(19) World Intellectual Property Organization International Bureau





(43) International Publication Date 25 September 2003 (25.09.2003)

PCT

(10) International Publication Number WO 03/077781 A1

(51) International Patent Classification⁷: A61B 18/18, A61N 1/06

(21) International Application Number: PCT/IT03/00027

(22) International Filing Date: 27 January 2003 (27.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: BS02U000039 20 March 2002 (20.03.2002) II

(71) Applicant (for all designated States except US):

FOGAZZI DI VENTURELLI ANDREA & C. S.N.C.

[IT/IT]; Via L. Marenzio, 7, Loc. Roncaglie, I-25062

Concesio (IT).

(72) Inventor; and

(75) Inventor/Applicant (for US only): VENTURELLI, Andrea [IT/IT]; Via L. Marenzio, 7, Loc. Roncaglie, I-25062 Concesio (IT).

(74) Agents: CRIPPA, Paolo, Ernesto et al.; Jacobacci & Perani S.p.A., Via Senato, 8, I-20121 Milano (IT).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.

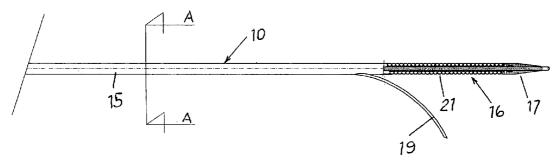
(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

with international search report

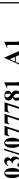
For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CATHETER WITH FLEXIBLE COOLED ELECTRODE



(57) Abstract: The invention concerns a catheter for the treatment of tumours and other affections using hyperthermia induced by radio frequency, which comprises a tubular body (10) with or without anchoring balloon at its distal end, an active electrode (16) positioned around said body and connected to a radio frequency generator, and at least one thermistor needle (19) to measure the temperature around said electrode. The active electrode (16) is flexible and connectable to a supply source of a fluid for cooling the electrode. It includes a helical conduit (21, 25) which can be metal, conductive ceramic or graphite.





WO 03/077781 PCT/IT03/00027

"CATHETER WITH FLEXIBLE COOLED ELECTRODE"

Field of the Invention

This invention concerns in general devices for therapeutic and surgical use in the treatment of tumours and other affections using hyperthermia, that is to say thermal ablation, induced by radio frequency, and refers in particular to a catheter with an electrode for this use.

5 Prior Art

10

15

20

There are already some well known catheters for the purpose mentioned, among which one using a metal plaque as an active electrode, connectable to a radio frequency generator, positioned along a tubular body of the catheter near the distal metal point and/or a possible inflatable anchoring balloon. The plaque can be copper, steel or some other metal, it partially encompasses at least the tubular body of the catheter it is to and, in order to avoid exceeding the treatment temperature induced by the radio frequency which could cause burns, it must be cooled.

For this purpose, the plaque has been designed with a double wall to form a cavity or hollow space in which a cooling fluid is circulated, usually water, supplied by an appropriate source.

An active electrode in the form of a plaque designed in this way forms however a rigid section which has a negative influence on the flexibility of the catheter in the part where it is housed and which above all is not easy to manufacture.

Object and Summary of the Invention

5

10

15

20

25

One of the object of this invention is to propose on the contrary a catheter for local treatments using hyperthermia induced by radio frequency equipped with an active electrode having a new configuration and advantageously flexible.

PCT/IT03/00027

Another object of the invention is to provide a cooled electrode which integrates well with the smoothness and flexibility characteristics of the body of the catheter and which is easier to manufacture and decidedly efficient.

These objects are achieved in a catheter for therapeutic and surgical treatment using radio frequency having a distal part which houses an electrode made up of a helical duct, coaxial with the catheter tube, attached to a metal point and/or a possible anchoring balloon and connectable to a radio frequency generator and also to a supply source of cooling fluid.

The duct containing the electrode can be made in different ways, with different shapes and with various conductive materials and results in being advantageously flexible, facilitating in this way the introduction and use of the catheter in the affected part to be treated as required.

Brief Description of the Drawings

Greater details of the invention will become more evident in the following description made with reference to the indicative and non-limiting drawings enclosed, in which:

Fig. 1 is a view of a portion of the catheter complete with an active electrode;

Fig. 2 is a view of an enlarged cross-section of the catheter in direction of arrows A-A in Fig. 1;

- Fig. 3 is an enlarged longitudinal view of the electrode according to a first example;
- Fig. 4 is a similar longitudinal section of a second example of the electrode;
 - Fig. 5 is a view of a cross section in direction of arrows B-B in Fig. 4; and
- Fig. 6 is a view, once again a longitudinal section, of another example of a an electrode.

Detailed Description of the Invention

15

20

25

As represented the catheter comprises a body 10 which can be made up of a tubular element with a number of ducts or, as shown, with several tubes 11, 12, 13 and 14 located side by side longitudinally and enclosed in an insulating elastic sheath 15. In its distal part, the body of the catheter houses an active electrode 16, which will be described below, plus a metal point end piece 17 with or without an anchoring balloon, the latter not shown. In a proximal part, not shown, the catheter is equipped with connectors for connection to the control devices of the various functions provided.

Between the ducts or tubes in the body 10 of the catheter, one duct or tube 11 is allocated for receiving a guide wire or spindle 18 which can extend as far as the metal point. The metal point 17 and possible balloon are attached to the free end of the tube 11, and the electrode 16 is positioned directly or indirectly around a portion of the said tube.

