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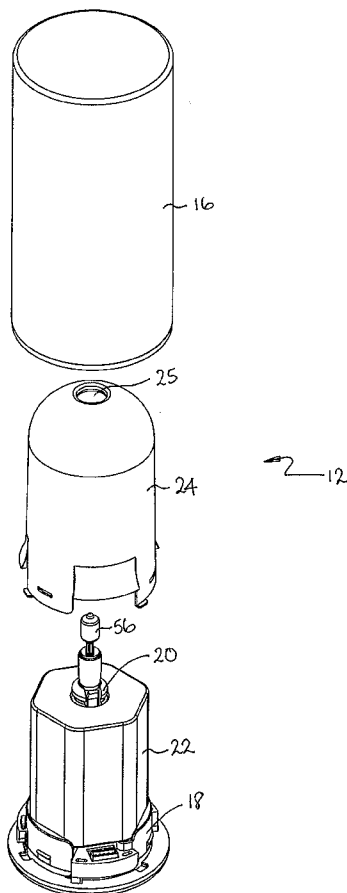
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[Continued on next page]

(54) Title: LAMP SYSTEM PARTICULARLY FOR CORDLESS LAMPS



(57) Abstract: A rechargeable lamp system (10) comprises a lamp unit (12) and a docking station (14) on which the lamp unit (12) may be placed for charging of a rechargeable battery (22) within the lamp unit. The base (18) of the lamp unit and the docking station are configured so that the lamp unit may be rotated on the docking station. Rotation of the lamp on the docking station is arranged to operate a reed switch (104) in the base (18) of the lamp unit for turning a light bulb (56) ON or OFF. The reed switch (104) is switched ON and OFF by one or more magnets (100) provided in the docking station (14). The docking station (14) defines an upstanding ring (130) in the centre of which are located positive (132) and negative (134) contacts. The base (18) of the lamp unit defines an aperture (136) which locates over the circular ring (130) so that the lamp unit may rotate on the docking station. A telescopic stem extends upwards from the base (18). The light bulb (56) is fitted at the top of the stem (20). A battery pack (22) defines a central aperture and in use, fits over and around the stem so that the battery pack is located above the base surrounding the stem and below the light emitting device.

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RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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— *with international search report*

LAMP SYSTEM PARTICULARLY FOR CORDLESS LAMPS

Cross-Reference to Related Applications

The present application claims priority from Australian Provisional Patent
5 Application No 2005905295 filed on 26 September 2005, the content of which is
incorporated herein by reference.

Field of the Invention

This invention relates to an improved lamp system particularly for cordless
10 lamps.

Background of the Invention

It is known to utilise electrically operated or battery powered lamps producing
low levels of ambient light, for example, in the restaurant and hospitality industry in
15 place of candles.

However, existing cordless lamps have a number of problems.

The first problem is that existing cordless lamp systems require recharging quite
frequently and typically cannot be recharged at the same time as they are in use
providing illumination. Hence, at the end of an evening at a restaurant or other venue
20 at which the lamps have been used, is necessary to remove all the cordless lamps from
the restaurant/venue's tables and plug them into re-chargers for use the following day.

A second issue with existing cordless lamps is they all tend to look very similar
having a typically ovoid diffuser/glass cover to produce a diffuse low level light source.
Many modern restaurants and other venues now focus heavily on aesthetics and design
25 not only in the interior decoration of the venue itself but in the design of the crockery
and cutlery and would benefit from a cordless lamp system which allowed for the
provision of different lamp covers complementing the overall design and ambience of
the restaurant or other venue.

Any discussion of documents, acts, materials, devices, articles or the like which
30 has been included in the present specification is solely for the purpose of providing a
context for the present invention. It is not to be taken as an admission that any or all of
these matters form part of the prior art base or were common general knowledge in the
field relevant to the present invention as it existed before the priority date of each claim
of this application.

Summary of the Invention

In a first aspect of the present invention there is provided a rechargeable lamp system comprising a lamp unit and a docking or charging station which may be connected to a source of electrical power and on which the lamp unit may be placed for charging of a rechargeable power source within the lamp unit, wherein the configuration of the base of the lamp unit and the docking unit is such that the lamp unit may be rotated on the docking station and wherein the rotation of the lamp on the docking station is arranged to operate switches for turning a light source within the lamp unit ON or OFF.

10 This arrangement allows the lamp unit to be used either on or off the docking station with a simple to operate and non-visible switching mechanism.

Typically, the docking station will define an upstanding ring in the centre of which are located positive and negative contacts and the base of the lamp defines a aperture which locates over the circular ring so that the lamp unit may rotate on the docking station.

When ON, the lamp may include a variable preset brightness setting.

In a particularly preferred embodiment, one or more magnets are provided in the docking station and a reed switch is provided adjacent the base of the lamp unit, in an arrangement such that rotation of the lamp causes the magnet to come into close proximity with the reed switches, switching the reed switch ON and providing an input to a microcontroller which controls the operation of the lamp.

In a second aspect of the present invention, there is provided a battery powered lamp unit including a base, a stem upstanding from the base, and a light emitting device, such as a lamp bulb, disposed at the top of the post, and a battery assembly which may comprise a plurality of batteries or cells, wherein the battery assembly defines a central aperture which in use, fits over and around the stem so that the battery is located above the base surrounding the stem and below the light emitting device.

The provision of the battery pack having a central aperture around the lamp post makes for efficient use of space in the cordless lamp and also makes it relatively easy for the battery to be changed by simply disconnecting the battery pack by simply removing any cover or shade over the lamp unit, disconnecting the battery pack and slipping it over the top of the stem.

In a particularly preferred embodiment, a control circuit for the lamp is located in a cavity defined in the base of the lamp unit underneath the battery.

35 This arrangement allows the lamp unit to be relatively compact and at the same time, utilise a relatively large but easily accessible battery pack providing a relatively

long illumination period between recharges depending on the degree of illumination of the lamp.

