(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 776 891 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
25.04.2007 Bulletin 2007/17

(51) Int Cl.:
A45B 19/10 *(2006.01)* ***A45B 25/02*** *(2006.01)*

(21) Application number: **05256568.6**

(22) Date of filing: **21.10.2005**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR MK YU

(71) Applicant: **Ming-Gung Li**
Chiayi
60073 (TW)

(72) Inventor: **Ming-Gung Li**
Chiayi
60073 (TW)

(74) Representative: **Brown, Michael Stanley et al**
Alpha and Omega,
Chine Croft,
East Hill
Ottery St. Mary,
Devon EX11 1PJ (GB)

(54) Umbrella frame

(57) A frame of an umbrella comprises a plurality of highly flexible plastic-made rib assemblies (1) pivotally connected to an upper nest (3) and a lower nest (4) of a shaft (2), wherein the rib assemblies (1) each includes a front rib (11), a front strut (12), a rear strut (13), a flexible rod (14), a mid rib (15) and a rear rib (16) that are pivotally connected in pairs, the upper nest (3) and the lower nest (4) are annularly formed on their respective outer surface with a plurality of notches (31,41), and the front rib (11) and the front strut (12) are pivoted positioned in the notches (31,41) by a highly flexible plastic pin (111), respectively.

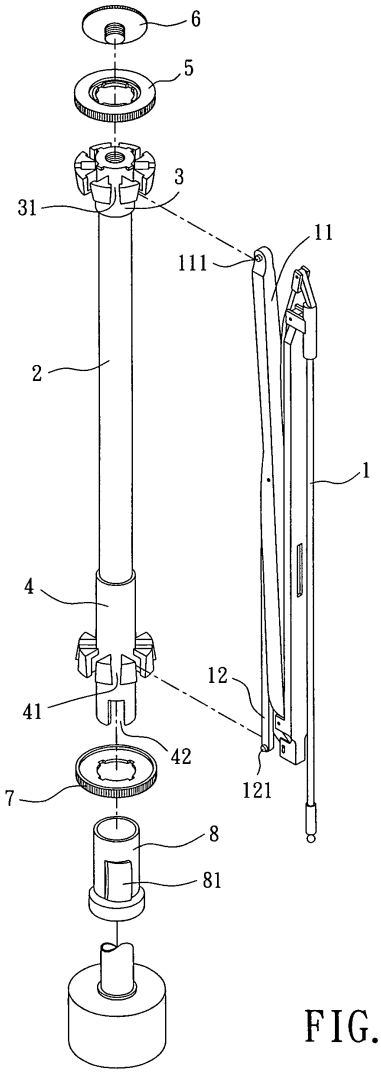

FIG. 3

EP 1 776 891 A1

Description

Field of the Invention

[0001] The present invention relates to an umbrella, and more particularly to an easily installable umbrella frame with high strength, wherein the sleeve is easily replaceable.

Description of the Prior Art

[0002] The ribs of a conventional umbrella are usually made of metal material, and the respective ribs are pivotally connected one another by copper pins or nails. After the ribs are connected to the upper and lower nests of the central shaft, a metal wire should be used to bind the respective ribs around the shaft. However, the copper pins for connecting the ribs are not only expensive, requiring complicated production process, but also are susceptible to rust. And if the ribs are rusted, they will have no sufficient strength to withstand bending and twisting caused by windy weathers or accidental impacts. In addition, binding the ribs around the upper and lower nests of the shaft with the metal wire is time-consuming and uneconomic.

[0003] The present invention has arisen to mitigate and/or obviate the afore-described disadvantages.

[0004] The primary objective of the present invention is to provide an easily installable umbrella frame, wherein the rib assemblies are pivotally engaged with the upper and lower nests.

[0005] The secondary objective of the present invention is to provide an antirust umbrella frame with high strength, wherein the rib assemblies are pivoted positioned in the notches by high flexible plastic made pins.