WO 03/077781 PCT/IT03/00027

Another duct or tube 12 is allocated to receive a so-called thermistor needle 19, which extends until it protrudes, in a retractable form, from one side of the body 10 near the electrode 16. The needle 19 is usual tubular, may have an external coating, and the leads 20 of a thermocouple for measuring the temperature around the electrode, pass through it.

5

10

15

20

25

Other ducts or tubes 13 and 14 are envisaged for the delivery and return of a cooling fluid to the electrode 16, leading from a cooling liquid supplier, preferably water.

The active electrode 16, in compliance with this invention, is made up of a helical duct 21. It is placed coaxially to the catheter body, that is around the tube 11, or a tubular element attached to the latter, and connects up to an appropriate radio frequency generator by means of a lead – not shown – passing through the body of the catheter.

Duct 21 can be metal, conductive ceramic, graphite or other suitable material, and the cross section of which can be of any shape, round, oval, rectangular, etc. It can be constructed in several ways. For example it can be single helical, achieved by turning a single tubular initial element helicoidally in an intermediate part so that the portions from opposite parts of the helicoidal zone represent, all or in part, fluid delivery and return tubes 13, 14 which must flow along and cool the electrode 16.

According to another example, the duct 21 housing the electrode 16 can be double helical, achieved by winding parts of the two parallel branches of an initial tubular element, already bent into a U shape, contemporarily and helically, so that two straight sections of said branches

WO 03/077781 PCT/IT03/00027 5

of the initial tubular element enclose, all or in part, fluid delivery and return tubes 13, 14 which cool the electrode.

However, the coils of the electrode in the shape of a helical duct 21 can be linked together, centrally to tube 11 or the tubular element around which they are wound, by a resin or an adhesive. Externally they can be free as shown in Fig. 3, or better enclosed in a sheath 22, as shown in Fig. 4, which can either be a conductive ceramic or graphite, the flexibility however of the electrode remains unharmed.

5

10

15

Furthermore, in particular when electrode 16 is used in a conductive ceramic or graphite covering, the helical duct 21 can be enclosed in two cylindrical, concentric and attached sleeves, one internal 23 and the other external 24 – Fig. 6. In this way, at least in the surface of one sleeve in contact with the other sleeve there is at least one helical duct 25 to form the helical passage required. This helical passage has preferably and advantageously, a rectangular cross section and the delivery and return tubes 13, 14 for the electrode cooling fluid will be connected to it.

15

25

"CATHETER WITH FLEXIBLE COOLED ELECTRODE"

* * *

CLAIMS

- 1. A catheter for the treatment of tumours and other affections using hyperthermia induced by radio frequency, comprising a tubular body (10) equipped with a metal point and/or an anchoring balloon at its distal end, an active electrode (16) placed around said body, attached to the metal point and/or balloon and connected to a radio frequency generator, and at least one thermistor needle (19) to measure the temperature around said electrode, characterised in that the active electrode (16) is flexible and connectable to a cooling fluid supply source for cooling the electrode itself.
 - 2. The catheter according to claim 1, wherein said flexible electrode (16) includes a helical duct (21) coaxial and attached to a section of the tubular body of the catheter.
 - 3. The catheter according to claims 1 and 2, wherein the flexible electrode (16) is in the shape of a single helical tube and connected to a radio frequency generator.
- 4. The catheter according to claim 3, wherein said flexible electrode
 (16) is formed of a helically wound tubular element (21), and wherein the
 two opposite ends of said tubular element are connected to or merge into
 two tubes (13,14) for delivery and return of the electrode cooling fluid.
 - 5. The catheter according to claims 1 and 2, wherein said flexible electrode (16) is in the shape of a double helical tube and connected to a radio frequency generator.

WO 03/077781 PCT/IT03/00027

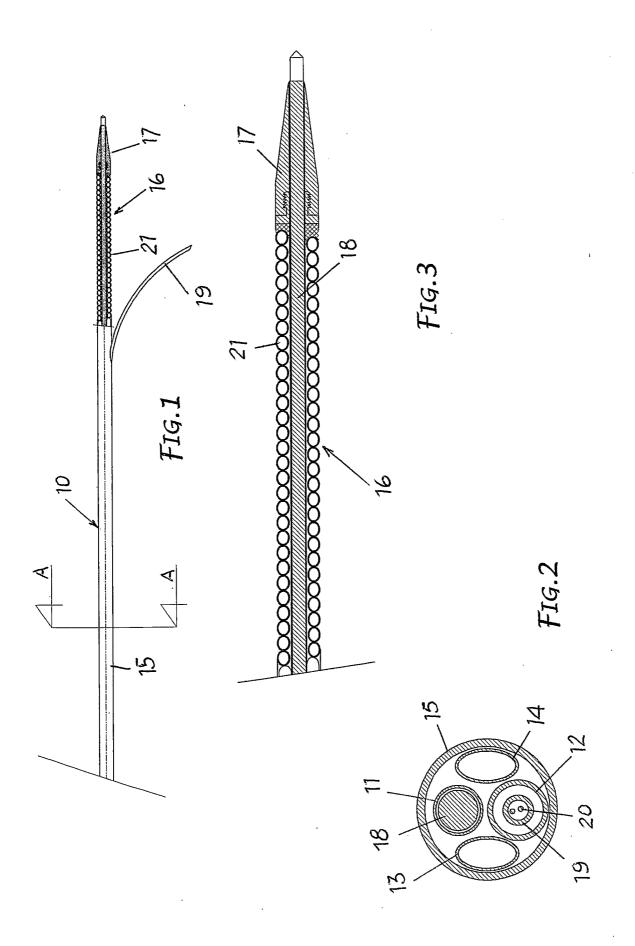
6. The catheter according to claim 5, wherein said flexible electrode (16) consists of two parallel sections of a helically wound tubular element, said sections being the two branches of a U bent tubular element so as to become joined, and where free ends of each coil are connected to or part of two tubes (13,14) for delivery and return of the electrode cooling fluid.

