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(72) Inventors:
• **Huang, Qi**
Xiamen,
Fujian 361009 (CN)
• **Cai, Jinbao**
Xiamen,
Fujian 361009 (CN)

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(71) Applicant: **Zhou, Nanqing**
Xiamen
Fujian 361009 (CN)

(74) Representative: **Korga, Leokadia**
Kancelaria Rzecznika Patentowego
ul. Bereniki 6/7
44-117 Gliwice (PL)

(54) **A CHANGEABLE LAMP BASE**

(57) The invention teaches a changeable lamp base, comprising a bottom housing, a bulb holder and a press-type conductor; wherein the bottom housing is removably connected to the bulb holder, a circuit board and a lamp pipe are mounted in a lower cavity of the bottom housing,

and the press-type conductor is fixed on the bulb holder via an insulative fastener. The bulb holder may be of a screw-type or a bayonet-type, and have different diameters. In practice, the lamp base may be changed by easily and conveniently replacing the bulb holder or the bottom housing as required.

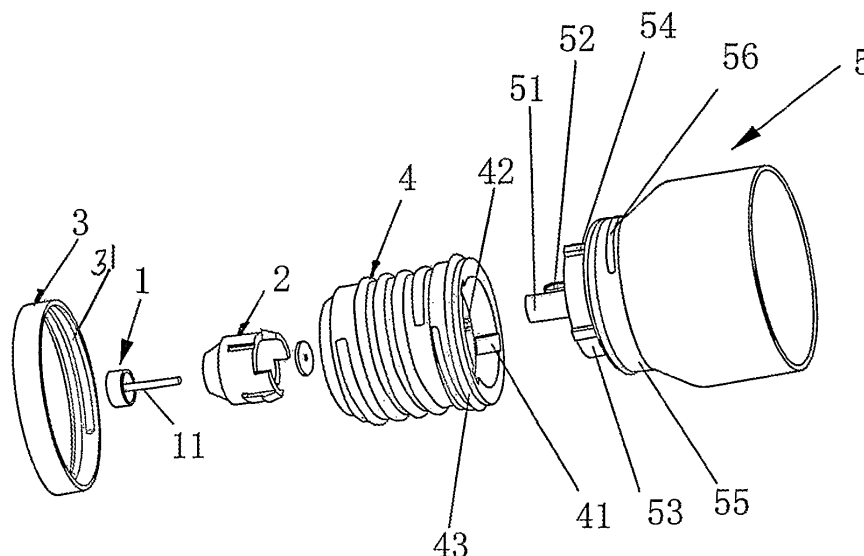


Fig. 1

Description

Technical field

[0001] The invention relates to an illuminating device, and more particularly to a changeable lamp base suitable for use with an energy saving lamp

Related art

[0002] Conventionally, a base of an energy saving lamp is affixed to the lamp. However, energy saving lamps are restricted in use by different standards and shapes. For example, if a lamp holder is bayonet-type, a screw-type lamp base cannot be used. Moreover, it is required that the inner diameter of the lamp holder fits with that of the lamp base, which brings about inconvenience.

Disclosure of the invention

[0003] It is one objective of the invention to provide a changeable lamp base for an energy saving lamp which allows for easy for operation, and is convenient in use.

[0004] Another objective of the invention is to reduce the cost of low volume production of energy saving lamps with different standards and shapes.

[0005] The invention provides a changeable lamp base, comprising a bottom housing, a bulb holder and a press-type conductor; wherein the bottom housing is removably connected to the bulb holder; a protrusion is disposed at the top of the bottom housing; a groove is disposed at the bottom of the bulb holder, a fixed ring is rotatably connected between the bottom housing and the bulb holder; and the press-type conductor is disposed at the top of the bulb holder.

[0006] An outer wall of the top of the bottom housing is in the shape of a ladder. An inner diameter portion of the top of the bottom housing is a plug-in portion. An outer diameter portion of the top of the bottom portion is a revolving portion. An outer diameter of the plug-in portion is fit with an inner diameter of the bottom of the bulb holder. A protrusion is disposed outside the plug-in portion. A groove is disposed inside the bottom of the bulb holder. The bottom of the bulb holder is received in the plug-in portion. An outer diameter of the revolving portion at the top of the bottom housing is the same as that of the bottom of the bulb holder. One outer screw thread is disposed on the outer diameter of the revolving portion, and another co-rotating outer screw thread is disposed on the bottom of the bulb holder. An inner screw thread is disposed in the fixed ring, and engaged with the outer screw threads on the revolving portion and the bulb holder.

[0007] An electric conduction post extends from a center of the top of the bottom housing. The outer wall of the electric conduction post is an insulator. A core of the electric conduction post is a conductive metal pipe, and a

conductive metal spring is disposed on one side of the electric conduction post.

[0008] The press-type conductor is received in the top of the bulb holder via an insulative fastener. The electric conduction post extends from the press-type conductive. A diameter of the electric conduction post fits with an inner diameter of the conductive metal pipe in the bottom housing, and an electric conduction block is disposed in the inner wall of the bulb holder.