In a preferred embodiment, a retention clip is provided which snap fits over the top of the battery and retains the same against the post to secure the battery to the post
5 and lamp base.

The base may define a illuminable indicator means which changes colour (preferably by the switching ON or OFF of various coloured LED's) depending on the status of the lamp and docking station. In particular, the illuminable indicator means will glow blue when power is supplied to the docking station, changes to red when the
10 lamp unit is properly docked with the docking station and is charging and/or the light emitting device is switched ON, and will turn to green when the lamp is fully charged. The switching of the various LEDs may be controlled by a circuit measuring the current supply to the lamp unit.

In a yet further embodiment aspect of the present invention, there is provided a
15 cordless lamp unit comprising a base and a post extending upwardly from the base defining a light emitting device on the top of the post or a socket for receiving such a device characterised in that the post is extendible between a first length and second relatively longer length.

By making the stem extendible in this manner, it becomes possible to utilise
20 lamp covers/diffusers having different sizes and designs, with the height of the lamp being readily adjustable to suit different sizes and shapes of diffusers/shades.

Brief Description of the Drawings

A specific embodiment of the invention will now be described, by way of
25 example only, and with reference to the accompanying drawings in which:

Figures 1a and 1b show an assembled lamp unit located on, and separated from, a docking station, respectively;

Figure 2 is an isometric view of an embodiment of a lamp unit of the present invention shown in part-exploded view;

30 Figure 3 is an isometric view of the lamp unit of Figure 1 with a cover and shade removed resting on the docking station;

Figure 4 illustrates the base and stem of the lamp showing a battery pack removed from the lamp;

Figures 5a and 5b are similar views to Figure 4 showing the stem in an
35 unextended and extended position, respectively;

Figure 6 is a cross section through the stem and base illustrating a stem locking mechanism in particular;

Figure 6a is an enlarged view of part of Figure 6, showing the locking mechanism in more detail.

5 Figure 7 is a simplified circuit diagram illustrating the principal of operation of the rotatable switching system; and

Figure 8 is a schematic diagram for the purpose of illustrating the switching system; and

Figure 9 is a plan view of the schematic arrangement of Figure 8.

10

Detailed Description of Preferred Embodiment

Referring to the drawings, Figures 1a and 1b show a rechargeable cordless lamp system 10 embodying the present invention. The system comprises a lamp unit 12 and a docking/charging station 14. The lamp unit includes a frosted glass diffuser/lamp shade 16 although other translucent materials may be used. The components of the system are generally circular in plan view although variants may have different shapes.

15 Figure 2 is an exploded view showing the components which make up the lamp unit 12 in more detail. In particular, the lamp unit includes a first component comprising a base 18 and integral stem/pillar 20 on which a battery assembly in the form of a battery pack 22 is mounted. The bottom of the battery pack is received in a recess defined in the base 18, to be described in more detail below. A shaped cover 24 which defines a centrally located aperture 25 fits over the battery and snap or push fits to the base. The top of the stem 20 projects through the aperture 25. The cover 24 hides the battery pack and associated cabling.

25 Figure 3 illustrates the base 18 resting on the charging unit 14 and in particular, illustrates a battery retention clip 26 which snap fits to the stem 20 to help secure the battery pack to the base of the lamp unit. The retention clip 26 comprises a generally C-shaped sheet of plastic, having a generally circular central aperture 27, and side arms 28 which define a slightly tapered opening 29 which is relatively narrower compared to the central aperture. As shown, the side arms have a wavy profile, and the arms flatten as they pass around the stem, to engage that stem. In use the clip locates in a recess 44 which extends around the stem and is best shown in Figure 6, which prevents vertical movement the retention clip relative to the stem 20. An angled portion 26a is provided opposite the opening to be gripped for ease of removal of the clip 26.

35 Figure 4 illustrates how the battery pack 22 may be separated from the lamp unit. As can be seen, the battery pack 22 is generally hexagonal in plan view and

defines a central, generally cylindrical, aperture 24. That aperture is sized and configured to fit over the stem 20 of the lamp unit. Also illustrated in Figure 4 is provision of a generally hexagonal recessed portion 30 which is shaped and configured to match the cross section of the battery pack thereby receiving the bottom of the battery pack when the battery pack is slotted over the stem. The shaped recess prevents rotational movement of the battery pack and helps to secure the battery pack relative to the lamp unit. Not illustrated in the drawings, is a wire and plug which would typically extend from the battery pack in order to connect the same to a socket 32 supplying power to a control circuit for the lamp unit, and allowing the battery pack to be recharged via the control circuit.

Figures 5, 5a and Figure 6 illustrate the telescopically extendible stem 20 of the lamp unit in more detail. The stem comprises a first hollow portion 40 which extends upwardly from the base and which defines an open upper end 42. A recess 44 extends around the stem close to its top in which in use, receives the retention clip 26 of the battery, not shown in Figure 6. As shown in Figures 5 and 5a in particular, on one side of the column there are two spaced apart through slots 45 which extend down from the upper end 42 and between which a cantilevered arm 46 is defined. The base of the cantilevered arm is integral with the rest of the stem. On the face of the arm which faces the centre of the stem a projection 48, best seen in Figure 6a, is defined.

Slidably located inside the column 40, is a further hollow cylindrical stem 50. A series of recesses 52 are defined along one side of the stem 50. The stem 50 can be slid up and down inside the column 40 between a base position shown in Figure 5 and a fully extended position shown in Figure 5a in which a projection 58 at the base of the column 50 abuts a step 60 defined near the top of the column 40 (refer to figure 6). The stem is fixed in a series of discrete positions between the base and extended positions by the insertion of the projection 48 defined on the cantilever arm 46 into one of the recesses 52. At the top of the stem a socket 54 is defined which receives a light emitting device in the form of a lamp bulb 56, typically a halogen type light bulb. Not illustrated in Figure 6 are wires passing through the centre of the columns 50 and 40 connecting the lamp to the control circuit located in the base.