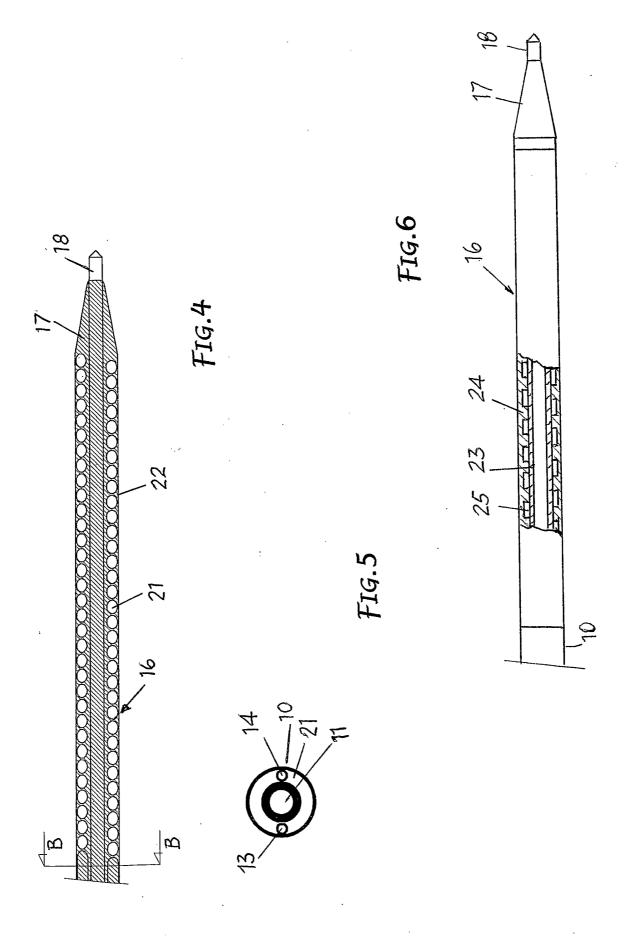
5

15

20

- 7. The catheter according to any of the previous claims, wherein the helically wound tubular element (21) to form said flexible electrode (16) is of metal, conductive ceramic, graphite or something similar.
- 8. The catheter according to any of the previous claims, wherein the coils of the helically shaped flexible electrode (16) are both joined together and attached to the catheter body by a resin seal or adhesive.
 - 9. The catheter according to any of the previous claims, wherein the helically shaped flexible electrode (16) is enclosed externally in a ceramic, graphite or similar sheath or sleeve (22).
 - of two concentric and attached cylindrical sleeves (23,24), one internal and the other external, where at least one surface of a sleeve is helically grooved and forms with the surface in contact with the other sleeve at least one helical passage (25) connectable to two tubes for delivery and return of the electrode cooling fluid, and where said sleeves are made of a material such as conductive ceramic, graphite or something similar.





INTERNATIONAL SEARCH REPORT

PCT/IT 03/00027

a. classifi IPC 7	CATION OF SUBJECT MATTER A61B18/18 A61N1/06			
According to I	international Patent Classification (IPC) or to both national classificat	ion and IPC		
B. FIELDS S	EARCHED			
Minimum doci IPC 7	umentation searched (classification system followed by classification $A61B-A61N$	n symbols)		
	on searched other than minimum documentation to the extent that su			
Electronic dat	ta base consulted during the international search (name of data bas	e and, where practical, search terms used)		
EPO-Int	ernal, WPI Data, PAJ			
C. DOCUME	NTS CONSIDERED TO BE RELEVANT		Relevant to claim No.	
Category °	Citation of document, with indication, where appropriate, of the rele	vant passages	Helevani to daim No.	
χ	US 2001/011161 A1 (BAKER JAMES AL	LEN ET	1-3	
Υ	AL) 2 August 2001 (2001-08-02) page 2, column 2, line 8-35 -page column 2, line 32-36; figures 1,8	3,	4-10	
P,X	US 6 461 351 B1 (WOODRUFF EILEEN	A ET AL)	1	
P,Y	8 October 2002 (2002-10-08) column 9, line 22 -column 10, lin figure 6	e 9;	4–10	
Α	US 5 603 697 A (WARNER GLEN G ET 18 February 1997 (1997-02-18) claim 1; figure 1	AL)	1-10	
Furth	ner documents are listed in the continuation of box C.	χ Patent family members are listed	ìn annex.	
<u> </u>	tegories of cited documents:			
"A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filling date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but		 "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. 		
later ti	han the priority date claimed	*&* document member of the same patent		
Date of the	actual completion of the international search	Date of mailing of the international se	анси герогі	
	May 2003	14/05/2003		
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl,		Authorized officer		
1	1el. (+31–70) 340–2040, 1x. 31 651 epo 111, Fax: (+31–70) 340–3016	Chopinaud, M		

