



(11) **EP 1 808 827 A1**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**18.07.2007 Bulletin 2007/29**

(51) Int Cl.:  
**G07D 9/00 (2006.01)**

(21) Application number: **06026002.3**

(22) Date of filing: **15.12.2006**

(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: **Alberici S.R.L.**  
**40024 Castel San Pietro BO (IT)**

(72) Inventor: **Alberici, Fabrizio**  
**40024 Castel San Pietro Terme, Bologna (IT)**

(74) Representative: **Negrini, Elena**  
**Agazzani & Associati S.r.l.**  
**Via dell'Angelo Custode 11/6**  
**40141 Bologna (IT)**

(30) Priority: **16.12.2005 IT BO20050768**

(54) **Coin dispenser device**

(57) A coin dispenser device comprising a guide (4) for an annular chain (15) for transporting the coins from an inlet opening (2) to an outlet opening (3).

In an installed condition (I) of the device (1), the lower base of the inlet opening (2) is positioned at a first distance (D) comprised between 19 mm and 29 mm from the lower branch of the guide (4), the height (HE) of the inlet opening (2) is comprised between 44,5 mm and 64,5 mm, the lower end of the outlet opening (3) has a second distance (V) comprised between 10,5 mm and 35,5 mm from the upper end of the inlet opening (2).

distance (D) comprised between 19 mm and 29 mm from the lower branch of the guide (4), the height (HE) of the inlet opening (2) is comprised between 44,5 mm and 64,5 mm, the lower end of the outlet opening (3) has a second distance (V) comprised between 10,5 mm and 35,5 mm from the upper end of the inlet opening (2).

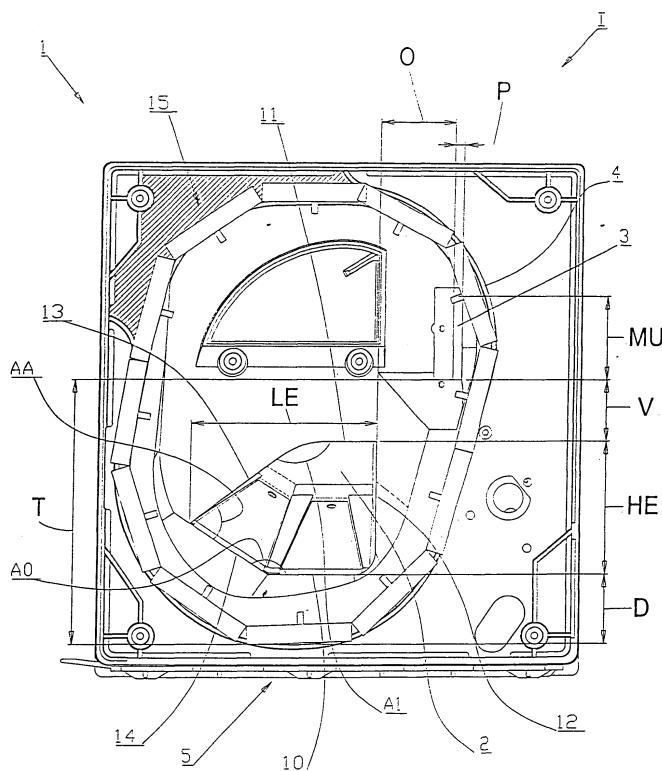


FIG 1

## Description

**[0001]** The present invention refers to technical field relating to payment devices of the so-called "hopper" type and refers to a coin dispenser device particularly suitable for small sizes applications. Dispenser devices for coins and/or token are known in which handling of said coins is made by discs having recesses acting as seat for coins or chains with links having corresponding seats for coins.

**[0002]** The main drawback of the above mentioned disc devices consists in the limited duration, prevalently because the disc breaks easily with respect to chain devices.

**[0003]** A drawback of the known chain devices consists in their wide dimension that makes difficult or impossible their use in small equipment and in general in reduced spaces.

**[0004]** Said drawback cannot be overcome simply by reducing the sizes of the components of the known devices because of jams and loss of functionality even with the same dimensions of passages, housings and seats for coins.

**[0005]** An object of the present invention is to propose a coin dispenser device having small sizes and almost without jams.

**[0006]** The characteristics of the invention are evidenced in the following with particular reference to the attached drawings, in which:

- figure 1 shows a schematic view, in which some parts are removed, of the coin dispenser device of the present invention in an installed condition and sectioned by a vertical plain;
- figures 2 and 3 show respectively plane and side views of an assembly plate of the device of figure 1.

