**Related U.S. Application Data**

(60) Provisional application No. 61/728,103, filed on Nov. 19, 2012, provisional application No. 61/527,860, filed on Aug. 26, 2011.

(51) **Int. Cl.**

| | |
|---|---|
| ***H01R 12/71*** | (2011.01) |
| ***H01R 13/62*** | (2006.01) |
| ***H01R 9/24*** | (2006.01) |

(56) **References Cited**

U.S. PATENT DOCUMENTS


| | | | |
|---|---|---|---|
| 2,947,914 | A | 8/1960 | Simons |
| 3,005,282 | A | 10/1961 | Christiansen |
| 3,034,254 | A | 5/1962 | Christiansen |
| 3,205,407 | A | 9/1965 | Thompson |
| 3,553,438 | A | 1/1971 | Blitz et al. |
| 3,594,689 | A | 7/1971 | Hopt et al. |
| 3,603,025 | A | 9/1971 | Heubl |
| 3,640,018 | A | 2/1972 | Light |
| 3,659,219 | A | 4/1972 | Rueff, Jr. |
| 3,803,531 | A | 4/1974 | Sorensen |
| 3,862,512 | A | 1/1975 | Vogel |
| 3,863,931 | A | 2/1975 | Forsyth et al. |
| 3,877,028 | A | 4/1975 | Thomas |
| 3,970,805 | A | 7/1976 | Thomas |
| 4,021,252 | A | 5/1977 | Banczak et al. |
| D244,632 | S | 6/1977 | Christiansen |
| 4,053,159 | A | 10/1977 | Kulak |
| 4,064,377 | A | 12/1977 | Regan |
| 4,158,921 | A | 6/1979 | Stolpen |
| 4,181,824 | A | 1/1980 | Seidel |
| 4,183,173 | A | 1/1980 | Ogawa |
| 4,211,456 | A | 7/1980 | Sears |
| 4,233,778 | A | 11/1980 | Lemelson |
| 4,284,123 | A | 8/1981 | Plockinger et al. |
| 4,285,563 | A | 8/1981 | Crosier et al. |
| 4,314,236 | A | 2/1982 | Mayer et al. |
| 4,323,243 | A | 4/1982 | Hanson et al. |
| 4,348,191 | A | 9/1982 | Lipsitz et al. |
| D267,895 | S | 2/1983 | Petrie |
| 4,376,538 | A | 3/1983 | Keenan |
| 4,449,942 | A | 5/1984 | Salit |
| 4,456,321 | A | 6/1984 | Jones et al. |
| 4,496,149 | A | 1/1985 | Schwartzberg |
| 4,510,210 | A | 4/1985 | Hunt |
| 4,516,260 | A | 5/1985 | Breedlove et al. |
| 4,538,675 | A | 9/1985 | Welsh |
| 4,542,784 | A | 9/1985 | Welsh |
| 4,546,267 | A | 10/1985 | Urfirer |
| 4,547,027 | A | 10/1985 | Scheibenreif |
| 4,552,541 | A | 11/1985 | Bolli |
| 4,556,272 | A | 12/1985 | Briones |
| 4,556,393 | A | 12/1985 | Bolli |
| 4,578,649 | A | 3/1986 | Shupe |
| 4,606,732 | A | 8/1986 | Lyman |
| 4,712,184 | A | 12/1987 | Haugerud |
| 4,736,367 | A | 4/1988 | Wroblewski et al. |
| 4,743,202 | A | 5/1988 | Bach |
| 4,796,891 | A | 1/1989 | Milner |
| 4,820,233 | A | 4/1989 | Weiner |
| 4,838,794 | A | 6/1989 | Coddington |
| 4,840,602 | A | 6/1989 | Rose |
| 4,846,687 | A | 7/1989 | White et al. |
| 4,853,884 | A | 8/1989 | Brown et al. |
| 4,874,176 | A | 10/1989 | Auerbach |
| 4,878,848 | A | 11/1989 | Ingalsbe |
| 4,883,440 | A | 11/1989 | Bolli |
| 4,890,241 | A | 12/1989 | Hoffman et al. |
| 4,893,817 | A | 1/1990 | Shilo |
| 4,905,176 | A | 2/1990 | Schulz |
| 4,910,396 | A | 3/1990 | Grove |
| 4,936,780 | A | 6/1990 | Cogliano |
| 4,937,811 | A | 6/1990 | Harris |
| 4,964,833 | A | 10/1990 | Suzuki |
| 4,968,255 | A | 11/1990 | Lee et al. |
| 4,969,827 | A | 11/1990 | Hahs, Jr. |
| 4,978,317 | A | 12/1990 | Pocrass |
| 5,013,276 | A | 5/1991 | Garfinkel |