INTERNATIONAL SEARCH REPORT

PCT/IT 03/00027

US 5895370 A 20-04-193 US 5591125 A 07-01-193 US 5421819 A 06-06-193 US 5869505 A 09-02-193 AU 685086 B2 15-01-193 AU 685086 B2 15-01-193 AU 6133194 A 29-08-193 AU 6189698 A 09-07-193 AU 6819998 A 09-07-193 AU 6819998 A 12-12-193 AU 6819998 A 12-12-193 CA 2155217 A1 18-08-193 CA 2155217 A1 18-08-193 CA 2152217 A1 18-08-193 CA 2152217 A1 18-08-193 CA 2152217 A1 18-08-193 CA 215230 A , B 26-06-193 DE 4416840 A1 17-11-193 DE 69423814 D1 11-05-203 DE 69423814 D1 11-05-203 DE 69423814 D1 11-05-203 DE 69423814 A1 04-01-193 FR 2705241 A1 25-11-193 IL 108532 A 13-07-193 IL 108532 A 13-07-193 IL 108532 A 13-07-193 IL 108532 A 13-07-193 US 6102886 A 15-08-203 WO 9417866 A1 24-11-193 US 6102886 A 15-08-203 US 5496161 A 23-01-193 US 549648 A 24-02-193 US 555577 A 17-09-193 US 5556577 A 17-09-193 US 55667488 A 16-09-193 US 5582589 A 10-12-193 US 5582589 A 10-12-193 US 5582589 A 10-12-193 US 5582589 A 11-11-193 US 5685839 A 11-11-193 US 568662 A 09-06-193 US 57807309 A 15-09-193		atent document I in search report		Publication date		Patent family member(s)	Publication date
US 5895370 A 20-04-191 US 551125 A 07-01-191 US 5421819 A 06-06-193 US 5659505 A 09-02-193 AU 685086 B2 15-01-193 AU 6133194 A 29-08-193 AU 6133194 A 29-08-193 AU 6189698 A 09-07-193 AU 6819698 B 2 05-03-193 AU 6819094 A 12-12-193 CA 2155217 A1 18-08-193 CA 2155217 A1 18-08-193 CA 2155217 A1 18-08-193 CA 2155217 A1 18-08-193 CA 215520 A, B 26-06-193 DE 4416840 A1 17-11-193 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-201 DE 69423814 T2 12-10	US	2001011161		02-08-2001	US	6206847 B1	27-03-2001
US 5421819 A 06-06-193 US 5869505 A 09-02-193 AU 685086 B2 15-01-193 AU 685086 B2 15-01-193 AU 6133194 A 29-08-193 AU 6189698 A 09-07-193 AU 6819094 A 12-12-193 CA 2155217 A1 18-08-193 CA 2155217 A1 18-08-193 CA 215224 A1 24-11-193 CA 215230 A , B 26-06-193 DE 4416840 A1 17-11-194 DE 69423814 D1 11-05-204 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 D1 11-05-201 DE 706286 A2 14-12-193 FR 2705241 A1 25-11-193 IL 109545 A 24-09-193 JP 8510148 T 29-10-194 US 6102886 A 15-08-200 WO 9426186 A1 24-11-195 US 6102886 A 15-08-200 WO 9426186 A1 24-11-195 US 5409453 A 25-04-193 US 5409453 A 25-04-193 US 5409453 A 25-04-193 US 5542915 A 06-08-193 US 5542916 A 11-11-193 US 5542916 A 11-11-193 US 5542916 A 11-11-193 US 5542916 A 11-11-193 US 5542910 A 11-11-193 US 5442910 A 11-11-193 US 5442910 A 11-11-193 US 5442910 A 11-11-193 US 5					US		20-04-1999
US 5869505 A 09-02-195 AU 685086 B2 15-01-195 AU 6133194 A 29-08-199 AU 718834 B2 20-04-200 AU 6189698 A 09-07-195 AU 687813 B2 05-03-195 AU 687813 B2 05-03-195 AU 6819094 A 12-12-199 CA 2155217 A1 18-08-195 CA 2155217 A1 18-08-195 CA 2155217 A1 24-11-195 CN 1125390 A ,B 26-06-195 DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 7062828 A2 14-12-195 DE 69423814 T2 12-10-210 DE 7062828 A2 14-12-195 DE 90631514 A1 04-01-195 DE 9063151 A1 04-01-195 DE					US	5591125 A	07-01-1997
AU 685086 B2 15-01-193 AU 6133194 A 29-08-193 AU 718834 B2 20-04-200 AU 6189698 A 09-07-193 AU 6819094 A 12-12-193 CA 2155217 A1 18-08-193 CA 2165724 A1 24-11-193 CN 1125390 A, B 26-06-193 DE 4416840 A1 17-11-193 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 A1 04-01-193 FR 2705241 A1 25-11-193 IL 108532 A 13-07-193 JP 8510148 T 29-10-193 JP 8510148 T 29-10-193 US 6102886 A 15-08-200 W0 9417856 A1 18-08-103 W0 9426186 A1 24-11-193 US 641702 B1 05-06-200 US 5499453 A 25-04-193 US 5490453 A 25-04-193 US 5490453 A 25-04-193 US 556377 A 17-09-193 US 556410 A 10-09-193 US 5570718 A 24-02-193 US 5570718 A 06-08-193 US 5570718 A 06-08-193 US 556464 A 27-08-193 US 5570719 A 24-02-193 US 5582589 A 10-12-193 US 5582589 A 10-12-193 US 5582589 A 11-11-193 US 5782626 A 09-06-193					US		06-06-1995
AU 6133194 A 29-08-195 AU 718834 B2 20-04-200 AU 6189698 A 09-07-195 AU 6819094 A 12-12-195 CA 2155217 A1 18-08-195 CA 2155217 A1 18-08-195 CA 2155217 A1 18-08-195 CA 2155217 A1 18-08-195 CA 2162724 A1 24-11-195 CA 2162724 A1 24-11-195 DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 EP 0628288 A2 14-12-195 EP 0631514 A1 04-01-195 EP 0631514 A1 04-01-195 IL 108532 A 13-07-195 IL 108532 A 13-07-195 IL 108532 A 13-07-195 JP 8506259 T 09-07-195 JP 8506259 T 09-07-195 JP 8510148 T 29-10-195 JP 8510148 T 29-10-195 US 6102886 A 15-08-200 W0 9417856 A1 18-08-195 W0 9426186 A1 18-08-195 W1 6241702 B1 05-06-200 US 5499453 A 25-04-195 US 556377 A 17-09-195 US 5542915 A 06-08-195 US 5542915 A 10-10-196 US 5582589 A 10-12-196 US 5682589 A 10-12-196 US 5682626 A 100-10-10-106 US 6461351 B1 08-10-2002 US							09-02-1999
