,189	B2	10/2008	Shelton, IV et al.
7,341,555	B2	3/2008	Ootawara et al.	7,431,230	B2	10/2008	McPherson et al.
7,341,591	B2	3/2008	Grinberg	7,431,694	B2	10/2008	Stefanchik et al.
7,343,920	B2	3/2008	Toby et al.	7,431,730	B2	10/2008	Viola
7,344,532	B2	3/2008	Goble et al.	7,434,715	B2	10/2008	Shelton, IV et al.
7,344,533	B2	3/2008	Pearson et al.	7,434,717	B2	10/2008	Shelton, IV et al.
7,346,344	B2	3/2008	Fontaine	7,435,249	B2	10/2008	Buyse et al.
7,346,406	B2	3/2008	Brotto et al.	7,438,209	B1	10/2008	Hess et al.
7,348,763	B1	3/2008	Reinhart et al.	7,438,718	B2	10/2008	Milliman et al.
7,348,875	B2	3/2008	Hughes et al.	7,439,354	B2	10/2008	Lenges et al.
RE40,237	E	4/2008	Bilotti et al.	7,441,684	B2	10/2008	Shelton, IV et al.
7,351,258	B2	4/2008	Ricotta et al.	7,441,685	B1	10/2008	Boudreaux
7,354,447	B2	4/2008	Shelton, IV et al.	7,442,201	B2	10/2008	Pugsley et al.
7,354,502	B2	4/2008	Polat et al.	7,443,547	B2	10/2008	Moreno et al.
7,357,287	B2	4/2008	Shelton, IV et al.	7,448,525	B2	11/2008	Shelton, IV et al.
7,357,806	B2	4/2008	Rivera et al.	7,450,010	B1	11/2008	Gravelle et al.
7,361,168	B2	4/2008	Makower et al.	7,451,904	B2	11/2008	Shelton, IV
7,361,195	B2	4/2008	Schwartz et al.	7,455,208	B2	11/2008	Wales et al.
7,362,062	B2	4/2008	Schneider et al.	7,455,676	B2	11/2008	Holsten et al.
7,364,060	B2	4/2008	Milliman	7,455,682	B2	11/2008	Viola
7,364,061	B2	4/2008	Swayze et al.	7,461,767	B2	12/2008	Viola et al.
7,368,124	B2	5/2008	Chun et al.	7,462,187	B2	12/2008	Johnston et al.
7,371,210	B2	5/2008	Brock et al.	7,464,845	B2	12/2008	Chou
7,371,403	B2	5/2008	McCarthy et al.	7,464,846	B2	12/2008	Shelton, IV et al.
7,377,918	B2	5/2008	Amoah	7,464,847	B2	12/2008	Viola et al.
7,377,928	B2	5/2008	Zubik et al.	7,464,848	B2	12/2008	Green et al.
RE40,388	E	6/2008	Gines	7,464,849	B2	12/2008	Shelton, IV et al.
7,380,695	B2	6/2008	Doll et al.	7,467,740	B2	12/2008	Shelton, IV et al.
7,380,696	B2	6/2008	Shelton, IV et al.	7,467,849	B2	12/2008	Silverbrook et al.
7,384,403	B2	6/2008	Sherman	7,472,814	B2	1/2009	Mastri et al.
7,384,417	B2	6/2008	Cucin	7,472,815	B2	1/2009	Shelton, IV et al.
7,386,365	B2	6/2008	Nixon	7,472,816	B2	1/2009	Holsten et al.
7,386,730	B2	6/2008	Uchikubo	7,473,221	B2	1/2009	Ewers et al.
7,388,217	B2	6/2008	Buschbeck et al.	7,473,253	B2	1/2009	Dycus et al.
7,388,484	B2	6/2008	Hsu	7,473,263	B2	1/2009	Johnston et al.
7,391,173	B2	6/2008	Schena	7,476,237	B2	1/2009	Taniguchi et al.
7,394,190	B2	7/2008	Huang	7,479,608	B2	1/2009	Smith
7,396,356	B2	7/2008	Mollenauer	7,481,347	B2	1/2009	Roy
7,397,364	B2	7/2008	Govari	7,481,348	B2	1/2009	Marczyk
7,398,707	B2	7/2008	Morley et al.	7,481,349	B2	1/2009	Holsten et al.
				7,481,824	B2	1/2009	Boudreaux et al.
				7,485,124	B2	2/2009	Kuhns et al.
				7,485,133	B2	2/2009	Cannon et al.
				7,485,142	B2	2/2009	Milo

(56)

References Cited

U.S. PATENT DOCUMENTS

7,487,899	B2	2/2009	Shelton, IV et al.	7,604,668	B2	10/2009	Farnsworth et al.
7,489,055	B2	2/2009	Jeong et al.	7,607,557	B2	10/2009	Shelton, IV et al.
7,490,749	B2	2/2009	Schall et al.	7,611,038	B2	11/2009	Racenet et al.
7,491,232	B2	2/2009	Bolduc et al.	7,611,474	B2	11/2009	Hibner et al.
7,494,039	B2	2/2009	Racenet et al.	7,615,003	B2	11/2009	Stefanchik et al.
7,494,499	B2	2/2009	Nagase et al.	7,615,067	B2	11/2009	Lee et al.
7,494,501	B2	2/2009	Ahlberg et al.	7,617,961	B2	11/2009	Viola
7,500,979	B2	3/2009	Hueil et al.	D605,201	S	12/2009	Lorenz et al.
7,501,198	B2	3/2009	Barley et al.	7,624,902	B2	12/2009	Marczyk et al.
7,503,474	B2	3/2009	Hillstead et al.	7,624,903	B2	12/2009	Green et al.
7,506,790	B2	3/2009	Shelton, IV	7,625,370	B2	12/2009	Hart et al.
7,506,791	B2	3/2009	Omaits et al.	7,630,841	B2	12/2009	Comisky et al.
7,507,202	B2	3/2009	Schoellhorn	7,631,793	B2	12/2009	Rethy et al.
7,510,107	B2	3/2009	Timm et al.	7,631,794	B2	12/2009	Rethy et al.
7,510,534	B2	3/2009	Burdorff et al.	7,635,074	B2	12/2009	Olson et al.
7,510,566	B2	3/2009	Jacobs et al.	7,635,922	B2	12/2009	Becker
7,513,407	B1	4/2009	Chang	7,637,409	B2	12/2009	Marczyk
7,513,408	B2	4/2009	Shelton, IV et al.	7,637,410	B2	12/2009	Marczyk
7,517,356	B2	4/2009	Heinrich	7,638,958	B2	12/2009	Philipp et al.
7,524,320	B2	4/2009	Tierney et al.	7,641,091	B2	1/2010	Olson et al.
7,527,632	B2	5/2009	Houghton et al.	7,641,092	B2	1/2010	Kruszynski et al.
7,530,984	B2	5/2009	Sonnenschein et al.	7,641,093	B2	1/2010	Doll et al.
7,530,985	B2	5/2009	Takemoto et al.	7,641,095	B2	1/2010	Viola
7,533,906	B2	5/2009	Luetngen et al.	7,641,671	B2	1/2010	Crainich
7,534,259	B2	5/2009	Lashinski et al.	7,644,783	B2	1/2010	Roberts et al.
7,540,867	B2	6/2009	Jinno et al.	7,644,848	B2	1/2010	Swayze et al.
7,542,807	B2	6/2009	Bertolero et al.	7,645,230	B2	1/2010	Mikkaichi et al.
7,543,730	B1	6/2009	Marczyk	7,648,457	B2	1/2010	Stefanchik et al.
7,546,939	B2	6/2009	Adams et al.	7,648,519	B2	1/2010	Lee et al.
7,546,940	B2	6/2009	Milliman et al.	7,650,185	B2	1/2010	Maile et al.
7,547,312	B2	6/2009	Bauman et al.	7,651,017	B2	1/2010	Ortiz et al.
7,549,563	B2	6/2009	Mather et al.	7,651,498	B2	1/2010	Shifrin et al.
7,549,564	B2	6/2009	Boudreaux	7,654,431	B2	2/2010	Hueil et al.
7,549,998	B2	6/2009	Braun	7,655,004	B2	2/2010	Long
7,552,854	B2	6/2009	Wixey et al.	7,655,288	B2	2/2010	Bauman et al.
7,553,173	B2	6/2009	Kowalick	7,655,584	B2	2/2010	Biran et al.
7,553,275	B2	6/2009	Padget et al.	7,656,131	B2	2/2010	Embrey et al.
7,554,343	B2	6/2009	Bromfield	7,658,311	B2	2/2010	Boudreaux
7,556,185	B2	7/2009	Viola	7,658,312	B2	2/2010	Vidal et al.
7,556,186	B2	7/2009	Milliman	7,658,705	B2	2/2010	Melvin et al.
7,556,647	B2	7/2009	Drews et al.	7,659,219	B2	2/2010	Biran et al.
7,559,449	B2	7/2009	Viola	7,661,448	B2	2/2010	Kim et al.
7,559,450	B2	7/2009	Wales et al.	7,662,161	B2	2/2010	Briganti et al.
7,559,452	B2	7/2009	Wales et al.	7,665,646	B2	2/2010	Prommersberger
7,559,937	B2	7/2009	de la Torre et al.	7,665,647	B2	2/2010	Shelton, IV et al.
7,561,637	B2	7/2009	Jonsson et al.	7,669,746	B2	3/2010	Shelton, IV
7,562,910	B2	7/2009	Kertesz et al.	7,669,747	B2	3/2010	Weisenburgh, II et al.
7,563,269	B2	7/2009	Hashiguchi	7,670,334	B2	3/2010	Hueil et al.
7,563,862	B2	7/2009	Sieg et al.	7,673,780	B2	3/2010	Shelton, IV et al.
7,565,993	B2	7/2009	Milliman et al.	7,673,781	B2	3/2010	Swayze et al.
7,566,300	B2	7/2009	Devierre et al.	7,673,782	B2	3/2010	Hess et al.
7,567,045	B2	7/2009	Fristedt	7,673,783	B2	3/2010	Morgan et al.
7,568,603	B2	8/2009	Shelton, IV et al.	7,674,253	B2	3/2010	Fisher et al.
7,568,604	B2	8/2009	Ehrenfels et al.	7,674,255	B2	3/2010	Braun
7,568,619	B2	8/2009	Todd et al.	7,674,263	B2	3/2010	Ryan
7,575,144	B2	8/2009	Ortiz et al.	7,674,270	B2	3/2010	Layer
7,578,825	B2	8/2009	Huebner	7,682,307	B2	3/2010	Danitz et al.
7,583,063	B2	9/2009	Dooley	7,682,367	B2	3/2010	Shah et al.
7,584,880	B2	9/2009	Racenet et al.	7,682,686	B2	3/2010	Curro et al.
7,586,289	B2	9/2009	Andruk et al.	7,686,201	B2	3/2010	Csiky
7,588,174	B2	9/2009	Holsten et al.	7,686,804	B2	3/2010	Johnson et al.
7,588,175	B2	9/2009	Timm et al.	7,686,826	B2	3/2010	Lee et al.
7,588,176	B2	9/2009	Timm et al.	7,688,028	B2	3/2010	Phillips et al.
7,588,177	B2	9/2009	Racenet	7,691,098	B2	4/2010	Wallace et al.
7,591,783	B2	9/2009	Boulais et al.	7,691,103	B2	4/2010	Fernandez et al.
7,591,818	B2	9/2009	Bertolero et al.	7,691,106	B2	4/2010	Schenberger et al.
7,593,766	B2	9/2009	Faber et al.	7,694,864	B2	4/2010	Okada et al.
7,597,229	B2	10/2009	Boudreaux et al.	7,694,865	B2	4/2010	Scirica
7,597,230	B2	10/2009	Racenet et al.	7,695,485	B2	4/2010	Whitman et al.
7,597,693	B2	10/2009	Garrison	7,699,204	B2	4/2010	Viola
7,597,699	B2	10/2009	Rogers	7,699,835	B2	4/2010	Lee et al.
7,598,972	B2	10/2009	Tomita	7,699,844	B2	4/2010	Utley et al.
7,600,663	B2	10/2009	Green	7,699,846	B2	4/2010	Ryan
7,604,150	B2	10/2009	Boudreaux	7,699,856	B2	4/2010	Van Wyk et al.
7,604,151	B2	10/2009	Hess et al.	7,699,859	B2	4/2010	Bombard et al.
				7,699,860	B2	4/2010	Huitema et al.
				7,699,868	B2	4/2010	Frank et al.
				7,703,653	B2	4/2010	Shah et al.
				7,705,559	B2	4/2010	Powell et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,708,180	B2	5/2010	Murray et al.	7,776,065	B2	8/2010	Griffiths et al.
7,708,181	B2	5/2010	Cole et al.	7,778,004	B2	8/2010	Nerheim et al.
7,708,182	B2	5/2010	Viola	7,779,737	B2	8/2010	Newman, Jr. et al.
7,708,758	B2	5/2010	Lee et al.	7,780,054	B2	8/2010	Wales
7,712,182	B2	5/2010	Zeiler et al.	7,780,055	B2	8/2010	Scirica et al.
7,713,190	B2	5/2010	Brock et al.	7,780,309	B2	8/2010	McMillan et al.
7,714,239	B2	5/2010	Smith	7,780,663	B2	8/2010	Yates et al.
7,714,334	B2	5/2010	Lin	7,780,685	B2	8/2010	Hunt et al.
7,717,312	B2	5/2010	Beetel	7,784,662	B2	8/2010	Wales et al.
7,717,313	B2	5/2010	Criscuolo et al.	7,784,663	B2	8/2010	Shelton, IV
7,717,846	B2	5/2010	Zirps et al.	7,787,256	B2	8/2010	Chan et al.
7,717,873	B2	5/2010	Swick	7,789,283	B2	9/2010	Shah
7,717,915	B2	5/2010	Miyazawa	7,789,875	B2	9/2010	Brock et al.
7,717,926	B2	5/2010	Whitfield et al.	7,789,883	B2	9/2010	Takashino et al.
7,718,180	B2	5/2010	Karp	7,789,889	B2	9/2010	Zubik et al.
7,718,556	B2	5/2010	Matsuda et al.	7,793,812	B2	9/2010	Moore et al.
7,721,930	B2	5/2010	McKenna et al.	7,794,475	B2	9/2010	Hess et al.
7,721,931	B2	5/2010	Shelton, IV et al.	7,798,386	B2	9/2010	Schall et al.
7,721,933	B2	5/2010	Ehrenfels et al.	7,799,039	B2	9/2010	Shelton, IV et al.
7,721,934	B2	5/2010	Shelton, IV et al.	7,799,044	B2	9/2010	Johnston et al.
7,721,936	B2	5/2010	Shalton, IV et al.	7,799,965	B2	9/2010	Patel et al.
7,722,527	B2	5/2010	Bouchier et al.	7,803,151	B2	9/2010	Whitman
7,722,607	B2	5/2010	Dumbauld et al.	7,806,871	B2	10/2010	Li et al.
7,722,610	B2	5/2010	Viola et al.	7,806,891	B2	10/2010	Nowlin et al.
7,725,214	B2	5/2010	Diolaiti	7,810,690	B2	10/2010	Bilotti et al.
7,726,171	B2	6/2010	Langlotz et al.	7,810,691	B2	10/2010	Boyden et al.
7,726,537	B2	6/2010	Olson et al.	7,810,692	B2	10/2010	Hall et al.
7,726,538	B2	6/2010	Holsten et al.	7,810,693	B2	10/2010	Broehl et al.
7,726,539	B2	6/2010	Holsten et al.	7,811,275	B2	10/2010	Birk et al.
7,727,954	B2	6/2010	McKay	7,814,816	B2	10/2010	Alberti et al.
7,728,553	B2	6/2010	Carrier et al.	7,815,092	B2	10/2010	Whitman et al.
7,729,742	B2	6/2010	Govari	7,815,565	B2	10/2010	Stefanchik et al.
7,731,072	B2	6/2010	Timm et al.	7,815,662	B2	10/2010	Spivey et al.
7,731,073	B2	6/2010	Wixey et al.	7,819,296	B2	10/2010	Hueil et al.
7,731,724	B2	6/2010	Huitema et al.	7,819,297	B2	10/2010	Doll et al.
7,735,703	B2	6/2010	Morgan et al.	7,819,298	B2	10/2010	Hall et al.
7,736,254	B2	6/2010	Schena	7,819,299	B2	10/2010	Shelton, IV et al.
7,736,306	B2	6/2010	Brustad et al.	7,819,799	B2	10/2010	Merril et al.
7,736,374	B2	6/2010	Vaughan et al.	7,819,884	B2	10/2010	Lee et al.
7,738,971	B2	6/2010	Swayze et al.	7,819,886	B2	10/2010	Whitfield et al.
7,740,159	B2	6/2010	Shelton, IV et al.	7,823,592	B2	11/2010	Bettuchi et al.
7,742,036	B2	6/2010	Grant et al.	7,823,760	B2	11/2010	Zemlok et al.
7,743,960	B2	6/2010	Whitman et al.	7,824,401	B2	11/2010	Manzo et al.
7,744,624	B2	6/2010	Bettuchi	7,824,422	B2	11/2010	Benchetrit
7,744,627	B2	6/2010	Orban et al.	7,824,426	B2	11/2010	Racenet et al.
7,744,628	B2	6/2010	Viola	7,828,189	B2	11/2010	Holsten et al.
7,747,146	B2	6/2010	Milano et al.	7,828,794	B2	11/2010	Sartor
7,748,587	B2	7/2010	Haramiishi et al.	7,828,808	B2	11/2010	Hinman et al.
7,748,632	B2	7/2010	Coleman et al.	7,831,292	B2	11/2010	Quaid et al.
7,749,204	B2	7/2010	Dhanaraj et al.	7,832,408	B2	11/2010	Shelton, IV et al.
7,751,870	B2	7/2010	Whitman	7,832,611	B2	11/2010	Boyden et al.
7,753,245	B2	7/2010	Boudreaux et al.	7,832,612	B2	11/2010	Baxter, III et al.
7,753,246	B2	7/2010	Scirica	7,833,234	B2	11/2010	Bailly et al.
7,753,904	B2	7/2010	Shelton, IV et al.	7,835,823	B2	11/2010	Sillman et al.
7,757,924	B2	7/2010	Gerbi et al.	7,836,400	B2	11/2010	May et al.
7,758,594	B2	7/2010	Lamson et al.	7,837,079	B2	11/2010	Holsten et al.
7,758,612	B2	7/2010	Shipp	7,837,080	B2	11/2010	Schwemberger
7,762,462	B2	7/2010	Gelbman	7,837,081	B2	11/2010	Holsten et al.
7,762,998	B2	7/2010	Birk et al.	7,837,425	B2	11/2010	Saeki et al.
7,766,207	B2	8/2010	Mather et al.	7,837,685	B2	11/2010	Weinberg et al.
7,766,209	B2	8/2010	Baxter, III et al.	7,837,694	B2	11/2010	Tethrake et al.
7,766,210	B2	8/2010	Shelton, IV et al.	7,838,789	B2	11/2010	Stoffers et al.
7,766,821	B2	8/2010	Brunnen et al.	7,839,109	B2	11/2010	Carmen, Jr. et al.
7,766,894	B2	8/2010	Weitzner et al.	7,841,503	B2	11/2010	Sonnenschein et al.
7,770,658	B2	8/2010	Ito et al.	7,842,025	B2	11/2010	Coleman et al.
7,770,773	B2	8/2010	Whitman et al.	7,842,028	B2	11/2010	Lee
7,770,774	B2	8/2010	Mastri et al.	7,843,158	B2	11/2010	Prisco
7,770,775	B2	8/2010	Shelton, IV et al.	7,845,533	B2	12/2010	Marczyk et al.
7,770,776	B2	8/2010	Chen et al.	7,845,534	B2	12/2010	Viola et al.
7,771,396	B2	8/2010	Stefanchik et al.	7,845,535	B2	12/2010	Scircia
7,772,720	B2	8/2010	McGee et al.	7,845,536	B2	12/2010	Viola et al.
7,772,725	B2	8/2010	Siman-Tov	7,845,537	B2	12/2010	Shelton, IV et al.
7,775,972	B2	8/2010	Brock et al.	7,846,085	B2	12/2010	Silverman et al.
7,776,037	B2	8/2010	Odom	7,846,149	B2	12/2010	Jankowski
7,776,060	B2	8/2010	Mooradian et al.	7,848,066	B2	12/2010	Yanagishima
				7,850,623	B2	12/2010	Griffin et al.
				7,850,642	B2	12/2010	Moll et al.
				7,850,982	B2	12/2010	Stopek et al.
				7,854,735	B2	12/2010	Houser et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