SUMMARY OF THE INVENTION

[0006] The present invention provides an umbrella frame as defined in the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007]

Fig. 1 is a side view of an umbrella frame in accordance with a first embodiment of the present invention;

Fig. 2 is an exploded view showing the rib assembly in accordance with the present invention;

Fig. 3 is an exploded view showing the umbrella frame in accordance with the present invention;

Fig. 4 is an assembly view showing the rib assembly in accordance with the present invention;

Fig. 5 is an assembly view showing the upper and lower nests for the umbrella frame in accordance with the present invention;

Fig. 6 is an exploded view showing the lower nest and the sleeve thereof in accordance with the present invention; and

Fig. 7 is an exploded view showing the lower nest and the sleeve thereof in accordance with another embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0008] Referring to Fig. 1, a frame of an umbrella in accordance with a preferred embodiment of the present invention is shown and comprises a plurality of high flexible plastic-made rib assemblies 1 pivotally connected to an upper nest 3 and a lower nest 4 of a shaft 2. The rib assemblies 1, as shown in Fig. 2, each includes a front rib 11, a front strut 12, a rear strut 13, a flexible rod 14, a mid rib 15 and a rear rib 16 that are pivotally connected in pairs by high flexible plastic made pins 111, 121, 131, 141, 151 and 161. As shown in Figs. 3 and 4, the shaft 2 is provided at its top end with the upper nest 3 that is annularly formed with a plurality of notches 31. The respective front ribs 11 are pivotally locked in the notches 31 by using the pins 111, and then an upper ring 5 is mounted on the top surface of the upper nest 3. After that, a cover 6 is screwed to the top end of the shaft 12 to position the upper ring 5. The lower nest 4 is moveably mounted on the shaft 12 and located below the upper nest 3, in the peripheral surface of the lower nest 4 are annularly formed a plurality of notches 41 for engaging the pin 121 at the end of the front strut 12, and then a lower ring 7 is mounted onto the bottom surface of the lower nest 4.

[0009] With reference to Figs. 5-7□in the bottom of the lower nest 4 is formed a groove 42 for positioning of the ribs after the umbrella is fully opened, and to the lower periphery of the lower nest 4 is attached a sleeve 8. On the surface of the surface of the sleeve 8 can be arranged a press button.

Claims

1. A frame of an umbrella comprising a plurality of flexible plastic rib assemblies pivotally connected to an upper nest and a lower nest of a shaft, wherein each of the rib assemblies includes a front rib, a front strut, a rear strut, a flexible rod, a mid rib and a rear rib that are pivotally connected in pairs, the upper nest and the lower nest are annularly formed on their respective outer surface with a plurality of notches, and the front rib and the front strut are pivoted positioned in the notches by a flexible plastic pin, respectively

2. The frame of an umbrella as claimed in claim 1, wherein an upper ring is mounted on a top surface of the upper nest, and then a cover is screwed to the top end of the shaft to position the upper ring.

3. The frame of an umbrella as claimed in claim 1, wherein a lower ring is mounted onto a bottom surface of the lower nest.

4. The frame of an umbrella as claimed in claim 1, wherein a sleeve is attached to a lower periphery of the lower nest.

5. The frame of an umbrella as claimed in claim 4, wherein a press button is arranged on a surface of the surface of the sleeve.