AU 718834 B2 20-04-2018 AU 6189698 A 09-07-193 AU 687813 B2 05-03-193 AU 6819094 A 12-12-193 CA 2155217 A1 18-08-193 CA 21562724 A1 24-11-193 CN 1125390 A ,B 26-06-193 DE 416840 A1 17-11-193 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 DE 708288 A2 14-12-193 EP 0631514 A1 04-01-193 FR 2705241 A1 25-11-193 IL 108532 A 13-07-193 IL 108532 A 13-07-193 IL 108532 A 13-07-193 JP 8510148 T 29-10-193 JP 8510148 T 29-10-193 US 6102886 A 15-08-200 W0 9417856 A1 18-08-193 W0 9426186 A1 24-11-193 US 6241702 B1 05-06-201 US 5499453 A 25-04-193 US 556377 A 17-09-193 US 5720718 A 24-02-193 US 5720718 A 24-02-193 US 5542915 A 06-08-193 US 55542915 A 06-08-193 US 556662 A 10-10-193 US 55720719 A 24-02-193 US 55720719 A 24-02-193 US 5582589 A 11-11-193 US 5685839 A 11-11-193							15-01-1998
AU 68189698 A 09-07-195 AU 6819094 A 12-12-195 CA 2155217 A1 18-08-195 CA 2162724 A1 24-11-195 CN 1125390 A B 26-06-195 DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 DE 69423814 T2 12-10-200 EFP 0631514 A1 04-01-195 FR 2705241 A1 25-11-195 IL 109545 A 24-09-195 JP 8506259 T 09-07-195 JP 8506250 T 09-06-195 JP 85062							29-08-1994
AU 687813 B2 05-03-193 AU 6819094 A 12-12-193 CA 2155217 A1 18-08-195 CA 2155217 A1 24-11-193 CA 2162724 A1 24-11-193 CN 1125390 A ,B 26-06-193 DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 EP 0628288 A2 14-12-193 EP 0631514 A1 04-01-193 EP 0631514 A1 04-01-193 IL 109545 A 24-09-193 IL 109545 A 24-09-193 JP 85106259 T 09-07-193 JP 8510148 T 29-10-193 US 6102886 A 15-08-200 W0 9417856 A1 18-08-193 W0 9426186 A1 12-11-193 US 6241702 B1 05-06-200 US 5499453 A 25-04-193 US 5496161 A 23-01-193 US 5549515 A 06-08-193 US 55496161 A 23-01-193 US 5549644 A 27-08-193 US 5549664 A 10-10-193 US 5549644 A 27-08-193 US 5549664 A 27-08-193 US 5549666 A 10-10-193 US 554966 A 10-10-193							20-04-2000
AU 6819094 A 12-12-1919 CA 2155217 A1 18-08-195 CA 2162724 A1 24-11-195 CA 2162724 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 69423814 A1 14-12-195 EP 0631514 A1 04-01-195 EP 0631514 A1 04-01-195 EP 0631514 A1 04-01-195 EP 0631514 A1 04-01-195 IL 108532 A 13-07-195 IL 109545 A 24-09-195 JP 8506259 T 09-07-195 JP 8506259 T 09-07-195 US 6102886 A 15-08-200 WO 9417856 A1 18-08-200 WO 9417856 A1 18-08-200 WO 9426186 A1 24-11-195 US 5409453 A 25-04-195 US 5409453 A 25-04-195 US 554661 A 23-01-195 US 5542915 A 06-08-195 US 5542915 A 06-08-195 US 5542915 A 06-08-195 US 5549644 A 27-08-195 US 5549662 A 10-10-195 US 5549644 A 27-08-195 US 5549662 A 10-10-195 US 5582589 A 10-12-195 US 5582589 A 15-12-195 US 568269 A 15-12-195 US 56826							09-07-1998
CA 2155217 A1 18-08-195 CA 2162724 A1 24-11-195 CA 2162724 A1 24-11-195 CN 1125390 A , B 26-06-195 DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-206 DE 69423814 D2 12-10-206 DE 69423814 D2 12-10-206 DE 69423814 D2 12-10-206 DE 69423814 D2 12-10-206 DE 69423814 D2 14-12-195 DE 6942381 D3-07-195 DE 6942381 D2 14-12-195 DE 6942381 D2 1							05-03-1998
CA 2162724 A1 24-11-199 CN 1125390 A ,B 26-06-191 DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 EP 0628288 A2 14-12-195 EP 0631514 A1 04-01-193 FR 2705241 A1 25-11-193 IL 108532 A 13-07-193 IL 109545 A 24-09-193 JP 8506259 T 09-07-193 JP 8510148 T 29-10-193 US 6102886 A 15-08-200 WO 9417856 A1 18-08-200 WO 9417856 A1 18-08-193 US 5409453 A 25-04-193 US 5409453 A 25-04-193 US 556377 A 17-09-193 US 5542915 A 06-08-193 US 5582589 A 10-12-193 US 5682589 A 10-12-193 US 5682626 A 10-10-193							12-12-1994
CN 1125390 A ,B 26-06-199 DE 4416840 A1 17-11-199 DE 69423814 D1 11-05-200 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 EP 0628288 A2 14-12-199 EP 0628288 A2 14-12-199 EP 0631514 A1 04-01-199 EP 0631514 A1 1 25-11-199 IL 108532 A 13-07-199 IL 109545 A 24-09-199 IL 109545 A 24-09-199 JP 8506259 T 09-07-193 JP 8510148 T 29-10-199 US 6102886 A 15-08-200 W0 9417856 A1 18-08-199 US 6102886 A 15-08-200 W0 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5554216 A 17-09-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5554110 A 10-09-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5549644 A 10-10-199 US 5582589 A 10-12-199 US 5718702 A 17-02-199 US 5848986 A 15-02-199 US 5848986 A 15-19-199 US 5848986 A 15-19-199 US 5807309 A 15-09-199							18-08-1994