Also shown in Figure 6 is a cavity 70 defined in the base which in use receives a control unit in the form of an electronic circuit including a micro-controller 102, schematically illustrated in Figure 7.

Figures 8 and 9 illustrate the operation of the rotatable switch. In particular, with reference to Figure 9, the docking station 14 incorporates two magnets 100 located inside the docking station near its upper surface and disposed diametrically opposite

each other relative to the centre of the docking station. The base of the lamp unit contains circuit including a microcontroller 102, a reed switch 104 switching transistor 106 which is all connected to the lamp 56.

For charging, the lamp unit is placed on the docking station as shown in Figure 5 1a. With reference to Figure 1b, the docking station defines a upstanding ring 130 in the centre of which are located positive and negative contacts 132 and 134 respectively. One contact 132 is centrally located in the ring, the other is offset from the centre. The bottom of the lamp unit defines a corresponding ring shaped recess 136 (refer to Figure 6) which locates over the circular ring 130 and around which the lamp unit may rotate. 10 The polarity of the contacts may be varied depending on the type of DC power supply connected to the docking station 14. It is envisaged that two types of power supply with opposite polarity DC output may be provided. A relatively smaller rating unit will be provided for use with a single lamp particularly for domestic use. A relatively larger capacity unit is envisaged for use with up to five lamps for commercial use. By 15 default, the reed switch will be ignored when the lamp is in use with the commercial DC power supply unit.

Turning the lamp unit 12 around on the base causes the magnets 100 to periodically pass close to the reed switch which activates the reed switch (every time the lamp rotates through 180°). The microcontroller detects this signal and uses it to 20 vary the pulse width modulation drive to the switching transistor 106. This in turn, changes the brightness of the lamp by adjusting the operating duty cycle of the lamp. The microcontroller can be programmed to turn the light on and off when rotated. This allows, for example the lamp to be used on the docking station, if desired, and switched off when not required by simply turning the lamp.

25 Turning back to Figure 1a window 120 is defined in the docking station. Red, blue and green LEDs may be located behind the window and illuminated depending on the status of the docking station/lamp unit, i.e. whether there is power to the docking station, whether the lamp unit is charging and/or whether the light is in operation and whether the lamp unit is fully charged. In particular, the window will glow blue when 30 power is supplied to the docking station, changes to red when the lamp unit is properly docked with the docking station and is charging and will turn to green when the lamp is fully charged. The LEDs are controlled by a circuit measuring the current supply to the lamp unit.

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as
5 illustrative and not restrictive.

CLAIMS:

1. A rechargeable lamp system comprising a lamp unit and a docking station which may be connected to a source of electrical power and on which the lamp unit may be placed for charging of a rechargeable power source within the lamp unit, wherein the
5 configuration of the base of the lamp unit and the docking unit is such that the lamp unit may be rotated on the docking station and wherein the rotation of the lamp on the docking station is arranged to operate switches for turning a light source within the lamp unit ON or OFF.
- 2 A rechargeable lamp system as claimed in claim 1 wherein the docking station
10 defines an upstanding ring inside which are located positive and negative contacts and the base of the lamp defines a aperture which locates over the circular ring so that the lamp unit may rotate on the docking station.
- 3 A rechargeable lamp system as claimed in claim 1 or claim 2 wherein the lamp unit provides a variable preset brightness setting when ON.
- 15 4 A rechargeable lamp system as claimed in any one of claims 1 to 3 wherein one or more magnets are provided in the docking station and a reed switch is provided adjacent the base of the lamp unit, in an arrangement such that rotation of the lamp unit on the docking station causes the magnet to come into close proximity with the reed switches, switching the reed switch ON and providing an input to a control circuit
20 which controls the operation of the lamp.
5. A rechargeable lamp system as claimed in any one of claims 1 to 4, wherein the lamp unit defines a base and a stem, the light source being disposed at or near the top of the stem, wherein the rechargeable power source includes a battery assembly which defines a central aperture which in use, fits over and around the stem so that the battery
25 assembly is located above the base surrounding the stem and below the light source.
6. A rechargeable lamp system as claimed in claim 5 wherein the control circuit of the lamp unit is located in a cavity defined in the base of the lamp unit underneath the battery, in use.
7. A rechargeable lamp system as claimed in any one of claims 5 to 6 wherein a
30 retention clip is provided which snap fits over the top of the battery and retains the same against the stem to secure the battery to the stem and lamp base.
8. A rechargeable lamp system as claimed in any one of claims 1 to 7 wherein the lamp unit defines a illuminable indicator means which changes colour depending on the status of the lamp and docking station.
- 35 9. A rechargeable lamp system as claimed in claim 8 wherein the illuminable indicator means will glow in one colour when power is supplied to the docking station,

changes to a different colour when the lamp unit is properly docked with the docking station and is charging and/or the light emitting device is switched ON, and will change to a different colour when the lamp is fully charged.

10. A rechargeable lamp system as claimed in claim 8 or 9 wherein the illuminable
5 indicator means includes a plurality of different coloured LEDs and the switching ON or OFF of the various LEDs is controlled by a circuit measuring the current supply to the lamp unit.

11. A rechargeable lamp system as claimed in any one of claims 1 to 10 wherein the
10 lamp unit defines a base and a stem, the light source being disposed at or near the top of the stem and wherein the stem is extendible in height between a first length and at least a second relatively longer length.