**[0007]** With reference to figure 1, numeral 1 indicates the dispenser device of coins or token usually named "hopper".

**[0008]** The device 1 comprises a passage or a guide 4 for an annular chain 15, provided with a number of links ranging between 11 to 15, preferably 12, for transporting the coins from an inlet opening 2 to an outlet opening 3 included, in projection, inside the perimeter of guide 4.

**[0009]** The outlet opening 3 has rectangular fissure shape and is positioned vertically in the installed condition I of the device 1.

**[0010]** The height of the outlet opening 3 is preferably about 34,5 mm; in alternative the invention provides that said height can range between 31 mm and 38 mm, in order to adapt to particular needs.

**[0011]** The width P of the outlet opening 3 is preferably about 3,6 mm, but can range between 3,3 mm and 3,9 mm.

**[0012]** The inlet opening 2 has irregular pentagonal shape with lower 10 and upper 11 bases horizontal and joined at their ends closest to the outlet opening 3, by a vertical side 12. The opposite ends of the bases 10, 11 are joined by two angled sides, upper 13 and lower 14,

which form an acute angle AA between them and a lower obtuse angle A0 and an upper obtuse angle A1 with the bases, in the installed condition I.

**[0013]** The acute angle AA between the two angled sides upper 13 and lower 14 is preferably 70°. In alternative said acute angle AA can range between 63° and 77°.

**[0014]** The lower obtuse angle A0 between the lower angled side 14 and the lower base 10 is preferably 147°. In alternative said lower obtuse angle A0 can range between 130° and 165°.

**[0015]** The upper obtuse angle A1 between the upper angled side 13 and the upper base 11 is preferably 143°. In alternative said upper obtuse angle A1 can range between 126° and 161°.

**[0016]** The maximal height HE of the inlet opening 2, measured vertically in the installed condition I, is preferably about 54,5 mm. In alternative said height HE can range between 44,5 mm and 64,5 mm.

**[0017]** The maximal width LE of the inlet opening 2, measured horizontally in the installed condition I of device 1 is preferably about 75 mm. In alternative said width LE can range between about 70 mm and 80 mm.

**[0018]** The lower base of the inlet opening 2 has a first distance D of 24 mm from the lower arm of the guide 4. In alternative said first distance D can range between 19 mm and 29 mm.

**[0019]** The lower end of the outlet opening 3 is at a second distance V of 25,5 mm from the upper end of the inlet opening 2. In alternative said second distance V ranges between 10,5 mm and 40,5 mm.

**[0020]** The horizontal distance O between the inlet opening 2 and the outlet opening 3 is 32 mm and can be varied between 27 mm and 37 mm.

**[0021]** In the installed condition I and in projection on a vertical plain, the outlet opening 3 is positioned higher, or superelevated, with respect to the lower part lower of the guide or the chain internal passage with a total distance T of 104 mm. In alternative, this latter superelevation can range between 74 mm and 134 mm.

**[0022]** The device 1 comprises a slipping plate 5 for the removable assembly of the device 1.

**[0023]** The plate 5 is laterally provided with protrusions 6 fit to slide into lateral channels of the device 1 and centrally provided with holes 7 for fixing by screws to a machine, known and not shown.