7,854,736	B2	12/2010	Ryan	7,931,695	B2	4/2011	Ringeisen
7,857,183	B2	12/2010	Shelton, IV	7,931,877	B2	4/2011	Steffens et al.
7,857,184	B2	12/2010	Viola	7,934,630	B2	5/2011	Shelton, IV et al.
7,857,185	B2	12/2010	Swayze et al.	7,934,631	B2	5/2011	Balbierz et al.
7,857,186	B2	12/2010	Baxter, III et al.	7,934,896	B2	5/2011	Schnier
7,857,813	B2	12/2010	Schmitz et al.	7,935,773	B2	5/2011	Hadba et al.
7,861,906	B2	1/2011	Doll et al.	7,936,142	B2	5/2011	Otsuka et al.
7,862,502	B2	1/2011	Pool et al.	7,938,307	B2	5/2011	Bettuchi
7,862,546	B2	1/2011	Conlon et al.	7,941,865	B2	5/2011	Seman, Jr. et al.
7,862,579	B2	1/2011	Ortiz et al.	7,942,303	B2	5/2011	Shah
7,866,525	B2	1/2011	Scirica	7,942,890	B2	5/2011	D'Agostino et al.
7,866,527	B2	1/2011	Hall et al.	7,944,175	B2	5/2011	Mori et al.
7,866,528	B2	1/2011	Olson et al.	7,945,792	B2	5/2011	Cherpantier
7,870,989	B2	1/2011	Viola et al.	7,945,798	B2	5/2011	Carlson et al.
7,871,418	B2	1/2011	Thompson et al.	7,946,453	B2	5/2011	Voegele et al.
7,871,440	B2	1/2011	Schwartz et al.	7,947,011	B2	5/2011	Birk et al.
7,875,055	B2	1/2011	Cichocki, Jr.	7,950,560	B2	5/2011	Zemlok et al.
7,879,063	B2	2/2011	Khosravi	7,950,561	B2	5/2011	Aranyi
7,879,070	B2	2/2011	Ortiz et al.	7,951,071	B2	5/2011	Whitman et al.
7,883,461	B2	2/2011	Albrecht et al.	7,951,166	B2	5/2011	Orban, III et al.
7,883,465	B2	2/2011	Donofrio et al.	7,954,682	B2	6/2011	Giordano et al.
7,886,951	B2	2/2011	Hessler	7,954,684	B2	6/2011	Boudreaux
7,886,952	B2	2/2011	Scirica et al.	7,954,685	B2	6/2011	Viola
7,887,530	B2	2/2011	Zemlok et al.	7,954,686	B2	6/2011	Baxter, III et al.
7,887,535	B2	2/2011	Lands et al.	7,954,687	B2	6/2011	Zemlok et al.
7,887,536	B2	2/2011	Johnson et al.	7,955,253	B2	6/2011	Ewers et al.
7,887,563	B2	2/2011	Cummins	7,955,257	B2	6/2011	Frasier et al.
7,891,531	B1	2/2011	Ward	7,955,322	B2	6/2011	Devengenzo et al.
7,891,532	B2	2/2011	Mastri et al.	7,955,327	B2	6/2011	Sartor et al.
7,892,200	B2	2/2011	Birk et al.	7,955,380	B2	6/2011	Chu et al.
7,892,245	B2	2/2011	Liddicoat et al.	7,959,050	B2	6/2011	Smith et al.
7,893,586	B2	2/2011	West et al.	7,959,051	B2	6/2011	Smith et al.
7,896,214	B2	3/2011	Farascioni	7,959,052	B2	6/2011	Sonnenschein et al.
7,896,215	B2	3/2011	Adams et al.	7,963,432	B2	6/2011	Knodel et al.
7,896,869	B2	3/2011	DiSilvestro et al.	7,963,433	B2	6/2011	Whitman et al.
7,896,877	B2	3/2011	Hall et al.	7,963,913	B2	6/2011	Devengenzo et al.
7,896,895	B2	3/2011	Boudreaux et al.	7,963,963	B2	6/2011	Francischelli et al.
7,896,897	B2	3/2011	Gresham et al.	7,963,964	B2	6/2011	Santilli et al.
7,898,198	B2	3/2011	Murphree	7,964,206	B2	6/2011	Suokas et al.
7,900,805	B2	3/2011	Shelton, IV et al.	7,966,236	B2	6/2011	Noriega et al.
7,900,806	B2	3/2011	Chen et al.	7,966,269	B2	6/2011	Bauer et al.
7,901,381	B2	3/2011	Birk et al.	7,966,799	B2	6/2011	Morgan et al.
7,905,380	B2	3/2011	Shelton, IV et al.	7,967,178	B2	6/2011	Scirica et al.
7,905,381	B2	3/2011	Baxter, III et al.	7,967,179	B2	6/2011	Olson et al.
7,905,881	B2	3/2011	Masuda et al.	7,967,180	B2	6/2011	Scirica
7,905,889	B2	3/2011	Catanese, III et al.	7,967,181	B2	6/2011	Viola et al.
7,905,890	B2	3/2011	Whitfield et al.	7,967,791	B2	6/2011	Franer et al.
7,905,902	B2	3/2011	Huitema et al.	7,967,839	B2	6/2011	Flock et al.
7,909,039	B2	3/2011	Hur	7,972,298	B2	7/2011	Wallace et al.
7,909,191	B2	3/2011	Baker et al.	7,972,315	B2	7/2011	Birk et al.
7,909,220	B2	3/2011	Viola	7,976,213	B2	7/2011	Bertolotti et al.
7,909,221	B2	3/2011	Viola et al.	7,976,563	B2	7/2011	Summerer
7,909,224	B2	3/2011	Prommersberger	7,979,137	B2	7/2011	Tracey et al.
7,913,891	B2	3/2011	Doll et al.	7,980,443	B2	7/2011	Scheib et al.
7,913,893	B2	3/2011	Mastri et al.	7,981,132	B2	7/2011	Dubrul et al.
7,914,521	B2	3/2011	Wang et al.	7,987,405	B2	7/2011	Turner et al.
7,914,543	B2	3/2011	Roth et al.	7,988,015	B2	8/2011	Mason, II et al.
7,914,551	B2	3/2011	Ortiz et al.	7,988,026	B2	8/2011	Knodel et al.
7,918,230	B2	4/2011	Whitman et al.	7,988,027	B2	8/2011	Olson et al.
7,918,376	B1	4/2011	Knodel et al.	7,988,028	B2	8/2011	Farascioni et al.
7,918,377	B2	4/2011	Measamer et al.	7,988,779	B2	8/2011	Disalvo et al.
7,918,845	B2	4/2011	Saadat et al.	7,992,757	B2	8/2011	Wheeler et al.
7,918,848	B2	4/2011	Lau et al.	7,993,360	B2	8/2011	Hacker et al.
7,918,861	B2	4/2011	Brock et al.	7,994,670	B2	8/2011	Ji
7,918,867	B2	4/2011	Dana et al.	7,997,054	B2	8/2011	Bertsch et al.
7,922,061	B2	4/2011	Shelton, IV et al.	7,997,468	B2	8/2011	Farascioni
7,922,063	B2	4/2011	Zemlok et al.	7,997,469	B2	8/2011	Olson et al.
7,922,743	B2	4/2011	Heinrich et al.	8,002,696	B2	8/2011	Suzuki
7,923,144	B2	4/2011	Kohn et al.	8,002,784	B2	8/2011	Jinno et al.
7,926,691	B2	4/2011	Viola et al.	8,002,785	B2	8/2011	Weiss et al.
7,927,328	B2	4/2011	Orszulak et al.	8,002,795	B2	8/2011	Beetel
7,928,281	B2	4/2011	Augustine	8,006,365	B2	8/2011	Levin et al.
7,930,040	B1	4/2011	Kelsch et al.	8,006,885	B2	8/2011	Marczyk
7,930,065	B2	4/2011	Larkin et al.	8,006,889	B2	8/2011	Adams et al.
7,931,660	B2	4/2011	Aranyi et al.	8,007,370	B2	8/2011	Hirsch et al.
				8,007,465	B2	8/2011	Birk et al.
				8,007,479	B2	8/2011	Birk et al.
				8,007,511	B2	8/2011	Brock et al.
				8,007,513	B2	8/2011	Nalagatla et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,011,550 B2	9/2011	Aranyi et al.	8,087,563 B2	1/2012	Milliman et al.
8,011,551 B2	9/2011	Marczyk et al.	8,089,509 B2	1/2012	Chatenever et al.
8,011,553 B2	9/2011	Mastri et al.	8,091,753 B2	1/2012	Viola
8,011,555 B2	9/2011	Tarinelli et al.	8,091,756 B2	1/2012	Viola
8,012,170 B2	9/2011	Whitman et al.	8,092,443 B2	1/2012	Bischoff
8,016,176 B2	9/2011	Kasvikis et al.	8,092,932 B2	1/2012	Phillips et al.
8,016,177 B2	9/2011	Bettuchi et al.	8,093,572 B2	1/2012	Kuduvalli
8,016,178 B2	9/2011	Olson et al.	8,096,458 B2	1/2012	Hessler
8,016,849 B2	9/2011	Wenchell	8,097,017 B2	1/2012	Viola
8,016,855 B2	9/2011	Whitman et al.	8,100,310 B2	1/2012	Zemlok
8,016,858 B2	9/2011	Whitman	8,100,824 B2	1/2012	Hegeman et al.
8,016,881 B2	9/2011	Furst	8,100,872 B2	1/2012	Patel
8,020,742 B2	9/2011	Marczyk	8,102,138 B2	1/2012	Sekine et al.
8,020,743 B2	9/2011	Shelton, IV	8,102,278 B2	1/2012	Deck et al.
8,021,375 B2	9/2011	Aldrich et al.	8,105,350 B2	1/2012	Lee et al.
8,025,199 B2	9/2011	Whitman et al.	8,107,925 B2	1/2012	Natsuno et al.
8,025,896 B2	9/2011	Malaviya et al.	8,108,033 B2	1/2012	Drew et al.
8,028,882 B2	10/2011	Viola	8,108,072 B2	1/2012	Zhao et al.
8,028,883 B2	10/2011	Stopek	8,109,426 B2	2/2012	Milliman et al.
8,028,884 B2	10/2011	Sniffin et al.	8,110,208 B1	2/2012	Hen
8,028,885 B2	10/2011	Smith et al.	8,113,405 B2	2/2012	Milliman
8,029,510 B2	10/2011	Hoerle	8,113,408 B2	2/2012	Wenchell et al.
8,031,069 B2	10/2011	Cohn et al.	8,113,410 B2	2/2012	Hall et al.
8,033,438 B2	10/2011	Scirica	8,114,017 B2	2/2012	Bacher
8,033,439 B2	10/2011	Racenet et al.	8,114,100 B2	2/2012	Smith et al.
8,033,440 B2	10/2011	Wenchell et al.	8,118,206 B2	2/2012	Zand et al.
8,034,077 B2	10/2011	Smith et al.	8,118,207 B2	2/2012	Racenet et al.
8,034,337 B2	10/2011	Simard	8,120,301 B2	2/2012	Goldberg et al.
8,034,363 B2	10/2011	Li et al.	8,122,128 B2	2/2012	Burke, II et al.
8,035,487 B2	10/2011	Malackowski	8,123,103 B2	2/2012	Milliman
8,037,591 B2	10/2011	Spivey et al.	8,123,523 B2	2/2012	Carron et al.
8,038,045 B2	10/2011	Bettuchi et al.	8,123,766 B2	2/2012	Bauman et al.
8,038,046 B2	10/2011	Smith et al.	8,123,767 B2	2/2012	Bauman et al.
8,038,686 B2	10/2011	Huitema et al.	8,125,168 B2	2/2012	Johnson et al.
8,043,207 B2	10/2011	Adams	8,127,975 B2	3/2012	Olson et al.
8,043,328 B2	10/2011	Hahnen et al.	8,127,976 B2	3/2012	Scirica et al.
8,044,536 B2	10/2011	Nguyen et al.	8,128,624 B2	3/2012	Couture et al.
8,044,604 B2	10/2011	Hagino et al.	8,128,643 B2	3/2012	Aranyi et al.
8,047,236 B2	11/2011	Perry	8,128,645 B2	3/2012	Sonnenschein et al.
8,048,503 B2	11/2011	Farnsworth et al.	8,128,662 B2	3/2012	Altarac et al.
8,052,636 B2	11/2011	Moll et al.	8,132,703 B2	3/2012	Milliman et al.
8,056,787 B2	11/2011	Boudreaux et al.	8,132,705 B2	3/2012	Viola et al.
8,056,788 B2	11/2011	Mastri et al.	8,132,706 B2	3/2012	Marczyk et al.
8,056,789 B1	11/2011	White et al.	8,134,306 B2	3/2012	Drader et al.
8,057,508 B2	11/2011	Shelton, IV	8,136,711 B2	3/2012	Beardsley et al.
8,058,771 B2	11/2011	Giordano et al.	8,136,712 B2	3/2012	Zingman
8,060,250 B2	11/2011	Reiland et al.	8,136,713 B2	3/2012	Hathaway et al.
8,061,014 B2	11/2011	Smith et al.	8,137,339 B2	3/2012	Jinno et al.
8,061,576 B2	11/2011	Cappola	8,140,417 B2	3/2012	Shibata
8,062,236 B2	11/2011	Soltz	8,141,762 B2	3/2012	Bedi et al.
8,062,330 B2	11/2011	Prommersberger et al.	8,141,763 B2	3/2012	Milliman
8,063,619 B2	11/2011	Zhu et al.	8,142,200 B2	3/2012	Crunkilton et al.
8,066,158 B2	11/2011	Vogel et al.	8,142,425 B2	3/2012	Eggers
8,066,166 B2	11/2011	Demmy et al.	8,142,461 B2	3/2012	Houser et al.
8,066,167 B2	11/2011	Measamer et al.	8,142,515 B2	3/2012	Therin et al.
8,066,168 B2	11/2011	Vidal et al.	8,143,520 B2	3/2012	Cutler
8,066,720 B2	11/2011	Knodel et al.	8,146,790 B2	4/2012	Milliman
D650,074 S	12/2011	Hunt et al.	8,147,421 B2	4/2012	Farquhar et al.
8,070,033 B2	12/2011	Milliman et al.	8,147,456 B2	4/2012	Fisher et al.
8,070,034 B1	12/2011	Knodel	8,147,485 B2	4/2012	Wham et al.
8,070,035 B2	12/2011	Holsten et al.	8,152,041 B2	4/2012	Kostrzewski
8,070,743 B2	12/2011	Kagan et al.	8,152,756 B2	4/2012	Webster et al.
8,074,858 B2	12/2011	Marczyk	8,154,239 B2	4/2012	Katsuki et al.
8,074,861 B2	12/2011	Ehrenfels et al.	8,157,145 B2	4/2012	Shelton, IV et al.
8,075,476 B2	12/2011	Vargas	8,157,148 B2	4/2012	Scirica
8,075,571 B2	12/2011	Vitali et al.	8,157,151 B2	4/2012	Ingmanson et al.
8,079,950 B2	12/2011	Stern et al.	8,157,152 B2	4/2012	Holsten et al.
8,079,989 B2	12/2011	Birk et al.	8,157,153 B2	4/2012	Shelton, IV et al.
8,080,004 B2	12/2011	Downey et al.	8,157,793 B2	4/2012	Omori et al.
8,083,118 B2	12/2011	Milliman et al.	8,161,977 B2	4/2012	Shelton, IV et al.
8,083,119 B2	12/2011	Prommersberger	8,162,138 B2	4/2012	Bettenhausen et al.
8,083,120 B2	12/2011	Shelton, IV et al.	8,162,197 B2	4/2012	Mastri et al.
8,084,001 B2	12/2011	Burns et al.	8,162,668 B2	4/2012	Toly
8,084,969 B2	12/2011	David et al.	8,162,933 B2	4/2012	Francischelli et al.
8,085,013 B2	12/2011	Wei et al.	8,162,965 B2	4/2012	Reschke et al.
			8,167,185 B2	5/2012	Shelton, IV et al.
			8,167,622 B2	5/2012	Zhou
			8,167,895 B2	5/2012	D'Agostino et al.
			8,167,898 B1	5/2012	Schaller et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,170,241	B2	5/2012	Roe et al.	8,246,637	B2	8/2012	Viola et al.
8,172,004	B2	5/2012	Ho	8,256,654	B2	9/2012	Bettuchi et al.
8,172,120	B2	5/2012	Boyden et al.	8,256,655	B2	9/2012	Sniffin et al.
8,172,122	B2	5/2012	Kasvikis et al.	8,256,656	B2	9/2012	Milliman et al.
8,172,124	B2	5/2012	Shelton, IV et al.	8,257,251	B2	9/2012	Shelton, IV et al.
8,177,776	B2	5/2012	Humayun et al.	8,257,356	B2	9/2012	Bleich et al.
8,177,797	B2	5/2012	Shimoji et al.	8,257,386	B2	9/2012	Lee et al.
8,179,705	B2	5/2012	Chapuis	8,257,391	B2	9/2012	Orban, III et al.
8,180,458	B2	5/2012	Kane et al.	8,257,634	B2	9/2012	Scirica
8,181,839	B2	5/2012	Beetel	8,258,745	B2	9/2012	Smith et al.
8,181,840	B2	5/2012	Milliman	8,262,560	B2	9/2012	Whitman
8,182,422	B2	5/2012	Bayer et al.	8,262,655	B2	9/2012	Ghabrial et al.
8,182,444	B2	5/2012	Uber, III et al.	8,267,300	B2	9/2012	Boudreaux
8,183,807	B2	5/2012	Tsai et al.	8,267,924	B2	9/2012	Zemlok et al.
8,186,555	B2	5/2012	Shelton, IV et al.	8,267,946	B2	9/2012	Whitfield et al.
8,186,556	B2	5/2012	Viola	8,267,951	B2	9/2012	Whayne et al.
8,186,558	B2	5/2012	Sapienza	8,269,121	B2	9/2012	Smith
8,186,560	B2	5/2012	Hess et al.	8,272,553	B2	9/2012	Mastri et al.
8,191,752	B2	6/2012	Scirica	8,272,554	B2	9/2012	Whitman et al.
8,192,350	B2	6/2012	Ortiz et al.	8,272,918	B2	9/2012	Lam
8,192,460	B2	6/2012	Orban et al.	8,273,404	B2	9/2012	Dave et al.
8,192,651	B2	6/2012	Young et al.	8,276,801	B2	10/2012	Zemlok et al.
8,196,795	B2	6/2012	Moore et al.	8,276,802	B2	10/2012	Kostrzewski
8,196,796	B2	6/2012	Shelton, IV et al.	8,277,473	B2	10/2012	Sunaoshi et al.
8,197,501	B2	6/2012	Shadeck et al.	8,281,446	B2	10/2012	Moskovich
8,197,502	B2	6/2012	Smith et al.	8,281,973	B2	10/2012	Wenchell et al.
8,197,837	B2	6/2012	Jamiolkowski et al.	8,281,974	B2	10/2012	Hessler et al.
8,201,720	B2	6/2012	Hessler	8,282,654	B2	10/2012	Ferrari et al.
8,201,721	B2	6/2012	Zemlok et al.	8,285,367	B2	10/2012	Hyde et al.
8,202,549	B2	6/2012	Stucky et al.	8,286,723	B2	10/2012	Puzio et al.
8,205,779	B2	6/2012	Ma et al.	8,286,845	B2	10/2012	Perry et al.
8,205,780	B2	6/2012	Sorrentino et al.	8,286,846	B2	10/2012	Smith et al.
8,205,781	B2	6/2012	Baxter, III et al.	8,287,487	B2	10/2012	Estes
8,210,411	B2	7/2012	Yates et al.	8,287,522	B2	10/2012	Moses et al.
8,210,414	B2	7/2012	Bettuchi et al.	8,287,561	B2	10/2012	Nunez et al.
8,210,415	B2	7/2012	Ward	8,292,147	B2	10/2012	Viola
8,210,416	B2	7/2012	Milliman et al.	8,292,148	B2	10/2012	Viola
8,210,721	B2	7/2012	Chen et al.	8,292,150	B2	10/2012	Bryant
8,211,125	B2	7/2012	Spivey	8,292,151	B2	10/2012	Viola
8,214,019	B2	7/2012	Govari et al.	8,292,152	B2	10/2012	Milliman et al.
8,215,531	B2	7/2012	Shelton, IV et al.	8,292,155	B2	10/2012	Shelton, IV et al.
8,215,532	B2	7/2012	Marczyk	8,292,157	B2	10/2012	Smith et al.
8,215,533	B2	7/2012	Viola et al.	8,292,801	B2	10/2012	Dejima et al.
8,220,468	B2	7/2012	Cooper et al.	8,292,888	B2	10/2012	Whitman
8,220,688	B2	7/2012	Laurent et al.	8,298,161	B2	10/2012	Vargas
8,220,690	B2	7/2012	Hess et al.	8,298,189	B2	10/2012	Fisher et al.
8,221,424	B2	7/2012	Cha	8,298,233	B2	10/2012	Mueller
8,225,799	B2	7/2012	Bettuchi	8,298,677	B2	10/2012	Wiesner et al.
8,225,979	B2	7/2012	Farascioni et al.	8,302,323	B2	11/2012	Fortier et al.
8,226,553	B2	7/2012	Shelton, IV et al.	8,308,040	B2	11/2012	Huang et al.
8,226,635	B2	7/2012	Petrie et al.	8,308,041	B2	11/2012	Kostrzewski
8,226,675	B2	7/2012	Houser et al.	8,308,042	B2	11/2012	Aranyi
8,226,715	B2	7/2012	Hwang et al.	8,308,043	B2	11/2012	Bindra et al.
8,227,946	B2	7/2012	Kim	8,308,046	B2	11/2012	Prommersberger
8,228,020	B2	7/2012	Shin et al.	8,308,659	B2	11/2012	Scheibe et al.
8,228,048	B2	7/2012	Spencer	8,308,725	B2	11/2012	Bell et al.
8,229,549	B2	7/2012	Whitman et al.	8,310,188	B2	11/2012	Nakai
8,231,040	B2	7/2012	Zemlok et al.	8,313,496	B2	11/2012	Sauer et al.
8,231,042	B2	7/2012	Hessler et al.	8,313,509	B2	11/2012	Kostrzewski
8,231,043	B2	7/2012	Tarinelli et al.	8,317,070	B2	11/2012	Hueil et al.
8,235,272	B2	8/2012	Nicholas et al.	8,317,071	B1	11/2012	Knodel
8,236,010	B2	8/2012	Ortiz et al.	8,317,074	B2	11/2012	Ortiz et al.
8,236,020	B2	8/2012	Smith et al.	8,317,437	B2	11/2012	Merkley et al.
8,237,388	B2	8/2012	Jinno et al.	8,317,744	B2	11/2012	Kirschenman
8,240,537	B2	8/2012	Marczyk	8,317,790	B2	11/2012	Bell et al.
8,241,271	B2	8/2012	Millman et al.	8,319,002	B2	11/2012	Daniels et al.
8,241,284	B2	8/2012	Dycus et al.	8,322,455	B2	12/2012	Shelton, IV et al.
8,241,308	B2	8/2012	Kortenbach et al.	8,322,589	B2	12/2012	Boudreaux
8,241,322	B2	8/2012	Whitman et al.	8,322,590	B2	12/2012	Patel et al.
8,245,594	B2	8/2012	Rogers et al.	8,322,901	B2	12/2012	Michelotti
8,245,898	B2	8/2012	Smith et al.	8,323,789	B2	12/2012	Rozhin et al.
8,245,899	B2	8/2012	Swensgard et al.	8,328,061	B2	12/2012	Kasvikis
8,245,900	B2	8/2012	Scirica	8,328,062	B2	12/2012	Viola
8,245,901	B2	8/2012	Stopek	8,328,063	B2	12/2012	Milliman et al.
8,246,608	B2	8/2012	Omori et al.	8,328,064	B2	12/2012	Racenet et al.
				8,328,802	B2	12/2012	Deville et al.
				8,328,823	B2	12/2012	Aranyi et al.
				8,333,313	B2	12/2012	Boudreaux et al.
				8,333,691	B2	12/2012	Schaaf

(56)