DE 4416840 A1 17-11-195 DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-2002 DE 69423814 T2 12-10-2002 DE 69423814 T2 12-10-2002 DE 6942388 A2 14-12-195 DE 69423814 T2 12-10-195 DE 6942388 A2 14-12-195 DE 69423814 T2 12-10-195 DE 69423814 T2 12-10-195 DE 6241701 A1 12-10-195 DE 6241702 B1 12-10-195 DE 6241702 B1 12-11-195 DE 6241702 B1 11-11-195 DE 6241702 B1 11-11-11-11-11-11-11-11-11-11-11-11-11							24-11-1994
DE 69423814 D1 11-05-200 DE 69423814 T2 12-10-200 EP 0628288 A2 14-12-199 EP 0631514 A1 04-01-193 FR 2705241 A1 25-11-193 IL 108532 A 13-07-193 IL 109545 A 24-09-199 JP 8506259 T 09-07-193 JP 8510148 T 29-10-193 US 6102886 A 15-08-200 WO 9417856 A1 18-08-193 WO 9426186 A1 22-11-193 US 6241702 B1 05-06-200 US 5409453 A 25-04-193 US 5409453 A 25-04-193 US 556377 A 17-09-193 US 5540915 A 06-08-193 US 5540915 A 06-08-193 US 5540916 A 10-09-193 US 554091 A 06-08-193 US 554091 A 10-09-193 US 554091 A 10-09-193 US 5540964 A 27-08-193 US 5540964 A 10-10-193 US 5540964 A 10-10-10-103							26-06-1996
DE 69423814 T2 12-10-200 EP 0628288 A2 14-12-195 EP 06281514 A1 04-01-195 FR 2705241 A1 25-11-195 IL 108532 A 13-07-195 IL 109545 A 24-09-195 JP 8506259 T 09-07-195 JP 8510148 T 29-10-195 US 6102886 A 15-08-200 WO 9417856 A1 18-08-195 WO 9426186 A1 24-11-195 US 6241702 B1 05-06-200 US 5499453 A 25-04-195 US 5496161 A 23-01-195 US 556377 A 17-09-195 US 5562718 A 24-02-195 US 5542915 A 06-08-195 US 554946 A 27-08-195 US 554964 A 27-08-195 US 554964 A 27-08-195 US 554964 A 27-08-195 US 55667488 A 16-09-195 US 5667488 A 16-09-195 US 5582589 A 10-12-195 US 5582589 A 10-12-195 US 5741225 A 21-04-195 US 574225 A 21-04-195 US 574225 A 21-04-195 US 574225 A 21-04-195 US 574325 A 21-04-195 US 5582589 A 10-12-195 US 5782070 A 17-02-195 US 5782070 A 17-02-195 US 5782070 A 17-02-195 US 5782070 A 15-09-195							17-11-1994
EP 0628288 A2 14-12-199 EP 0631514 A1 04-01-199 FR 2705241 A1 25-11-199 IL 108532 A 13-07-199 IL 109545 A 24-09-199 JP 8506259 T 09-07-193 US 6102886 A 15-08-200 WO 9417856 A1 18-08-199 WO 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5486161 A 23-01-199 US 5720718 A 24-02-199 US 5720718 A 24-02-199 US 5470309 A 28-11-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5720719 A 24-02-199 US 5741225 A 21-04-199 US 5762626 A 09-06-199 US 5807309 A 15-12-199 US 5807309 A 15-09-199							11-05-2000
FP							
FR 2705241 A1 25-11-199 IL 108532 A 13-07-199 IL 109545 A 24-09-199 JP 8506259 T 09-07-199 JP 8510148 T 29-10-199 US 6102886 A 15-08-200 WO 9417856 A1 18-08-199 WO 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 549453 A 25-04-199 US 5486161 A 23-01-199 US 55409453 A 25-04-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5542916 A 24-02-199 US 55456662 A 10-10-199 US 5546662 A 10-10-199 US 5546664 A 27-08-199 US 5514131 A 07-05-199 US 5667488 A 16-09-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5685839 A 10-12-199 US 5718702 A 17-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5848986 A 15-12-199 US 5848986 A 15-12-199 US 5807309 A 15-09-199							14-12-1994
IL 108532 A 13-07-199 IL 109545 A 24-09-199 JP 8506259 T 09-07-193 JP 8510148 T 29-10-199 US 6102886 A 15-08-200 W0 9417856 A1 18-08-200 W0 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5546161 A 23-01-199 US 5720718 A 24-02-199 US 5740309 A 28-11-199 US 5549644 A 27-08-199 US 5549662 A 10-10-199 US 5549662 A 10-10-199 US 5540662 A 10-10-199 US 5531677 A 02-07-199 US 5531677 A 02-07-199 US 5582589 A 10-12-199 US 554125 A 21-04-199 US 554126 A 10-10-199 US 554126 A 11-11-199 US 554121 A 11-11-199							
IL 109545 A 24-09-195 JP 8506259 T 09-07-195 JP 8510148 T 29-10-195 US 6102886 A 15-08-200 W0 9417856 A1 18-08-195 W0 9426186 A1 24-11-195 US 6241702 B1 05-06-200 US 5409453 A 25-04-195 US 5486161 A 23-01-195 US 556377 A 17-09-195 US 5570718 A 24-02-195 US 5542915 A 06-08-195 US 55470309 A 28-11-195 US 5549644 A 27-08-195 US 5549644 A 27-08-195 US 5549644 A 27-08-195 US 5720719 A 24-02-195 US 5531677 A 02-07-195 US 5582589 A 10-12-195 US 5582589 A 10-12-195 US 5582589 A 10-12-195 US 5718702 A 17-02-195 US 5718702 A 17-02-195 US 5718702 A 17-02-195 US 57870309 A 15-10-195 US 5718702 A 17-02-195 US 5718702 A 17-02-195 US 5718702 A 17-02-195 US 57870309 A 15-10-195 US 57870309 A 15-10-195 US 57870309 A 15-09-195 US 57870309 A 15-09-195 US 57870309 A 15-09-195 US 5848986 A 15-12-195 US 57870309 A 15-09-195 US 5848986 A 15-12-195 US 5848986 A 15-12-195 US 5848986 A 15-12-195 US 57870309 A 15-09-195 AT 132046 T 15-01-195 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							