| 5,088,951 | A | 2/1992 | Majurinen |
| 5,090,701 | A | 2/1992 | Chang |
| D324,551 | S | 3/1992 | Skov |
| 5,172,534 | A | 12/1992 | Milner et al. |
| 5,190,287 | A | 3/1993 | Ishiyama |
| 5,191,276 | A | 3/1993 | Zainaleain |
| 5,203,711 | A | 4/1993 | Bogiel |
| 5,205,758 | A | 4/1993 | Comerci et al. |
| D335,508 | S | 5/1993 | Skov |
| 5,227,232 | A | 7/1993 | Lim |
| 5,236,375 | A | 8/1993 | Kachlic |
| D339,613 | S | 9/1993 | Pirnat |
| 5,244,403 | A | 9/1993 | Smith et al. |
| 5,275,567 | A | 1/1994 | Whitfield |
| 5,281,154 | A | 1/1994 | Comerci et al. |
| 5,304,069 | A | 4/1994 | Brunker et al. |
| 5,319,241 | A | 6/1994 | Lim |
| 5,345,221 | A | 9/1994 | Pons et al. |
| 5,349,129 | A | 9/1994 | Wisniewski et al. |
| D352,750 | S | 11/1994 | Kushner et al. |
| 5,371,355 | A | 12/1994 | Wodecki |
| D354,318 | S | 1/1995 | Ryaa et al. |
| 5,380,951 | A | 1/1995 | Comerci et al. |
| 5,385,344 | A | 1/1995 | Miller et al. |
| 5,409,227 | A | 4/1995 | Walker |
| 5,423,684 | A | 6/1995 | Ishikawa |
| 5,445,552 | A | 8/1995 | Hine |
| 5,447,433 | A | 9/1995 | Perry, Jr. |
| 5,451,178 | A | 9/1995 | Yorozu et al. |
| 5,452,201 | A | 9/1995 | Pieronek et al. |
| 5,455,749 | A | 10/1995 | Ferber |
| 5,459,283 | A | 10/1995 | Birdwell, Jr. |
| 5,462,443 | A | 10/1995 | Kurbjuhn et al. |
| 5,463,486 | A | 10/1995 | Stevens |
| 5,467,102 | A | 11/1995 | Kuno et al. |
| 5,469,331 | A | 11/1995 | Conway et al. |
| D365,756 | S | 1/1996 | Rask et al. |
| 5,512,710 | A | 4/1996 | Schroeder |
| D370,035 | S | 5/1996 | Olsen |
| D371,583 | S | 7/1996 | Knudsen |
| 5,547,399 | A | 8/1996 | Naghi et al. |
| 5,547,933 | A | 8/1996 | Lin |
| 5,558,542 | A | 9/1996 | O'Sullivan et al. |
| D374,257 | S | 10/1996 | Schmidt et al. |
| 5,563,771 | A | 10/1996 | Bethurum |
| 5,574,312 | A | 11/1996 | Bayerer et al. |
| 5,580,283 | A | 12/1996 | O'Sullivan et al. |
| 5,596,233 | A | 1/1997 | Leiber et al. |
| 5,607,336 | A | 3/1997 | Lebensfeld et al. |
| 5,610,931 | A | 3/1997 | Huang |
| D378,837 | S | 4/1997 | Olsen et al. |
| 5,645,463 | A | 7/1997 | Olsen |
| 5,648,892 | A | 7/1997 | Wieloch et al. |
| 5,651,685 | A | 7/1997 | Brinkman et al. |
| 5,658,155 | A | 8/1997 | McFarlane et al. |
| 5,661,470 | A | 8/1997 | Karr |
| 5,663,938 | A | 9/1997 | Dang et al. |
| 5,667,411 | A | 9/1997 | O'Sullivan et al. |
| D385,926 | S | 11/1997 | Nielsen |
| 5,697,829 | A | 12/1997 | Chainani et al. |
| 5,703,761 | A | 12/1997 | Heiss |
| D389,408 | S | 1/1998 | Rask et al. |
| 5,705,853 | A | 1/1998 | Faller et al. |
| 5,721,496 | A | 2/1998 | Farnworth et al. |
| 5,722,861 | A | 3/1998 | Wetter |
| 5,724,074 | A | 3/1998 | Chainani et al. |
| 5,739,050 | A | 4/1998 | Farnworth |
| 5,742,169 | A | 4/1998 | Akram et al. |
| 5,742,486 | A | 4/1998 | Yangkuai |
| 5,746,638 | A | 5/1998 | Shiraishi |
| 5,747,940 | A | 5/1998 | Openiano |
| 5,766,077 | A | 6/1998 | Hongo |
| 5,779,515 | A | 7/1998 | Chung |
| 5,799,067 | A | 8/1998 | Kikinis et al. |