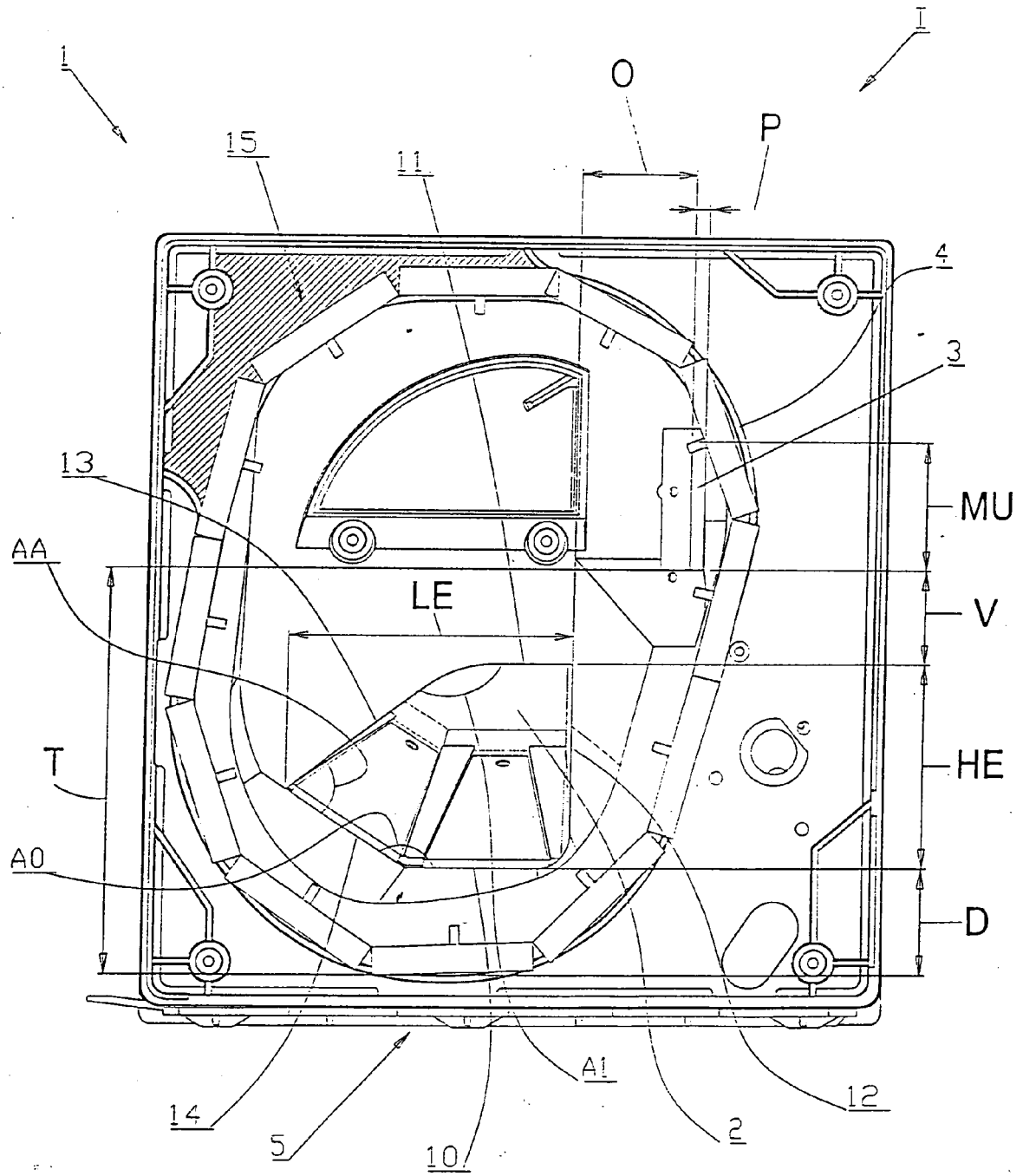
**[0024]** The external end of the said plate 5 is provided with a flexible arm 9 having a stopping tooth 8 for the removable fixing of the device 1.

**[0025]** An advantage of present the invention is to provide a coin dispenser device having a perfect functionality and small sizes.