References Cited

U.S. PATENT DOCUMENTS

8,333,764	B2	12/2012	Francischelli et al.	8,409,174	B2	4/2013	Omori
8,333,779	B2	12/2012	Smith et al.	8,409,175	B2	4/2013	Lee et al.
8,334,468	B2	12/2012	Palmer et al.	8,409,222	B2	4/2013	Whitfield et al.
8,336,753	B2	12/2012	Olson et al.	8,409,223	B2	4/2013	Sorrentino et al.
8,336,754	B2	12/2012	Cappola et al.	8,411,500	B2	4/2013	Gapihan et al.
8,342,377	B2	1/2013	Milliman et al.	8,413,661	B2	4/2013	Rousseau et al.
8,342,378	B2	1/2013	Marczyk et al.	8,413,870	B2	4/2013	Pastorelli et al.
8,342,379	B2	1/2013	Whitman et al.	8,413,871	B2	4/2013	Racenet et al.
8,343,150	B2	1/2013	Artale	8,413,872	B2	4/2013	Patel
8,347,978	B2	1/2013	Forster et al.	8,414,577	B2	4/2013	Boudreaux et al.
8,348,123	B2	1/2013	Scirica et al.	8,414,598	B2	4/2013	Brock et al.
8,348,124	B2	1/2013	Scirica	8,418,073	B2	4/2013	Mohr et al.
8,348,125	B2	1/2013	Viola et al.	8,418,906	B2	4/2013	Farascioni et al.
8,348,126	B2	1/2013	Olson et al.	8,418,908	B1	4/2013	Beardsley
8,348,127	B2	1/2013	Marczyk	8,418,909	B2	4/2013	Kostrzewski
8,348,129	B2	1/2013	Bedi et al.	8,419,635	B2	4/2013	Shelton, IV et al.
8,348,130	B2	1/2013	Shah et al.	8,419,717	B2	4/2013	Diolaiti et al.
8,348,131	B2	1/2013	Omaits et al.	8,419,747	B2	4/2013	Hinman et al.
8,348,837	B2	1/2013	Wenchell	8,419,754	B2	4/2013	Laby et al.
8,348,959	B2	1/2013	Wolford et al.	8,423,182	B2	4/2013	Robinson et al.
8,348,972	B2	1/2013	Soltz et al.	8,424,737	B2	4/2013	Scirica
8,349,987	B2	1/2013	Kapiamba et al.	8,424,739	B2	4/2013	Racenet et al.
8,352,004	B2	1/2013	Mannheimer et al.	8,424,740	B2	4/2013	Shelton, IV et al.
8,353,437	B2	1/2013	Boudreaux	8,424,741	B2	4/2013	McGuckin, Jr. et al.
8,353,438	B2	1/2013	Baxter, III et al.	8,425,600	B2	4/2013	Maxwell
8,353,439	B2	1/2013	Baxter, III et al.	8,427,430	B2	4/2013	Lee et al.
8,356,740	B1	1/2013	Knodel	8,430,292	B2	4/2013	Patel et al.
8,357,144	B2	1/2013	Whitman et al.	8,430,892	B2	4/2013	Bindra et al.
8,357,161	B2	1/2013	Mueller	8,430,898	B2	4/2013	Wiener et al.
8,359,174	B2	1/2013	Nakashima et al.	8,435,257	B2	5/2013	Smith et al.
8,360,296	B2	1/2013	Zingman	8,439,246	B1	5/2013	Knodel
8,360,297	B2	1/2013	Shelton, IV et al.	8,444,037	B2	5/2013	Nicholas et al.
8,360,298	B2	1/2013	Farascioni et al.	8,444,549	B2	5/2013	Viola et al.
8,360,299	B2	1/2013	Zemlok et al.	8,453,904	B2	6/2013	Eskaros et al.
8,361,501	B2	1/2013	DiTizio et al.	8,453,906	B2	6/2013	Huang et al.
8,365,973	B1	2/2013	White et al.	8,453,907	B2	6/2013	Laurent et al.
8,365,975	B1	2/2013	Manoux et al.	8,453,908	B2	6/2013	Bedi et al.
8,365,976	B2	2/2013	Hess et al.	8,453,912	B2	6/2013	Mastri et al.
8,366,559	B2	2/2013	Papenfuss et al.	8,453,914	B2	6/2013	Laurent et al.
8,366,787	B2	2/2013	Brown et al.	8,454,495	B2	6/2013	Kawano et al.
8,371,393	B2	2/2013	Higuchi et al.	8,454,628	B2	6/2013	Smith et al.
8,371,491	B2	2/2013	Huitema et al.	8,454,640	B2	6/2013	Johnston et al.
8,371,492	B2	2/2013	Aranyi et al.	8,457,757	B2	6/2013	Cauller et al.
8,371,493	B2	2/2013	Aranyi et al.	8,459,520	B2	6/2013	Giordano et al.
8,371,494	B2	2/2013	Racenet et al.	8,459,521	B2	6/2013	Zemlok et al.
8,372,094	B2	2/2013	Bettuchi et al.	8,459,524	B2	6/2013	Pribanic et al.
8,376,865	B2	2/2013	Forster et al.	8,459,525	B2	6/2013	Yates et al.
8,377,029	B2	2/2013	Nagao et al.	8,464,922	B2	6/2013	Marczyk
8,377,044	B2	2/2013	Coe et al.	8,464,923	B2	6/2013	Shelton, IV
8,382,773	B2	2/2013	Whitfield et al.	8,464,924	B2	6/2013	Gresham et al.
8,382,790	B2	2/2013	Uenohara et al.	8,464,925	B2	6/2013	Hull et al.
D677,273	S	3/2013	Randall et al.	8,465,475	B2	6/2013	Isbell, Jr.
8,387,848	B2	3/2013	Johnson et al.	8,465,502	B2	6/2013	Zergiebel
8,388,633	B2	3/2013	Rousseau et al.	8,465,515	B2	6/2013	Drew et al.
8,389,588	B2	3/2013	Ringelsen et al.	8,469,254	B2	6/2013	Czernik et al.
8,393,513	B2	3/2013	Jankowski	8,469,946	B2	6/2013	Sugita
8,393,514	B2	3/2013	Shelton, IV et al.	8,469,973	B2	6/2013	Meade et al.
8,393,516	B2	3/2013	Kostrzewski	8,470,355	B2	6/2013	Skalla et al.
8,397,832	B2	3/2013	Blickle et al.	D686,240	S	7/2013	Lin
8,397,971	B2	3/2013	Yates et al.	8,474,677	B2	7/2013	Woodard, Jr. et al.
8,397,973	B1	3/2013	Hausen	8,475,453	B2	7/2013	Marczyk et al.
8,398,633	B2	3/2013	Mueller	8,475,454	B1	7/2013	Alshemari
8,398,669	B2	3/2013	Kim	8,475,474	B2	7/2013	Bombard et al.
8,398,673	B2	3/2013	Hinchliffe et al.	8,479,968	B2	7/2013	Hodgkinson et al.
8,398,674	B2	3/2013	Prestel	8,479,969	B2	7/2013	Shelton, IV
8,400,851	B2	3/2013	Byun	8,480,703	B2	7/2013	Nicholas et al.
8,403,138	B2	3/2013	Weissaupt et al.	8,485,412	B2	7/2013	Shelton, IV et al.
8,403,198	B2	3/2013	Sorrentino et al.	8,485,413	B2	7/2013	Scheib et al.
8,403,832	B2	3/2013	Cunningham et al.	8,485,970	B2	7/2013	Widenhouse et al.
8,403,945	B2	3/2013	Whitfield et al.	8,487,199	B2	7/2013	Palmer et al.
8,403,946	B2	3/2013	Whitfield et al.	8,490,851	B2	7/2013	Blier et al.
8,403,950	B2	3/2013	Palmer et al.	8,490,853	B2	7/2013	Criscuolo et al.
8,408,439	B2	4/2013	Huang et al.	8,491,581	B2	7/2013	Deville et al.
8,408,442	B2	4/2013	Racenet et al.	8,491,603	B2	7/2013	Yeung et al.
8,409,079	B2	4/2013	Okamoto et al.	8,496,153	B2	7/2013	Demmy et al.
				8,496,154	B2	7/2013	Marczyk et al.
				8,496,156	B2	7/2013	Sniffin et al.
				8,496,683	B2	7/2013	Prommersberger et al.
				8,499,992	B2	8/2013	Whitman et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,499,993	B2	8/2013	Shelton, IV et al.	8,602,287	B2	12/2013	Yates et al.
8,500,721	B2	8/2013	Jinno	8,602,288	B2	12/2013	Shelton, IV et al.
8,500,762	B2	8/2013	Sholev et al.	8,603,077	B2	12/2013	Cooper et al.
8,502,091	B2	8/2013	Palmer et al.	8,603,089	B2	12/2013	Viola
8,505,799	B2	8/2013	Viola et al.	8,603,110	B2	12/2013	Maruyama et al.
8,505,801	B2	8/2013	Ehrenfels et al.	8,603,135	B2	12/2013	Mueller
8,506,555	B2	8/2013	Ruiz Morales	8,608,043	B2	12/2013	Scirica
8,506,557	B2	8/2013	Zemlok et al.	8,608,044	B2	12/2013	Hueil et al.
8,506,580	B2	8/2013	Zergiebel et al.	8,608,045	B2	12/2013	Smith et al.
8,506,581	B2	8/2013	Wingardner, III et al.	8,608,046	B2	12/2013	Laurent et al.
8,511,308	B2	8/2013	Hecox et al.	8,608,745	B2	12/2013	Guzman et al.
8,512,359	B2	8/2013	Whitman et al.	8,613,383	B2	12/2013	Beckman et al.
8,512,402	B2	8/2013	Marczyk et al.	8,616,427	B2	12/2013	Viola
8,517,239	B2	8/2013	Scheib et al.	8,616,431	B2	12/2013	Timm et al.
8,517,241	B2	8/2013	Nicholas et al.	8,622,274	B2	1/2014	Yates et al.
8,517,243	B2	8/2013	Giordano et al.	8,622,275	B2	1/2014	Baxter, III et al.
8,517,244	B2	8/2013	Shelton, IV et al.	8,627,993	B2	1/2014	Smith et al.
8,518,024	B2	8/2013	Williams et al.	8,627,995	B2	1/2014	Smith et al.
8,521,273	B2	8/2013	Kliman	8,628,518	B2	1/2014	Blumenkranz et al.
8,523,043	B2	9/2013	Ullrich et al.	8,628,545	B2	1/2014	Cabrera et al.
8,523,881	B2	9/2013	Cabiri et al.	8,631,987	B2	1/2014	Shelton, IV et al.
8,523,900	B2	9/2013	Jinno et al.	8,631,992	B1	1/2014	Hausen et al.
8,529,588	B2	9/2013	Ahlberg et al.	8,631,993	B2	1/2014	Kostrzewski
8,529,600	B2	9/2013	Woodard, Jr. et al.	8,632,462	B2	1/2014	Yoo et al.
8,529,819	B2	9/2013	Ostapoff et al.	8,632,525	B2	1/2014	Kerr et al.
8,532,747	B2	9/2013	Nock et al.	8,632,535	B2	1/2014	Shelton, IV et al.
8,534,527	B2	9/2013	Brendel et al.	8,632,563	B2	1/2014	Nagase et al.
8,534,528	B2	9/2013	Shelton, IV	8,636,187	B2	1/2014	Hueil et al.
8,535,304	B2	9/2013	Sklar et al.	8,636,190	B2	1/2014	Zemlok et al.
8,535,340	B2	9/2013	Allen	8,636,191	B2	1/2014	Meagher
8,540,128	B2	9/2013	Shelton, IV et al.	8,636,193	B2	1/2014	Whitman et al.
8,540,129	B2	9/2013	Baxter, III et al.	8,636,736	B2	1/2014	Yates et al.
8,540,130	B2	9/2013	Moore et al.	8,636,766	B2	1/2014	Milliman et al.
8,540,131	B2	9/2013	Swayze	8,639,936	B2	1/2014	Hu et al.
8,540,133	B2	9/2013	Bedi et al.	8,640,788	B2	2/2014	Dachs, II et al.
8,540,733	B2	9/2013	Whitman et al.	8,646,674	B2	2/2014	Schulte et al.
8,540,735	B2	9/2013	Mitelberg et al.	8,647,258	B2	2/2014	Aranyi et al.
8,550,984	B2	10/2013	Takemoto	8,652,120	B2	2/2014	Giordano et al.
8,551,076	B2	10/2013	Duval et al.	8,652,151	B2	2/2014	Lehman et al.
8,555,660	B2	10/2013	Takenaka et al.	8,657,174	B2	2/2014	Yates et al.
8,556,151	B2	10/2013	Viola	8,657,175	B2	2/2014	Sonnenschein et al.
8,556,918	B2	10/2013	Bauman et al.	8,657,176	B2	2/2014	Shelton, IV et al.
8,556,935	B1	10/2013	Knodel et al.	8,657,177	B2	2/2014	Scirica et al.
8,560,147	B2	10/2013	Taylor et al.	8,657,178	B2	2/2014	Hueil et al.
8,561,617	B2	10/2013	Lindh et al.	8,657,482	B2	2/2014	Malackowski et al.
8,561,870	B2	10/2013	Baxter, III et al.	8,657,808	B2	2/2014	McPherson et al.
8,561,871	B2	10/2013	Rajappa et al.	8,657,814	B2	2/2014	Werneth et al.
8,561,873	B2	10/2013	Ingmanson et al.	8,657,821	B2	2/2014	Palermo
8,562,598	B2	10/2013	Falkenstein et al.	8,662,370	B2	3/2014	Takei
8,567,656	B2	10/2013	Shelton, IV et al.	8,663,106	B2	3/2014	Stivoric et al.
8,568,416	B2	10/2013	Schmitz et al.	8,663,192	B2	3/2014	Hester et al.
8,568,425	B2	10/2013	Ross et al.	8,663,245	B2	3/2014	Francischelli et al.
D692,916	S	11/2013	Granchi et al.	8,663,262	B2	3/2014	Smith et al.
8,573,459	B2	11/2013	Smith et al.	8,663,270	B2	3/2014	Donnigan et al.
8,573,461	B2	11/2013	Shelton, IV et al.	8,664,792	B2	3/2014	Rebsdorf
8,573,462	B2	11/2013	Smith et al.	8,668,129	B2	3/2014	Olson
8,573,465	B2	11/2013	Shelton, IV	8,668,130	B2	3/2014	Hess et al.
8,574,199	B2	11/2013	von Bulow et al.	8,672,206	B2	3/2014	Aranyi et al.
8,574,263	B2	11/2013	Mueller	8,672,207	B2	3/2014	Shelton, IV et al.
8,575,880	B2	11/2013	Grantz	8,672,208	B2	3/2014	Hess et al.
8,579,176	B2	11/2013	Smith et al.	8,672,922	B2	3/2014	Loh et al.
8,579,178	B2	11/2013	Holsten et al.	8,672,935	B2	3/2014	Okada et al.
8,579,897	B2	11/2013	Vakharia et al.	8,672,951	B2	3/2014	Smith et al.
8,579,937	B2	11/2013	Gresham	8,673,210	B2	3/2014	Deshays
8,584,919	B2	11/2013	Hueil et al.	8,675,820	B2	3/2014	Baic et al.
8,584,920	B2	11/2013	Hodgkinson	8,678,263	B2	3/2014	Viola
8,584,921	B2	11/2013	Scirica	8,679,093	B2	3/2014	Farra
8,585,583	B2	11/2013	Sakaguchi et al.	8,679,098	B2	3/2014	Hart
8,585,721	B2	11/2013	Kirsch	8,679,137	B2	3/2014	Bauman et al.
8,590,760	B2	11/2013	Cummins et al.	8,679,154	B2	3/2014	Smith et al.
8,590,762	B2	11/2013	Hess et al.	8,679,156	B2	3/2014	Smith et al.
8,590,764	B2	11/2013	Hartwick et al.	8,679,454	B2	3/2014	Guire et al.
8,596,515	B2	12/2013	Okoniewski	8,684,248	B2	4/2014	Milliman
8,597,745	B2	12/2013	Farnsworth et al.	8,684,249	B2	4/2014	Racenet et al.
8,599,450	B2	12/2013	Kubo et al.	8,684,250	B2	4/2014	Bettuchi et al.
				8,684,253	B2	4/2014	Giordano et al.
				8,684,962	B2	4/2014	Kirschenman et al.
				8,685,004	B2	4/2014	Zemlock et al.
				8,685,020	B2	4/2014	Weizman et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,695,866	B2	4/2014	Leimbach et al.	8,790,684	B2	7/2014	Dave et al.
8,696,665	B2	4/2014	Hunt et al.	D711,905	S	8/2014	Morrison et al.
8,701,958	B2	4/2014	Shelton, IV et al.	8,794,496	B2	8/2014	Scirica
8,701,959	B2	4/2014	Shah	8,794,497	B2	8/2014	Zingman
8,708,210	B2	4/2014	Zemlok et al.	8,795,276	B2	8/2014	Dietz et al.
8,708,211	B2	4/2014	Zemlok et al.	8,795,308	B2	8/2014	Valin
8,708,213	B2	4/2014	Shelton, IV et al.	8,795,324	B2	8/2014	Kawai et al.
8,714,352	B2	5/2014	Farascioni et al.	8,800,681	B2	8/2014	Rousson et al.
8,714,429	B2	5/2014	Demmy	8,800,837	B2	8/2014	Zemlok
8,714,430	B2	5/2014	Natarajan et al.	8,800,838	B2	8/2014	Shelton, IV
8,715,256	B2	5/2014	Greener	8,800,839	B2	8/2014	Beetel
8,715,302	B2	5/2014	Ibrahim et al.	8,800,840	B2	8/2014	Jankowski
8,720,766	B2	5/2014	Hess et al.	8,800,841	B2	8/2014	Ellerhorst et al.
8,721,630	B2	5/2014	Ortiz et al.	8,801,710	B2	8/2014	Ullrich et al.
8,721,666	B2	5/2014	Schroeder et al.	8,801,734	B2	8/2014	Shelton, IV et al.
8,727,197	B2	5/2014	Hess et al.	8,801,735	B2	8/2014	Shelton, IV et al.
8,727,199	B2	5/2014	Wenchell	8,801,752	B2	8/2014	Fortier et al.
8,727,200	B2	5/2014	Roy	8,801,801	B2	8/2014	Datta et al.
8,727,961	B2	5/2014	Ziv	8,806,973	B2	8/2014	Ross et al.
8,728,099	B2	5/2014	Cohn et al.	8,807,414	B2	8/2014	Ross et al.
8,728,119	B2	5/2014	Cummins	8,808,161	B2	8/2014	Gregg et al.
8,733,470	B2	5/2014	Matthias et al.	8,808,164	B2	8/2014	Hoffman et al.
8,733,612	B2	5/2014	Ma	8,808,274	B2	8/2014	Hartwell
8,733,613	B2	5/2014	Huitema et al.	8,808,294	B2	8/2014	Fox et al.
8,733,614	B2	5/2014	Ross et al.	8,808,308	B2	8/2014	Boukhny et al.
8,734,336	B2	5/2014	Bonadio et al.	8,808,311	B2	8/2014	Heinrich et al.
8,734,359	B2	5/2014	Ibanez et al.	8,808,325	B2	8/2014	Hess et al.
8,734,478	B2	5/2014	Widenhouse et al.	8,810,197	B2	8/2014	Juergens
8,739,033	B2	5/2014	Rosenberg	8,811,017	B2	8/2014	Fujii et al.
8,739,417	B2	6/2014	Tokunaga et al.	8,813,866	B2	8/2014	Suzuki
8,740,034	B2	6/2014	Morgan et al.	8,814,024	B2	8/2014	Woodard, Jr. et al.
8,740,037	B2	6/2014	Shelton, IV et al.	8,814,025	B2	8/2014	Miller et al.
8,740,038	B2	6/2014	Shelton, IV et al.	8,814,836	B2	8/2014	Ignon et al.
8,740,987	B2	6/2014	Geremakis et al.	8,818,523	B2	8/2014	Olson et al.
8,746,529	B2	6/2014	Shelton, IV et al.	8,820,603	B2	9/2014	Shelton, IV et al.
8,746,530	B2	6/2014	Giordano et al.	8,820,605	B2	9/2014	Shelton, IV
8,746,533	B2	6/2014	Whitman et al.	8,820,606	B2	9/2014	Hodgkinson
8,746,535	B2	6/2014	Shelton, IV et al.	8,820,607	B2	9/2014	Marczyk
8,747,238	B2	6/2014	Shelton, IV et al.	8,820,608	B2	9/2014	Miyamoto
8,747,441	B2	6/2014	Konieczynski et al.	8,822,934	B2	9/2014	Sayeh et al.
8,752,264	B2	6/2014	Ackley et al.	8,825,164	B2	9/2014	Tweden et al.
8,752,699	B2	6/2014	Morgan et al.	8,827,133	B2	9/2014	Shelton, IV et al.
8,752,747	B2	6/2014	Shelton, IV et al.	8,827,134	B2	9/2014	Viola et al.
8,752,748	B2	6/2014	Whitman et al.	8,827,903	B2	9/2014	Shelton, IV et al.
8,752,749	B2	6/2014	Moore et al.	8,833,219	B2	9/2014	Pierce
8,753,664	B2	6/2014	Dao et al.	8,833,630	B2	9/2014	Milliman
8,757,287	B2	6/2014	Mak et al.	8,833,632	B2	9/2014	Swensgard
8,757,465	B2	6/2014	Woodard, Jr. et al.	8,834,498	B2	9/2014	Byrum et al.
8,758,235	B2	6/2014	Jaworek	8,840,003	B2	9/2014	Morgan et al.
8,758,366	B2	6/2014	McLean et al.	8,840,603	B2	9/2014	Shelton, IV et al.
8,758,391	B2	6/2014	Swayze et al.	8,840,609	B2	9/2014	Stuebe
8,758,438	B2	6/2014	Boyce et al.	8,840,876	B2	9/2014	Eemeta et al.
8,763,875	B2	7/2014	Morgan et al.	8,844,789	B2	9/2014	Shelton, IV et al.
8,763,877	B2	7/2014	Schall et al.	8,851,215	B2	10/2014	Goto
8,763,879	B2	7/2014	Shelton, IV et al.	8,851,354	B2	10/2014	Swensgard et al.
8,764,732	B2	7/2014	Hartwell	8,852,174	B2	10/2014	Burbank
8,770,458	B2	7/2014	Scirica	8,852,185	B2	10/2014	Twomey
8,770,459	B2	7/2014	Racenet et al.	8,852,199	B2	10/2014	Deslauriers et al.
8,770,460	B2	7/2014	Belzer	8,857,693	B2	10/2014	Schuckmann et al.
8,771,169	B2	7/2014	Whitman et al.	8,857,694	B2	10/2014	Shelton, IV et al.
8,777,004	B2	7/2014	Shelton, IV et al.	8,858,538	B2	10/2014	Belson et al.
8,777,082	B2	7/2014	Scirica	8,858,571	B2	10/2014	Shelton, IV et al.
8,777,083	B2	7/2014	Racenet et al.	8,858,590	B2	10/2014	Shelton, IV et al.
8,777,898	B2	7/2014	Suon et al.	8,864,007	B2	10/2014	Widenhouse et al.
8,783,541	B2	7/2014	Shelton, IV et al.	8,864,009	B2	10/2014	Shelton, IV et al.
8,783,542	B2	7/2014	Riestenberg et al.	8,864,010	B2	10/2014	Williams
8,783,543	B2	7/2014	Shelton, IV et al.	8,870,050	B2	10/2014	Hodgkinson
8,784,304	B2	7/2014	Mikkaichi et al.	8,870,912	B2	10/2014	Brisson et al.
8,784,404	B2	7/2014	Doyle et al.	8,875,971	B2	11/2014	Hall et al.
8,784,415	B2	7/2014	Malackowski et al.	8,875,972	B2	11/2014	Weisenburgh, II et al.
8,789,737	B2	7/2014	Hodgkinson et al.	8,876,857	B2	11/2014	Burbank
8,789,739	B2	7/2014	Swensgard	8,876,858	B2	11/2014	Braun
8,789,740	B2	7/2014	Baxter, III et al.	8,887,979	B2	11/2014	Mastri et al.
8,789,741	B2	7/2014	Baxter, III et al.	8,888,688	B2	11/2014	Julian et al.
8,790,658	B2	7/2014	Cigarini et al.	8,888,695	B2	11/2014	Piskun et al.
				8,888,792	B2	11/2014	Harris et al.
				8,888,809	B2	11/2014	Davison et al.
				8,893,946	B2	11/2014	Boudreaux et al.
				8,893,949	B2	11/2014	Shelton, IV et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