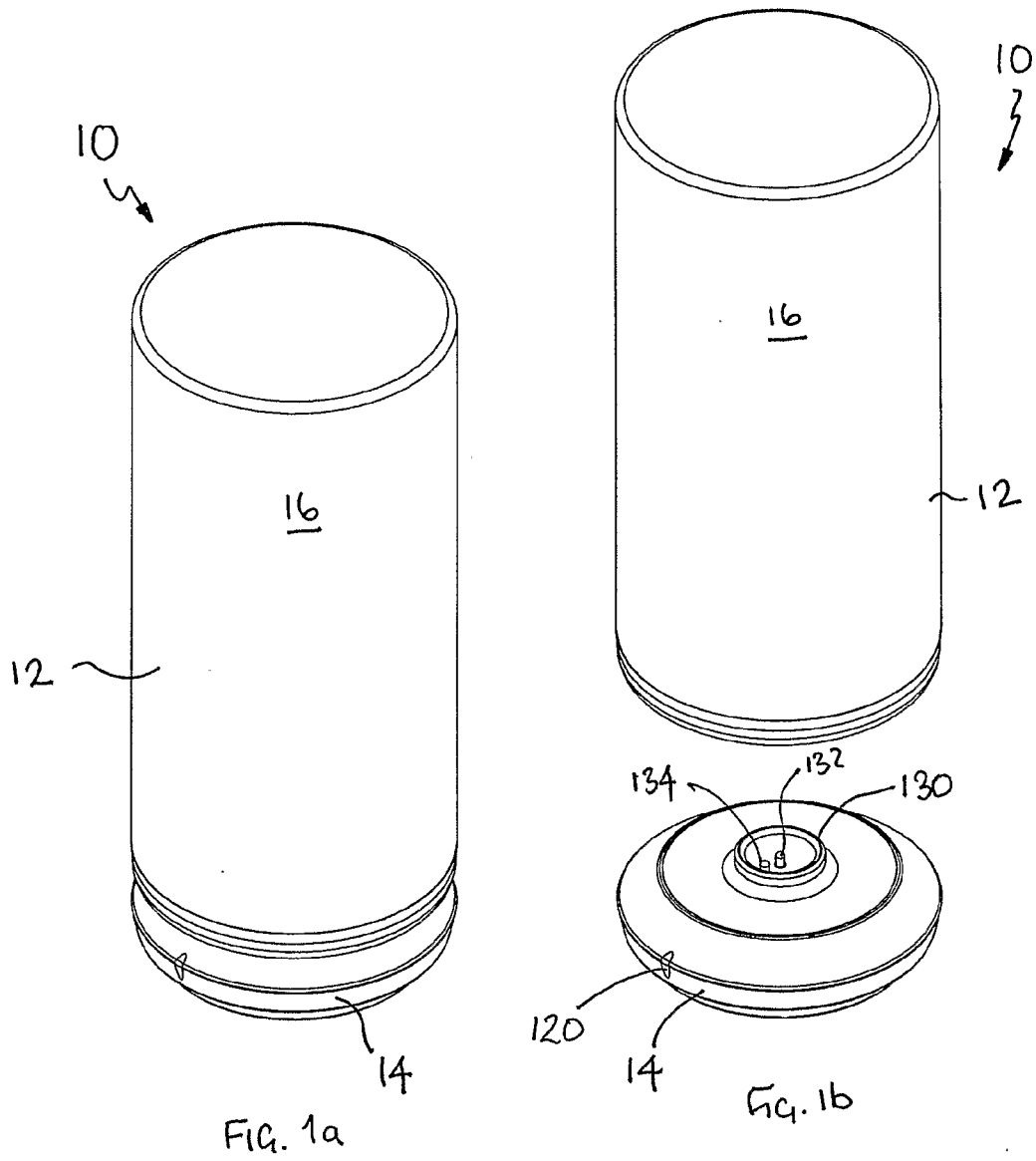
12. A battery powered lamp unit including a base, a stem upstanding from the base,
a light emitting device disposed at the top of the stem, and a battery assembly which
15 defines a central aperture which, in use, fits over and around the stem so that the battery is located above the base surrounding the stem and below the light emitting device.

13. A battery powered lamp unit as claimed in claim 12 further including a control
circuit of the lamp unit located in a cavity defined in the base of the lamp unit
underneath the battery, in use.

14. A battery powered lamp unit as claimed in claim 12 or 13 further including a
20 retention clip adapted to snap fit over the top of the battery and retain the same against the stem to secure the battery assembly to the stem and lamp base.

15. A cordless rechargeable lamp unit comprising a base and a rechargeable power
source carried in or on the base and a stem extending upwardly from the base defining
a light emitting device on the top of the stem or a socket for receiving such a device
25 characterised in that the post is extendible between a first length and at least a second relatively longer length.

16. A cordless rechargeable lamp unit as claimed in claim 15 wherein the telescopic
stem comprises a first hollow portion which extends upwardly from the base defining
an open upper end and a second stem portion slidably located in the first hollow portion
30 and wherein the second stem portion defines a series of spaced apart recesses extending along one side and wherein a cantilevered arm carried at the upper end of the first hollow portion defines a protrusion at one end which is adapted to locate in one of the recesses to set the height of the stem.



