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

(11) **EP 1 878 969 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
16.01.2008 Bulletin 2008/03

(51) Int Cl.:
F23Q 2/16 *(2006.01)* ***F23D 14/28*** *(2006.01)*

(21) Application number: **06425489.9**

(22) Date of filing: **14.07.2006**

(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: **Pucci, Piero**
50041 Calenzano FI (IT)

(72) Inventor: **Pucci, Piero**
50041 Calenzano FI (IT)

(74) Representative: **Lanzoni, Luciano**
Bugnion S.p.A.
Via dei Rustici, 5
50122 Firenze FI (IT)

(54) **Electronic gas lighter operable by inclining the same**

(57) The gas lighter comprises an inclination switch that can be oriented with respect to the body thereof so as to activate the ignition circuit when the longitudinal axis of the gas lighter's body (1) defines an ignition angle (α) with the vertical greater then a limit angle (β).

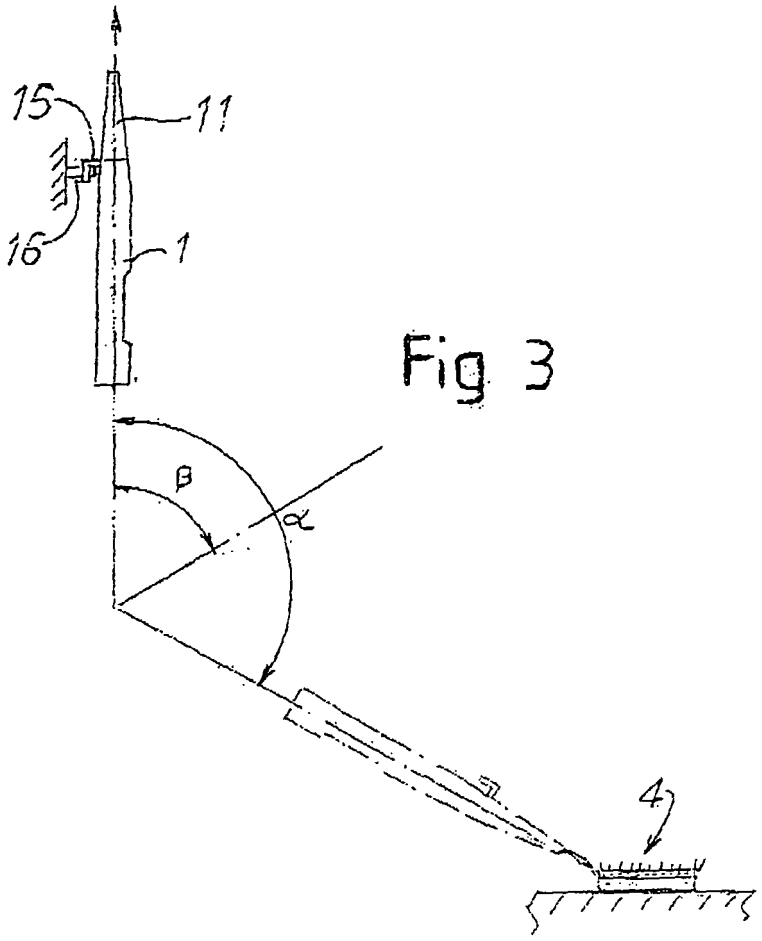

Fig. 3

EP 1 878 969 A1

Description

[0001] The present invention refers to a portable gas lighter for the ignition, for example, of a flame of a cooker in a cooking top. The gas lighter may be, for example, of a type provided with a pair of electrodes and a battery-powered circuit able to generate a succession of ignition sparks between the electrodes. Such a gas lighter may also comprise a reservoir of liquid gas or other ignition fuel which is fed for the ignition between the electrodes while the succession of sparks is generated, so as to develop, from a delivery hole of said fuel, a small flame apt to light flames, cigarettes or other.

[0002] According to the invention, the gas lighter is operable by changing its position from one of non-activation to another of ignition. To this end, the gas lighter is provided with a switch responsive to the position thereof with respect to the vertical, the same switch being oriented - relative to the gas lighter's body - so as to activate the ignition circuit when one axis, for example the longitudinal axis, of the gas lighter's body defines, with the vertical, an ignition angle greater then an ignition limit angle.