8,894,647	B2	11/2014	Beardsley et al.	8,992,565	B2	3/2015	Brisson et al.
8,894,654	B2	11/2014	Anderson	8,996,165	B2	3/2015	Wang et al.
8,899,460	B2	12/2014	Wojcicki	8,998,058	B2	4/2015	Moore et al.
8,899,461	B2	12/2014	Farascioni	8,998,059	B2	4/2015	Smith et al.
8,899,462	B2	12/2014	Kostrzewski et al.	8,998,061	B2	4/2015	Williams et al.
8,899,463	B2	12/2014	Schall et al.	8,998,939	B2	4/2015	Price et al.
8,899,464	B2	12/2014	Hueil et al.	9,002,518	B2	4/2015	Manzo et al.
8,899,465	B2	12/2014	Shelton, IV et al.	9,004,339	B1	4/2015	Park
8,899,466	B2	12/2014	Baxter, III et al.	9,005,230	B2	4/2015	Yates et al.
8,900,267	B2	12/2014	Woolfson et al.	9,005,238	B2	4/2015	DeSantis et al.
8,905,287	B2	12/2014	Racenet et al.	9,005,243	B2	4/2015	Stopek et al.
8,905,977	B2	12/2014	Shelton et al.	9,010,606	B2	4/2015	Aranyi et al.
8,910,846	B2	12/2014	Viola	9,010,608	B2	4/2015	Casasanta, Jr. et al.
8,911,426	B2	12/2014	Coppeta et al.	9,011,439	B2	4/2015	Shalaby et al.
8,911,448	B2	12/2014	Stein	9,011,471	B2	4/2015	Timm et al.
8,911,460	B2	12/2014	Neurohr et al.	9,016,539	B2	4/2015	Kostrzewski et al.
8,911,471	B2	12/2014	Spivey et al.	9,016,540	B2	4/2015	Whitman et al.
8,920,433	B2	12/2014	Barrier et al.	9,016,541	B2	4/2015	Viola et al.
8,920,435	B2	12/2014	Smith et al.	9,016,542	B2	4/2015	Shelton, IV et al.
8,920,438	B2	12/2014	Aranyi et al.	9,016,545	B2	4/2015	Aranyi et al.
8,920,443	B2	12/2014	Hiles et al.	9,017,331	B2	4/2015	Fox
8,920,444	B2	12/2014	Hiles et al.	9,017,355	B2	4/2015	Smith et al.
8,922,163	B2	12/2014	Macdonald	9,017,369	B2	4/2015	Renger et al.
8,925,782	B2	1/2015	Shelton, IV	9,017,371	B2	4/2015	Whitman et al.
8,925,783	B2	1/2015	Zemlok et al.	9,021,684	B2	5/2015	Lenker et al.
8,925,788	B2	1/2015	Hess et al.	9,023,014	B2	5/2015	Chowaniec et al.
8,926,506	B2	1/2015	Widenhouse et al.	9,023,069	B2	5/2015	Kasvikis et al.
8,926,598	B2	1/2015	Mollere et al.	9,023,071	B2	5/2015	Miller et al.
8,931,576	B2	1/2015	Iwata	9,026,347	B2	5/2015	Gadh et al.
8,931,679	B2	1/2015	Kostrzewski	9,027,817	B2	5/2015	Milliman et al.
8,931,680	B2	1/2015	Milliman	9,028,494	B2	5/2015	Shelton, IV et al.
8,931,682	B2	1/2015	Timm et al.	9,028,495	B2	5/2015	Mueller et al.
8,936,614	B2	1/2015	Allen, IV	9,028,519	B2	5/2015	Yates et al.
8,939,343	B2	1/2015	Milliman et al.	9,030,169	B2	5/2015	Christensen et al.
8,939,344	B2	1/2015	Olson et al.	9,033,203	B2	5/2015	Woodard, Jr. et al.
8,945,163	B2	2/2015	Voegele et al.	9,033,204	B2	5/2015	Shelton, IV et al.
8,955,732	B2	2/2015	Zemlok et al.	9,034,505	B2	5/2015	Detry et al.
8,956,342	B1	2/2015	Russo et al.	9,038,881	B1	5/2015	Schaller et al.
8,956,390	B2	2/2015	Shah et al.	9,039,690	B2	5/2015	Kersten et al.
8,958,860	B2	2/2015	Banerjee et al.	9,039,694	B2	5/2015	Ross et al.
8,960,519	B2	2/2015	Whitman et al.	9,039,720	B2	5/2015	Madan
8,960,520	B2	2/2015	McCuen	9,043,027	B2	5/2015	Durant et al.
8,960,521	B2	2/2015	Kostrzewski	9,044,227	B2	6/2015	Shelton, IV et al.
8,961,191	B2	2/2015	Hanshew	9,044,228	B2	6/2015	Woodard, Jr. et al.
8,961,504	B2	2/2015	Hoarau et al.	9,044,229	B2	6/2015	Scheib et al.
8,963,714	B2	2/2015	Medhal et al.	9,044,230	B2	6/2015	Morgan et al.
D725,674	S	3/2015	Jung et al.	9,044,281	B2	6/2015	Pool et al.
8,967,443	B2	3/2015	McCuen	9,050,083	B2	6/2015	Yates et al.
8,967,444	B2	3/2015	Beetel	9,050,084	B2	6/2015	Schmid et al.
8,967,446	B2	3/2015	Beardsley et al.	9,050,100	B2	6/2015	Yates et al.
8,967,448	B2	3/2015	Carter et al.	9,050,120	B2	6/2015	Swarup et al.
8,968,276	B2	3/2015	Zemlok et al.	9,050,123	B2	6/2015	Krause et al.
8,968,312	B2	3/2015	Marczyk et al.	9,050,176	B2	6/2015	Datta et al.
8,968,337	B2	3/2015	Whitfield et al.	9,055,941	B2	6/2015	Schmid et al.
8,968,340	B2	3/2015	Chowaniec et al.	9,055,942	B2	6/2015	Balbierz et al.
8,968,355	B2	3/2015	Malkowski et al.	9,055,943	B2	6/2015	Zemlok et al.
8,968,358	B2	3/2015	Reschke	9,055,944	B2	6/2015	Hodgkinson et al.
8,970,507	B2	3/2015	Holbein et al.	9,055,961	B2	6/2015	Manzo et al.
8,973,803	B2	3/2015	Hall et al.	9,060,770	B2	6/2015	Shelton, IV et al.
8,973,804	B2	3/2015	Hess et al.	9,060,776	B2	6/2015	Yates et al.
8,973,805	B2	3/2015	Scirica et al.	9,060,794	B2	6/2015	Kang et al.
8,974,440	B2	3/2015	Farritor et al.	9,060,894	B2	6/2015	Wubbeling
8,974,932	B2	3/2015	McGahan et al.	9,061,392	B2	6/2015	Forgues et al.
8,978,954	B2	3/2015	Shelton, IV et al.	9,072,515	B2	7/2015	Hall et al.
8,978,955	B2	3/2015	Aronhalt et al.	9,072,523	B2	7/2015	Houser et al.
8,978,956	B2	3/2015	Schall et al.	9,072,535	B2	7/2015	Shelton, IV et al.
8,979,843	B2	3/2015	Timm et al.	9,072,536	B2	7/2015	Shelton, IV et al.
8,979,890	B2	3/2015	Boudreaux	9,078,653	B2	7/2015	Leimbach et al.
8,982,195	B2	3/2015	Claus et al.	9,084,601	B2	7/2015	Moore et al.
8,986,302	B2	3/2015	Aldridge et al.	9,084,602	B2	7/2015	Gleiman
8,991,676	B2	3/2015	Hess et al.	9,086,875	B2	7/2015	Harrat et al.
8,991,677	B2	3/2015	Moore et al.	9,089,330	B2	7/2015	Widenhouse et al.
8,991,678	B2	3/2015	Wellman et al.	9,089,352	B2	7/2015	Jeong
8,992,042	B2	3/2015	Eichenholz	9,091,588	B2	7/2015	Lefler
8,992,422	B2	3/2015	Spivey et al.	D736,792	S	8/2015	Brinda et al.
				9,095,339	B2	8/2015	Moore et al.
				9,095,346	B2	8/2015	Houser et al.
				9,095,362	B2	8/2015	Dachs, II et al.
				9,095,367	B2	8/2015	Olson et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,096,033	B2	8/2015	Holop et al.	9,204,923	B2	12/2015	Manzo et al.
9,099,863	B2	8/2015	Smith et al.	9,204,924	B2	12/2015	Marczyk et al.
9,101,358	B2	8/2015	Kerr et al.	9,211,120	B2	12/2015	Scheib et al.
9,101,385	B2	8/2015	Shelton, IV et al.	9,211,121	B2	12/2015	Hall et al.
9,101,475	B2	8/2015	Wei et al.	9,211,122	B2	12/2015	Hagerty et al.
9,107,663	B2	8/2015	Swensgard	9,216,013	B2	12/2015	Scirica et al.
9,107,690	B2	8/2015	Bales, Jr. et al.	9,216,019	B2	12/2015	Schmid et al.
9,110,587	B2	8/2015	Kim et al.	9,216,020	B2	12/2015	Zhang et al.
9,113,862	B2	8/2015	Morgan et al.	9,216,030	B2	12/2015	Fan et al.
9,113,864	B2	8/2015	Morgan et al.	9,216,062	B2	12/2015	Duque et al.
9,113,865	B2	8/2015	Shelton, IV et al.	9,220,500	B2	12/2015	Swayze et al.
9,113,873	B2	8/2015	Marczyk et al.	9,220,501	B2	12/2015	Baxter, III et al.
9,113,874	B2	8/2015	Shelton, IV et al.	9,220,502	B2	12/2015	Zemlok et al.
9,113,876	B2	8/2015	Zemlok et al.	9,220,508	B2	12/2015	Dannaher
9,113,879	B2	8/2015	Felder et al.	9,220,559	B2	12/2015	Worrell et al.
9,113,880	B2	8/2015	Zemlok et al.	9,220,570	B2	12/2015	Kim et al.
9,113,881	B2	8/2015	Scirica	D746,854	S	1/2016	Shardlow et al.
9,113,883	B2	8/2015	Aronhalt et al.	9,226,750	B2	1/2016	Weir et al.
9,113,884	B2	8/2015	Shelton, IV et al.	9,226,751	B2	1/2016	Shelton, IV et al.
9,113,887	B2	8/2015	Behnke, II et al.	9,226,761	B2	1/2016	Burbank
9,119,615	B2	9/2015	Felder et al.	9,226,767	B2	1/2016	Stulen et al.
9,119,657	B2	9/2015	Shelton, IV et al.	9,232,941	B2	1/2016	Mandakolathur Vasudevan et al.
9,119,898	B2	9/2015	Bayon et al.	9,232,945	B2	1/2016	Zingman
9,119,957	B2	9/2015	Gantz et al.	9,232,979	B2	1/2016	Parihar et al.
9,123,286	B2	9/2015	Park	9,233,610	B2	1/2016	Kim et al.
9,124,097	B2	9/2015	Cruz	9,237,891	B2	1/2016	Shelton, IV
9,125,654	B2	9/2015	Aronhalt et al.	9,237,895	B2	1/2016	McCarthy et al.
9,125,662	B2	9/2015	Shelton, IV	9,237,921	B2	1/2016	Messerly et al.
9,126,317	B2	9/2015	Lawton et al.	9,239,064	B2	1/2016	Helbig et al.
9,131,835	B2	9/2015	Widenhouse et al.	9,240,740	B2	1/2016	Zeng et al.
9,131,940	B2	9/2015	Huitema et al.	9,241,712	B2	1/2016	Zemlok et al.
9,131,950	B2	9/2015	Matthew	9,241,714	B2	1/2016	Timm et al.
9,131,957	B2	9/2015	Skarbnik et al.	9,241,716	B2	1/2016	Whitman
9,138,225	B2	9/2015	Huang et al.	9,241,731	B2	1/2016	Boudreaux et al.
9,138,226	B2	9/2015	Racenet et al.	9,244,524	B2	1/2016	Inoue et al.
9,144,455	B2	9/2015	Kennedy et al.	D749,623	S	2/2016	Gray et al.
D741,882	S	10/2015	Shmilov et al.	D750,122	S	2/2016	Shardlow et al.
9,149,274	B2	10/2015	Spivey et al.	D750,129	S	2/2016	Kwon
9,149,324	B2	10/2015	Huang et al.	9,254,131	B2	2/2016	Soltz et al.
9,149,325	B2	10/2015	Worrell et al.	9,259,274	B2	2/2016	Prisco
9,153,994	B2	10/2015	Wood et al.	9,261,172	B2	2/2016	Solomon et al.
9,161,753	B2	10/2015	Prior	9,265,500	B2	2/2016	Sorrentino et al.
9,161,769	B2	10/2015	Stoddard et al.	9,265,516	B2	2/2016	Casey et al.
9,161,803	B2	10/2015	Yates et al.	9,265,585	B2	2/2016	Wingardner et al.
9,161,807	B2	10/2015	Garrison	9,271,718	B2	3/2016	Milad et al.
9,168,038	B2	10/2015	Shelton, IV et al.	9,271,727	B2	3/2016	McGuckin, Jr. et al.
9,168,039	B1	10/2015	Knodel	9,271,753	B2	3/2016	Butler et al.
9,168,042	B2	10/2015	Milliman	9,271,799	B2	3/2016	Shelton, IV et al.
9,168,054	B2	10/2015	Turner et al.	9,272,406	B2	3/2016	Aronhalt et al.
9,168,144	B2	10/2015	Rivin et al.	9,277,919	B2	3/2016	Timmer et al.
9,179,911	B2	11/2015	Morgan et al.	9,277,922	B2	3/2016	Carter et al.
9,179,912	B2	11/2015	Yates et al.	9,282,962	B2	3/2016	Schmid et al.
9,182,244	B2	11/2015	Luke et al.	9,282,963	B2	3/2016	Bryant
9,186,046	B2	11/2015	Ramamurthy et al.	9,282,966	B2	3/2016	Shelton, IV et al.
9,186,137	B2	11/2015	Farascioni et al.	9,282,974	B2	3/2016	Shelton, IV
9,186,140	B2	11/2015	Hiles et al.	9,283,028	B2	3/2016	Johnson
9,186,142	B2	11/2015	Fanelli et al.	9,283,045	B2	3/2016	Rhee et al.
9,186,143	B2	11/2015	Timm et al.	9,283,054	B2	3/2016	Morgan et al.
9,186,148	B2	11/2015	Felder et al.	9,289,206	B2	3/2016	Hess et al.
9,186,221	B2	11/2015	Burbank	9,289,207	B2	3/2016	Shelton, IV
9,192,380	B2	11/2015	(Tarinelli) Racenet et al.	9,289,210	B2	3/2016	Baxter, III et al.
9,192,384	B2	11/2015	Bettuchi	9,289,211	B2	3/2016	Williams et al.
9,192,430	B2	11/2015	Rachlin et al.	9,289,212	B2	3/2016	Shelton, IV et al.
9,192,434	B2	11/2015	Twomey et al.	9,289,225	B2	3/2016	Shelton, IV et al.
9,193,045	B2	11/2015	Saur et al.	9,289,256	B2	3/2016	Shelton, IV et al.
9,198,642	B2	12/2015	Storz	9,293,757	B2	3/2016	Toussaint et al.
9,198,644	B2	12/2015	Balek et al.	9,295,464	B2	3/2016	Shelton, IV et al.
9,198,661	B2	12/2015	Swensgard	9,295,465	B2	3/2016	Farascioni
9,198,662	B2	12/2015	Barton et al.	9,295,466	B2	3/2016	Hodgkinson et al.
9,198,683	B2	12/2015	Friedman et al.	9,295,468	B2	3/2016	Heinrich et al.
9,204,830	B2	12/2015	Zand et al.	9,295,514	B2	3/2016	Shelton, IV et al.
9,204,877	B2	12/2015	Whitman et al.	9,295,522	B2	3/2016	Kostrzewski
9,204,878	B2	12/2015	Hall et al.	9,295,784	B2	3/2016	Eggert et al.
9,204,879	B2	12/2015	Shelton, IV	9,301,691	B2	4/2016	Hufnagel et al.
9,204,880	B2	12/2015	Baxter, III et al.	9,301,752	B2	4/2016	Mandakolathur Vasudevan et al.
				9,301,753	B2	4/2016	Aldridge et al.
				9,301,755	B2	4/2016	Shelton, IV et al.
				9,301,759	B2	4/2016	Spivey et al.
				9,307,965	B2	4/2016	Ming et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,307,986	B2	4/2016	Hall et al.	9,402,626	B2	8/2016	Ortiz et al.
9,307,987	B2	4/2016	Swensgard et al.	9,402,627	B2	8/2016	Stevenson et al.
9,307,988	B2	4/2016	Shelton, IV	9,408,604	B2	8/2016	Shelton, IV et al.
9,307,989	B2	4/2016	Shelton, IV et al.	9,408,606	B2	8/2016	Shelton, IV
9,307,994	B2	4/2016	Gresham et al.	9,408,622	B2	8/2016	Stulen et al.
9,308,009	B2	4/2016	Madan et al.	9,411,370	B2	8/2016	Benni et al.
9,308,011	B2	4/2016	Chao et al.	9,413,128	B2	8/2016	Tien et al.
9,308,646	B2	4/2016	Lim et al.	9,414,838	B2	8/2016	Shelton, IV et al.
9,314,246	B2	4/2016	Shelton, IV et al.	9,414,849	B2	8/2016	Nagashimada
9,314,247	B2	4/2016	Shelton, IV et al.	9,414,880	B2	8/2016	Monson et al.
9,314,261	B2	4/2016	Bales, Jr. et al.	9,420,967	B2	8/2016	Zand et al.
9,314,908	B2	4/2016	Tanimoto et al.	9,421,003	B2	8/2016	Williams et al.
9,320,518	B2	4/2016	Henderson et al.	9,421,014	B2	8/2016	Ingmanson et al.
9,320,520	B2	4/2016	Shelton, IV et al.	9,421,030	B2	8/2016	Cole et al.
9,320,521	B2	4/2016	Shelton, IV et al.	9,421,060	B2	8/2016	Monson et al.
9,320,523	B2	4/2016	Shelton, IV et al.	9,421,062	B2	8/2016	Houser et al.
D755,196	S	5/2016	Meyers et al.	9,427,223	B2	8/2016	Park et al.
D756,373	S	5/2016	Raskin et al.	9,427,231	B2	8/2016	Racenet et al.
D757,028	S	5/2016	Goldenberg et al.	D767,624	S	9/2016	Lee et al.
9,326,767	B2	5/2016	Koch, Jr. et al.	9,433,411	B2	9/2016	Racenet et al.
9,326,768	B2	5/2016	Shelton, IV	9,433,419	B2	9/2016	Gonzalez et al.
9,326,769	B2	5/2016	Shelton, IV et al.	9,433,420	B2	9/2016	Hodgkinson
9,326,770	B2	5/2016	Shelton, IV et al.	9,439,649	B2	9/2016	Shelton, IV et al.
9,326,771	B2	5/2016	Baxter, III et al.	9,439,650	B2	9/2016	McGuckin, Jr. et al.
9,326,788	B2	5/2016	Batross et al.	9,439,651	B2	9/2016	Smith et al.
9,326,812	B2	5/2016	Waalder et al.	9,439,668	B2	9/2016	Timm et al.
9,332,890	B2	5/2016	Ozawa	9,445,808	B2	9/2016	Woodard, Jr. et al.
9,332,974	B2	5/2016	Henderson et al.	9,445,813	B2	9/2016	Shelton, IV et al.
9,332,984	B2	5/2016	Weaner et al.	9,451,958	B2	9/2016	Shelton, IV et al.
9,332,987	B2	5/2016	Leimbach et al.	D768,152	S	10/2016	Gutierrez et al.
9,333,040	B2	5/2016	Shellenberger et al.	9,461,340	B2	10/2016	Li et al.
9,333,082	B2	5/2016	Wei et al.	9,463,040	B2	10/2016	Jeong et al.
9,339,226	B2	5/2016	van der Walt et al.	9,463,260	B2	10/2016	Stopek
9,345,477	B2	5/2016	Anim et al.	9,468,438	B2	10/2016	Baber et al.
9,345,480	B2	5/2016	Hessler et al.	9,468,447	B2	10/2016	Aman et al.
9,345,481	B2	5/2016	Hall et al.	9,470,297	B2	10/2016	Aranyi et al.
9,351,726	B2	5/2016	Leimbach et al.	9,471,969	B2	10/2016	Zeng et al.
9,351,727	B2	5/2016	Leimbach et al.	9,474,506	B2	10/2016	Magnin et al.
9,351,728	B2	5/2016	Sniffin et al.	9,474,523	B2	10/2016	Meade et al.
9,351,730	B2	5/2016	Schmid et al.	9,474,540	B2	10/2016	Stokes et al.
9,351,731	B2	5/2016	Carter et al.	9,475,180	B2	10/2016	Eshleman et al.
9,351,732	B2	5/2016	Hodgkinson	D770,476	S	11/2016	Jitkoff et al.
D758,433	S	6/2016	Lee et al.	D771,116	S	11/2016	Dellinger et al.
D759,063	S	6/2016	Chen	D772,905	S	11/2016	Ingenlath
9,358,003	B2	6/2016	Hall et al.	9,480,476	B2	11/2016	Aldridge et al.
9,358,005	B2	6/2016	Shelton, IV et al.	9,480,492	B2	11/2016	Aranyi et al.
9,358,015	B2	6/2016	Sorrentino et al.	9,483,095	B2	11/2016	Tran et al.
9,358,031	B2	6/2016	Manzo	9,486,186	B2	11/2016	Fiebig et al.
9,364,217	B2	6/2016	Kostrzewski et al.	9,486,213	B2	11/2016	Altman et al.
9,364,219	B2	6/2016	Olson et al.	9,486,214	B2	11/2016	Shelton, IV
9,364,220	B2	6/2016	Williams	9,486,302	B2	11/2016	Boey et al.
9,364,226	B2	6/2016	Zemlok et al.	9,488,197	B2	11/2016	Wi
9,364,229	B2	6/2016	D'Agostino et al.	9,492,146	B2	11/2016	Kostrzewski et al.
9,364,230	B2	6/2016	Shelton, IV et al.	9,492,167	B2	11/2016	Shelton, IV et al.
9,364,231	B2	6/2016	Wenchell	9,492,170	B2	11/2016	Bear et al.
9,364,233	B2	6/2016	Alexander, III et al.	9,492,189	B2	11/2016	Williams et al.
9,364,279	B2	6/2016	Houser et al.	9,492,192	B2	11/2016	To et al.
9,368,991	B2	6/2016	Qahouq	9,498,213	B2	11/2016	Marczyk et al.
9,370,341	B2	6/2016	Ceniccola et al.	9,498,219	B2	11/2016	Moore et al.
9,370,358	B2	6/2016	Shelton, IV et al.	9,504,483	B2	11/2016	Houser et al.
9,370,364	B2	6/2016	Smith et al.	9,504,521	B2	11/2016	Deutmeyer et al.
9,375,206	B2	6/2016	Vidal et al.	D775,336	S	12/2016	Shelton, IV et al.
9,375,255	B2	6/2016	Houser et al.	9,510,828	B2	12/2016	Yates et al.
9,381,058	B2	7/2016	Houser et al.	9,510,830	B2	12/2016	Shelton, IV et al.
9,386,983	B2	7/2016	Swensgard et al.	9,510,846	B2	12/2016	Sholev et al.
9,386,984	B2	7/2016	Aronhalt et al.	9,510,895	B2	12/2016	Houser et al.
9,386,985	B2	7/2016	Koch, Jr. et al.	9,510,925	B2	12/2016	Hotter et al.
9,386,988	B2	7/2016	Baxter, III et al.	9,517,063	B2	12/2016	Swayze et al.
9,387,003	B2	7/2016	Kaercher et al.	9,517,068	B2	12/2016	Shelton, IV et al.
9,393,015	B2	7/2016	Laurent et al.	9,521,996	B2	12/2016	Armstrong
9,393,017	B2	7/2016	Flanagan et al.	9,522,029	B2	12/2016	Yates et al.
9,393,018	B2	7/2016	Wang et al.	9,526,481	B2	12/2016	Storz et al.
9,398,911	B2	7/2016	Auld	9,526,499	B2	12/2016	Kostrzewski et al.
D763,277	S	8/2016	Ahmed et al.	9,526,564	B2	12/2016	Rusin
9,402,604	B2	8/2016	Williams et al.	D776,683	S	1/2017	Gobinski et al.
				D777,773	S	1/2017	Shi
				9,532,783	B2	1/2017	Swayze et al.
				9,539,726	B2	1/2017	Simaan et al.
				9,545,258	B2	1/2017	Smith et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,549,732 B2	1/2017	Yates et al.	9,668,729 B2	6/2017	Williams et al.
9,549,735 B2	1/2017	Shelton, IV et al.	9,668,732 B2	6/2017	Patel et al.
9,554,794 B2	1/2017	Baber et al.	9,668,733 B2	6/2017	Williams
9,554,796 B2	1/2017	Kostrzewski	9,675,344 B2	6/2017	Combrowski et al.
9,554,812 B2	1/2017	Inkpen et al.	9,675,351 B2	6/2017	Hodgkinson et al.
9,559,624 B2	1/2017	Philipp	9,675,355 B2	6/2017	Shelton, IV et al.
9,561,030 B2	2/2017	Zhang et al.	9,675,372 B2	6/2017	Laurent et al.
9,561,031 B2	2/2017	Heinrich et al.	9,675,375 B2	6/2017	Houser et al.
9,561,032 B2	2/2017	Shelton, IV et al.	9,675,405 B2	6/2017	Trees et al.
9,561,038 B2	2/2017	Shelton, IV et al.	9,675,819 B2	6/2017	Dunbar et al.
9,561,045 B2	2/2017	Hinman et al.	9,681,870 B2	6/2017	Baxter, III et al.
9,566,061 B2	2/2017	Aronhalt et al.	9,681,873 B2	6/2017	Smith et al.
9,566,062 B2	2/2017	Boudreaux	9,681,884 B2	6/2017	Clem et al.
9,566,065 B2	2/2017	Knodel	9,687,230 B2	6/2017	Leimbach et al.
9,566,067 B2	2/2017	Milliman et al.	9,687,231 B2	6/2017	Baxter, III et al.
9,572,574 B2	2/2017	Shelton, IV et al.	9,687,232 B2	6/2017	Shelton, IV et al.
9,572,577 B2	2/2017	Lloyd et al.	9,687,233 B2	6/2017	Fernandez et al.
9,572,592 B2	2/2017	Price et al.	9,687,236 B2	6/2017	Leimbach et al.
9,574,644 B2	2/2017	Parihar	9,687,237 B2	6/2017	Schmid et al.
D780,803 S	3/2017	Gill et al.	9,687,253 B2	6/2017	Detry et al.
D781,879 S	3/2017	Butcher et al.	9,689,466 B2	6/2017	Kanai et al.
9,585,550 B2	3/2017	Abel et al.	9,690,362 B2	6/2017	Leimbach et al.
9,585,657 B2	3/2017	Shelton, IV et al.	9,693,772 B2	7/2017	Ingmanson et al.
9,585,658 B2	3/2017	Shelton, IV	9,693,774 B2	7/2017	Gettinger et al.
9,585,659 B2	3/2017	Viola et al.	9,693,777 B2	7/2017	Schellin et al.
9,585,660 B2	3/2017	Laurent et al.	9,700,309 B2	7/2017	Jaworek et al.
9,585,662 B2	3/2017	Shelton, IV et al.	9,700,310 B2	7/2017	Morgan et al.
9,585,663 B2	3/2017	Shelton, IV et al.	9,700,312 B2	7/2017	Kostrzewski et al.
9,585,672 B2	3/2017	Bastia	9,700,317 B2	7/2017	Aronhalt et al.
9,590,433 B2	3/2017	Li	9,700,318 B2	7/2017	Scirica et al.
9,592,050 B2	3/2017	Schmid et al.	9,700,319 B2	7/2017	Motooka et al.
9,592,052 B2	3/2017	Shelton, IV	9,700,321 B2	7/2017	Shelton, IV et al.
9,592,053 B2	3/2017	Shelton, IV et al.	9,706,981 B2	7/2017	Nicholas et al.
9,592,054 B2	3/2017	Schmid et al.	9,706,991 B2	7/2017	Hess et al.
9,597,073 B2	3/2017	Sorrentino et al.	9,706,993 B2	7/2017	Hessler et al.
9,597,075 B2	3/2017	Shelton, IV et al.	9,707,005 B2	7/2017	Strobl et al.
9,597,080 B2	3/2017	Milliman et al.	9,707,026 B2	7/2017	Malackowski et al.
9,597,104 B2	3/2017	Nicholas et al.	9,707,043 B2	7/2017	Bozung
9,597,143 B2	3/2017	Madan et al.	9,707,684 B2	7/2017	Ruiz Morales et al.
9,603,595 B2	3/2017	Shelton, IV et al.	9,713,468 B2	7/2017	Harris et al.
9,603,598 B2	3/2017	Shelton, IV et al.	9,713,470 B2	7/2017	Scirica et al.
9,603,599 B2	3/2017	Miller et al.	9,713,474 B2	7/2017	Lorenz
9,603,991 B2	3/2017	Shelton, IV et al.	9,717,497 B2	8/2017	Zerkle et al.
9,610,080 B2	4/2017	Whitfield et al.	9,717,498 B2	8/2017	Aranyi et al.
9,614,258 B2	4/2017	Takahashi et al.	9,722,236 B2	8/2017	Sathrum
9,615,826 B2	4/2017	Shelton, IV et al.	9,724,091 B2	8/2017	Shelton, IV et al.
9,629,623 B2	4/2017	Lytle, IV et al.	9,724,092 B2	8/2017	Baxter, III et al.
9,629,626 B2	4/2017	Soltz et al.	9,724,094 B2	8/2017	Baber et al.
9,629,629 B2	4/2017	Leimbach et al.	9,724,096 B2	8/2017	Thompson et al.
9,629,652 B2	4/2017	Mumaw et al.	9,724,098 B2	8/2017	Baxter, III et al.
9,629,814 B2	4/2017	Widenhouse et al.	9,724,118 B2	8/2017	Schulte et al.
D786,280 S	5/2017	Ma	9,724,163 B2	8/2017	Orban
D786,896 S	5/2017	Kim et al.	9,730,692 B2	8/2017	Shelton, IV et al.
D787,547 S	5/2017	Basargin et al.	9,730,695 B2	8/2017	Leimbach et al.
D788,123 S	5/2017	Shan et al.	9,730,697 B2	8/2017	Morgan et al.
D788,140 S	5/2017	Hemsley et al.	9,730,717 B2	8/2017	Katsuki et al.
9,636,111 B2	5/2017	Wenchell	9,731,410 B2	8/2017	Hirabayashi et al.
9,636,850 B2	5/2017	Stopek (nee Prommersberger) et al.	9,733,663 B2	8/2017	Leimbach et al.
9,641,122 B2	5/2017	Romanowich et al.	9,737,297 B2	8/2017	Racenet et al.
9,642,620 B2	5/2017	Baxter, III et al.	9,737,301 B2	8/2017	Baber et al.
9,649,096 B2	5/2017	Sholev	9,737,302 B2	8/2017	Shelton, IV et al.
9,649,110 B2	5/2017	Parihar et al.	9,737,303 B2	8/2017	Shelton, IV et al.
9,649,111 B2	5/2017	Shelton, IV et al.	9,737,365 B2	8/2017	Hegeman et al.
9,655,613 B2	5/2017	Schaller	9,743,927 B2	8/2017	Whitman
9,655,614 B2	5/2017	Swensgard et al.	9,743,928 B2	8/2017	Shelton, IV et al.
9,655,615 B2	5/2017	Knodel et al.	9,743,929 B2	8/2017	Leimbach et al.
9,655,624 B2	5/2017	Shelton, IV et al.	D798,319 S	9/2017	Bergstrand et al.
9,662,108 B2	5/2017	Williams	9,750,498 B2	9/2017	Timm et al.
9,662,110 B2	5/2017	Huang et al.	9,750,499 B2	9/2017	Leimbach et al.
9,662,116 B2	5/2017	Smith et al.	9,750,501 B2	9/2017	Shelton, IV et al.
9,662,131 B2	5/2017	Omori et al.	9,750,502 B2	9/2017	Scirica et al.
D788,792 S	6/2017	Alessandri et al.	9,750,639 B2	9/2017	Barnes et al.
D790,570 S	6/2017	Butcher et al.	9,757,123 B2	9/2017	Giordano et al.
9,668,728 B2	6/2017	Williams et al.	9,757,124 B2	9/2017	Schellin et al.
			9,757,126 B2	9/2017	Cappola
			9,757,128 B2	9/2017	Baber et al.
			9,757,129 B2	9/2017	Williams
			9,757,130 B2	9/2017	Shelton, IV
			9,763,662 B2	9/2017	Shelton, IV et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,763,668	B2	9/2017	Whitfield et al.	9,844,379	B2	12/2017	Shelton, IV et al.
9,770,245	B2	9/2017	Swayze et al.	9,848,871	B2	12/2017	Harris et al.
9,770,274	B2	9/2017	Pool et al.	9,848,873	B2	12/2017	Shelton, IV
D798,886	S	10/2017	Prophete et al.	9,848,875	B2	12/2017	Aronhalt et al.
D800,742	S	10/2017	Rhodes	9,848,877	B2	12/2017	Shelton, IV et al.
D800,744	S	10/2017	Jitkoff et al.	9,855,662	B2	1/2018	Ruiz Morales et al.
D800,904	S	10/2017	Leimbach et al.	9,861,261	B2	1/2018	Shahinian
9,775,608	B2	10/2017	Aronhalt et al.	9,861,359	B2	1/2018	Shelton, IV et al.
9,775,609	B2	10/2017	Shelton, IV et al.	9,861,361	B2	1/2018	Aronhalt et al.
9,775,610	B2	10/2017	Nicholas et al.	9,861,382	B2	1/2018	Smith et al.
9,775,611	B2	10/2017	Kostrzewski	9,867,612	B2	1/2018	Parihar et al.
9,775,613	B2	10/2017	Shelton, IV et al.	9,867,618	B2	1/2018	Hall et al.
9,775,614	B2	10/2017	Shelton, IV et al.	9,867,620	B2	1/2018	Fischvogt et al.
9,775,635	B2	10/2017	Takei	9,868,198	B2	1/2018	Nicholas et al.
9,782,169	B2	10/2017	Kimsey et al.	9,872,682	B2	1/2018	Hess et al.
9,782,170	B2	10/2017	Zemlok et al.	9,872,683	B2	1/2018	Hopkins et al.
9,782,180	B2	10/2017	Smith et al.	9,872,684	B2	1/2018	Hall et al.
9,782,214	B2	10/2017	Houser et al.	9,877,721	B2	1/2018	Schellin et al.
9,788,834	B2	10/2017	Schmid et al.	9,877,723	B2	1/2018	Hall et al.
9,788,835	B2	10/2017	Morgan et al.	9,883,843	B2	2/2018	Garlow
9,788,836	B2	10/2017	Overmyer et al.	9,883,860	B2	2/2018	Leimbach et al.
9,788,847	B2	10/2017	Jinno	9,883,861	B2	2/2018	Shelton, IV et al.
9,788,851	B2	10/2017	Dannaher et al.	9,884,456	B2	2/2018	Schellin et al.
9,788,902	B2	10/2017	Inoue et al.	9,888,919	B2	2/2018	Leimbach et al.
9,795,379	B2	10/2017	Leimbach et al.	9,888,921	B2	2/2018	Williams et al.
9,795,381	B2	10/2017	Shelton, IV	9,888,924	B2	2/2018	Ebersole et al.
9,795,382	B2	10/2017	Shelton, IV	9,889,230	B2	2/2018	Bennett et al.
9,795,383	B2	10/2017	Aldridge et al.	9,895,147	B2	2/2018	Shelton, IV
9,795,384	B2	10/2017	Weaner et al.	9,895,148	B2	2/2018	Shelton, IV et al.
9,797,486	B2	10/2017	Zergiebel et al.	9,895,813	B2	2/2018	Blumenkranz et al.
9,801,626	B2	10/2017	Parihar et al.	9,901,341	B2	2/2018	Kostrzewski
9,801,627	B2	10/2017	Harris et al.	9,901,342	B2	2/2018	Shelton, IV et al.
9,801,628	B2	10/2017	Harris et al.	9,901,344	B2	2/2018	Moore et al.
9,801,634	B2	10/2017	Shelton, IV et al.	9,901,345	B2	2/2018	Moore et al.
9,802,033	B2	10/2017	Hibner et al.	9,901,346	B2	2/2018	Moore et al.
9,804,618	B2	10/2017	Leimbach et al.	9,907,456	B2	3/2018	Miyoshi
D803,234	S	11/2017	Day et al.	9,907,553	B2	3/2018	Cole et al.
D803,235	S	11/2017	Markson et al.	9,907,620	B2	3/2018	Shelton, IV et al.
D803,850	S	11/2017	Chang et al.	9,913,642	B2	3/2018	Leimbach et al.
9,808,244	B2	11/2017	Leimbach et al.	9,913,644	B2	3/2018	McCuen
9,808,246	B2	11/2017	Shelton, IV et al.	9,913,646	B2	3/2018	Shelton, IV
9,808,247	B2	11/2017	Shelton, IV et al.	9,913,647	B2	3/2018	Weisenburgh, II et al.
9,808,249	B2	11/2017	Shelton, IV	9,913,648	B2	3/2018	Shelton, IV et al.
9,814,460	B2	11/2017	Kimsey et al.	9,913,694	B2	3/2018	Brisson
9,814,462	B2	11/2017	Woodard, Jr. et al.	9,913,733	B2	3/2018	Piron et al.
9,814,561	B2	11/2017	Forsell	9,918,704	B2	3/2018	Shelton, IV et al.
9,820,737	B2	11/2017	Beardsley et al.	9,918,714	B2	3/2018	Gibbons, Jr.
9,820,738	B2	11/2017	Lytle, IV et al.	9,918,715	B2	3/2018	Menn
9,820,741	B2	11/2017	Kostrzewski	9,918,716	B2	3/2018	Baxter, III et al.
9,820,768	B2	11/2017	Gee et al.	9,924,942	B2	3/2018	Swayze et al.
9,825,455	B2	11/2017	Sandhu et al.	9,924,944	B2	3/2018	Shelton, IV et al.
9,826,976	B2	11/2017	Parihar et al.	9,924,945	B2	3/2018	Zheng et al.
9,826,977	B2	11/2017	Leimbach et al.	9,924,946	B2	3/2018	Vendely et al.
9,826,978	B2	11/2017	Shelton, IV et al.	9,924,947	B2	3/2018	Shelton, IV et al.
9,829,698	B2	11/2017	Haraguchi et al.	9,924,961	B2	3/2018	Shelton, IV et al.
D806,108	S	12/2017	Day	9,931,106	B2	4/2018	Au et al.
9,833,236	B2	12/2017	Shelton, IV et al.	9,931,116	B2	4/2018	Racenet et al.
9,833,238	B2	12/2017	Baxter, III et al.	9,931,118	B2	4/2018	Shelton, IV et al.
9,833,239	B2	12/2017	Yates et al.	9,936,949	B2	4/2018	Measamer et al.
9,833,241	B2	12/2017	Huitema et al.	9,936,950	B2	4/2018	Shelton, IV et al.
9,833,242	B2	12/2017	Baxter, III et al.	9,936,951	B2	4/2018	Hufnagel et al.
9,839,420	B2	12/2017	Shelton, IV et al.	9,936,954	B2	4/2018	Shelton, IV et al.
9,839,421	B2	12/2017	Zerkle et al.	9,937,626	B2	4/2018	Rockrohr
9,839,422	B2	12/2017	Schellin et al.	9,943,309	B2	4/2018	Shelton, IV et al.
9,839,423	B2	12/2017	Vendely et al.	9,943,310	B2	4/2018	Harris et al.
9,839,428	B2	12/2017	Baxter, III et al.	9,943,312	B2	4/2018	Posada et al.
9,839,429	B2	12/2017	Weisenburgh, II et al.	9,955,965	B2	5/2018	Chen et al.
9,839,480	B2	12/2017	Pribanic et al.	9,955,966	B2	5/2018	Zergiebel
9,844,368	B2	12/2017	Boudreaux et al.	9,962,158	B2	5/2018	Hall et al.
9,844,369	B2	12/2017	Huitema et al.	9,962,159	B2	5/2018	Heinrich et al.
9,844,372	B2	12/2017	Shelton, IV et al.	9,962,161	B2	5/2018	Scheib et al.
9,844,373	B2	12/2017	Swayze et al.	9,968,354	B2	5/2018	Shelton, IV et al.
9,844,374	B2	12/2017	Lytle, IV et al.	9,968,355	B2	5/2018	Shelton, IV et al.
9,844,375	B2	12/2017	Overmyer et al.	9,968,356	B2	5/2018	Shelton, IV et al.
9,844,376	B2	12/2017	Baxter, III et al.	9,968,397	B2	5/2018	Taylor et al.
				9,974,529	B2	5/2018	Shelton, IV et al.
				9,974,538	B2	5/2018	Baxter et al.
				9,974,539	B2	5/2018	Yates et al.
				9,980,713	B2	5/2018	Aronhalt et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