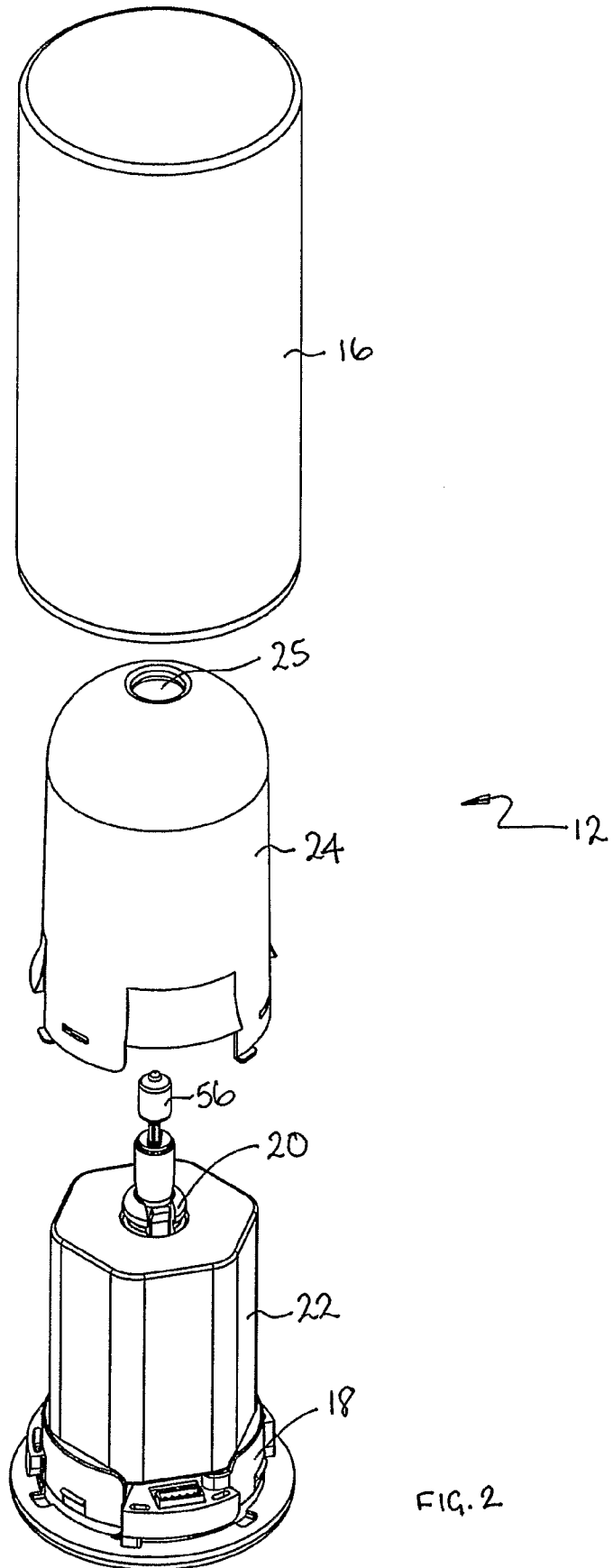


FIG. 2

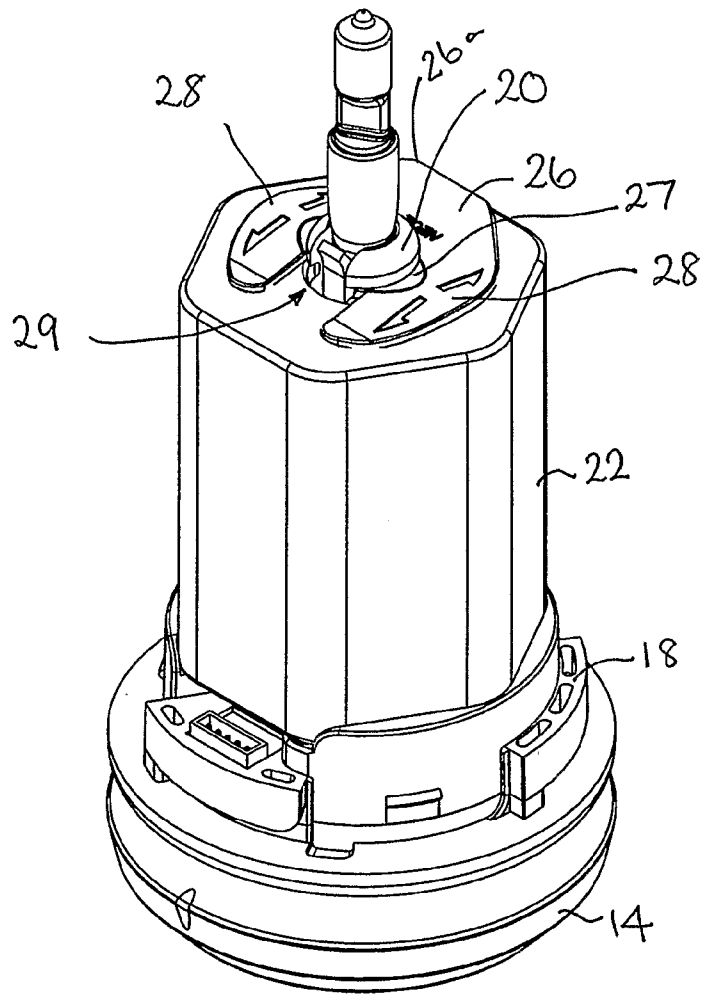


Fig. 3

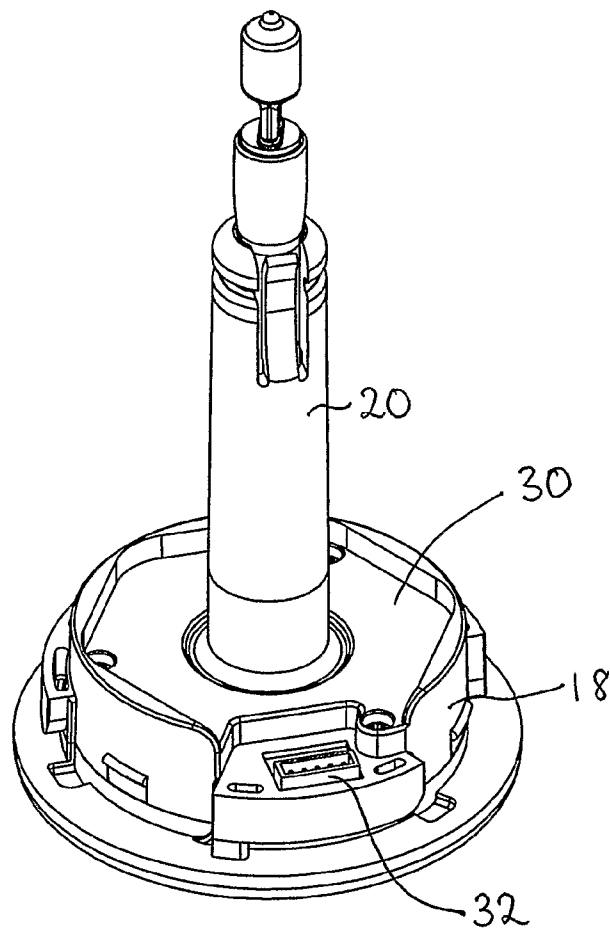
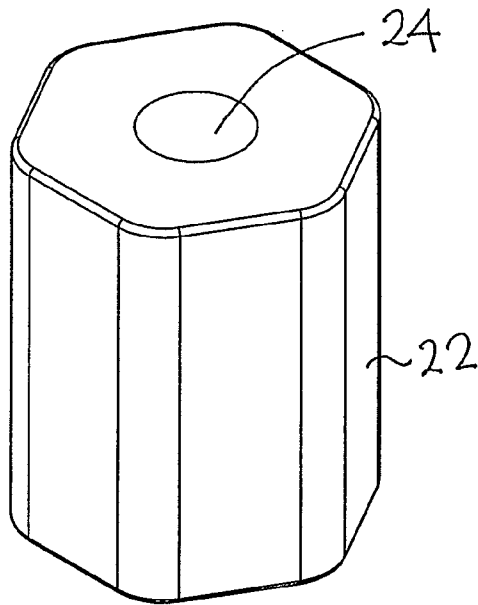