[0003] Preferably, the ignition limit angle is greater than 60°, as will be best specified below in the present description. In this way, for a cooking top, the striking of ignition sparks takes place ever since the gas lighter is moved close to the cooking top, thus allowing a higher readiness of ignition, and also making it possible to fire a gas device which is in an overhanging position, for example, a man-high device.

[0004] The gas lighter according to the invention has the advantage of not having a button switch to be pressed, thereby allowing the user to hold it far away from the electrodes at a safe position relative to the flame to be fired. Moreover, the inclination switch may be of hermetic type ensuring a long lasting efficiency.

[0005] The gas lighter may be provided with a mount for hanging it in a position in which said longitudinal axis is disposed, with respect to the vertical, at an angle smaller than said ignition limit angle and, thereore, in a stand-by position with no spark being struk.

[0006] The gas lighter may also comprise a base to make it est on a plane in stand-by position wherein the reference axis of the gas lighter exhibits, with respect to the vertical, an angle smaller than the ignition limit angle. In one embodiment, said base has a convex support profile, and the whole of the gas lighter and its base, results in a stable equilibrium on said plane in said stand-by position. In this way, the gas lighter can be, after its use, made to rest more rapidly on a plane and left in inoperative position until the next use thereof.

[0007] In the embodiments in which the gas lighter according to the invention does not exhibit a predefined arrangement for the support of it on a plane, is preferred to provided the ignition circuit with a timer causing the switching off - after a predetermined time of, for example, 5 seconds - of the sparks succession emitted by the gas lighter when its position lies within the ignition angle. This in order to avoid a useless waste of energy should the gas lighter be left in the switching position.

[0008] The gas lighter and/or its base may also comprise at least an implement of domestic utility, such a bottle-opener or other, formed in the respective body or applied thereto.

[0009] The drawing shows a non-limitative embodiment of the model and, in particular.

Figs. 1 and 2 shows respectively a front view and a side view in longitudinal section of a gas lighter according to the invention;
Fig. 3 shows the invention in ignition position;
Fig. 4 and 5 show different constructional forms of a gas lighter according to the invention; and
Fig. 6 shows a view from below of a support base of the gas lighter shown in Fig. 5.
Fig. 7 show a gas lighter with liquid gas reservoir according to the invention.

[0010] With reference to Figs. 1 and 2, the gas lighter comprises a straight elongated body 1 made up of two plastics half-shells, a pair of electrodes 3 being fixed to one end of the body and powered by a traditional circuit 5 able to strike a succession of sparks between said electrodes. The circuits includes a rechargeable battery fed by a photovoltaic cell 7 which, through a protective transparent shield 9, receives the ambient light that keeps the battery live. The electrodes are protected against shocks by a metal cap 11 applied to the respective end of body 1.

[0011] According to the invention, the gas lighter, instead of the usual manual switch for generating the spark, comprises an inclination switch 13 connected to the circuit 5 for the activation thereof when the gas lighter is put on the ignition position.

[0012] Such inclination switch is of a type available on the market, in particular without mercury, filled with inert gas and utilizing a contact mechanism with a mass movable by gravity.

[0013] As shown in Fig. 3 in solid line, the gas lighter hangs from a mount 16, by means of its hook 15, in a position in which the longitudinal axis of the same gas lighter is into alignment with the vertical, and the ignition electrodes face upwards. For firing a cooker 4, the gas lighter must be taken out of the mount 16 and disposed in the arrangement shown in dotted line, by inclining it at an angle α to the vertical plane greater than a limit angle β. The inclination switch 13 is mounted so that its contact closes when the axis of the gas lighter is inclined to the vertical by an angle α greater than the angle β. When the position of the gas lighter implies an angle α greater than, or equal to, the angle β, a continuous succession of sparks is struck between the electrodes 3, which succession is interrupted when the gas lighter is put again in the position in which said angle α is less than the angle β, for example, when hanging it back into a stand-by condition with the electrodes facing upwards.

[0014] The ignition circuit of the gas lighter also com-

prises a timer (not shown) able to determine, when the gas lighter is left into an ignition condition, the switching off of the succession of sparks after a predetermined time, for example 5 seconds.