## Claims

1. Coin dispenser device comprising a guide (4) for an annular chain (15) for transporting the coins from an

- inlet opening (2) to an outlet opening (3) **characterized in that** in an installed condition (I) of the device (1), the lower base of the inlet opening (2) is positioned at a first distance (D) comprised between 19 mm and 29 mm from the lower branch of the guide (4), the height (HE) of the inlet opening (2) is comprised between 44,5 mm and 64,5 mm, the lower end of the outlet opening (3) has a second distance (V) comprised between 10,5 mm and 35,5 mm from the upper end of the inlet opening (2).
2. Device according to claim 1 **characterized in that** in the installed condition (I), the horizontal distance (O) between the inlet opening (2) and the outlet opening (3) is comprised between 27 mm and 37 mm.
  3. Device according to claim 2 **characterized in that** the horizontal distance (O) is 32 mm.
  4. Device according to claim 1 **characterized in that** the first distance (D) is 24 mm, the height (HE) of the inlet opening (2) is 54,5 mm, the second distance (V) is 25,5 mm.
  5. Device according to claim 1 or 2 **characterized in that** the inlet opening (2) has irregular pentagonal shape with lower and upper horizontal joined bases, at the ends closest to the outlet opening (3), by a vertical side and, at the opposite ends, by two upper and lower angled sides which form an acute angle (AA) between them and a lower obtuse angle (A0) and an upper obtuse angle (A1) with the bases.
  6. Device according to anyone of the preceding claims **characterized in that** the width (LE) of the inlet opening (2) is comprised between 70 mm and 80 mm, preferably 75 mm.
  7. Device according to claim 3 **characterized in that** the acute angle (AA) between the two upper and lower angled sides is comprised between 63° and 77°, preferably 70°.
  8. Device according to claim 3 or claim 5 **characterized in that** the first obtuse angle (A0) between the lower angled side and the lower base is comprised between 130° and 165°, preferably 147°.
  9. Device according to claim 3 or claim 5 **characterized in that** the second obtuse angle (A1) between the upper angled side and the upper base is comprised between 126° and 161°, preferably 143°.
  10. Device according to anyone of the preceding claims **characterized in that** the openings (2, 3) are internal with respect to the guide (4) of the chain.
  11. Device according to anyone of the preceding claims **characterized in that** the total distance (T) between the lower end of the outlet opening (3) and the lower branch of the guide (4) is comprised between 74 mm and 134 mm, preferably about 104 mm.
  12. Device according to anyone of the preceding claims **characterized in that** the height of the outlet opening (3) is comprised between 31 mm and 38 mm, preferably about 34,5 mm.
  13. Device according to anyone of the preceding claims **characterized in that** the outlet opening (3) has rectangular shape with width (P) comprised between 3,3 mm and 3,9 mm, preferably about 3,6 mm.
  14. Device according to anyone of the preceding claims **characterized in that** the chain (15) is provided with a number of links comprised between 11 and 15, preferably 12.
  15. Device according to anyone of the preceding claims **characterized in that** comprises a slide plate (5) for the removable assembly of the device (1).
  16. Device according to claim 13 **characterized in that** the slide plate (5) is laterally provided with protrusions (6) fit to slide into corresponding lateral channels of the device (1).
  17. Device according to claim 14 **characterized in that** an external end of the plate (5) is provided with a stopping tooth (8), for the device (1), said tooth being fixed on a flexible arm (9).
  18. Device according to claim 14 **characterized in that** the plate (5) is provided with holes (7) for screw fixing means to a machine.