FIG. 4

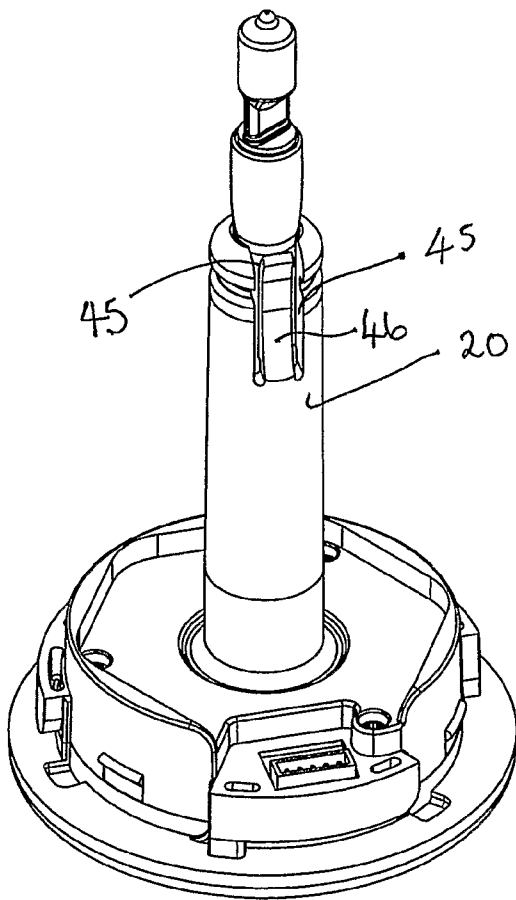


FIG. 5

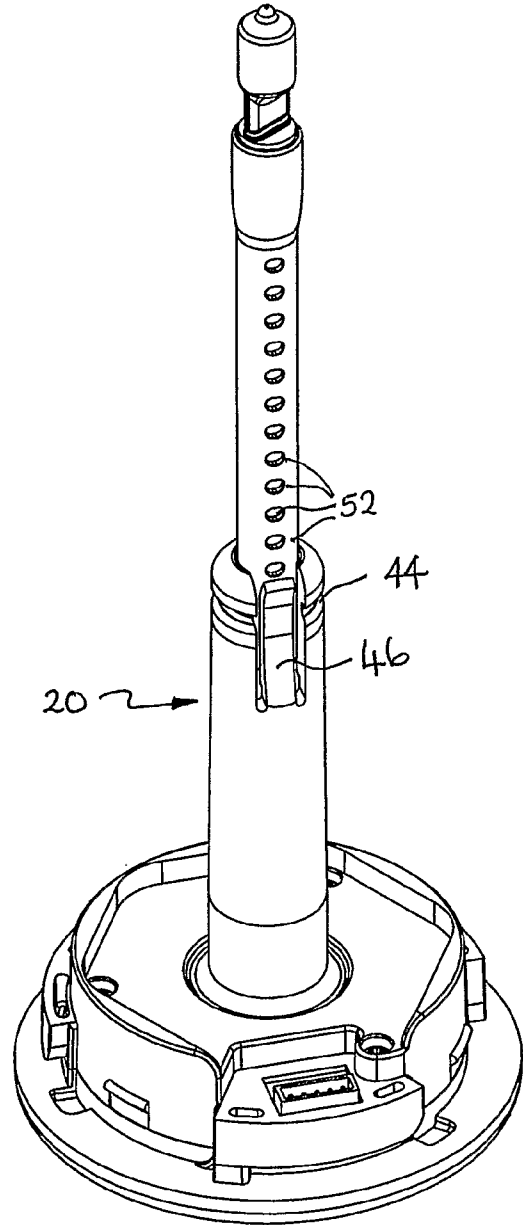
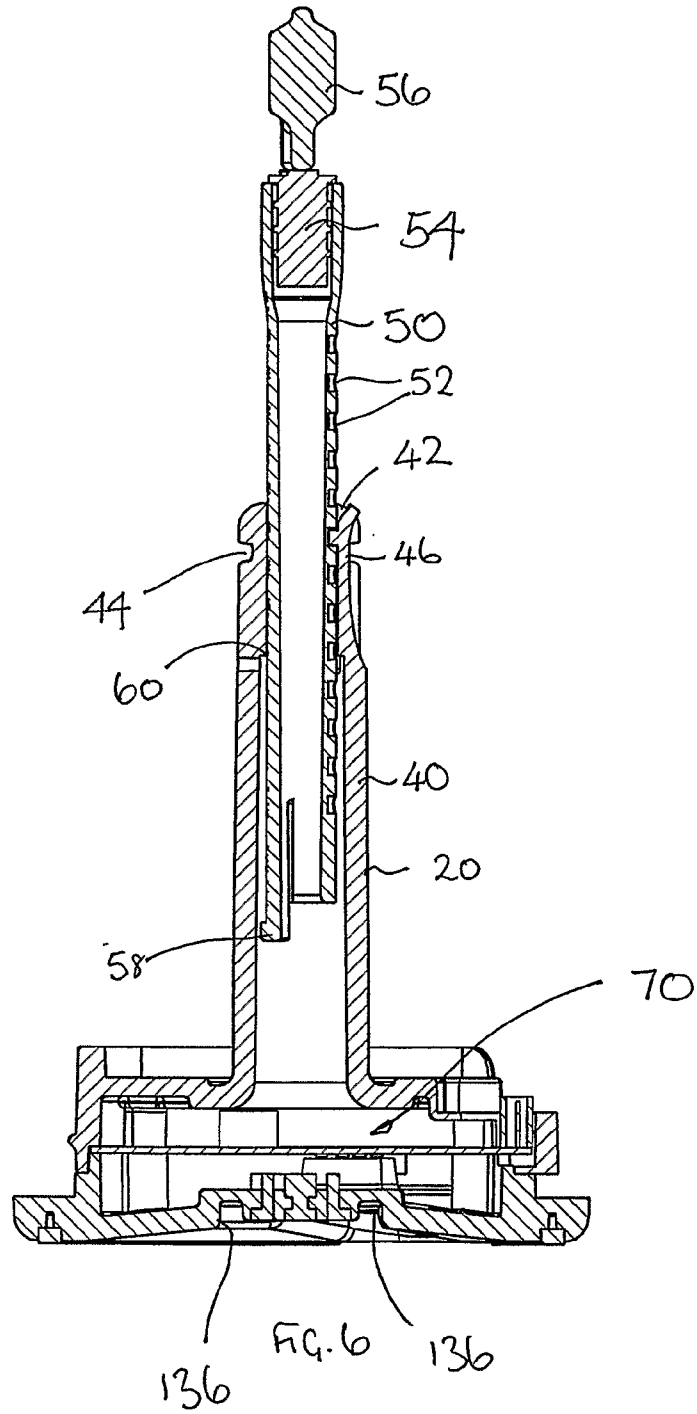