9,980,724 B2	5/2018	Farascioni et al.	10,098,642 B2	10/2018	Baxter, III et al.
9,980,729 B2	5/2018	Moore et al.	10,099,303 B2	10/2018	Yoshida et al.
9,980,769 B2	5/2018	Trees et al.	10,105,128 B2	10/2018	Cooper et al.
9,987,000 B2	6/2018	Shelton, IV et al.	10,105,136 B2	10/2018	Yates et al.
9,987,003 B2	6/2018	Timm et al.	10,105,139 B2	10/2018	Yates et al.
9,987,006 B2	6/2018	Morgan et al.	10,105,140 B2	10/2018	Malinouskas et al.
9,987,095 B2	6/2018	Chowaniec et al.	10,111,679 B2	10/2018	Baber et al.
9,987,099 B2	6/2018	Chen et al.	10,111,702 B2	10/2018	Kostrzewski
9,993,248 B2	6/2018	Shelton, IV et al.	10,117,649 B2	11/2018	Baxter, III et al.
9,993,258 B2	6/2018	Shelton, IV et al.	10,117,652 B2	11/2018	Schmid et al.
9,999,408 B2	6/2018	Boudreaux et al.	10,117,653 B2	11/2018	Leimbach et al.
9,999,423 B2	6/2018	Schuckmann et al.	10,117,654 B2	11/2018	Ingmanson et al.
9,999,426 B2	6/2018	Moore et al.	10,123,798 B2	11/2018	Baxter, III et al.
9,999,431 B2	6/2018	Shelton, IV et al.	10,130,352 B2	11/2018	Widenhouse et al.
10,004,497 B2	6/2018	Overmyer et al.	10,130,359 B2	11/2018	Hess et al.
10,004,498 B2	6/2018	Morgan et al.	10,130,361 B2	11/2018	Yates et al.
10,004,500 B2	6/2018	Shelton, IV et al.	10,130,363 B2	11/2018	Huitema et al.
10,004,501 B2	6/2018	Shelton, IV et al.	10,130,366 B2	11/2018	Shelton, IV et al.
10,004,505 B2	6/2018	Moore et al.	10,130,367 B2	11/2018	Cappola et al.
10,004,506 B2	6/2018	Shelton, IV et al.	10,130,830 B2	11/2018	Miret Carceller et al.
D822,206 S	7/2018	Shelton, IV et al.	10,133,248 B2	11/2018	Fitzsimmons et al.
10,010,322 B2	7/2018	Shelton, IV et al.	10,135,242 B2	11/2018	Baber et al.
10,010,324 B2	7/2018	Huitema et al.	10,136,887 B2	11/2018	Shelton, IV et al.
10,013,049 B2	7/2018	Leimbach et al.	10,136,889 B2	11/2018	Shelton, IV et al.
10,016,199 B2	7/2018	Baber et al.	10,136,890 B2	11/2018	Shelton, IV et al.
10,022,125 B2	7/2018	(Prommersberger) Stopek et al.	10,143,474 B2	12/2018	Bucciaglia et al.
10,024,407 B2	7/2018	Aranyi et al.	10,149,679 B2	12/2018	Shelton, IV et al.
10,028,742 B2	7/2018	Shelton, IV et al.	10,149,680 B2	12/2018	Parihar et al.
10,028,743 B2	7/2018	Shelton, IV et al.	10,149,682 B2	12/2018	Shelton, IV et al.
10,028,744 B2	7/2018	Shelton, IV et al.	10,149,683 B2	12/2018	Smith et al.
10,028,761 B2	7/2018	Leimbach et al.	10,149,712 B2	12/2018	Manwaring et al.
10,029,125 B2	7/2018	Shapiro et al.	10,154,841 B2	12/2018	Weaner et al.
10,034,344 B2	7/2018	Yoshida	10,159,483 B2	12/2018	Beckman et al.
10,034,668 B2	7/2018	Ebner	10,163,589 B2	12/2018	Zergiebel et al.
D826,405 S	8/2018	Shelton, IV et al.	10,166,025 B2	1/2019	Leimbach et al.
10,039,440 B2	8/2018	Fenech et al.	10,166,026 B2	1/2019	Shelton, IV et al.
10,039,529 B2	8/2018	Kerr et al.	10,172,611 B2	1/2019	Shelton, IV et al.
10,039,532 B2	8/2018	Srinivas et al.	10,172,616 B2	1/2019	Murray et al.
10,039,545 B2	8/2018	Sadowski et al.	10,172,617 B2	1/2019	Shelton, IV et al.
10,041,822 B2	8/2018	Zemlok	10,172,619 B2	1/2019	Harris et al.
10,045,769 B2	8/2018	Aronhalt et al.	10,172,620 B2	1/2019	Harris et al.
10,045,776 B2	8/2018	Shelton, IV et al.	10,172,636 B2	1/2019	Stulen et al.
10,045,778 B2	8/2018	Yates et al.	10,175,127 B2	1/2019	Collins et al.
10,045,779 B2	8/2018	Savage et al.	10,178,992 B2	1/2019	Wise et al.
10,045,781 B2	8/2018	Cropper et al.	10,180,463 B2	1/2019	Beckman et al.
10,052,044 B2	8/2018	Shelton, IV et al.	10,182,813 B2	1/2019	Leimbach et al.
10,052,099 B2	8/2018	Morgan et al.	10,182,816 B2	1/2019	Shelton, IV et al.
10,052,100 B2	8/2018	Morgan et al.	10,182,818 B2	1/2019	Hensel et al.
10,052,102 B2	8/2018	Baxter, III et al.	10,182,819 B2	1/2019	Shelton, IV
10,052,104 B2	8/2018	Shelton, IV et al.	10,188,385 B2	1/2019	Kerr et al.
10,052,164 B2	8/2018	Overmyer	10,188,393 B2	1/2019	Smith et al.
10,058,317 B2	8/2018	Fan et al.	10,188,394 B2	1/2019	Shelton, IV et al.
10,058,327 B2	8/2018	Weisenburgh, II et al.	D839,900 S	2/2019	Gan
10,058,395 B2	8/2018	Devengenzo et al.	10,194,904 B2	2/2019	Viola et al.
10,058,963 B2	8/2018	Shelton, IV et al.	10,194,910 B2	2/2019	Shelton, IV et al.
10,064,620 B2	9/2018	Gettinger et al.	10,194,913 B2	2/2019	Nalagatla et al.
10,064,621 B2	9/2018	Kerr et al.	10,201,349 B2	2/2019	Leimbach et al.
10,064,624 B2	9/2018	Shelton, IV et al.	10,201,363 B2	2/2019	Shelton, IV
10,064,639 B2	9/2018	Ishida et al.	10,201,364 B2	2/2019	Leimbach et al.
10,064,649 B2	9/2018	Golebieski et al.	10,201,365 B2	2/2019	Boudreaux et al.
10,064,688 B2	9/2018	Shelton, IV et al.	10,206,605 B2	2/2019	Shelton, IV et al.
10,070,861 B2	9/2018	Spivey et al.	10,206,676 B2	2/2019	Shelton, IV
10,070,863 B2	9/2018	Swayze et al.	10,206,677 B2	2/2019	Harris et al.
10,071,452 B2	9/2018	Shelton, IV et al.	10,206,678 B2	2/2019	Shelton, IV et al.
10,076,325 B2	9/2018	Huang et al.	10,211,586 B2	2/2019	Adams et al.
10,076,326 B2	9/2018	Yates et al.	10,213,201 B2	2/2019	Shelton, IV et al.
D831,209 S *	10/2018	Huitema D24/145	10,213,202 B2	2/2019	Flanagan et al.
10,085,624 B2	10/2018	Isoda et al.	10,213,203 B2	2/2019	Swayze et al.
10,085,728 B2	10/2018	Jogasaki et al.	10,213,262 B2	2/2019	Shelton, IV et al.
10,085,748 B2	10/2018	Morgan et al.	10,219,832 B2	3/2019	Bagwell et al.
10,085,751 B2	10/2018	Overmyer et al.	10,226,249 B2	3/2019	Jaworek et al.
10,085,806 B2	10/2018	Hagn et al.	10,226,250 B2	3/2019	Beckman et al.
10,092,292 B2	10/2018	Boudreaux et al.	10,231,634 B2	3/2019	Zand et al.
10,098,635 B2	10/2018	Burbank	10,231,653 B2	3/2019	Bohm et al.
10,098,636 B2	10/2018	Shelton, IV et al.	10,231,794 B2	3/2019	Shelton, IV et al.
			10,238,385 B2	3/2019	Yates et al.
			10,238,386 B2	3/2019	Overmyer et al.
			10,238,387 B2	3/2019	Yates et al.
			10,238,389 B2	3/2019	Yates et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

10,238,390	B2	3/2019	Harris et al.	2002/0091374	A1	7/2002	Cooper
10,238,391	B2	3/2019	Leimbach et al.	2002/0095175	A1	7/2002	Brock et al.
10,245,028	B2	4/2019	Shelton, IV et al.	2002/0103494	A1	8/2002	Pacey
10,245,029	B2	4/2019	Hunter et al.	2002/0117534	A1	8/2002	Green et al.
10,245,030	B2	4/2019	Hunter et al.	2002/0127265	A1	9/2002	Bowman et al.
10,245,032	B2	4/2019	Shelton, IV	2002/0128633	A1	9/2002	Brock et al.
10,245,033	B2	4/2019	Overmyer et al.	2002/0134811	A1	9/2002	Napier et al.
10,245,034	B2	4/2019	Shelton, IV et al.	2002/0135474	A1	9/2002	Sylliassen
10,245,035	B2	4/2019	Swayze et al.	2002/0143340	A1	10/2002	Kaneko
10,245,058	B2	4/2019	Omori et al.	2002/0158593	A1	10/2002	Henderson et al.
10,251,648	B2	4/2019	Harris et al.	2002/0185514	A1	12/2002	Adams et al.
10,251,725	B2	4/2019	Valentine et al.	2002/0188170	A1	12/2002	Santamore et al.
10,258,322	B2	4/2019	Fanton et al.	2002/0188287	A1	12/2002	Zvuloni et al.
10,258,330	B2	4/2019	Shelton, IV et al.	2003/0009193	A1	1/2003	Corsaro
10,258,331	B2	4/2019	Shelton, IV et al.	2003/0011245	A1	1/2003	Fiebig
10,258,332	B2	4/2019	Schmid et al.	2003/0066858	A1	4/2003	Holgersson
10,258,333	B2	4/2019	Shelton, IV et al.	2003/0078647	A1	4/2003	Vallana et al.
10,258,336	B2	4/2019	Baxter, III et al.	2003/0083648	A1	5/2003	Wang et al.
10,258,418	B2	4/2019	Shelton, IV et al.	2003/0084983	A1	5/2003	Rangachari et al.
10,264,797	B2	4/2019	Zhang et al.	2003/0093103	A1	5/2003	Malackowski et al.
10,265,065	B2	4/2019	Shelton, IV et al.	2003/0094356	A1	5/2003	Waldron
10,265,067	B2	4/2019	Yates et al.	2003/0096158	A1	5/2003	Takano et al.
10,265,068	B2	4/2019	Harris et al.	2003/0114851	A1	6/2003	Truckai et al.
10,265,072	B2	4/2019	Shelton, IV et al.	2003/0139741	A1	7/2003	Goble et al.
10,265,074	B2	4/2019	Shelton, IV et al.	2003/0153908	A1	8/2003	Goble et al.
10,265,090	B2	4/2019	Ingmanson et al.	2003/0153968	A1	8/2003	Geis et al.
10,271,844	B2	4/2019	Valentine et al.	2003/0163085	A1	8/2003	Tanner et al.
10,271,845	B2	4/2019	Shelton, IV	2003/0181900	A1	9/2003	Long
10,271,846	B2	4/2019	Shelton, IV et al.	2003/0190584	A1	10/2003	Heasley
10,271,849	B2	4/2019	Vendely et al.	2003/0195387	A1	10/2003	Kortenbach et al.
10,271,851	B2	4/2019	Shelton, IV et al.	2003/0205029	A1	11/2003	Chapolini et al.
D847,989	S	5/2019	Shelton, IV et al.	2003/0212005	A1	11/2003	Petito et al.
10,278,697	B2	5/2019	Shelton, IV et al.	2003/0216732	A1	11/2003	Truckai et al.
10,278,702	B2	5/2019	Shelton, IV et al.	2003/0236505	A1	12/2003	Bonadio et al.
10,278,707	B2	5/2019	Thompson et al.	2004/0006335	A1	1/2004	Garrison
10,278,722	B2	5/2019	Shelton, IV et al.	2004/0006340	A1	1/2004	Latterell et al.
10,278,780	B2	5/2019	Shelton, IV	2004/0007608	A1	1/2004	Ehrenfels et al.
10,285,694	B2	5/2019	Viola et al.	2004/0024457	A1	2/2004	Boyce et al.
10,285,695	B2	5/2019	Jaworek et al.	2004/0028502	A1	2/2004	Cummins
10,285,699	B2	5/2019	Vendely et al.	2004/0030333	A1	2/2004	Goble
10,285,705	B2	5/2019	Shelton, IV et al.	2004/0034357	A1	2/2004	Beane et al.
10,292,701	B2	5/2019	Scheib et al.	2004/0044295	A1	3/2004	Reinert et al.
10,292,704	B2	5/2019	Harris et al.	2004/0044364	A1	3/2004	DeVries et al.
10,292,707	B2	5/2019	Shelton, IV et al.	2004/0049121	A1	3/2004	Yaron
10,293,100	B2	5/2019	Shelton, IV et al.	2004/0049172	A1	3/2004	Root et al.
10,293,553	B2	5/2019	Racenet et al.	2004/0059362	A1	3/2004	Knodel et al.
10,299,787	B2	5/2019	Shelton, IV	2004/0068161	A1	4/2004	Couvillon
10,299,788	B2	5/2019	Heinrich et al.	2004/0068224	A1	4/2004	Couvillon et al.
10,299,792	B2	5/2019	Huitema et al.	2004/0068307	A1	4/2004	Goble
10,299,817	B2	5/2019	Shelton, IV et al.	2004/0070369	A1	4/2004	Sakakibara
10,299,818	B2	5/2019	Riva	2004/0073222	A1	4/2004	Koseki
10,299,878	B2	5/2019	Shelton, IV et al.	2004/0078037	A1	4/2004	Batchelor et al.
D850,617	S	6/2019	Shelton, IV et al.	2004/0085180	A1	5/2004	Juang
10,307,159	B2	6/2019	Harris et al.	2004/0093024	A1	5/2004	Lousararian et al.
10,307,160	B2	6/2019	Vendely et al.	2004/0098040	A1	5/2004	Taniguchi et al.
10,307,163	B2	6/2019	Moore et al.	2004/0101822	A1	5/2004	Wiesner et al.
10,307,170	B2	6/2019	Parfett et al.	2004/0102783	A1	5/2004	Sutterlin et al.
10,314,577	B2	6/2019	Laurent et al.	2004/0108357	A1	6/2004	Milliman et al.
10,314,582	B2	6/2019	Shelton, IV et al.	2004/0110439	A1	6/2004	Chaikof et al.
10,314,587	B2	6/2019	Harris et al.	2004/0115022	A1	6/2004	Albertson et al.
10,314,588	B2	6/2019	Turner et al.	2004/0116952	A1	6/2004	Sakurai et al.
10,314,589	B2	6/2019	Shelton, IV et al.	2004/0119185	A1	6/2004	Chen
10,314,590	B2	6/2019	Shelton, IV et al.	2004/0122419	A1	6/2004	Neuberger
10,315,566	B2	6/2019	Choi et al.	2004/0122423	A1	6/2004	Dycus et al.
2001/0000531	A1	4/2001	Casscells et al.	2004/0133095	A1	7/2004	Dunki-Jacobs et al.
2001/0025183	A1	9/2001	Shahidi	2004/0133189	A1	7/2004	Sakurai
2001/0025184	A1	9/2001	Messerly	2004/0143297	A1	7/2004	Ramsey
2002/0014510	A1	2/2002	Richter et al.	2004/0147909	A1	7/2004	Johnston et al.
2002/0022810	A1	2/2002	Urich	2004/0153100	A1	8/2004	Ahlberg et al.
2002/0022836	A1	2/2002	Goble et al.	2004/0158261	A1	8/2004	Vu
2002/0022861	A1	2/2002	Jacobs et al.	2004/0164123	A1	8/2004	Racenet et al.
2002/0029032	A1	3/2002	Arkin	2004/0166169	A1	8/2004	Malaviya et al.
2002/0029036	A1	3/2002	Goble et al.	2004/0167572	A1	8/2004	Roth et al.
2002/0042620	A1	4/2002	Julian et al.	2004/0181219	A1	9/2004	Goble et al.
2002/0087048	A1	7/2002	Brock et al.	2004/0193189	A1	9/2004	Kortenbach et al.
				2004/0197367	A1	10/2004	Rezania et al.
				2004/0199181	A1	10/2004	Knodel et al.
				2004/0204735	A1	10/2004	Shiroff et al.
				2004/0222268	A1	11/2004	Bilotti et al.

(56)		References Cited					
		U.S. PATENT DOCUMENTS					
2004/0225186	A1	11/2004	Horne et al.	2005/0274034	A1	12/2005	Hayashida et al.
2004/0232201	A1	11/2004	Wenchell et al.	2005/0283188	A1	12/2005	Loshakove et al.
2004/0236352	A1	11/2004	Wang et al.	2006/0008787	A1	1/2006	Hayman et al.
2004/0243147	A1	12/2004	Lipow	2006/0015009	A1	1/2006	Jaffe et al.
2004/0243151	A1	12/2004	Demmy et al.	2006/0020258	A1	1/2006	Strauss et al.
2004/0243163	A1	12/2004	Casiano et al.	2006/0020336	A1	1/2006	Liddicoat
2004/0247415	A1	12/2004	Mangone	2006/0025812	A1	2/2006	Shelton
2004/0249366	A1	12/2004	Kunz	2006/0041188	A1	2/2006	Dirusso et al.
2004/0254455	A1	12/2004	Iddan	2006/0047275	A1	3/2006	Goble
2004/0254566	A1	12/2004	Plicchi et al.	2006/0049229	A1	3/2006	Milliman et al.
2004/0254590	A1	12/2004	Hoffman et al.	2006/0052824	A1	3/2006	Ransick et al.
2004/0260315	A1	12/2004	Deli et al.	2006/0052825	A1	3/2006	Ransick et al.
2004/0267310	A1	12/2004	Racenet et al.	2006/0064086	A1	3/2006	Odom
2005/0010158	A1	1/2005	Brugger et al.	2006/0079735	A1	4/2006	Martone et al.
2005/0010213	A1	1/2005	Stad et al.	2006/0079879	A1	4/2006	Faller et al.
2005/0021078	A1	1/2005	Vleugels et al.	2006/0086032	A1	4/2006	Valencic et al.
2005/0032511	A1	2/2005	Malone et al.	2006/0087746	A1	4/2006	Lipow
2005/0033352	A1	2/2005	Zepf et al.	2006/0089535	A1	4/2006	Raz et al.
2005/0051163	A1	3/2005	Deem et al.	2006/0097699	A1	5/2006	Kamenoff
2005/0054946	A1	3/2005	Krzyzanowski	2006/0100643	A1	5/2006	Laufer et al.
2005/0057225	A1	3/2005	Marquet	2006/0100649	A1	5/2006	Hart
2005/0058890	A1	3/2005	Brazell et al.	2006/0111210	A1	5/2006	Hinman
2005/0059997	A1	3/2005	Bauman et al.	2006/0111711	A1	5/2006	Goble
2005/0070929	A1	3/2005	Dalessandro et al.	2006/0111723	A1	5/2006	Chapolini et al.
2005/0075561	A1	4/2005	Golden	2006/0116634	A1	6/2006	Shachar
2005/0080342	A1	4/2005	Gilreath et al.	2006/0142772	A1	6/2006	Ralph et al.
2005/0085693	A1	4/2005	Belson et al.	2006/0154546	A1	7/2006	Murphy et al.
2005/0090817	A1	4/2005	Phan	2006/0161050	A1	7/2006	Butler et al.
2005/0096683	A1	5/2005	Ellins et al.	2006/0161185	A1	7/2006	Saadat et al.
2005/0116673	A1	6/2005	Carl et al.	2006/0167471	A1	7/2006	Phillips
2005/0124855	A1	6/2005	Jaffe et al.	2006/0173470	A1	8/2006	Oray et al.
2005/0125897	A1	6/2005	Wyslucha et al.	2006/0176031	A1	8/2006	Forman et al.
2005/0130682	A1	6/2005	Takara et al.	2006/0178556	A1	8/2006	Hasser et al.
2005/0131173	A1	6/2005	McDaniel et al.	2006/0180633	A1	8/2006	Emmons
2005/0131211	A1	6/2005	Bayley et al.	2006/0180634	A1	8/2006	Shelton et al.
2005/0131390	A1	6/2005	Heinrich et al.	2006/0185682	A1	8/2006	Marczyk
2005/0131436	A1	6/2005	Johnston et al.	2006/0199999	A1	9/2006	Ikeda et al.
2005/0131457	A1	6/2005	Douglas et al.	2006/0201989	A1	9/2006	Ojeda
2005/0137454	A1	6/2005	Saadat et al.	2006/0206100	A1	9/2006	Eskridge et al.
2005/0137455	A1	6/2005	Ewers et al.	2006/0217729	A1	9/2006	Eskridge et al.
2005/0139636	A1	6/2005	Schwemberger et al.	2006/0235368	A1	10/2006	Oz
2005/0143759	A1	6/2005	Kelly	2006/0244460	A1	11/2006	Weaver
2005/0143769	A1	6/2005	White et al.	2006/0252990	A1	11/2006	Kubach
2005/0145671	A1	7/2005	Viola	2006/0252993	A1	11/2006	Freed et al.
2005/0150928	A1	7/2005	Kameyama et al.	2006/0258904	A1	11/2006	Stefanchik et al.
2005/0154258	A1	7/2005	Tartaglia et al.	2006/0259073	A1	11/2006	Miyamoto et al.
2005/0154406	A1	7/2005	Bombard et al.	2006/0261763	A1	11/2006	Iott et al.
2005/0159778	A1	7/2005	Heinrich et al.	2006/0263444	A1	11/2006	Ming et al.
2005/0165419	A1	7/2005	Sauer et al.	2006/0264831	A1	11/2006	Skwarek et al.
2005/0169974	A1	8/2005	Tenerz et al.	2006/0264929	A1	11/2006	Goble et al.
2005/0171522	A1	8/2005	Christopherson	2006/0271042	A1	11/2006	Latterell et al.
2005/0177181	A1	8/2005	Kagan et al.	2006/0271102	A1	11/2006	Bosshard et al.
2005/0177249	A1	8/2005	Kladakis et al.	2006/0282064	A1	12/2006	Shimizu et al.
2005/0182298	A1	8/2005	Ikeda et al.	2006/0284730	A1	12/2006	Schmid et al.
2005/0184121	A1	8/2005	Heinrich	2006/0287576	A1	12/2006	Tsuji et al.
2005/0186240	A1	8/2005	Ringeisen et al.	2006/0289602	A1	12/2006	Wales et al.
2005/0187545	A1	8/2005	Hooven et al.	2006/0291981	A1	12/2006	Viola et al.
2005/0203550	A1	9/2005	Laufer et al.	2007/0010702	A1	1/2007	Wang et al.
2005/0209614	A1	9/2005	Fenter et al.	2007/0010838	A1	1/2007	Shelton et al.
2005/0216055	A1	9/2005	Scirica et al.	2007/0016235	A1	1/2007	Tanaka et al.
2005/0222587	A1	10/2005	Jinno et al.	2007/0026039	A1	2/2007	Drumheller et al.
2005/0222611	A1	10/2005	Weitkamp	2007/0026040	A1	2/2007	Crawley et al.
2005/0222616	A1	10/2005	Rethy et al.	2007/0027468	A1	2/2007	Wales et al.
2005/0222665	A1	10/2005	Aranyi	2007/0027551	A1	2/2007	Farnsworth et al.
2005/0228224	A1	10/2005	Okada et al.	2007/0043387	A1	2/2007	Vargas et al.
2005/0228446	A1	10/2005	Mooradian et al.	2007/0049951	A1	3/2007	Menn
2005/0230453	A1	10/2005	Viola	2007/0049966	A1	3/2007	Bonadio et al.
2005/0240178	A1	10/2005	Morley et al.	2007/0051375	A1	3/2007	Milliman
2005/0245965	A1	11/2005	Orban, III et al.	2007/0055228	A1	3/2007	Berg et al.
2005/0246881	A1	11/2005	Kelly et al.	2007/0073341	A1	3/2007	Smith et al.
2005/0251063	A1	11/2005	Basude	2007/0073389	A1	3/2007	Bolduc et al.
2005/0256452	A1	11/2005	DeMarchi et al.	2007/0078328	A1	4/2007	Ozaki et al.
2005/0261676	A1	11/2005	Hall et al.	2007/0078484	A1	4/2007	Talarico et al.
2005/0263563	A1	12/2005	Racenet et al.	2007/0084897	A1	4/2007	Shelton et al.
2005/0267455	A1	12/2005	Eggers et al.	2007/0088376	A1	4/2007	Zacharias
				2007/0090788	A1	4/2007	Hansford et al.
				2007/0093869	A1	4/2007	Bloom et al.
				2007/0102472	A1	5/2007	Shelton
				2007/0106113	A1	5/2007	Ravo

(56)