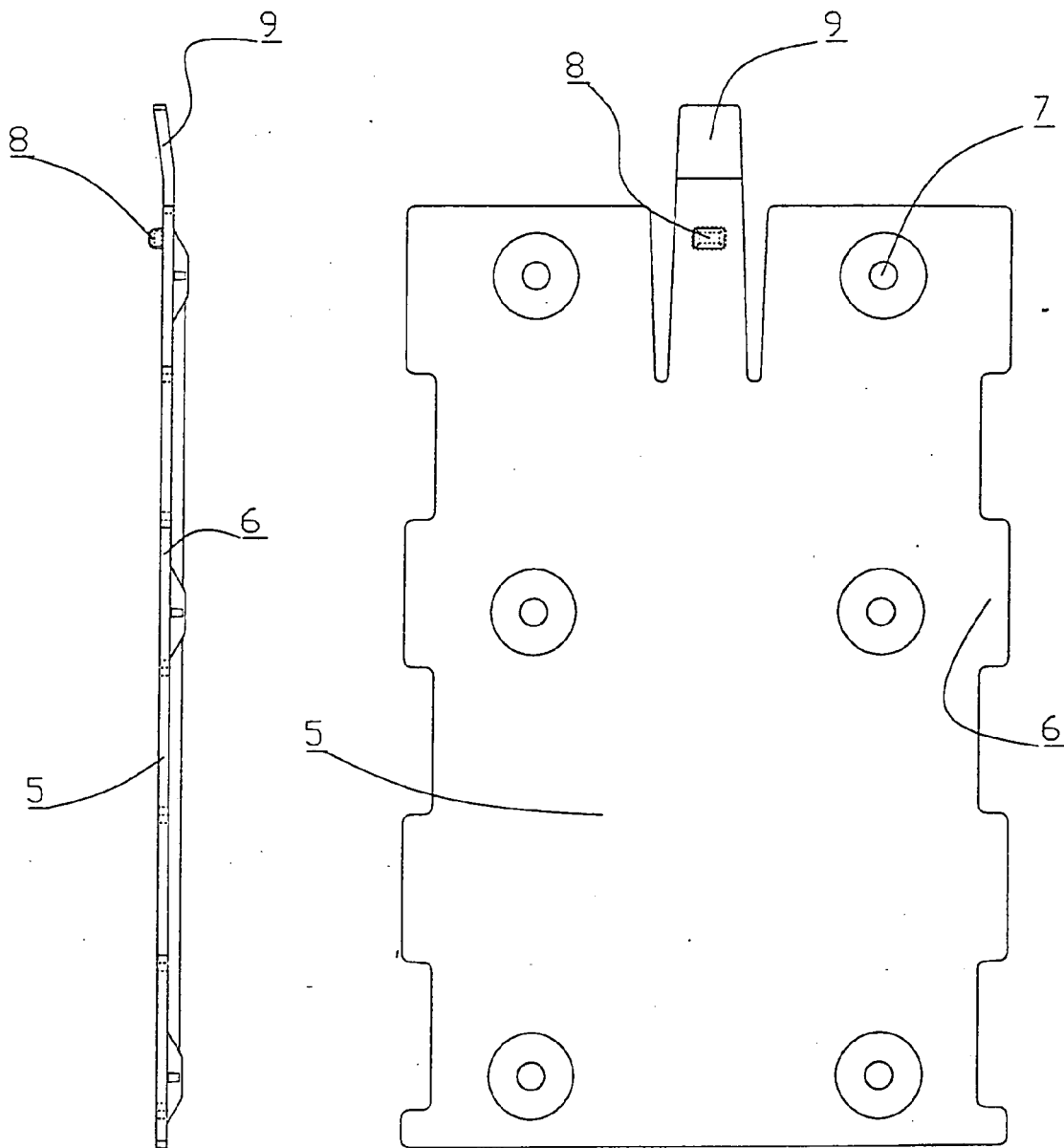


fig 3

fig 2



European Patent  
Office

# EUROPEAN SEARCH REPORT

Application Number  
EP 06 02 6002

| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EP 1 283 505 A (ASAHI SEIKO)<br>12 February 2003 (2003-02-12)<br>* paragraphs [0033] - [0046], [0065] - [0069]; figures * | 1-18                                              | INV.<br>G07D9/00                        |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EP 0 080 842 A (COIN CONTROLS)<br>8 June 1983 (1983-06-08)                                                                | 1-14                                              |                                         |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | * page 9, line 13 - page 10, line 16;<br>figures *                                                                        | 15-18                                             |                                         |
| Y                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | EP 1 047 031 A (ARUZE CO. LTD.)<br>25 October 2000 (2000-10-25)<br>* paragraphs [0066] - [0075]; figures 33-37 *          | 15-18                                             |                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                           |                                                   | TECHNICAL FIELDS SEARCHED (IPC)         |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                           |                                                   | G07D                                    |
| The present search report has been drawn up for all claims                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                           |                                                   |                                         |
| Place of search<br>The Hague                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                           | Date of completion of the search<br>27 March 2007 | Examiner<br>Neville, David              |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone<br/>Y : particularly relevant if combined with another document of the same category<br/>A : technological background<br/>O : non-written disclosure<br/>P : intermediate document</p> <p>T : theory or principle underlying the invention<br/>E : earlier patent document, but published on, or after the filing date<br/>D : document cited in the application<br/>L : document cited for other reasons<br/>.....<br/>&amp; : member of the same patent family, corresponding document</p> |                                                                                                                           |                                                   |                                         |

1  
EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 02 6002

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.

27-03-2007

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|---|---------------------|----------------------------|---------------------|
| EP 1283505                                | A | 12-02-2003          | CN 1405737 A               | 26-03-2003          |
|                                           |   |                     | JP 2003051040 A            | 21-02-2003          |
|                                           |   |                     | KR 20030014581 A           | 19-02-2003          |
|                                           |   |                     | US 2003032387 A1           | 13-02-2003          |
| -----                                     |   |                     |                            |                     |
| EP 0080842                                | A | 08-06-1983          | AU 552471 B2               | 05-06-1986          |
|                                           |   |                     | AU 9076482 A               | 26-05-1983          |
|                                           |   |                     | DE 3276675 D1              | 06-08-1987          |
|                                           |   |                     | JP 1590258 C               | 30-11-1990          |
|                                           |   |                     | JP 2002763 B               | 19-01-1990          |
|                                           |   |                     | JP 58119507 A              | 16-07-1983          |
|                                           |   |                     | US 4535794 A               | 20-08-1985          |
| -----                                     |   |                     |                            |                     |
| EP 1047031                                | A | 25-10-2000          | AU 768821 B2               | 08-01-2004          |
|                                           |   |                     | AU 2780800 A               | 26-10-2000          |
|                                           |   |                     | JP 2000300732 A            | 31-10-2000          |
|                                           |   |                     | US 6319126 B1              | 20-11-2001          |
|                                           |   |                     | ZA 200001873 A             | 31-10-2000          |
| -----                                     |   |                     |                            |                     |