FIG. 5a



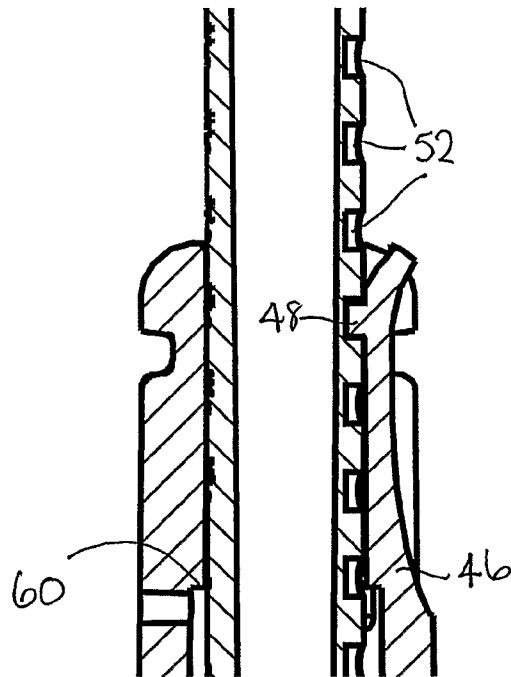
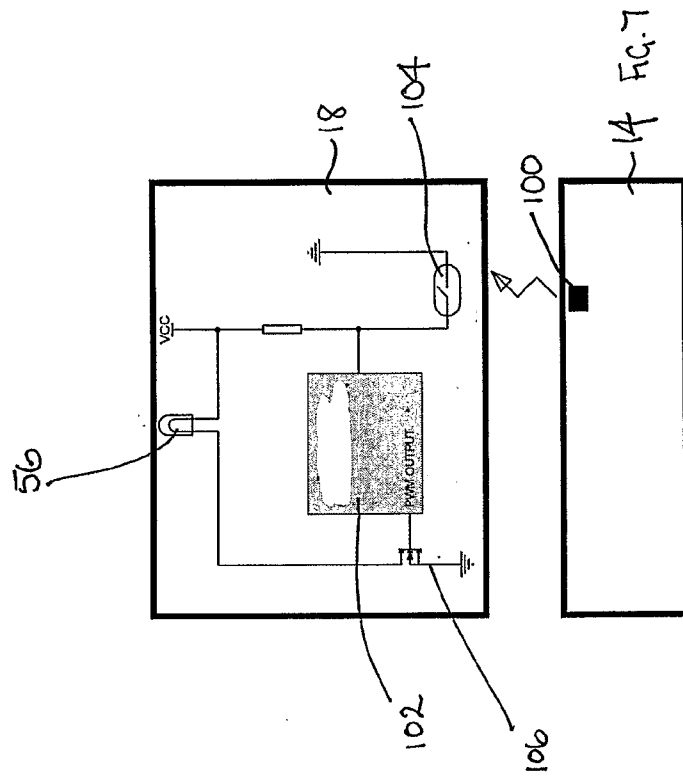
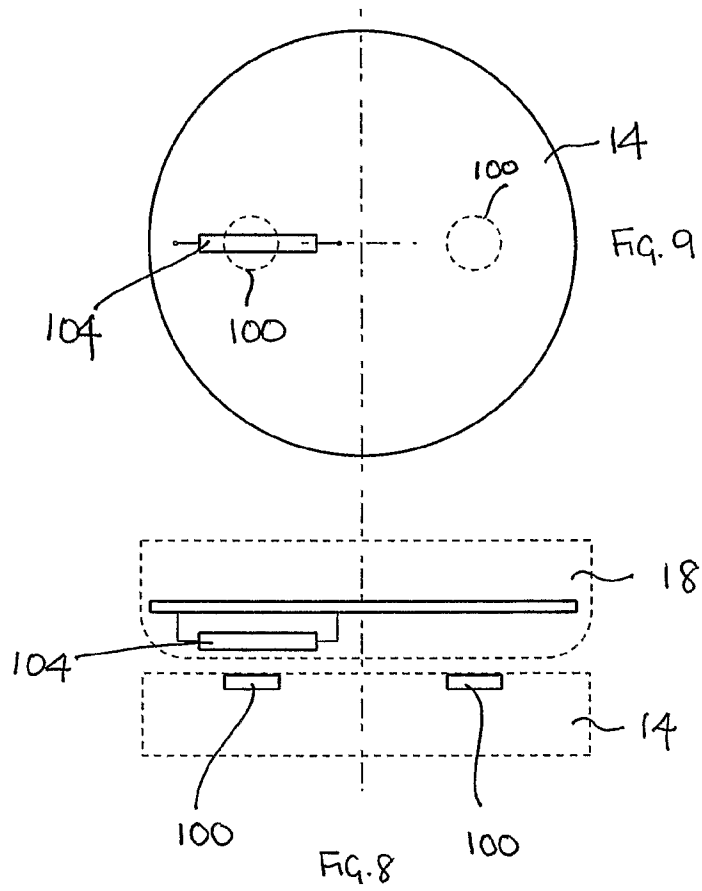