JP 8506259 T 09-07-195 JP 8510148 T 29-10-195 US 6102886 A 15-08-200 W0 9417856 A1 18-08-195 W0 9426186 A1 24-11-195 US 6241702 B1 05-06-200 US 5409453 A 25-04-195 US 5486161 A 23-01-195 US 5556377 A 17-09-195 US 5720718 A 24-02-195 US 5542915 A 06-08-195 US 5542915 A 06-08-195 US 5554110 A 10-09-195 US 5549644 A 27-08-195 US 5549644 A 27-08-195 US 5720719 A 24-02-195 US 5720719 A 24-02-195 US 5667488 A 16-09-195 US 5582589 A 10-11-195 US 5582589 A 10-12-195 US 5582589 A 10-12-195 US 55741225 A 21-04-195 US 5741225 A 21-04-195 US 5787309 A 15-09-195 US 5762626 A 09-06-195 US 5762626 A 09-06-195 US 5762626 A 09-06-195 US 5847309 A 15-09-195 US 5762626 A 09-06-195 US 5847309 A 15-09-195 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							
JP 8510148 T 29-10-199 US 6102886 A 15-08-200 W0 9417856 A1 18-08-199 W0 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 55486161 A 23-01-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 554131 A 07-05-199 US 5544131 A 07-05-199 US 55667488 A 16-09-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5582589 A 04-02-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5848986 A 15-12-199 US 5867309 A 15-09-199 AT 132046 T 15-01-199							
US 6102886 A 15-08-200 W0 9417856 A1 18-08-199 W0 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5544010 A 10-09-199 US 5546662 A 10-10-199 US 5546662 A 10-10-199 US 5541131 A 07-05-199 US 554164 A 27-08-199 US 554164 A 27-08-199 US 554164 A 27-08-199 US 554165 A 06-08-199 US 5546662 A 10-10-199 US 5720719 A 24-02-199 US 5546662 A 10-10-199 US 5667488 A 16-09-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5848986 A 15-12-199 US 5848986 A 15-12-199 US 5847309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							
W0 9417856 A1 18-08-199 W0 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 55470309 A 28-11-199 US 5549644 A 27-08-199 US 5549662 A 10-10-199 US 5514131 A 07-05-199 US 5514131 A 07-05-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5582589 A 10-12-199 US 5582589 A 10-12-199 US 574026 A 15-12-199 US 574026 A 15-02-199							
W0 9426186 A1 24-11-199 US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5556377 A 17-09-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5470309 A 28-11-199 US 5544914 A 27-08-199 US 554410 A 10-09-199 US 554411 A 07-05-199 US 5544131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5685839 A 11-11-199 US 5685839 A 11-11-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5762626 A 09-06-199 US 578702 A 17-02-199 US 5848986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199							
US 6241702 B1 05-06-200 US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5556377 A 17-09-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5542915 A 06-08-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5549662 A 10-10-199 US 5514131 A 07-05-199 US 5514131 A 07-05-199 US 5667488 A 16-09-199 US 5582589 A 11-11-199 US 5582589 A 10-12-199 US 5741225 A 21-04-199 US 574802 A 17-02-199 US 5741206 A 15-02-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							
US 5409453 A 25-04-199 US 5486161 A 23-01-199 US 5556377 A 17-09-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5470309 A 28-11-199 US 5549644 A 27-08-199 US 55496662 A 10-10-199 US 5514131 A 07-05-199 US 5514131 A 07-05-199 US 5670719 A 24-02-199 US 5687839 A 11-11-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 US 5807309 A 15-09-200 US 5807309 A 15-09-200 US 5807309 A 15-09-200 US 5807309 A 15-09-200							
US 5486161 A 23-01-199 US 5556377 A 17-09-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5470309 A 28-11-199 US 5549644 A 27-08-199 US 5456662 A 10-10-199 US 5456662 A 10-10-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5667488 A 16-09-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							
US 5556377 A 17-09-199 US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5470309 A 28-11-199 US 5549644 A 27-08-199 US 5549644 A 27-08-199 US 5514131 A 07-05-199 US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5582589 A 10-12-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5784898 A 15-12-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199							