References Cited

U.S. PATENT DOCUMENTS

2007/0106317	A1	5/2007	Shelton et al.	2008/0200755	A1	8/2008	Bakos
2007/0134251	A1	6/2007	Ashkenazi et al.	2008/0200762	A1	8/2008	Stokes et al.
2007/0135686	A1	6/2007	Pruitt et al.	2008/0200835	A1	8/2008	Monson et al.
2007/0135803	A1	6/2007	Belson	2008/0200911	A1	8/2008	Long
2007/0152612	A1	7/2007	Chen et al.	2008/0200933	A1	8/2008	Bakos et al.
2007/0155010	A1	7/2007	Farnsworth et al.	2008/0200934	A1	8/2008	Fox
2007/0170225	A1	7/2007	Shelton et al.	2008/0234709	A1	9/2008	Houser
2007/0173687	A1	7/2007	Shima et al.	2008/0242939	A1	10/2008	Johnston
2007/0173813	A1	7/2007	Odom	2008/0249536	A1	10/2008	Stahler et al.
2007/0175950	A1	8/2007	Shelton et al.	2008/0249608	A1	10/2008	Dave
2007/0175951	A1	8/2007	Shelton et al.	2008/0255413	A1	10/2008	Zemlok et al.
2007/0175955	A1	8/2007	Shelton et al.	2008/0262654	A1	10/2008	Omori et al.
2007/0179477	A1	8/2007	Danger	2008/0269596	A1	10/2008	Revie et al.
2007/0185545	A1	8/2007	Duke	2008/0281171	A1	11/2008	Fennell et al.
2007/0190110	A1	8/2007	Pameijer et al.	2008/0287944	A1	11/2008	Pearson et al.
2007/0191868	A1	8/2007	Theroux et al.	2008/0293910	A1	11/2008	Kapiamba et al.
2007/0194079	A1	8/2007	Hueil et al.	2008/0294179	A1	11/2008	Balbierz et al.
2007/0194082	A1	8/2007	Morgan et al.	2008/0296346	A1	12/2008	Shelton, IV et al.
2007/0197954	A1	8/2007	Keenan	2008/0297287	A1	12/2008	Shachar et al.
2007/0198039	A1	8/2007	Jones et al.	2008/0308602	A1	12/2008	Timm et al.
2007/0203510	A1	8/2007	Bettuchi	2008/0308603	A1	12/2008	Shelton et al.
2007/0207010	A1	9/2007	Caspi	2008/0312687	A1	12/2008	Blier
2007/0208359	A1	9/2007	Hoffman	2008/0315829	A1	12/2008	Jones et al.
2007/0208375	A1	9/2007	Nishizawa et al.	2009/0001121	A1	1/2009	Hess et al.
2007/0213750	A1	9/2007	Weadock	2009/0001130	A1	1/2009	Hess et al.
2007/0225562	A1	9/2007	Spivey et al.	2009/0004455	A1	1/2009	Gravagna et al.
2007/0233163	A1	10/2007	Bombard et al.	2009/0005809	A1	1/2009	Hess et al.
2007/0243227	A1	10/2007	Gertner	2009/0012534	A1	1/2009	Madhani et al.
2007/0244471	A1	10/2007	Malackowski	2009/0015195	A1	1/2009	Loth-Krausser
2007/0246505	A1	10/2007	Pace-Florida et al.	2009/0020958	A1	1/2009	Soul
2007/0262592	A1	11/2007	Hwang et al.	2009/0048583	A1	2/2009	Williams et al.
2007/0275035	A1	11/2007	Herman et al.	2009/0048589	A1	2/2009	Takashino et al.
2007/0276409	A1	11/2007	Ortiz et al.	2009/0076506	A1	3/2009	Baker
2007/0279011	A1	12/2007	Jones et al.	2009/0078736	A1	3/2009	Van Lue
2007/0286892	A1	12/2007	Herzberg et al.	2009/0081313	A1	3/2009	Aghion et al.
2007/0296286	A1	12/2007	Avenell	2009/0088659	A1	4/2009	Graham et al.
2008/0003196	A1	1/2008	Jonn et al.	2009/0090763	A1	4/2009	Zemlok et al.
2008/0015598	A1	1/2008	Prommersberger	2009/0092651	A1	4/2009	Shah et al.
2008/0021486	A1	1/2008	Oyola et al.	2009/0099579	A1	4/2009	Nentwick et al.
2008/0029570	A1	2/2008	Shelton et al.	2009/0099876	A1	4/2009	Whitman
2008/0029573	A1	2/2008	Shelton et al.	2009/0119011	A1	5/2009	Kondo et al.
2008/0029574	A1	2/2008	Shelton et al.	2009/0132400	A1	5/2009	Conway
2008/0029575	A1	2/2008	Shelton et al.	2009/0143855	A1	6/2009	Weber et al.
2008/0030170	A1	2/2008	Dacquay et al.	2009/0149871	A9	6/2009	Kagan et al.
2008/0042861	A1	2/2008	Dacquay et al.	2009/0171147	A1	7/2009	Lee et al.
2008/0051833	A1	2/2008	Gramuglia et al.	2009/0177226	A1	7/2009	Reinprecht et al.
2008/0064921	A1	3/2008	Larkin et al.	2009/0181290	A1	7/2009	Baldwin et al.
2008/0065153	A1	3/2008	Allard et al.	2009/0188964	A1	7/2009	Orlov
2008/0071328	A1	3/2008	Haubrich et al.	2009/0198272	A1	8/2009	Kerver et al.
2008/0078802	A1	4/2008	Hess et al.	2009/0204108	A1	8/2009	Steffen
2008/0082114	A1	4/2008	McKenna et al.	2009/0204109	A1	8/2009	Grove et al.
2008/0082125	A1	4/2008	Murray et al.	2009/0206125	A1	8/2009	Huitema et al.
2008/0082126	A1	4/2008	Murray et al.	2009/0206126	A1	8/2009	Huitema et al.
2008/0083807	A1	4/2008	Beardsley et al.	2009/0206131	A1	8/2009	Weisenburgh, II et al.
2008/0085296	A1	4/2008	Powell et al.	2009/0206133	A1	8/2009	Morgan et al.
2008/0086078	A1	4/2008	Powell et al.	2009/0206137	A1	8/2009	Hall et al.
2008/0091072	A1	4/2008	Omori et al.	2009/0206139	A1	8/2009	Hall et al.
2008/0108443	A1	5/2008	Jinno et al.	2009/0206141	A1	8/2009	Huitema et al.
2008/0114250	A1	5/2008	Urbano et al.	2009/0206142	A1	8/2009	Huitema et al.
2008/0125634	A1	5/2008	Ryan et al.	2009/0221993	A1	9/2009	Sohi et al.
2008/0125749	A1	5/2008	Olson	2009/0234273	A1	9/2009	Intoccia et al.
2008/0128469	A1	6/2008	Dalessandro et al.	2009/0242610	A1	10/2009	Shelton, IV et al.
2008/0129253	A1	6/2008	Shiue et al.	2009/0247368	A1	10/2009	Chiang
2008/0135600	A1	6/2008	Hiranuma et al.	2009/0247901	A1	10/2009	Zimmer
2008/0140115	A1	6/2008	Stopek	2009/0248041	A1	10/2009	Williams et al.
2008/0140159	A1	6/2008	Bornhoft et al.	2009/0253959	A1	10/2009	Yoshie et al.
2008/0154299	A1	6/2008	Livneh	2009/0255974	A1*	10/2009	Viola A61B 17/07207 227/176.1
2008/0154335	A1	6/2008	Thrope et al.	2009/0262078	A1	10/2009	Pizzi
2008/0169328	A1	7/2008	Shelton	2009/0270895	A1	10/2009	Churchill et al.
2008/0169332	A1	7/2008	Shelton et al.	2009/0290016	A1	11/2009	Suda
2008/0169333	A1	7/2008	Shelton et al.	2009/0292283	A1	11/2009	Odom
2008/0172087	A1	7/2008	Fuchs et al.	2009/0306639	A1	12/2009	Nevo et al.
2008/0190989	A1	8/2008	Crews et al.	2009/0308907	A1	12/2009	Nalagatla et al.
2008/0196419	A1	8/2008	Dube	2009/0318557	A1	12/2009	Stockel
2008/0197167	A1	8/2008	Viola et al.	2010/0005035	A1	1/2010	Carpenter et al.
				2010/0012703	A1	1/2010	Calabrese et al.
				2010/0016888	A1	1/2010	Calabrese et al.
				2010/0023024	A1	1/2010	Zeiner et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2010/0030233	A1	2/2010	Whitman et al.	2011/0241597	A1	10/2011	Zhu et al.
2010/0036370	A1	2/2010	Mirel et al.	2011/0275901	A1	11/2011	Shelton, IV
2010/0057118	A1	3/2010	Dietz et al.	2011/0276083	A1	11/2011	Shelton, IV et al.
2010/0065604	A1	3/2010	Weng	2011/0278343	A1	11/2011	Knodel et al.
2010/0069942	A1	3/2010	Shelton, IV	2011/0279268	A1	11/2011	Konishi et al.
2010/0076483	A1	3/2010	Imuta	2011/0290856	A1	12/2011	Shelton, IV et al.
2010/0076489	A1	3/2010	Stopek et al.	2011/0293690	A1	12/2011	Griffin et al.
2010/0081883	A1	4/2010	Murray et al.	2011/0295295	A1	12/2011	Shelton, IV et al.
2010/0094340	A1	4/2010	Stopek et al.	2011/0313894	A1	12/2011	Dye et al.
2010/0100124	A1	4/2010	Calabrese et al.	2011/0315413	A1	12/2011	Fisher et al.
2010/0116519	A1	5/2010	Gareis	2012/0004636	A1	1/2012	Lo
2010/0122339	A1	5/2010	Boccacci	2012/0007442	A1	1/2012	Rhodes et al.
2010/0133317	A1	6/2010	Shelton, IV et al.	2012/0016239	A1	1/2012	Barthe et al.
2010/0145146	A1	6/2010	Melder	2012/0016413	A1	1/2012	Timm et al.
2010/0147921	A1	6/2010	Olson	2012/0016467	A1	1/2012	Chen et al.
2010/0147922	A1	6/2010	Olson	2012/0029272	A1	2/2012	Shelton, IV et al.
2010/0179022	A1	7/2010	Shirokoshi	2012/0033360	A1	2/2012	Hsu
2010/0180711	A1	7/2010	Kilibarda et al.	2012/0059286	A1	3/2012	Hastings et al.
2010/0191262	A1	7/2010	Harris et al.	2012/0064483	A1	3/2012	Lint et al.
2010/0191292	A1	7/2010	DeMeo et al.	2012/0074200	A1	3/2012	Schmid et al.
2010/0193566	A1	8/2010	Scheib et al.	2012/0078139	A1	3/2012	Aldridge et al.
2010/0204717	A1	8/2010	Knodel	2012/0078244	A1	3/2012	Worrell et al.
2010/0204721	A1	8/2010	Young et al.	2012/0080336	A1	4/2012	Shelton, IV et al.
2010/0222901	A1	9/2010	Swayze et al.	2012/0080344	A1	4/2012	Shelton, IV
2010/0241137	A1	9/2010	Doyle et al.	2012/0080478	A1	4/2012	Morgan et al.
2010/0249497	A1	9/2010	Peine et al.	2012/0080498	A1	4/2012	Shelton, IV et al.
2010/0256675	A1	10/2010	Romans	2012/0086276	A1	4/2012	Sawyers
2010/0258327	A1	10/2010	Esenwein et al.	2012/0095458	A1	4/2012	Cybulski et al.
2010/0267662	A1	10/2010	Fielder et al.	2012/0109186	A1	5/2012	Parrott et al.
2010/0274160	A1	10/2010	Yachi et al.	2012/0116261	A1	5/2012	Mumaw et al.
2010/0292540	A1	11/2010	Hess et al.	2012/0116262	A1	5/2012	Houser et al.
2010/0298636	A1	11/2010	Castro et al.	2012/0116265	A1	5/2012	Houser et al.
2010/0312261	A1	12/2010	Suzuki et al.	2012/0116266	A1	5/2012	Houser et al.
2010/0318085	A1	12/2010	Austin et al.	2012/0118595	A1	5/2012	Pellenc
2010/0331856	A1	12/2010	Carlson et al.	2012/0123463	A1	5/2012	Jacobs
2011/0006101	A1	1/2011	Hall et al.	2012/0125792	A1	5/2012	Cassivi
2011/0011915	A1*	1/2011	Shelton, IV A61B 17/07207 227/176.1	2012/0130217	A1	5/2012	Kauphusman et al.
2011/0011916	A1	1/2011	Levine	2012/0132286	A1	5/2012	Lim et al.
2011/0016960	A1	1/2011	Debrailly	2012/0171539	A1	7/2012	Rejman et al.
2011/0021871	A1	1/2011	Berkelaar	2012/0175398	A1	7/2012	Sandborn et al.
2011/0022032	A1	1/2011	Zemlok et al.	2012/0197272	A1	8/2012	Oray et al.
2011/0024477	A1	2/2011	Hall	2012/0211542	A1	8/2012	Racenet
2011/0024478	A1	2/2011	Shelton, IV	2012/0234895	A1	9/2012	O'Connor et al.
2011/0025311	A1	2/2011	Chauvin et al.	2012/0234897	A1	9/2012	Shelton, IV et al.
2011/0034910	A1	2/2011	Ross et al.	2012/0239068	A1	9/2012	Morris et al.
2011/0036891	A1	2/2011	Zemlok et al.	2012/0248169	A1	10/2012	Widenhouse et al.
2011/0046667	A1	2/2011	Culligan et al.	2012/0251861	A1	10/2012	Liang et al.
2011/0060363	A1	3/2011	Hess et al.	2012/0253328	A1	10/2012	Cunningham et al.
2011/0066156	A1	3/2011	McGahan et al.	2012/0283707	A1	11/2012	Giordano et al.
2011/0082538	A1	4/2011	Dahlgren et al.	2012/0289979	A1	11/2012	Eskaros et al.
2011/0087276	A1	4/2011	Bedi et al.	2012/0292367	A1	11/2012	Morgan et al.
2011/0088921	A1	4/2011	Forgues et al.	2012/0298722	A1	11/2012	Hess et al.
2011/0095064	A1	4/2011	Taylor et al.	2012/0303002	A1	11/2012	Chowaniec et al.
2011/0101069	A1	5/2011	Bombard et al.	2013/0006227	A1	1/2013	Takashino
2011/0101794	A1	5/2011	Schroeder et al.	2013/0012983	A1	1/2013	Kleyman
2011/0112517	A1	5/2011	Peine et al.	2013/0018400	A1	1/2013	Milton et al.
2011/0112530	A1	5/2011	Keller	2013/0020375	A1	1/2013	Shelton, IV et al.
2011/0114697	A1	5/2011	Baxter, III et al.	2013/0020376	A1	1/2013	Shelton, IV et al.
2011/0121049	A1	5/2011	Malinouskas et al.	2013/0023861	A1	1/2013	Shelton, IV et al.
2011/0125176	A1	5/2011	Yates et al.	2013/0023910	A1	1/2013	Solomon et al.
2011/0127945	A1	6/2011	Yoneda	2013/0026208	A1	1/2013	Shelton, IV et al.
2011/0129706	A1	6/2011	Takahashi et al.	2013/0026210	A1	1/2013	Shelton, IV et al.
2011/0144764	A1	6/2011	Bagga et al.	2013/0030462	A1	1/2013	Keating et al.
2011/0147433	A1	6/2011	Shelton, IV et al.	2013/0041292	A1	2/2013	Cunningham
2011/0160725	A1	6/2011	Kabaya et al.	2013/0057162	A1	3/2013	Pollischansky
2011/0163146	A1	7/2011	Ortiz et al.	2013/0062393	A1*	3/2013	Bruewer A61B 17/00491 227/176.1
2011/0172495	A1	7/2011	Armstrong	2013/0068816	A1	3/2013	Mandakolathur Vasudevan et al.
2011/0174861	A1	7/2011	Shelton, IV et al.	2013/0087597	A1	4/2013	Shelton, IV et al.
2011/0192882	A1	8/2011	Hess et al.	2013/0087599	A1*	4/2013	Krumanaker A61B 17/072 227/176.1
2011/0199225	A1	8/2011	Touchberry et al.	2013/0090534	A1	4/2013	Burns et al.
2011/0218400	A1	9/2011	Ma et al.	2013/0096568	A1	4/2013	Justis
2011/0218550	A1	9/2011	Ma	2013/0098970	A1	4/2013	Racenet et al.
2011/0230713	A1	9/2011	Kleemann et al.	2013/0105552	A1	5/2013	Weir et al.
2011/0238044	A1	9/2011	Main et al.	2013/0116669	A1	5/2013	Shelton, IV et al.
				2013/0123816	A1	5/2013	Hodgkinson et al.
				2013/0126202	A1	5/2013	Oomori et al.
				2013/0131476	A1	5/2013	Siu et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2013/0131651	A1	5/2013	Strobl et al.		2014/0249557	A1	9/2014	Koch, Jr. et al.
2013/0136969	A1	5/2013	Yasui et al.		2014/0249573	A1	9/2014	Arav
2013/0153635	A1*	6/2013	Hodgkinson	A61B 17/07207 227/176.1	2014/0263541	A1	9/2014	Leimbach et al.
2013/0153636	A1	6/2013	Shelton, IV et al.		2014/0263552	A1	9/2014	Hall et al.
2013/0153641	A1	6/2013	Shelton, IV et al.		2014/0263554	A1	9/2014	Leimbach et al.
2013/0158390	A1	6/2013	Tan et al.		2014/0263558	A1	9/2014	Hausen et al.
2013/0162198	A1	6/2013	Yokota et al.		2014/0276730	A1	9/2014	Boudreaux et al.
2013/0172878	A1	7/2013	Smith		2014/0284371	A1	9/2014	Morgan et al.
2013/0175317	A1	7/2013	Yates et al.		2014/0288460	A1	9/2014	Ouyang et al.
2013/0181033	A1	7/2013	Shelton, IV et al.		2014/0291378	A1	10/2014	Shelton, IV et al.
2013/0181034	A1	7/2013	Shelton, IV et al.		2014/0291379	A1	10/2014	Schellin et al.
2013/0214025	A1	8/2013	Zemlok et al.		2014/0291383	A1	10/2014	Spivey et al.
2013/0214030	A1*	8/2013	Aronhalt	A61B 17/0682 227/176.1	2014/0299648	A1	10/2014	Shelton, IV et al.
2013/0233906	A1	9/2013	Hess et al.		2014/0303645	A1	10/2014	Morgan et al.
2013/0238021	A1	9/2013	Gross et al.		2014/0303660	A1	10/2014	Boyden et al.
2013/0245704	A1	9/2013	Koltz et al.		2014/0309666	A1	10/2014	Shelton, IV et al.
2013/0248578	A1	9/2013	Arteaga Gonzalez		2014/0330161	A1	11/2014	Swayze et al.
2013/0253480	A1	9/2013	Kimball et al.		2014/0330579	A1	11/2014	Cashman et al.
2013/0256373	A1	10/2013	Schmid et al.		2014/0367445	A1	12/2014	Ingmanson et al.
2013/0256379	A1	10/2013	Schmid et al.		2014/0374130	A1	12/2014	Nakamura et al.
2013/0256380	A1	10/2013	Schmid et al.		2014/0378950	A1	12/2014	Chiu
2013/0270322	A1	10/2013	Scheib et al.		2015/0002089	A1	1/2015	Rejman et al.
2013/0277410	A1	10/2013	Fernandez et al.		2015/0008248	A1	1/2015	Giordano et al.
2013/0317753	A1	11/2013	Kamen et al.		2015/0053737	A1	2/2015	Leimbach et al.
2013/0324982	A1	12/2013	Smith et al.		2015/0053742	A1	2/2015	Shelton, IV et al.
2013/0327552	A1	12/2013	Lovell et al.		2015/0053743	A1	2/2015	Yates et al.
2013/0327810	A1*	12/2013	Swayze	A61B 17/072 227/180.1	2015/0053746	A1	2/2015	Shelton, IV et al.
2013/0333910	A1	12/2013	Tanimoto et al.		2015/0053748	A1	2/2015	Yates et al.
2013/0334280	A1	12/2013	Krehel et al.		2015/0060518	A1	3/2015	Shelton, IV et al.
2013/0334283	A1	12/2013	Swayze et al.		2015/0060519	A1	3/2015	Shelton, IV et al.
2013/0334284	A1*	12/2013	Swayze	A61B 17/0682 227/180.1	2015/0060520	A1	3/2015	Shelton, IV et al.
2013/0334285	A1	12/2013	Swayze et al.		2015/0060521	A1	3/2015	Weisenburgh, II et al.
2013/0341374	A1	12/2013	Shelton, IV et al.		2015/0066000	A1	3/2015	An et al.
2014/0001231	A1	1/2014	Shelton, IV et al.		2015/0076207	A1	3/2015	Boudreaux et al.
2014/0001234	A1	1/2014	Shelton, IV et al.		2015/0076208	A1	3/2015	Shelton, IV
2014/0005640	A1	1/2014	Shelton, IV et al.		2015/0076209	A1	3/2015	Shelton, IV et al.
2014/0005678	A1	1/2014	Shelton, IV et al.		2015/0076210	A1	3/2015	Shelton, IV et al.
2014/0005702	A1	1/2014	Timm et al.		2015/0076212	A1	3/2015	Shelton, IV
2014/0005718	A1	1/2014	Shelton, IV et al.		2015/0080868	A1	3/2015	Kerr
2014/0012289	A1	1/2014	Snow et al.		2015/0083781	A1	3/2015	Giordano et al.
2014/0012299	A1	1/2014	Stoddard et al.		2015/0083782	A1	3/2015	Scheib et al.
2014/0014705	A1	1/2014	Baxter, III		2015/0088547	A1	3/2015	Balram et al.
2014/0018832	A1	1/2014	Shelton, IV		2015/0090760	A1	4/2015	Giordano et al.
2014/0039549	A1	2/2014	Belsky et al.		2015/0090761	A1	4/2015	Giordano et al.
2014/0048580	A1	2/2014	Merchant et al.		2015/0090762	A1	4/2015	Giordano et al.
2014/0081176	A1	3/2014	Hassan		2015/0108199	A1	4/2015	Shelton, IV et al.
2014/0094681	A1	4/2014	Valentine et al.		2015/0122870	A1	5/2015	Zemlok et al.
2014/0100558	A1	4/2014	Schmitz et al.		2015/0134077	A1	5/2015	Shelton, IV et al.
2014/0107640	A1	4/2014	Yates et al.		2015/0148830	A1	5/2015	Stulen et al.
2014/0110456	A1	4/2014	Taylor		2015/0150554	A1	6/2015	Soltz
2014/0115229	A1	4/2014	Kothamasu et al.		2015/0150620	A1	6/2015	Miyamoto et al.
2014/0131418	A1	5/2014	Kostrzewski		2015/0173749	A1	6/2015	Shelton, IV et al.
2014/0151433	A1	6/2014	Shelton, IV et al.		2015/0173756	A1	6/2015	Baxter, III et al.
2014/0158747	A1	6/2014	Measamer et al.		2015/0173789	A1	6/2015	Baxter, III et al.
2014/0166724	A1	6/2014	Schellin et al.		2015/0182220	A1	7/2015	Yates et al.
2014/0166725	A1	6/2014	Schellin et al.		2015/0196295	A1	7/2015	Shelton, IV et al.
2014/0166726	A1	6/2014	Schellin et al.		2015/0196296	A1	7/2015	Swayze et al.
2014/0171966	A1	6/2014	Giordano et al.		2015/0196299	A1	7/2015	Swayze et al.
2014/0175147	A1	6/2014	Manoux et al.		2015/0196348	A1	7/2015	Yates et al.
2014/0175150	A1	6/2014	Shelton, IV et al.		2015/0201918	A1	7/2015	Kumar et al.
2014/0175152	A1	6/2014	Hess et al.		2015/0201932	A1	7/2015	Swayze et al.
2014/0188159	A1	7/2014	Steege		2015/0201936	A1	7/2015	Swayze et al.
2014/0207124	A1	7/2014	Aldridge et al.		2015/0201937	A1	7/2015	Swayze et al.
2014/0207125	A1	7/2014	Applegate et al.		2015/0201938	A1	7/2015	Swayze et al.
2014/0209658	A1	7/2014	Skalla et al.		2015/0201939	A1	7/2015	Swayze et al.
2014/0224857	A1	8/2014	Schmid		2015/0201940	A1	7/2015	Swayze et al.
2014/0228867	A1	8/2014	Thomas et al.		2015/0201941	A1	7/2015	Swayze et al.
2014/0230595	A1	8/2014	Butt et al.		2015/0222212	A1	8/2015	Iwata
2014/0243865	A1	8/2014	Swayze et al.		2015/0223868	A1	8/2015	Brandt et al.
2014/0246475	A1	9/2014	Hall et al.		2015/0231409	A1	8/2015	Racenet et al.
2014/0248167	A1	9/2014	Sugimoto et al.		2015/0238118	A1	8/2015	Legassey et al.
					2015/0272557	A1	10/2015	Overmyer et al.
					2015/0272571	A1	10/2015	Leimbach et al.
					2015/0272580	A1	10/2015	Leimbach et al.
					2015/0272582	A1	10/2015	Leimbach et al.
					2015/0272604	A1	10/2015	Chowaniec et al.
					2015/0297200	A1	10/2015	Fitzsimmons et al.
					2015/0297222	A1	10/2015	Huitema et al.
					2015/0297223	A1	10/2015	Huitema et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2015/0297225	A1	10/2015	Huitema et al.	2016/0235405	A1	8/2016	Shelton, IV et al.
2015/0297228	A1	10/2015	Huitema et al.	2016/0235408	A1	8/2016	Shelton, IV et al.
2015/0297229	A1	10/2015	Schellin et al.	2016/0235409	A1	8/2016	Shelton, IV et al.
2015/0297233	A1	10/2015	Huitema et al.	2016/0235467	A1	8/2016	Godara et al.
2015/0297234	A1	10/2015	Schellin et al.	2016/0235494	A1	8/2016	Shelton, IV et al.
2015/0297235	A1	10/2015	Harris et al.	2016/0242776	A1	8/2016	Shelton, IV et al.
2015/0297236	A1	10/2015	Harris et al.	2016/0242777	A1	8/2016	Shelton, IV et al.
2015/0302539	A1	10/2015	Mazar et al.	2016/0242781	A1	8/2016	Shelton, IV et al.
2015/0303417	A1	10/2015	Koeder et al.	2016/0242782	A1	8/2016	Shelton, IV et al.
2015/0313594	A1	11/2015	Shelton, IV et al.	2016/0242783	A1	8/2016	Shelton, IV et al.
2015/0324317	A1	11/2015	Collins et al.	2016/0249910	A1	9/2016	Shelton, IV et al.
2015/0327864	A1	11/2015	Hodgkinson et al.	2016/0249911	A1	9/2016	Timm et al.
2015/0336249	A1	11/2015	Iwata et al.	2016/0249916	A1	9/2016	Shelton, IV et al.
2015/0342607	A1	12/2015	Shelton, IV et al.	2016/0249922	A1	9/2016	Morgan et al.
2015/0351762	A1	12/2015	Vendely et al.	2016/0256071	A1	9/2016	Shelton, IV et al.
2015/0352699	A1	12/2015	Sakai et al.	2016/0256154	A1	9/2016	Shelton, IV et al.
2015/0366585	A1	12/2015	Lemay et al.	2016/0256159	A1	9/2016	Pinjala et al.
2015/0372265	A1	12/2015	Morisaku et al.	2016/0256160	A1	9/2016	Shelton, IV et al.
2015/0374361	A1	12/2015	Gettinger et al.	2016/0256185	A1	9/2016	Shelton, IV et al.
2015/0374369	A1	12/2015	Yates et al.	2016/0256229	A1	9/2016	Morgan et al.
2015/0374371	A1	12/2015	Richard et al.	2016/0262745	A1	9/2016	Morgan et al.
2015/0374372	A1	12/2015	Zergiebel et al.	2016/0262746	A1	9/2016	Shelton, IV et al.
2015/0374375	A1	12/2015	Shelton, IV et al.	2016/0270780	A1	9/2016	Hall et al.
2015/0374376	A1	12/2015	Shelton, IV	2016/0278765	A1	9/2016	Shelton, IV et al.
2015/0374378	A1	12/2015	Giordano et al.	2016/0287249	A1	10/2016	Alexander, III et al.
2016/0000430	A1	1/2016	Ming et al.	2016/0287250	A1	10/2016	Shelton, IV et al.
2016/0000431	A1	1/2016	Giordano et al.	2016/0287253	A1	10/2016	Shelton, IV et al.
2016/0000437	A1	1/2016	Giordano et al.	2016/0287279	A1	10/2016	Bovay et al.
2016/0000438	A1	1/2016	Swayze et al.	2016/0310143	A1	10/2016	Bettuchi
2016/0000442	A1	1/2016	Shelton, IV	2016/0331375	A1	11/2016	Shelton, IV et al.
2016/0000452	A1	1/2016	Yates et al.	2016/0345976	A1	12/2016	Gonzalez et al.
2016/0000453	A1	1/2016	Yates et al.	2016/0346034	A1	12/2016	Arya et al.
2016/0015391	A1	1/2016	Shelton, IV et al.	2016/0354085	A1	12/2016	Shelton, IV et al.
2016/0023342	A1	1/2016	Koenig et al.	2016/0367122	A1	12/2016	Ichimura et al.
2016/0030042	A1	2/2016	Heinrich et al.	2016/0367246	A1	12/2016	Baxter, III et al.
2016/0051257	A1	2/2016	Shelton, IV et al.	2016/0367254	A1	12/2016	Baxter, III et al.
2016/0058443	A1	3/2016	Yates et al.	2016/0367255	A1	12/2016	Wise et al.
2016/0066913	A1	3/2016	Swayze et al.	2016/0374672	A1	12/2016	Bear et al.
2016/0069449	A1	3/2016	Kanai et al.	2016/0374675	A1	12/2016	Shelton, IV et al.
2016/0074040	A1	3/2016	Widenhouse et al.	2017/0000485	A1	1/2017	Shelton, IV et al.
2016/0074103	A1	3/2016	Sartor	2017/0007236	A1	1/2017	Shelton, IV et al.
2016/0082161	A1	3/2016	Zilberman et al.	2017/0007237	A1	1/2017	Yates et al.
2016/0089137	A1	3/2016	Hess et al.	2017/0007238	A1	1/2017	Yates et al.
2016/0089142	A1	3/2016	Harris et al.	2017/0007239	A1	1/2017	Shelton, IV
2016/0089146	A1	3/2016	Harris et al.	2017/0007241	A1	1/2017	Shelton, IV et al.
2016/0089149	A1	3/2016	Harris et al.	2017/0007243	A1	1/2017	Shelton, IV et al.
2016/0089198	A1	3/2016	Arya et al.	2017/0007244	A1	1/2017	Shelton, IV et al.
2016/0095585	A1	4/2016	Zergiebel et al.	2017/0007245	A1	1/2017	Shelton, IV et al.
2016/0106431	A1	4/2016	Shelton, IV et al.	2017/0007246	A1	1/2017	Shelton, IV et al.
2016/0113653	A1	4/2016	Zingman	2017/0007247	A1	1/2017	Shelton, IV et al.
2016/0120544	A1	5/2016	Shelton, IV et al.	2017/0007248	A1	1/2017	Shelton, IV et al.
2016/0120545	A1	5/2016	Shelton, IV et al.	2017/0007249	A1	1/2017	Shelton, IV et al.
2016/0166248	A1	6/2016	Deville et al.	2017/0007250	A1	1/2017	Shelton, IV et al.
2016/0166256	A1	6/2016	Baxter et al.	2017/0007251	A1	1/2017	Yates et al.
2016/0166308	A1	6/2016	Manwaring et al.	2017/0007347	A1	1/2017	Jaworek et al.
2016/0174974	A1	6/2016	Schmid et al.	2017/0014125	A1	1/2017	Shelton, IV et al.
2016/0183939	A1	6/2016	Shelton, IV et al.	2017/0027572	A1	2/2017	Nalagatla et al.
2016/0183943	A1	6/2016	Shelton, IV	2017/0027573	A1	2/2017	Nalagatla et al.
2016/0183944	A1	6/2016	Swensgard et al.	2017/0027574	A1	2/2017	Nalagatla et al.
2016/0192916	A1	7/2016	Shelton, IV et al.	2017/0049444	A1	2/2017	Schellin et al.
2016/0192917	A1	7/2016	Shelton, IV et al.	2017/0049447	A1	2/2017	Barton et al.
2016/0192918	A1	7/2016	Shelton, IV et al.	2017/0049448	A1	2/2017	Widenhouse et al.
2016/0192977	A1	7/2016	Manwaring et al.	2017/0055986	A1	3/2017	Harris et al.
2016/0199059	A1	7/2016	Shelton, IV et al.	2017/0055991	A1	3/2017	Kang
2016/0199061	A1	7/2016	Shelton, IV et al.	2017/0055998	A1	3/2017	Baxter, III et al.
2016/0199063	A1	7/2016	Mandakolathur Vasudevan et al.	2017/0055999	A1	3/2017	Baxter, III et al.
2016/0199089	A1	7/2016	Hess et al.	2017/0056000	A1	3/2017	Nalagatla et al.
2016/0199956	A1	7/2016	Shelton, IV et al.	2017/0056002	A1	3/2017	Nalagatla et al.
2016/0206310	A1	7/2016	Shelton, IV	2017/0056005	A1	3/2017	Shelton, IV et al.
2016/0206314	A1	7/2016	Scheib et al.	2017/0056006	A1	3/2017	Shelton, IV et al.
2016/0220248	A1	8/2016	Timm et al.	2017/0056007	A1	3/2017	Eckert et al.
2016/0220266	A1	8/2016	Shelton, IV et al.	2017/0056014	A1	3/2017	Harris et al.
2016/0220314	A1	8/2016	Huelman et al.	2017/0079640	A1	3/2017	Overmyer et al.
2016/0235403	A1	8/2016	Shelton, IV et al.	2017/0079642	A1	3/2017	Overmyer et al.
2016/0235404	A1	8/2016	Shelton, IV	2017/0079643	A1	3/2017	Yates et al.
				2017/0086827	A1	3/2017	Vendely et al.
				2017/0086829	A1	3/2017	Vendely et al.
				2017/0086830	A1	3/2017	Yates et al.
				2017/0086831	A1	3/2017	Shelton, IV et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2017/0086832	A1	3/2017	Harris et al.	2017/0296172	A1	10/2017	Harris et al.
2017/0086835	A1	3/2017	Harris et al.	2017/0296173	A1	10/2017	Shelton, IV et al.
2017/0086836	A1	3/2017	Harris et al.	2017/0296177	A1	10/2017	Harris et al.
2017/0086837	A1	3/2017	Vendely et al.	2017/0296178	A1	10/2017	Miller et al.
2017/0086838	A1	3/2017	Harris et al.	2017/0296179	A1	10/2017	Shelton, IV et al.
2017/0086842	A1	3/2017	Shelton, IV et al.	2017/0296180	A1	10/2017	Harris et al.
2017/0086843	A1	3/2017	Vendely et al.	2017/0296183	A1	10/2017	Shelton, IV et al.
2017/0086844	A1	3/2017	Vendely et al.	2017/0296184	A1	10/2017	Harris et al.
2017/0095250	A1	4/2017	Kostrzewski et al.	2017/0296185	A1	10/2017	Swensgard et al.
2017/0119386	A1	5/2017	Scheib et al.	2017/0296189	A1	10/2017	Vendely et al.
2017/0119387	A1	5/2017	Dalessandro et al.	2017/0296190	A1	10/2017	Aronhalt et al.
2017/0119390	A1	5/2017	Schellin et al.	2017/0296191	A1	10/2017	Shelton, IV et al.
2017/0119392	A1	5/2017	Shelton, IV et al.	2017/0296213	A1	10/2017	Swensgard et al.
2017/0119397	A1	5/2017	Harris et al.	2017/0311944	A1	11/2017	Morgan et al.
2017/0135695	A1	5/2017	Shelton, IV et al.	2017/0311949	A1	11/2017	Shelton, IV
2017/0135697	A1	5/2017	Mozdzierz et al.	2017/0311950	A1	11/2017	Shelton, IV et al.
2017/0150983	A1	6/2017	Ingmanson et al.	2017/0312041	A1	11/2017	Giordano et al.
2017/0172382	A1	6/2017	Nir et al.	2017/0312042	A1	11/2017	Giordano et al.
2017/0172662	A1	6/2017	Panescu et al.	2017/0319201	A1	11/2017	Morgan et al.
2017/0172672	A1	6/2017	Bailey et al.	2017/0319207	A1	11/2017	Shelton, IV et al.
2017/0182211	A1	6/2017	Raxworthy et al.	2017/0319209	A1	11/2017	Morgan et al.
2017/0189019	A1	7/2017	Harris et al.	2017/0325813	A1	11/2017	Aranyi et al.
2017/0196558	A1	7/2017	Morgan et al.	2017/0333034	A1	11/2017	Morgan et al.
2017/0196561	A1	7/2017	Shelton, IV et al.	2017/0333035	A1	11/2017	Morgan et al.
2017/0196562	A1	7/2017	Shelton, IV et al.	2017/0333070	A1	11/2017	Laurent et al.
2017/0196637	A1	7/2017	Shelton, IV et al.	2017/0348043	A1	12/2017	Wang et al.
2017/0196649	A1	7/2017	Yates et al.	2017/0354415	A1	12/2017	Casasanta, Jr. et al.
2017/0202596	A1	7/2017	Shelton, IV et al.	2017/0360441	A1	12/2017	Sgroi
2017/0209145	A1	7/2017	Swayze et al.	2017/0360442	A1	12/2017	Shelton, IV et al.
2017/0209146	A1	7/2017	Yates et al.	2017/0367695	A1	12/2017	Shelton, IV et al.
2017/0209226	A1	7/2017	Overmyer et al.	2017/0367696	A1	12/2017	Shelton, IV et al.
2017/0215881	A1	8/2017	Shelton, IV et al.	2017/0367697	A1	12/2017	Shelton, IV et al.
2017/0224330	A1	8/2017	Worthington et al.	2017/0367698	A1	12/2017	Shelton, IV et al.
2017/0224331	A1	8/2017	Worthington et al.	2017/0367699	A1	12/2017	Shelton, IV et al.
2017/0224332	A1	8/2017	Hunter et al.	2017/0367700	A1	12/2017	Leimbach et al.
2017/0224334	A1	8/2017	Worthington et al.	2017/0367991	A1	12/2017	Widenhouse et al.
2017/0224335	A1	8/2017	Weaner et al.	2018/0000483	A1	1/2018	Leimbach et al.
2017/0224339	A1	8/2017	Huang et al.	2018/0000545	A1	1/2018	Giordano et al.
2017/0224342	A1	8/2017	Worthington et al.	2018/0008270	A1	1/2018	Moore et al.
2017/0224343	A1	8/2017	Baxter et al.	2018/0008271	A1	1/2018	Moore et al.
2017/0231626	A1	8/2017	Shelton, IV et al.	2018/0008356	A1	1/2018	Giordano et al.
2017/0231627	A1	8/2017	Shelton, IV et al.	2018/0008357	A1	1/2018	Giordano et al.
2017/0231628	A1	8/2017	Shelton, IV et al.	2018/0028184	A1	2/2018	Shelton, IV et al.
2017/0238928	A1	8/2017	Morgan et al.	2018/0028185	A1	2/2018	Shelton, IV et al.
2017/0238929	A1	8/2017	Yates et al.	2018/0042611	A1	2/2018	Swayze et al.
2017/0245952	A1	8/2017	Shelton, IV et al.	2018/0049824	A1	2/2018	Harris et al.
2017/0249431	A1	8/2017	Shelton, IV et al.	2018/0049883	A1	2/2018	Moskowitz et al.
2017/0258469	A1	9/2017	Shelton, IV et al.	2018/0055513	A1	3/2018	Shelton, IV et al.
2017/0265856	A1	9/2017	Shelton, IV et al.	2018/0055524	A1	3/2018	Shelton, IV et al.
2017/0281155	A1	10/2017	Shelton, IV et al.	2018/0055525	A1	3/2018	Shelton, IV et al.
2017/0281161	A1	10/2017	Shelton, IV et al.	2018/0055526	A1	3/2018	Shelton, IV et al.
2017/0281162	A1	10/2017	Shelton, IV et al.	2018/0064437	A1	3/2018	Yates et al.
2017/0281164	A1	10/2017	Harris et al.	2018/0064440	A1	3/2018	Shelton, IV et al.
2017/0281166	A1	10/2017	Morgan et al.	2018/0064441	A1	3/2018	Shelton, IV et al.
2017/0281167	A1	10/2017	Shelton, IV et al.	2018/0064442	A1	3/2018	Shelton, IV et al.
2017/0281168	A1	10/2017	Shelton, IV et al.	2018/0064443	A1	3/2018	Shelton, IV et al.
2017/0281169	A1	10/2017	Harris et al.	2018/0070939	A1	3/2018	Giordano et al.
2017/0281171	A1	10/2017	Shelton, IV et al.	2018/0070942	A1	3/2018	Shelton, IV et al.
2017/0281172	A1	10/2017	Shelton, IV et al.	2018/0078248	A1	3/2018	Swayze et al.
2017/0281173	A1	10/2017	Shelton, IV et al.	2018/0085116	A1	3/2018	Yates et al.
2017/0281174	A1	10/2017	Harris et al.	2018/0085117	A1	3/2018	Shelton, IV et al.
2017/0281177	A1	10/2017	Harris et al.	2018/0103952	A1	4/2018	Aronhalt et al.
2017/0281178	A1	10/2017	Shelton, IV et al.	2018/0103953	A1	4/2018	Shelton, IV et al.
2017/0281179	A1	10/2017	Shelton, IV et al.	2018/0103955	A1	4/2018	Shelton, IV et al.
2017/0281180	A1	10/2017	Morgan et al.	2018/0110516	A1	4/2018	Baxter, III et al.
2017/0281183	A1	10/2017	Miller et al.	2018/0110518	A1	4/2018	Overmyer et al.
2017/0281184	A1	10/2017	Shelton, IV et al.	2018/0110519	A1	4/2018	Lytle, IV et al.
2017/0281185	A1	10/2017	Miller et al.	2018/0110520	A1	4/2018	Shelton, IV et al.
2017/0281186	A1	10/2017	Shelton, IV et al.	2018/0110521	A1	4/2018	Shelton, IV et al.
2017/0281187	A1	10/2017	Shelton, IV et al.	2018/0110522	A1	4/2018	Shelton, IV et al.
2017/0281189	A1	10/2017	Nalagatla et al.	2018/0110523	A1	4/2018	Shelton, IV
2017/0290585	A1	10/2017	Shelton, IV et al.	2018/0110574	A1	4/2018	Shelton, IV et al.
2017/0296169	A1	10/2017	Yates et al.	2018/0110575	A1	4/2018	Shelton, IV et al.
2017/0296170	A1	10/2017	Shelton, IV et al.	2018/0114591	A1	4/2018	Pribanic et al.
2017/0296171	A1	10/2017	Shelton, IV et al.	2018/0116658	A1	5/2018	Aronhalt, IV et al.
				2018/0116662	A1	5/2018	Shelton, IV et al.
				2018/0116665	A1	5/2018	Hall et al.
				2018/0125481	A1	5/2018	Yates et al.
				2018/0125487	A1	5/2018	Beardsley