[0015] Advantageously, for the ignition of flames of a cooking top, the angle β is approximately 60°, so that the striking of the sparks will start already when moving the gas lighter close to the cooking top after having detached it from its stand-by place.

[0016] In a particular embodiment (Fig. 4), the body of the gas lighter comprises a base 17 having a surface 17A of convex shape for making the same gas lighter rest in the stand-by position. The base is weighted so that whatever the arrangement into which the gas lighter is put onto the plane, the same gas lighter takes up spontaneously a vertical position with the electrodes facing upwards, as shown in Fig. 4.

[0017] In another embodiment (Figs. 5 and 6), a gas lighter of the type shown in Fig. 1 is put into a stand-by position by inserting it into a separate base 19 able to rest on a plane. The base 19 is mad up of a plastics convex shell 19A being closed in the underlying side by a heavy metal plate 21, the shell exhibiting a recess 19A above (Fig. 5) able to receive the end of the gas lighter opposite to the electrodes 11. For utility reasons, an aperture 21A is formed in the metal plate which is apt to function as a bottle-opener.

[0018] In Fig. 7 it is depicted a gas lighter comprising a reservoir 22 of liquid gas or any other suitable fuel, with a filling hole 26 which a delivery communicates through a pipe 23 with a delivery hole 24 of gassified fuel placed near to electrodes 3 of the lighter.

[0019] In this embodiment a valve 25 of the gas delivery it is also provided in order to enable/disable the gas delivery in combination with a spark generation between the electrodes 3 and to create a flame only when it is needed.

Claims

1. A gas lighter **characterized in that** the ignition circuit can be activated by an inclination switch (13) responsive to the position of the gas lighter with respect to the vertical, the switch being oriented, with respect to the body of the gas lighter, so as to activate the ignition circuit when an axis of the gas lighter's body (1) defines with the vertical an ignition angle (α) greater then an ignition limit angle (β).

2. Gas lighter according to claim 1, **characterized in that** said ignition limit angle (β) is approximately 60°.

3. Gas lighter according to claim 1 or 2, **characterized in that** it comprises a device (15, 16) for hanging it at a stand-by position in which the circuit of the gas lighter is not active.

4. Gas lighter according to claim 1 or 2 or 3, **characterized in that** it comprises a base (17, 19) to make it rest on a plane in a stand-by position.

5. Gas lighter according to claim 1 or 2 or 3, **characterized in that** it further comprises a timer, in the electric ignition circuit, which timer is capable of determining, should the gas lighter be left in an ignition position, the switching off after a predetermined time of the succession of sparks.

6. Gas lighter according to claim 4, **characterized in that** said base (17) exhibits a convex surface (17A) of support on said plane, and **in that** the whole of the gas lighter and the base (17) results in a stable equilibrium on said plane in said stand-by position.

7. Gas lighter according to claim 4 or 5 or 6, **characterized in that** said base (17) is solid to the gas lighter's body.

8. Gas lighter according to claim 4 or 5 or 6, **characterized in that** said base (17, 19) is separable from the gas lighter's body.

9. Gas lighter according to any preceding claims, **characterized in that** it comprises, formed in the body (1) or in the base (19), an implement of domestic utility such as a bottle-opener (21A) or other.

10. Gas lighter according to any preceding claim, **characterized in that** it comprise a reservoir (22) of liquid fuel and a pipe (23) leading from the reservoir (22) to a fuel delivery hole (24) placed in the proximity of spark generation electrodes (3) of the lighter.

11. Gas lighter according to claim 10, **characterized in that** said valve (25) enable/disable said fuel delivery independently of the generation of sparks.