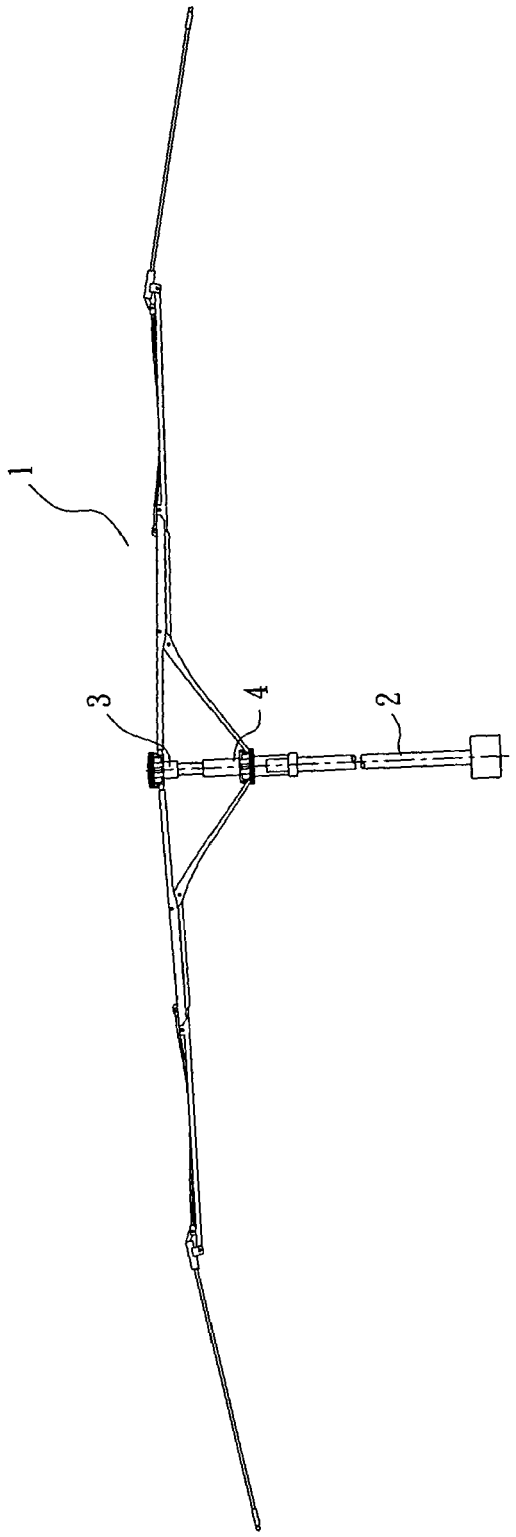

FIG. 1

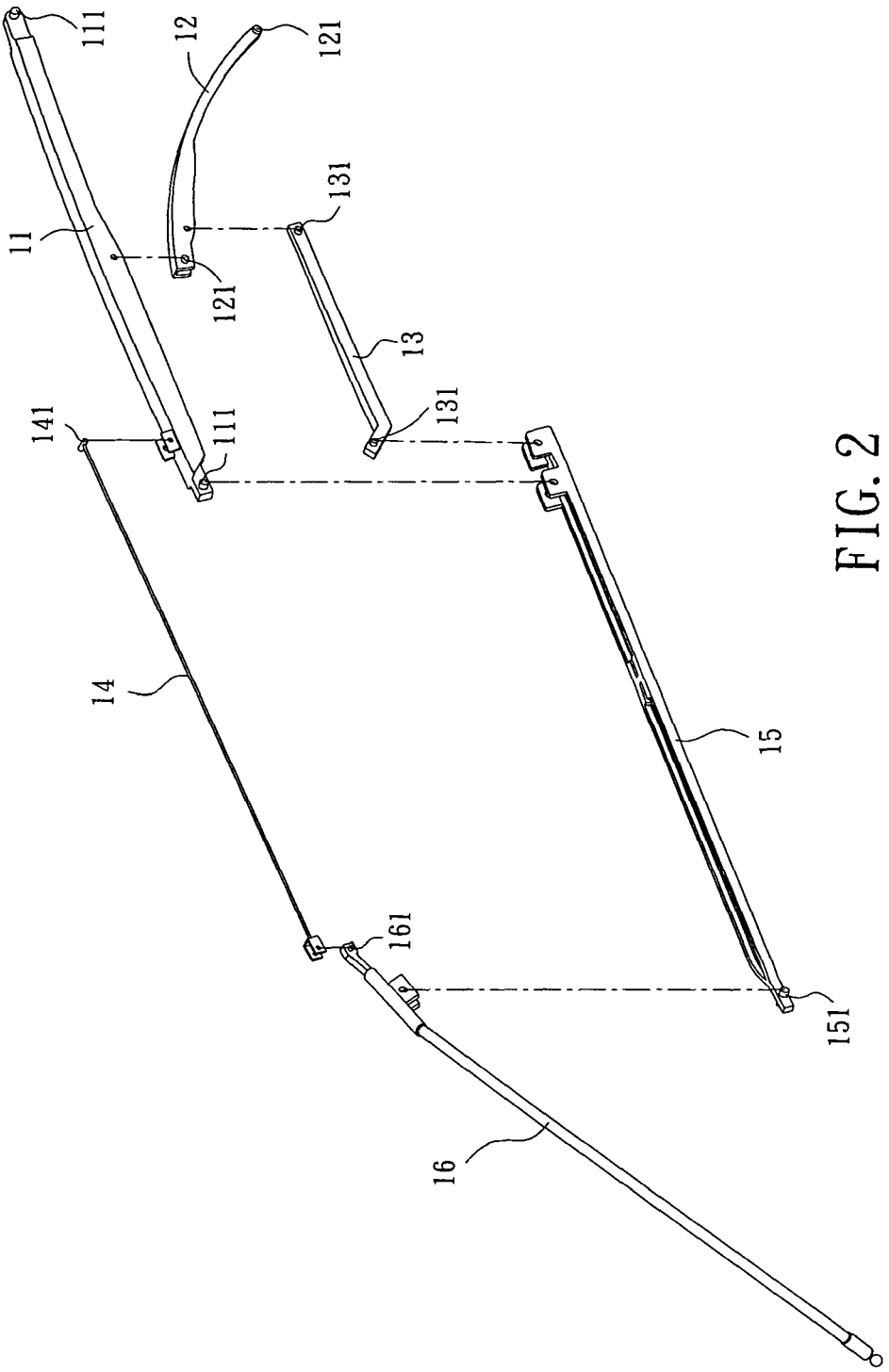

FIG. 2

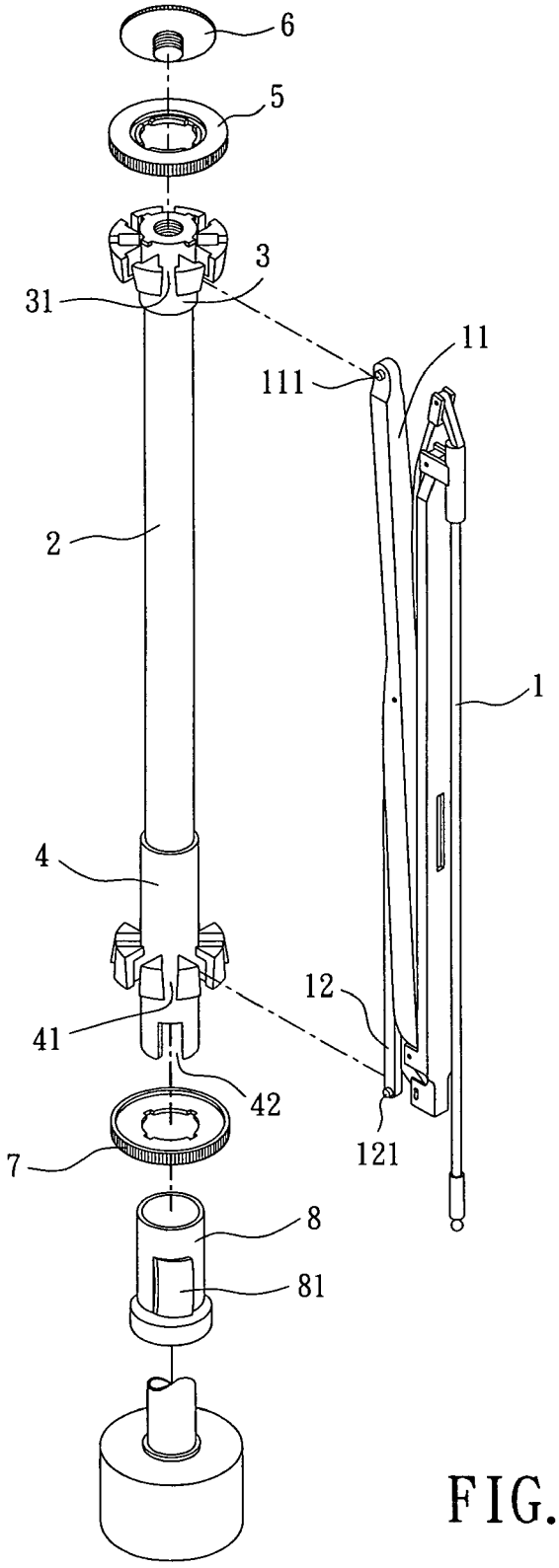

FIG. 3

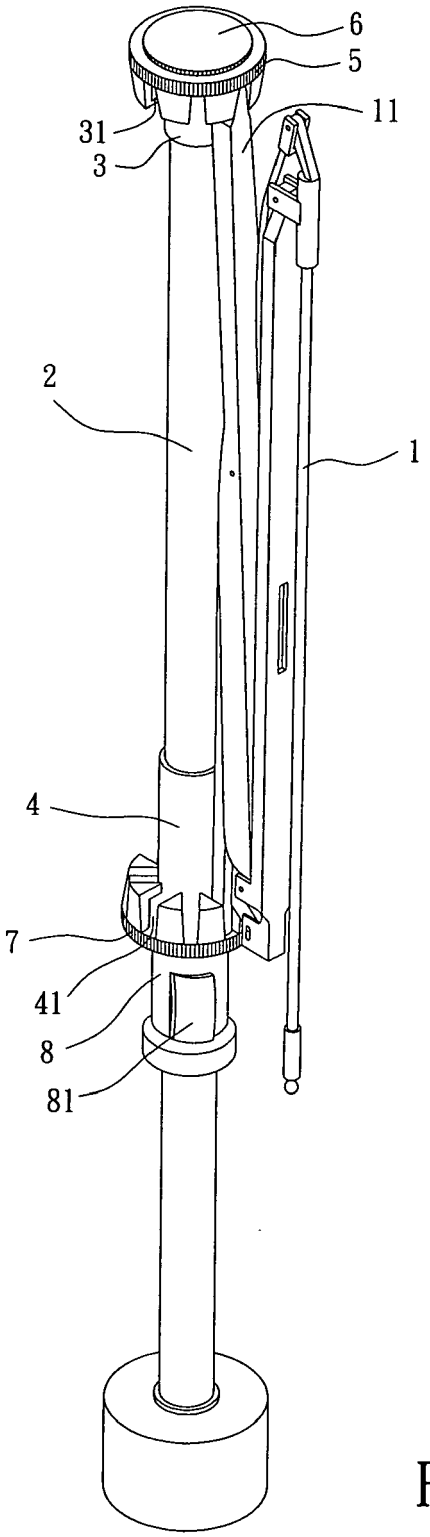

FIG. 4

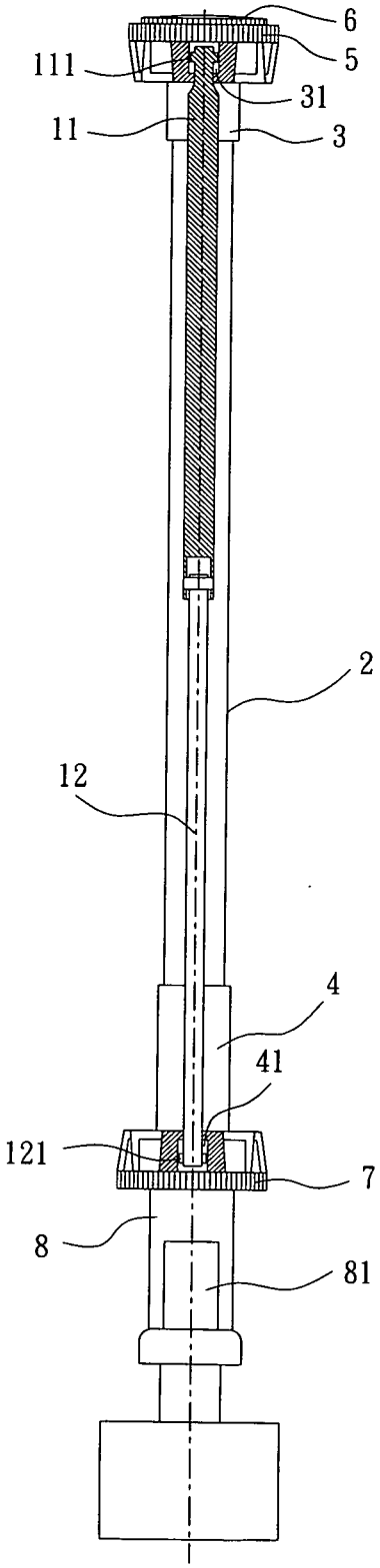

FIG. 5

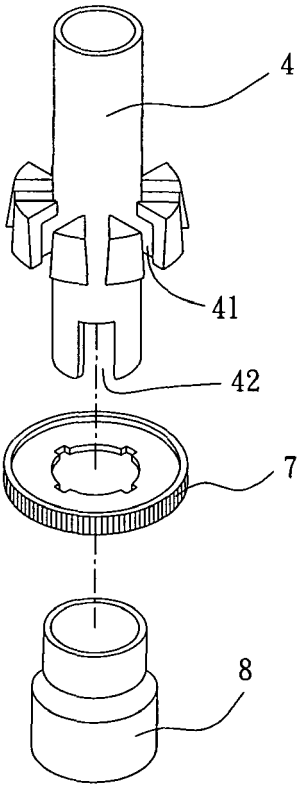

FIG. 6

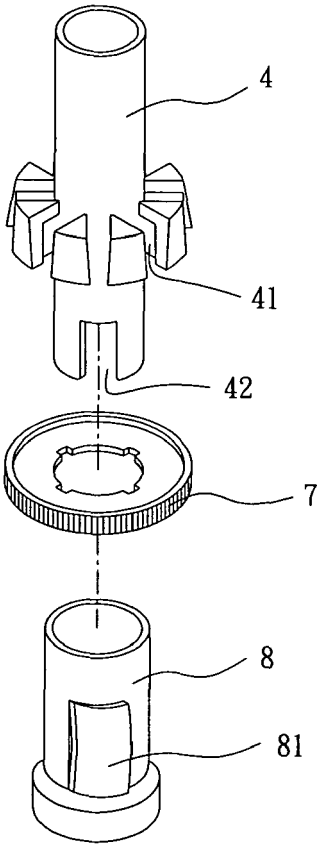

FIG. 7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 25 6568

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 474 352 B1 (LEE YOUTH) 5 November 2002 (2002-11-05) * column 1, line 5 - line 18 * * column 2, line 34 - column 3, line 13; claims; figures * -----	1-5	A45B19/10 A45B25/02
X	US 5 063 953 A (WU ET AL) 12 November 1991 (1991-11-12) * column 1, line 65 - column 2, line 16; claims; figures * -----	1-5	
X	US 6 058 952 A (LIN ET AL) 9 May 2000 (2000-05-09) * column 1, line 35 - line 51 * * column 2, line 18 - line 21 * * column 2, line 41 - line 42; claims; figures * -----	1-5	
X	EP 1 120 057 A (WANG, MAX) 1 August 2001 (2001-08-01) * paragraph [0007]; claims; figures * -----	1-5	

TECHNICAL FIELDS SEARCHED (IPC)

A45B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	29 March 2006	Acerbis, G

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 05 25 6568

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

29-03-2006

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6474352 B1	05-11-2002	NONE	
US 5063953 A	12-11-1991	NONE	
US 6058952 A	09-05-2000	CN 2375155 Y	26-04-2000
EP 1120057 A	01-08-2001	ES 2223398 T3	01-03-2005
		US 6244284 B1	12-06-2001

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82