(56)

References Cited

U.S. PATENT DOCUMENTS

2018/0125488	A1	5/2018	Morgan et al.	2018/0168638	A1	6/2018	Harris et al.
2018/0125489	A1	5/2018	Leimbach et al.	2018/0168639	A1	6/2018	Shelton, IV et al.
2018/0125590	A1	5/2018	Giordano et al.	2018/0168640	A1	6/2018	Shelton, IV et al.
2018/0126504	A1	5/2018	Shelton, IV et al.	2018/0168641	A1	6/2018	Harris et al.
2018/0132845	A1	5/2018	Schmid et al.	2018/0168642	A1	6/2018	Shelton, IV et al.
2018/0132850	A1	5/2018	Leimbach et al.	2018/0168643	A1	6/2018	Shelton, IV et al.
2018/0132851	A1	5/2018	Hall et al.	2018/0168644	A1	6/2018	Shelton, IV et al.
2018/0132952	A1	5/2018	Spivey et al.	2018/0168645	A1	6/2018	Shelton, IV et al.
2018/0133856	A1	5/2018	Shelton, IV et al.	2018/0168646	A1	6/2018	Shelton, IV et al.
2018/0140299	A1	5/2018	Weaner et al.	2018/0168647	A1	6/2018	Shelton, IV et al.
2018/0140368	A1	5/2018	Shelton, IV et al.	2018/0168648	A1	6/2018	Shelton, IV et al.
2018/0146960	A1	5/2018	Shelton, IV et al.	2018/0168649	A1	6/2018	Shelton, IV et al.
2018/0153542	A1	6/2018	Shelton, IV et al.	2018/0168650	A1	6/2018	Shelton, IV et al.
2018/0161034	A1	6/2018	Scheib et al.	2018/0168651	A1	6/2018	Shelton, IV et al.
2018/0168575	A1	6/2018	Simms et al.	2018/0199940	A1	7/2018	Zergiebel et al.
2018/0168576	A1	6/2018	Hunter et al.	2018/0206843	A1	7/2018	Yates et al.
2018/0168577	A1	6/2018	Aronhalt et al.	2018/0206906	A1	7/2018	Moua et al.
2018/0168578	A1	6/2018	Aronhalt et al.	2018/0214147	A1	8/2018	Merchant et al.
2018/0168579	A1	6/2018	Aronhalt et al.	2018/0221046	A1	8/2018	Demmy et al.
2018/0168580	A1	6/2018	Hunter et al.	2018/0221050	A1	8/2018	Kostrzewski et al.
2018/0168581	A1	6/2018	Hunter et al.	2018/0228490	A1	8/2018	Richard et al.
2018/0168582	A1	6/2018	Swayze et al.	2018/0250001	A1	9/2018	Aronhalt et al.
2018/0168583	A1	6/2018	Hunter et al.	2018/0256184	A1	9/2018	Shelton, IV et al.
2018/0168584	A1	6/2018	Harris et al.	2018/0271520	A1	9/2018	Shelton, IV et al.
2018/0168585	A1	6/2018	Shelton, IV et al.	2018/0273597	A1	9/2018	Stimson
2018/0168586	A1	6/2018	Shelton, IV et al.	2018/0280020	A1	10/2018	Hess et al.
2018/0168589	A1	6/2018	Swayze et al.	2018/0280021	A1	10/2018	Timm et al.
2018/0168590	A1	6/2018	Overmyer et al.	2018/0280023	A1	10/2018	Timm et al.
2018/0168591	A1	6/2018	Swayze et al.	2018/0286274	A1	10/2018	Kamiguchi et al.
2018/0168592	A1	6/2018	Overmyer et al.	2018/0289369	A1	10/2018	Shelton, IV et al.
2018/0168593	A1	6/2018	Overmyer et al.	2018/0296211	A1	10/2018	Timm et al.
2018/0168594	A1	6/2018	Shelton, IV et al.	2018/0296215	A1	10/2018	Baxter, III et al.
2018/0168595	A1	6/2018	Overmyer et al.	2018/0296216	A1	10/2018	Shelton, IV et al.
2018/0168596	A1	6/2018	Beckman et al.	2018/0296217	A1	10/2018	Moore et al.
2018/0168597	A1	6/2018	Fanelli et al.	2018/0303481	A1	10/2018	Shelton, IV et al.
2018/0168598	A1	6/2018	Shelton, IV et al.	2018/0303482	A1	10/2018	Shelton, IV et al.
2018/0168599	A1	6/2018	Bakos et al.	2018/0310931	A1	11/2018	Hall et al.
2018/0168600	A1	6/2018	Shelton, IV et al.	2018/0311002	A1	11/2018	Giordano et al.
2018/0168601	A1	6/2018	Bakos et al.	2018/0317907	A1	11/2018	Kostrzewski
2018/0168602	A1	6/2018	Bakos et al.	2018/0317917	A1	11/2018	Huang et al.
2018/0168603	A1	6/2018	Morgan et al.	2018/0317918	A1	11/2018	Shelton, IV
2018/0168604	A1	6/2018	Shelton, IV et al.	2018/0317919	A1	11/2018	Shelton, IV et al.
2018/0168605	A1	6/2018	Baber et al.	2018/0333155	A1	11/2018	Hall et al.
2018/0168606	A1	6/2018	Shelton, IV et al.	2018/0333169	A1	11/2018	Leimbach et al.
2018/0168607	A1	6/2018	Shelton, IV et al.	2018/0344319	A1	12/2018	Shelton, IV et al.
2018/0168608	A1	6/2018	Shelton, IV et al.	2018/0353170	A1	12/2018	Overmyer et al.
2018/0168609	A1	6/2018	Fanelli et al.	2018/0353176	A1	12/2018	Shelton, IV et al.
2018/0168610	A1	6/2018	Shelton, IV et al.	2018/0353177	A1	12/2018	Shelton, IV et al.
2018/0168611	A1	6/2018	Shelton, IV et al.	2018/0353178	A1	12/2018	Shelton, IV et al.
2018/0168612	A1	6/2018	Shelton, IV et al.	2018/0353179	A1	12/2018	Shelton, IV et al.
2018/0168613	A1	6/2018	Shelton, IV et al.	2018/0360443	A1	12/2018	Shelton, IV et al.
2018/0168614	A1	6/2018	Shelton, IV et al.	2018/0360444	A1	12/2018	Harris et al.
2018/0168615	A1	6/2018	Shelton, IV et al.	2018/0360445	A1	12/2018	Shelton, IV et al.
2018/0168616	A1	6/2018	Shelton, IV et al.	2018/0360446	A1	12/2018	Shelton, IV et al.
2018/0168617	A1	6/2018	Shelton, IV et al.	2018/0360447	A1	12/2018	Shelton, IV et al.
2018/0168618	A1	6/2018	Scott et al.	2018/0360448	A1	12/2018	Harris et al.
2018/0168619	A1	6/2018	Scott et al.	2018/0360449	A1	12/2018	Shelton, IV et al.
2018/0168620	A1	6/2018	Huang et al.	2018/0360450	A1	12/2018	Shelton, IV et al.
2018/0168621	A1	6/2018	Shelton, IV et al.	2018/0360451	A1	12/2018	Shelton, IV et al.
2018/0168622	A1	6/2018	Shelton, IV et al.	2018/0360452	A1	12/2018	Shelton, IV et al.
2018/0168623	A1	6/2018	Simms et al.	2018/0360454	A1	12/2018	Shelton, IV et al.
2018/0168624	A1	6/2018	Shelton, IV et al.	2018/0360455	A1	12/2018	Shelton, IV et al.
2018/0168625	A1	6/2018	Posada et al.	2018/0360456	A1	12/2018	Shelton, IV et al.
2018/0168626	A1	6/2018	Shelton, IV et al.	2018/0360469	A1	12/2018	Shelton, IV et al.
2018/0168627	A1	6/2018	Weaner et al.	2018/0360471	A1	12/2018	Parfett et al.
2018/0168628	A1	6/2018	Hunter et al.	2018/0360472	A1	12/2018	Harris et al.
2018/0168629	A1	6/2018	Shelton, IV et al.	2018/0360473	A1	12/2018	Shelton, IV et al.
2018/0168630	A1	6/2018	Shelton, IV et al.	2018/0368822	A1	12/2018	Shelton, IV et al.
2018/0168631	A1	6/2018	Harris et al.	2018/0368833	A1	12/2018	Shelton, IV et al.
2018/0168632	A1	6/2018	Harris et al.	2018/0368837	A1	12/2018	Morgan et al.
2018/0168633	A1	6/2018	Shelton, IV et al.	2018/0368838	A1	12/2018	Shelton, IV et al.
2018/0168634	A1	6/2018	Harris et al.	2018/0368839	A1	12/2018	Shelton, IV et al.
2018/0168635	A1	6/2018	Shelton, IV et al.	2018/0368840	A1	12/2018	Shelton, IV et al.
2018/0168636	A1	6/2018	Shelton, IV et al.	2018/0368841	A1	12/2018	Shelton, IV et al.
2018/0168637	A1	6/2018	Harris et al.	2018/0368842	A1	12/2018	Shelton, IV et al.
				2018/0368843	A1	12/2018	Shelton, IV et al.
				2018/0368844	A1	12/2018	Bakos et al.
				2018/0368845	A1	12/2018	Bakos et al.
				2018/0368846	A1	12/2018	Shelton, IV et al.

(56)

References Cited

U.S. PATENT DOCUMENTS

2018/0368847 A1 12/2018 Shelton, IV et al.
 2019/0000446 A1 1/2019 Shelton, IV et al.
 2019/0000447 A1 1/2019 Shelton, IV et al.
 2019/0000448 A1 1/2019 Shelton, IV et al.
 2019/0000450 A1 1/2019 Shelton, IV et al.
 2019/0000454 A1 1/2019 Swayze et al.
 2019/0000456 A1 1/2019 Shelton, IV et al.
 2019/0000457 A1 1/2019 Shelton, IV et al.
 2019/0000458 A1 1/2019 Shelton, IV et al.
 2019/0000459 A1 1/2019 Shelton, IV et al.
 2019/0000460 A1 1/2019 Shelton, IV et al.
 2019/0000461 A1 1/2019 Shelton, IV et al.
 2019/0000462 A1 1/2019 Shelton, IV et al.
 2019/0000463 A1 1/2019 Shelton, IV et al.
 2019/0000464 A1 1/2019 Shelton, IV et al.
 2019/0000465 A1 1/2019 Shelton, IV et al.
 2019/0000466 A1 1/2019 Shelton, IV et al.
 2019/0000467 A1 1/2019 Shelton, IV et al.
 2019/0000469 A1 1/2019 Shelton, IV et al.
 2019/0000470 A1 1/2019 Yates et al.
 2019/0000471 A1 1/2019 Shelton, IV et al.
 2019/0000472 A1 1/2019 Shelton, IV et al.
 2019/0000473 A1 1/2019 Shelton, IV et al.
 2019/0000474 A1 1/2019 Shelton, IV et al.
 2019/0000475 A1 1/2019 Shelton, IV et al.
 2019/0000476 A1 1/2019 Shelton, IV et al.
 2019/0000477 A1 1/2019 Shelton, IV et al.
 2019/0000478 A1 1/2019 Messerly et al.
 2019/0000479 A1 1/2019 Harris et al.
 2019/0000525 A1 1/2019 Messerly et al.
 2019/0000528 A1 1/2019 Yates et al.
 2019/0000530 A1 1/2019 Yates et al.
 2019/0000534 A1 1/2019 Messerly et al.
 2019/0000565 A1 1/2019 Shelton, IV et al.
 2019/0008509 A1 1/2019 Shelton, IV et al.
 2019/0008511 A1 1/2019 Kerr et al.
 2019/0015096 A1 1/2019 Shelton, IV et al.
 2019/0015102 A1 1/2019 Baber et al.
 2019/0015165 A1 1/2019 Giordano et al.
 2019/0029675 A1 1/2019 Yates et al.
 2019/0029676 A1 1/2019 Yates et al.
 2019/0029677 A1 1/2019 Yates et al.
 2019/0029678 A1 1/2019 Shelton, IV et al.
 2019/0029681 A1 1/2019 Swayze et al.
 2019/0029682 A1 1/2019 Huitema et al.
 2019/0029701 A1 1/2019 Shelton, IV et al.
 2019/0033955 A1 1/2019 Leimbach et al.
 2019/0038279 A1 2/2019 Shelton, IV et al.
 2019/0038281 A1 2/2019 Shelton, IV et al.
 2019/0038282 A1 2/2019 Shelton, IV et al.
 2019/0038283 A1 2/2019 Shelton, IV et al.
 2019/0038371 A1 2/2019 Wixey et al.
 2019/0046187 A1 2/2019 Yates et al.
 2019/0059886 A1 2/2019 Shelton, IV et al.
 2019/0090870 A1 3/2019 Shelton, IV et al.
 2019/0090871 A1 3/2019 Shelton, IV et al.
 2019/0099177 A1 4/2019 Yates et al.
 2019/0099178 A1 4/2019 Leimbach et al.
 2019/0099179 A1 4/2019 Leimbach et al.
 2019/0099180 A1 4/2019 Leimbach et al.
 2019/0099181 A1 4/2019 Shelton, IV et al.
 2019/0099182 A1 4/2019 Bakos et al.
 2019/0099183 A1 4/2019 Leimbach et al.
 2019/0099184 A1 4/2019 Setser et al.
 2019/0099224 A1 4/2019 Leimbach et al.
 2019/0099229 A1 4/2019 Spivey et al.
 2019/0102930 A1 4/2019 Leimbach et al.
 2019/0105035 A1 4/2019 Shelton, IV et al.
 2019/0105036 A1 4/2019 Morgan et al.
 2019/0105037 A1 4/2019 Morgan et al.
 2019/0105038 A1 4/2019 Schmid et al.
 2019/0105039 A1 4/2019 Morgan et al.
 2019/0105043 A1 4/2019 Jaworek et al.
 2019/0105044 A1 4/2019 Shelton, IV et al.
 2019/0105049 A1 4/2019 Moore et al.