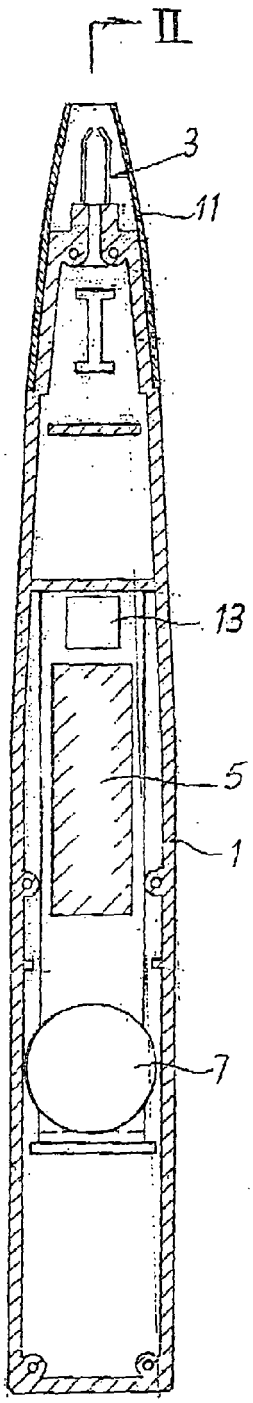

Fig.1

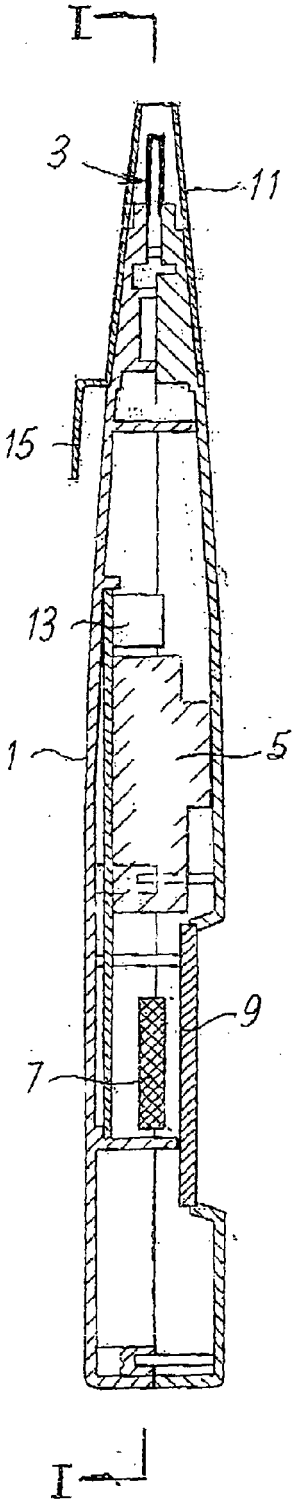

Fig.2

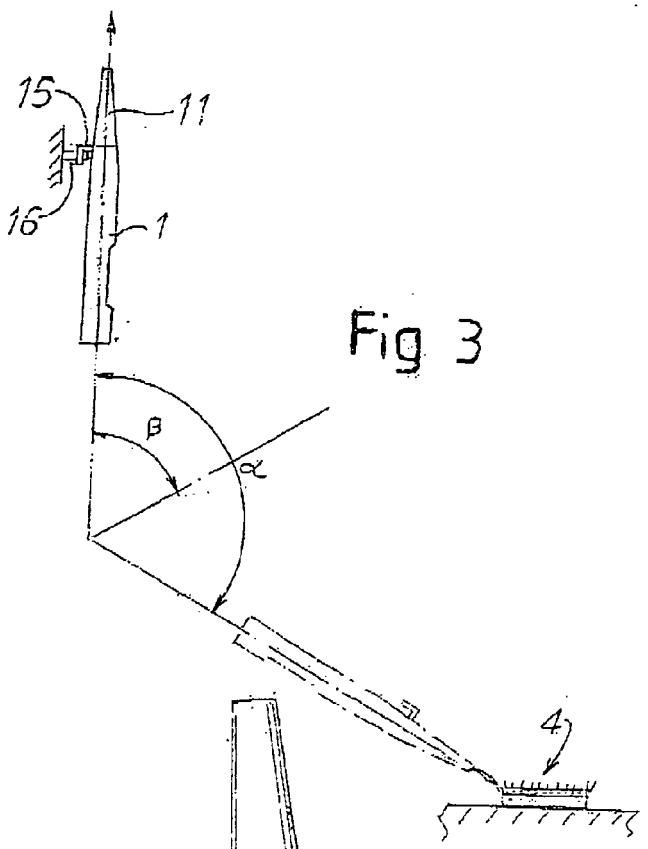

Fig. 3

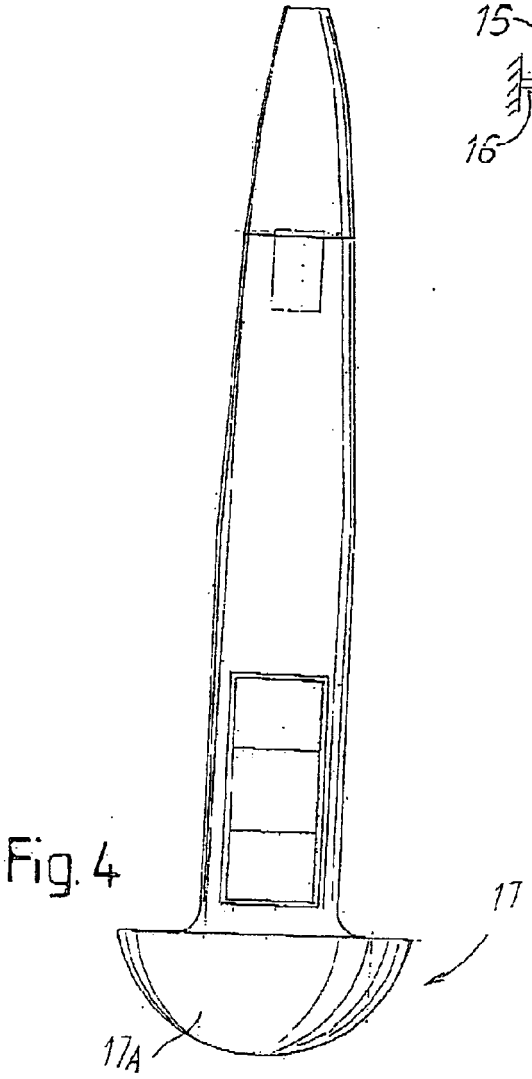

Fig. 4

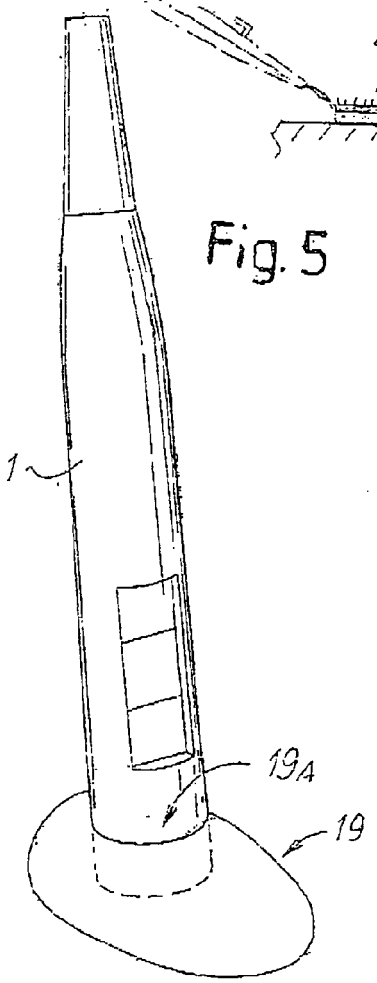

Fig. 5

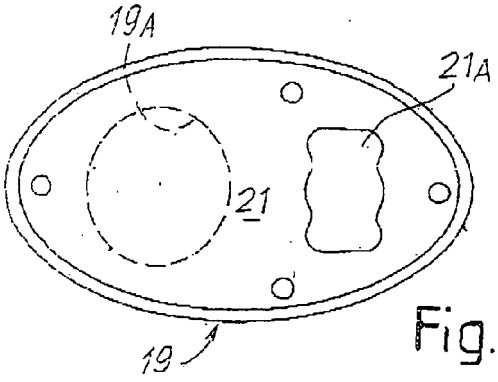

Fig. 6

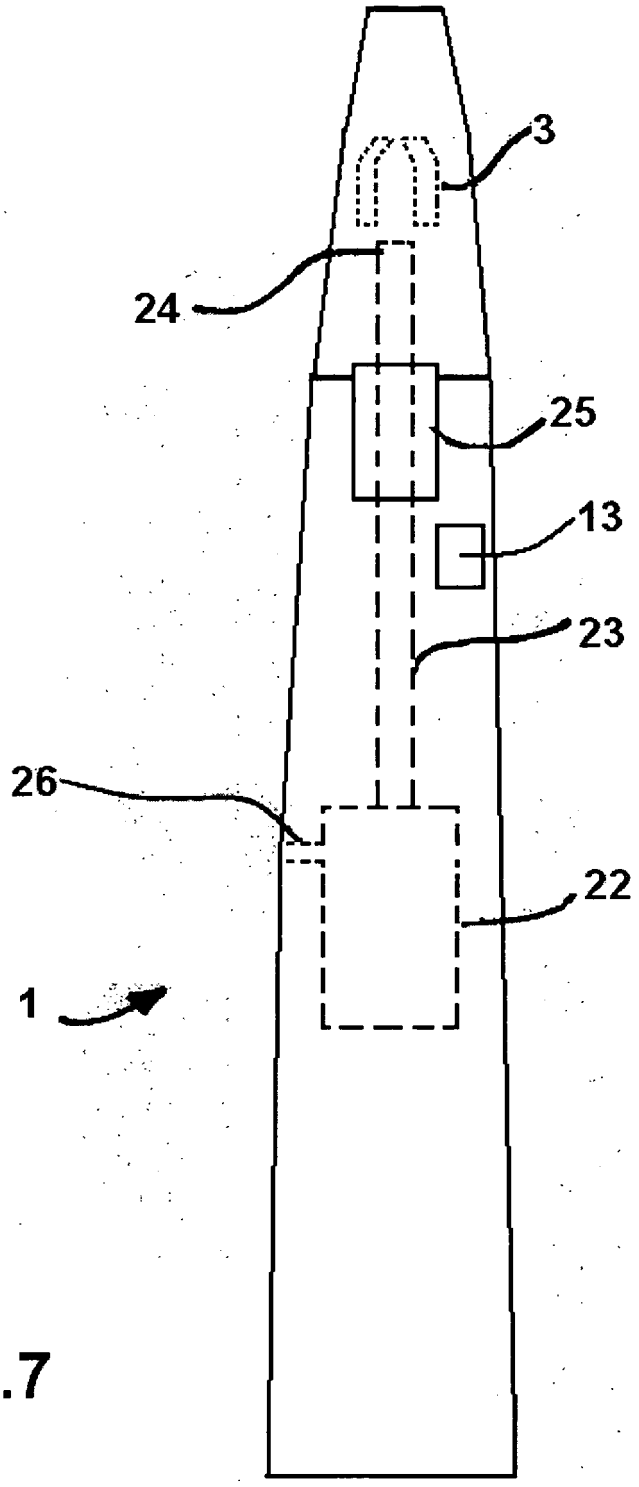

Fig.7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 42 5489

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 Y	GB 620 321 A (GENERAL ELECTRIC) 3 October 1946 (1946-10-03) * page 2, lines 20-35 * * page 2, line 104 - page 3, line 6; figure *	1-3 4,6-10	INV. F23Q2/16 F23D14/28
Y	US 2 480 139 A (KEENE WALTER E) 30 August 1949 (1949-08-30) * the whole document *	4,6-8	
Y	FR 2 399 616 A (SIOT TAILLEFER PAUL [FR]) 2 March 1979 (1979-03-02) * the whole document *	4,7,8,10	
Y	US 4 361 920 A (ZANNI PAOLO) 7 December 1982 (1982-12-07) * the whole document *	9	
A	US 2 029 697 A (BEST LEON H) 4 February 1936 (1936-02-04) * the whole document *	1-4	
			TECHNICAL FIELDS SEARCHED (IPC) F23Q F23D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	10 January 2007	Coli, Enrico

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 06 42 5489

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.

10-01-2007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
GB 620321 A		NONE	
US 2480139 A	30-08-1949	NONE	
FR 2399616 A	02-03-1979	NONE	
US 4361920 A	07-12-1982	FR 2466432 A1	10-04-1981
		GB 2059561 A	23-04-1981
		NL 8005349 A	31-03-1981
US 2029697 A	04-02-1936	NONE	