US 5720718 A 24-02-199 US 5542915 A 06-08-199 US 5470309 A 28-11-199 US 5554110 A 10-09-199 US 5554110 A 10-09-199 US 5549644 A 27-08-199 US 545662 A 10-10-199 US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5582589 A 11-11-199 US 5582589 A 10-12-199 US 5582589 A 10-12-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199							17-09-1996
US 5542915 A 06-08-199 US 5470309 A 28-11-199 US 5554110 A 10-09-199 US 5549644 A 27-08-199 US 55496662 A 10-10-199 US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5582589 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 57402 A 17-02-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							24-02-1998
US 5470309 A 28-11-199 US 5554110 A 10-09-199 US 5549644 A 27-08-199 US 5456662 A 10-10-199 US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5718702 A 17-02-199 US 5848986 A 15-12-199 US 5848986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							06-08-1996
US 5549644 A 27-08-199 US 5456662 A 10-10-199 US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5748702 A 17-02-199 US 578702 A 17-02-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							28-11-1995
US 5549644 A 27-08-199 US 5456662 A 10-10-199 US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5741225 A 21-04-199 US 5748702 A 17-02-199 US 578702 A 17-02-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200					US	5554110 A	10-09-1996
US 5514131 A 07-05-199 US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5748986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 US 5807309 A 15-09-199 US 5807309 A 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200						5549644 A	27-08-1996
US 5720719 A 24-02-199 US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5748702 A 17-02-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200					US	5456662 A	10-10-1995
US 5667488 A 16-09-199 US 5531677 A 02-07-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5762626 A 09-06-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							07-05-1996
US 5531677 A 02-07-199 US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5848986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 US 5807309 A 15-09-199 US 5807309 A 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 EP 1164962 A1 02-01-200							24-02-1998
US 5685839 A 11-11-199 US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5848986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							16-09-1997
US 5582589 A 10-12-199 US 5599295 A 04-02-199 US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5848986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							02-07-1996
US 5599295 A 04-02-1999 US 5741225 A 21-04-1999 US 5718702 A 17-02-1999 US 5848986 A 15-12-1999 US 5762626 A 09-06-1999 US 5807309 A 15-09-1999 AT 132046 T 15-01-1999 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-2000 AU 3512100 A 21-09-2000 EP 1164962 A1 02-01-2000							11-11-1997
US 5741225 A 21-04-199 US 5718702 A 17-02-199 US 5848986 A 15-12-199 US 5762626 A 09-06-199 US 5807309 A 15-09-199 AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							10-12-1996
US 5718702 A 17-02-1999 US 5848986 A 15-12-1999 US 5762626 A 09-06-1999 US 5807309 A 15-09-1999 AT 132046 T 15-01-1999 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-2000 AU 3512100 A 21-09-2000 EP 1164962 A1 02-01-2000				•			04-02-1997
US 5848986 A 15-12-1999 US 5762626 A 09-06-1999 US 5807309 A 15-09-1999 AT 132046 T 15-01-1999 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-2000 AU 3512100 A 21-09-2000 EP 1164962 A1 02-01-2000							21-04-1998
US 5762626 A 09-06-1999 US 5807309 A 15-09-1999 AT 132046 T 15-01-1999 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-2000 AU 3512100 A 21-09-2000 EP 1164962 A1 02-01-2000							
US 5807309 A 15-09-1999 AT 132046 T 15-01-1999 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-2000 AU 3512100 A 21-09-2000 EP 1164962 A1 02-01-2000							
AT 132046 T 15-01-199 US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							
US 6461351 B1 08-10-2002 US 6287297 B1 11-09-200 AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200							
AU 3512100 A 21-09-200 EP 1164962 A1 02-01-200		·			A I 	132U46 	15-01-1996
EP 1164962 A1 02-01-200	US	6461351	B1	08-10-2002			11-09-2001
							21-09-2000
WO 0051513 A1 08-09-200							02-01-2002
				- 	WO 	0051513 A1	08-09-2000
US 5603697 A 18-02-1997 NONE	US	5603697	Α	18-02-1997	NONE		