2019/0110791 A1 4/2019 Shelton, IV et al.
 2019/0110792 A1 4/2019 Shelton, IV et al.
 2019/0110793 A1 4/2019 Parihar et al.
 2019/0117216 A1 4/2019 Overmyer et al.
 2019/0117217 A1 4/2019 Overmyer et al.
 2019/0117222 A1 4/2019 Shelton, IV et al.
 2019/0117224 A1 4/2019 Setser et al.
 2019/0117225 A1 4/2019 Moore et al.
 2019/0125343 A1 5/2019 Wise et al.
 2019/0125344 A1 5/2019 DiNardo et al.
 2019/0125345 A1 5/2019 Baber et al.
 2019/0125365 A1 5/2019 Parfett et al.
 2019/0125380 A1 5/2019 Hunter et al.
 2019/0125475 A1 5/2019 Wise et al.
 2019/0133585 A1 5/2019 Smith et al.
 2019/0142421 A1 5/2019 Shelton, IV

FOREIGN PATENT DOCUMENTS

EP 0548998 A1 6/1993
 EP 2116196 A2 * 11/2009 A61B 17/0644
 EP 3363378 A1 * 8/2018 A61B 17/0686
 JP 2014121599 A * 7/2014 A61B 17/07292

OTHER PUBLICATIONS

Science Direct. Link: <https://www.sciencedirect.com/science/article/pii/S0169409X01002393?via%3Dihub>. Jan. 17, 2002. "Hydrogels for biomedical applications" by Hoffman, Allan S. *Advanced Drug Delivery Reviews* vol. 54, Issue 1, pp. 3-12. (Year: 2002).*

Google Books. Link: https://books.google.com/books?id=Gb6w54X7Kw0C&vq=365&source=gbs_navlinks_s. Mar. 11, 2010. *RFID For Dummies*, p. 365, by Patrick J. Sweeney, II. (Year: 2010).*

Schellhammer et al., "Poly-Lactic-Acid for Coating of Endovascular Stents: Preliminary Results in Canine Experimental Av-Fistulae," *Mat.-wiss. u. Werkstofftech.*, 32, pp. 193-199 (2001).

Miyata et al., "Biomolecule-Sensitive Hydrogels," *Advanced Drug Delivery Reviews*, 54 (2002) pp. 79-98.

Jeong et al., "Thermosensitive Sol-Gel Reversible Hydrogels," *Advanced Drug Delivery Reviews*, 54 (2002) pp. 37-51.

Covidien Brochure, "Endo GIA™ Ultra Universal Stapler," (2010), 2 pages.

Qiu et al., "Environment-Sensitive Hydrogels for Drug Delivery," *Advanced Drug Delivery Reviews*, 53 (2001) pp. 321-339.

Hoffman, "Hydrogels for Biomedical Applications," *Advanced Drug Delivery Reviews*, 43 (2002) pp. 3-12.

Peppas, "Physiologically Responsive Hydrogels," *Journal of Bioactive and Compatible Polymers*, vol. 6 (Jul. 1991) pp. 241-246.

Peppas, Editor "Hydrogels in Medicine and Pharmacy," vol. I, *Fundamentals*, CRC Press, 1986.

Young, "Microcellular foams via phase separation," *Journal of Vacuum Science & Technology A* 4(3), (May/Jun. 1986).

Ebara, "Carbohydrate-Derived Hydrogels and Microgels," *Engineered Carbohydrate-Based Materials for Biomedical Applications: Polymers, Surfaces, Dendrimers, Nanoparticles, and Hydrogels*, Edited by Ravin Narain, 2011, pp. 337-345.

D. Tuite, Ed., "Get The Lowdown On Ultracapacitors," Nov. 15, 2007; [online] URL: <http://electronicdesign.com/Articles/Print.cfm?ArticleID=17465>, accessed Jan. 15, 2008 (5 pages).

Datasheet for Panasonic TK Relays Ultra Low Profile 2 A Polarized Relay, Copyright Matsushita Electric Works, Ltd. (Known of at least as early as Aug. 17, 2010), 5 pages.

B.R. Coolman, DVM, MS et al., "Comparison of Skin Staples With Sutures for Anastomosis of the Small Intestine in Dogs," Abstract; <http://www.blackwell-synergy.com/doi/abs/10.1053/jvet.2000.7539?cookieSet=1&journalCode=vsu> which redirects to <http://www3.interscience.wiley.com/journal/119040681/abstract?CRETRY=1&SRETRY=0>; [online] accessed: Sep. 22, 2008 (2 pages).

Disclosed Anonymously, "Motor-Driven Surgical Stapler Improvements," Research Disclosure Database No. 526041, Published: Feb. 2008.

(56)

References Cited

OTHER PUBLICATIONS

- Van Meer et al., "A Disposable Plastic Compact Wrist for Smart Minimally Invasive Surgical Tools," LAAS/CNRS (Aug. 2005).
- Breedveld et al., "A New, Easily Miniaturized Sterrable Endoscope," IEEE Engineering in Medicine and Biology Magazine (Nov./Dec. 2005).
- ASTM procedure D2240-00, "Standard Test Method for Rubber Property-Durometer Hardness," (Published Aug. 2000).
- ASTM procedure D2240-05, "Standard Test Method for Rubber Property-Durometer Hardness," (Published Apr. 2010).
- Solorio et al., "Gelatin Microspheres Crosslinked with Genipin for Local Delivery of Growth Factors," *J. Tissue Eng. Regen. Med.* (2010), 4(7): pp. 514-523.
- Pitt et al., "Attachment of Hyaluronan to Metallic Surfaces," *J. Biomed. Mater. Res.* 68A: pp. 95-106, 2004.
- Covidien iDrive™ Ultra in Service Reference Card, "iDrive™ Ultra Powered Stapling Device," (4 pages).
- Covidien iDrive™ Ultra Powered Stapling System brochure, "The Power of iDrive™ Ultra Powered Stapling System and Tri-Staple™ Technology," (23 pages).
- Covidien "iDrive™ Ultra Powered Stapling System, A Guide for Surgeons," (6 pages).
- Covidien "iDrive™ Ultra Powered Stapling System, Cleaning and Sterilization Guide," (2 pages).
- "Indian Standard: Automotive Vehicles—Brakes and Braking Systems (IS 11852-1:2001)," Mar. 1, 2001.
- Covidien Brochure "iDrive™ Ultra Powered Stapling System," (6 pages).
- Allegro MicroSystems, LLC, Automotive Full Bridge MOSFET Driver, A3941-DS, Rev. 5, 21 pages, <http://www.allegromicro.com/~media/Files/Datasheets/A3941-Datasheet.ashx?la=en>.
- Data Sheet of LM4F230H5QR, 2007.
- Covidien Brochure, "Endo GIA™ Reloads with Tri-Staple™ Technology," (2010), 1 page.
- Covidien Brochure, "Endo GIA™ Reloads with Tri-Staple™ Technology and Endo GIA™ Ultra Universal Staplers," (2010), 2 pages.
- Covidien Brochure, "Endo GIA™ Curved Tip Reload with Tri-Staple™ Technology," (2012), 2 pages.
- Covidien Brochure, "Endo GIA™ Reloads with Tri-Staple™ Technology," (2010), 2 pages.
- <http://ninpgan.net/publications/51-100/89.pdf>; 2004, Ning Pan, On Uniqueness of Fibrous Materials, Design & Nature II. Eds: Collins, M. and Brebbia, C. WIT Press, Boston, 493-504.
- Seils et al., Covidien Summary: Clinical Study "UCONN Biodynamics: Final Report on Results," (2 pages).
- Byrne et al., "Molecular Imprinting Within Hydrogels," *Advanced Drug Delivery Reviews*, 54 (2002) pp. 149-161.
- Fast, Versatile Blackfin Processors Handle Advanced RFID Reader Applications; Analog Dialogue: vol. 40—Sep. 2006; <http://www.analog.com/library/analogDialogue/archives/40-09/rfid.pdf>; Wayback Machine to Feb. 15, 2012.
- Chen et al., "Elastomeric Biomaterials for Tissue Engineering," *Progress in Polymer Science* 38 (2013), pp. 584-671.
- Matsuda, "Thermodynamics of Formation of Porous Polymeric Membrane from Solutions," *Polymer Journal*, vol. 23, No. 5, pp. 435-444 (1991).
- Covidien Brochure, "Endo GIA™ Black Reload with Tri-Staple™ Technology," (2012), 2 pages.
- "Biomedical Coatings," Fort Wayne Metals, Research Products Corporation, obtained online at www.fwmetals.com on Jun. 21, 2010 (1 page).
- The Sodem Aseptic Battery Transfer Kit, Sodem Systems, 2000, 3 pages.
- C.C. Thompson et al., "Peroral Endoscopic Reduction of Dilated Gastrojejunal Anastomosis After Roux-en-Y Gastric Bypass: A Possible New Option for Patients with Weight Regain," *Surg Endosc* (2006) vol. 20., pp. 1744-1748.
- Serial Communication Protocol; Michael Lemmon Feb. 1, 2009; <http://www3.nd.edu/~lemmon/courses/ee224/web-manual/web-manual/lab12/node2.html>; Wayback Machine to Apr. 29, 2012.
- Lyon et al. "The Relationship Between Current Load and Temperature for Quasi-Steady State and Transient Conditions," SPIE—International Society for Optical Engineering. Proceedings, vol. 4020, (pp. 62-70), Mar. 30, 2000.
- Anonymous: "Sense & Control Application Note Current Sensing Using Linear Hall Sensors," Feb. 3, 2009, pp. 1-18. Retrieved from the Internet: URL: http://www.infineon.com/dgdl/Current_Sensing_Rev.1.1.pdf?fileId=db3a304332d040720132d939503e5f17 [retrieved on Oct. 18, 2016].
- Mouser Electronics, "LM317M 3-Terminal Adjustable Regulator with Overcurrent/Overtemperature Self Protection", Mar. 31, 2014 (Mar. 31, 2014), XP0555246104, Retrieved from the Internet: URL: <http://www.mouser.com/ds/2/405/lm317m-440423.pdf>, pp. 1-8.
- Mouser Electronics, "LM317 3-Terminal Adjustable Regulator with Overcurrent/Overtemperature Self Protection", Sep. 30, 2016 (Sep. 30, 2016), XP0555246104, Retrieved from the Internet: URL: <http://www.mouser.com/ds/2/405/lm317m-440423.pdf>, pp. 1-9.
- Cuper et al., "The Use of Near-Infrared Light for Safe and Effective Visualization of Subsurface Blood Vessels to Facilitate Blood Withdrawal in Children," *Medical Engineering & Physics*, vol. 35, No. 4, pp. 433-440 (2013).
- Yan et al., Comparison of the effects of Mg—6Zn and Ti—3Al—2.5V alloys on TGF- β /TNF- α /VEGF/b-FGF in the healing of the intestinal track in vivo, *Biomed. Mater.* 9 (2014), 11 pages.
- Pellicer et al. "On the biodegradability, mechanical behavior, and cytocompatibility of amorphous Mg72Zn23Ca5 and crystalline Mg70Zn23Ca5Pd2 alloys as temporary implant materials," *J Biomed Mater Res Part A*, 2013:101A:502-517.
- Anonymous, Analog Devices Wiki, Chapter 11: The Current Mirror, Aug. 20, 2017, 22 pages. <https://wiki.analog.com/university/courses/electronics/text/chapter-11?rev=1503222341>.
- Yan et al., "Comparison of the effects of Mg—6Zn and titanium on intestinal tract in vivo," *J Mater Sci: Mater Med* (2013), 11 pages.
- Brar et al., "Investigation of the mechanical and degradation properties of Mg—Sr and Mg—Zn—Sr alloys for use as potential biodegradable implant materials," *J. Mech. Behavior of Biomed. Mater.* 7 (2012) pp. 87-95.
- Texas Instruments: "Current Recirculation and Decay Modes," Application Report SLVA321—Mar. 2009; Retrieved from the Internet: URL:<http://www.ti.com/lit/an/slva321/slva321> [retrieved on Apr. 25, 2017], 7 pages.
- Qiu Li Loh et al.: "Three-Dimensional Scaffolds for Tissue Engineering Applications: Role of Porosity and Pore Size", *Tissue Engineering Part B—Reviews*, vol. 19, No. 6, Dec. 1, 2013, pp. 485-502.
- Gao et al., "Mechanical Signature Enhancement of Response Vibrations in the Time Lag Domain," Fifth International Congress on Sound and Vibration, Dec. 15-18, 1997, pp. 1-8.
- Trendafilova et al., "Vibration-based Methods for Structural and Machinery Fault Diagnosis Based on Nonlinear Dynamics Tools," In: *Fault Diagnosis in Robotic and Industrial Systems*, IConcept Press LTD, 2012, pp. 1-29.
- Youtube.com; video by Fibran (retrieved from URL <https://www.youtube.com/watch?v=vN2Qjt51gFQ>); (Year: 2018).
- "Foot and Ankle: Core Knowledge in Orthopaedics"; by DiGiovanni MD, Elsevier; (p. 27, left column, heading "Materials for Soft Orthoses", 7th bullet point); (Year: 2007).
- Lee, Youbok, "Antenna Circuit Design for RFID Applications," 2003, pp. 1-50, DS00710C, Microchip Technology Inc., Available: <http://ww1.microchip.com/downloads/en/AppNotes/00710c.pdf>.
- Kawamura, Atsuo, et al. "Wireless Transmission of Power and Information Through One High-Frequency Resonant AC Link Inverter for Robot Manipulator Applications," *Journal*, May/June. 1996, pp. 503-508, vol. 32, No. 3, IEEE Transactions on Industry Applications.
- Honda HSI332AT and ATD Model Info, powerequipment.honda.com [online], published on or before Mar. 22, 2016, [retrieved on May 31, 2019], retrieved from the Internet [URL: <https://powerequipment.honda.com/snowblowers/models/hss1332at-hss1332atd>] {Year: 2016}.

(56)

References Cited

OTHER PUBLICATIONS

Slow Safety Sign, shutterstock.com [online], published on or before May 9, 2017, [retrieved on May 31, 2019], retrieved from the [https://www.shutterstock.com/image-vector/slow-safety-sign-twodimensional-turtle-symbolizing- . . .](https://www.shutterstock.com/image-vector/slow-safety-sign-twodimensional-turtle-symbolizing-...) see PDF in file for full URL] (Year: 2017).

* cited by examiner

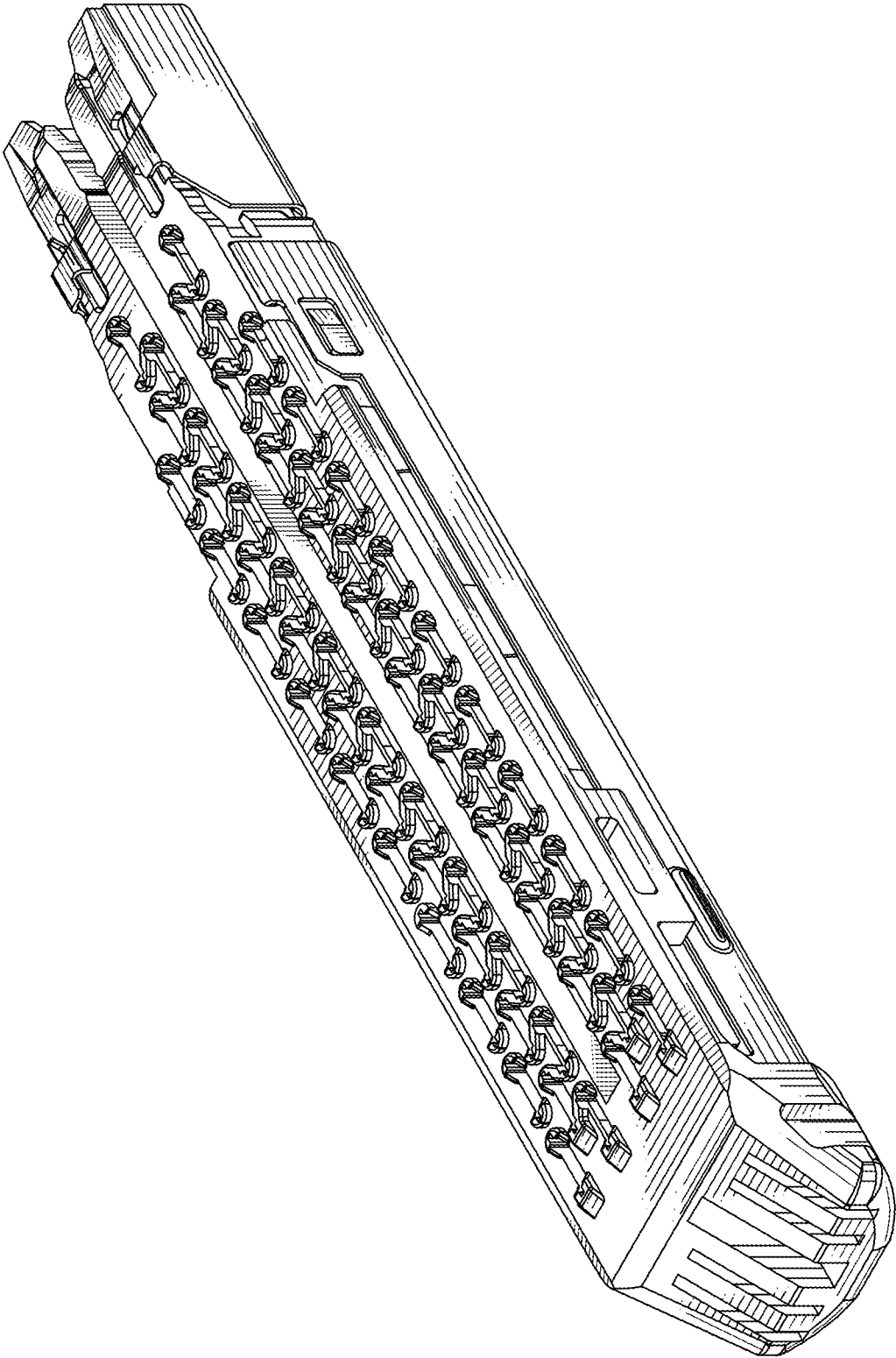


FIG. 1

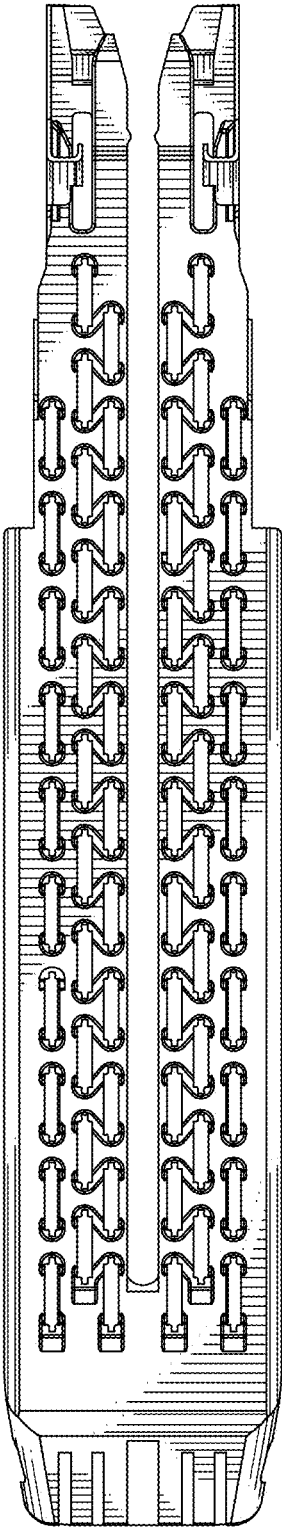


FIG. 2

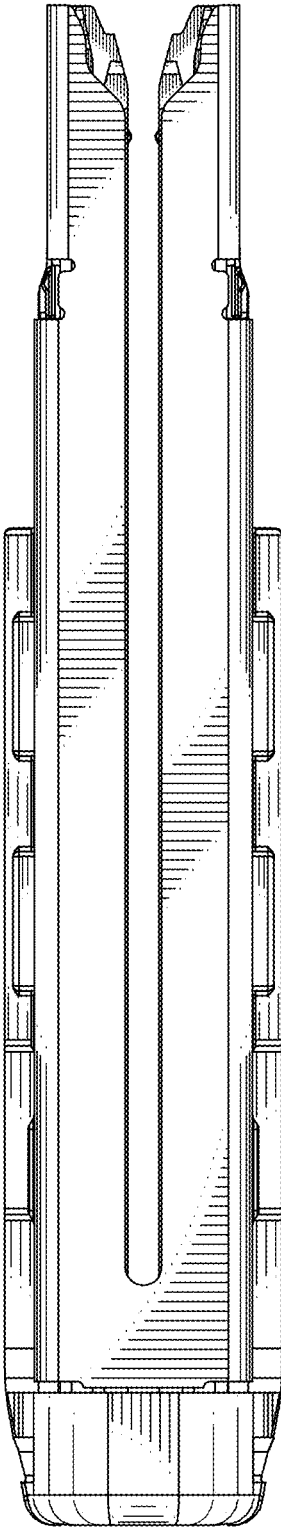


FIG. 3

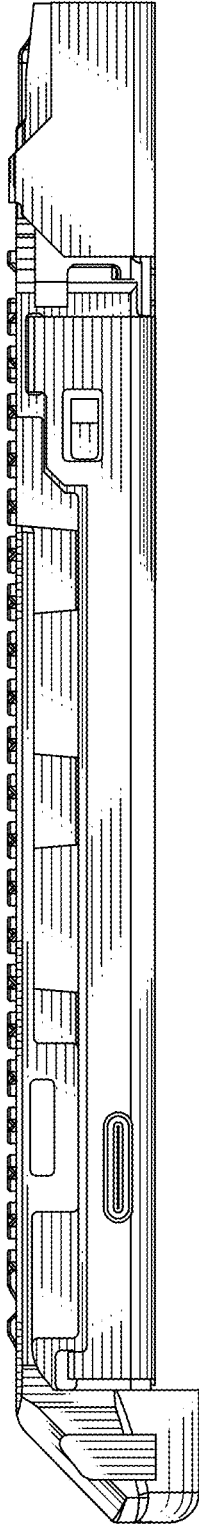


FIG. 4

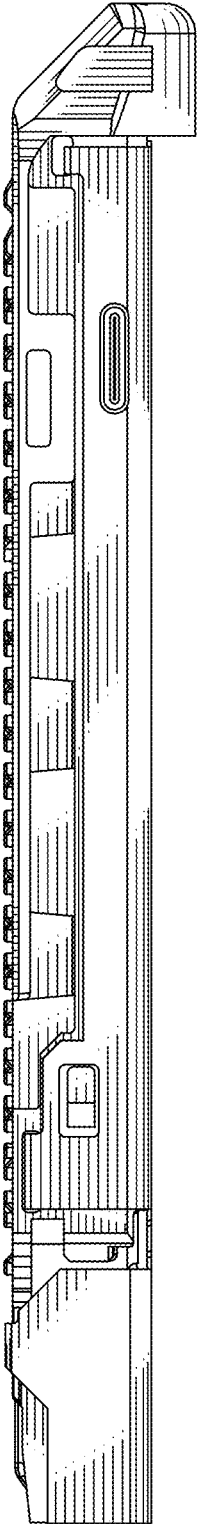


FIG. 5

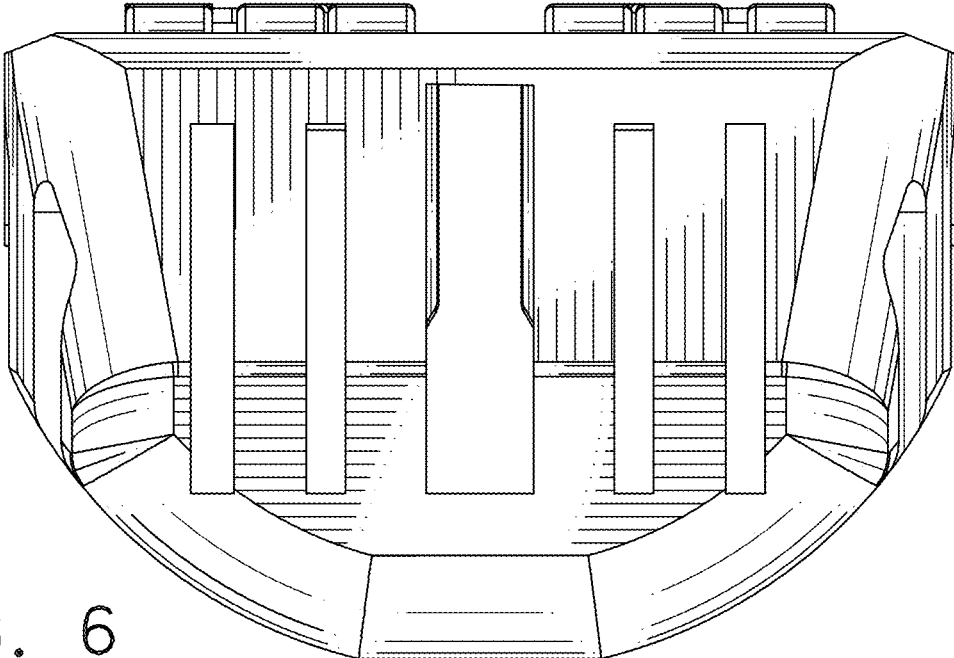


FIG. 6

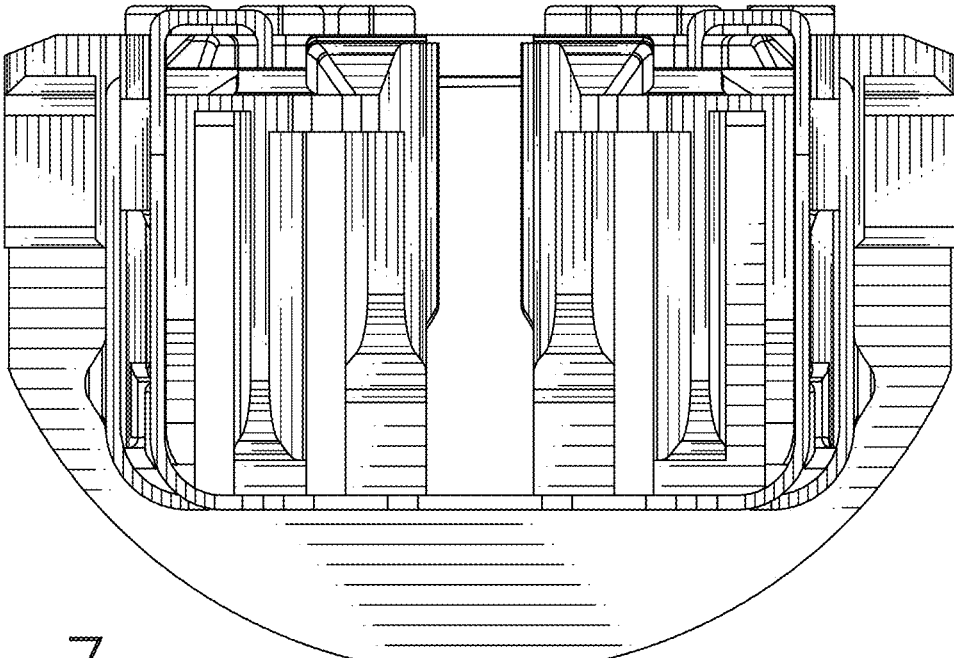


FIG. 7