Fig. 6a





INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/001345

A. CLASSIFICATION OF SUBJECT MATTER		
Int. Cl.		
<i>F21V 23/04</i> (2006.01)	<i>F21S 9/02</i> (2006.01)	<i>F21W 131/40</i> (2006.01)
<i>F21L 4/04</i> (2006.01)	<i>F21V 21/12</i> (2006.01)	
<i>F21L 4/08</i> (2006.01)	<i>F21V 21/14</i> (2006.01)	
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
DWPI		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 2 112 572 A (R W Creswell Limited) 20 July 1983 Abstract; figure 2; page 2, lines 87-123	1
X	US 4,286,310 A (Brainkel et al.) 25 August 1981 Abstract; figures 1-5; column 1, line 4 to column 2, line 7	1
X	GB 2 388 653 A (Raymond Walter Harcombe) 19 November 2003 Abstract; figure 1; page 5, last line; page 7, lines 1-4	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"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	
"E" earlier application or patent but published on or after the international filing date	"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	
"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 21 December 2006	Date of mailing of the international search report - 3 JAN 2007	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaaustralia.gov.au Facsimile No. (02) 6285 3929	Authorized officer RAJEEV DESHMUKH Telephone No : (02) 6283 2145	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/001345

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please see the extra sheet.

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/001345

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,588,739 A (Nakao) 31 December 1996 Abstract; claim 1; column 2, lines 18-46	1
X	GB 2 107 446 A (British Gas Corporation) 27 April 1983 Abstract; figure 2; claim 3; page 1, lines 24-41	1
X	US 4,329,740 A (Colvin) 11 May 1982 Abstract; figures 1-2; column 3, lines 39-56	1
Y	US 6,428,925 B1 (Takeno et al.) 6 August 2002 Figures 2-3; column 4, lines 30-33; column 5, lines 20-31	12
Y	US 6,280,874 B1 (Hensley et al.) 28 August 2001 Abstract; figures 1 and 12	12
Y	US 5,465,196 A (Hasenberg et al.) 7 November 1995 Figure 2; column 4, lines 21-27	12
X	US 2005/0057934 A1 (Chen) 17 March 2005 Abstract; claim 1; figure 6	15
X	WO 1994/004867 A1 (OFFERMANS, Heinz-Udo) 3 March 1994 Abstract; figure; claim 1	15
X	DE 298 00 936 U 1 (Köttgen Leichtmetallbau GmbH) 2 July 1998 Description; claim; figures	15
	<i>Note regarding "Y" citations:</i> Either US 6,428,925 B1 or US 6,280,874 B1 may be combined with US 5,465,196 A.	

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2006/001345

Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No: III

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are two inventions:

1. Claims 1-11 directed to a lamp system where the rotation of the lamp on the docking station actuates a switch to turn a light source on or off. It is considered that a lamp system where the rotation of the lamp on the docking station actuates a switch to turn a light source on or off comprises a first "special technical feature".
2. Claims directed to a lamp unit where the battery assembly defines a central aperture. It is considered that a lamp unit where the battery assembly defines a central aperture comprise a second separate "special technical feature".
3. Claims directed to a lamp unit having an extendible post. It is considered that a lamp unit having an extendible post comprise a third separate "special technical feature".

Since the abovementioned groups of claims do not share either of the technical features identified, a "technical relationship" among the inventions, as defined in PCT rule 13.2 does not exist. Accordingly the international application does not relate to one invention or to a single inventive concept.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No. PCT/AU2006/001345

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report	Patent Family Member		
GB 2112572	EP	0088196	
US 4286310	CA	1125250	DK 442479
	FR	2439355	EP 0010279
			PT 70336
GB 2388653	NONE		
US 5588739	CA	2138543	EP 0670453
	WO	9427085	JP 7099001
GB 2107446			
US 4329740	NONE		
US 6428925	CN	1267093	EP 1035599
	JP	2000268791	HK 1033616
	JP	2001135290	JP 2001118551
			JP 2001135287
			JP 2001155701
			NO 20001282
US 6280874	GB	2344608	US 6610441
	US	2002012837	US 6547010
			US 2001049049
US 5465196	CA	2090204	JP 6236701
US 2005057934	NONE		
WO 9404867	AU	49491/93	EP 0657008
DE 29800936U	NONE		

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

END OF ANNEX