[0009] The press-type conductor is received in the top of the bulb holder via an insulative fastener. The electric conduction post extends from the press-type conductive. A diameter of the electric conduction post fits with an inner diameter of the conductive metal pipe in the bottom housing, and an electric conduction groove is disposed in the inner wall of the bulb holder.

[0010] The outer housing is of a screw-type or a bayonet-type.

[0011] Advantages of the invention comprise: the changeable lamp base makes the energy saving lamp more appealing, convenient and economical for use, as a user may easily exchange the different types of bulb holders (such as replacing a screw-type bulb holder with a bayonet-type bulb holder, or a wide-diameter bulb holder with a narrow diameter bulb holder, etc.) as required. Moreover, since the bottom housing of the lamp base of the invention may be separated from the bulb holder, when producing a small volume of lamps having different shapes of bulb holders, a large volume of bottom housings of the lamp bases may be made with the same standard first, then the corresponding circuit boards can be mounted, and finally different bulb holders can be configured, which reduces the production cost, and improves the production efficiency.

[0012] Detailed description of accompanying drawings
[0013] Fig. 1 is an exploded view of a first embodiment of the invention;

[0014] Fig. 2 is a perspective view of a first embodiment of the invention;

[0015] Fig. 3 is an perspective view of a second embodiment of the invention; and

[0016] Fig. 4 is an exploded view of a second embodiment of the invention.

[0017] Embodiment 1: As shown in Figs. 1 and 2, a changeable lamp base is of a screw-type with a large bulb holder, and comprises a bottom housing 5, a bulb holder 4, a press-type conductor 1, an insulative fastener 2 and a fixed ring 3. The bottom housing 5 is removably connected to the bulb holder 4. The fixed ring 3 is rotatably connected between the bottom housing 5 and the bulb holder 4. The press-type conductor 1 is disposed at the top of the bulb holder 4 via the insulative fastener 2.

[0018] An outer wall of the top of the bottom housing 5 is in the shape of a ladder; an inner diameter portion thereof is a plug-in portion 53. An outer diameter portion thereof is a revolving portion 55. An outer diameter of the plug-in portion 43 is fit with an inner diameter of the bottom of the bulb holder 4. A protrusion 54 is disposed

outside the plug-in portion 43. A groove 41 is disposed inside the bottom of the bulb holder. The bottom of the bulb holder 4 is received in the plug-in portion 53. An outer diameter of the revolving portion 55 at the top of the bottom housing is the same as that of the bottom of the bulb holder. One outer screw thread 43 is disposed on the outer diameter of the revolving portion, and another co-rotating outer screw thread 56 is disposed on the bottom of the bulb holder. An inner screw thread 31 is disposed in the fixed ring 3, and engaged with the outer screw threads 43 and 56 on the revolving portion 5 and the bulb holder 4. An electric conduction post 51 is extended from a center of the top of the bottom housing 5. An outer wall of the electric conduction post 51 is an insulator. A core of the electric conduction post 51 is a conductive metal pipe, and a conductive metal spring 52 is disposed on one side of the electric conduction post 51.

[0019] The press-type conductor 1 is received in the top of the bulb holder 4 via the insulative fastener 2. An electric conduction post 11 is extended from the press-type conductive 1. A diameter of the electric conduction post 11 is fit with an inner diameter of the conductive metal pipe in the bottom housing, and a electric conduction block 42 is disposed in an inner wall of the bulb holder 4.

[0020] When in use, a circuit board and a light pipe are mounted in a lower cavity of the bottom housing 5 (not shown). The press-type conductor 1 is fixed on the bulb holder 4 via the insulative fastener 2 (generally by the manufacturer). When in use, the groove 41 inside the bottom of the bulb holder 4 is aligned with the protrusion 54 on the bottom housing 5, and the bottom of the bulb holder 4 is received in the top of the bottom housing 5, so as to insert the electric conduction post 11 on the press-type conductor 1 into the conductive metal pipe in the bottom housing, and to enable the electric conduction block 42 on the inner wall of the bulb holder 4 to abut against the conductive metal spring 52. After the fixed ring 3 is rotatably connected to the screw threads 43 and 56 on the revolving portion 5 and the bulb holder 4 assembly of the bulb holder is finished.

[0021] When the bulb holder 4, the bottom housing, or the lamp pipe need to be changed, firstly the fixed ring 3 is rotatably taken out, and then the bulb holder 4 and the press-type conductor 1 are pulled out, so as to detach the bulb holder 4 from the bottom housing 5, and thus the bulb holder 4 and the bottom housing 5 are changed, which makes the changing convenient without any tools.

[0022] Embodiment 2: As shown in Figs. 3 and 4, a changeable lamp base is of a screw-type with a large bulb holder. Compared with embodiment 1, since a diameter of a top portion of the bulb holder 4 is small, an electric conduction groove 44 is disposed somewhere in an inner wall of the bulb holder 4, for receiving the conductive metal spring 52 on the bottom housing 5. A structure and a dimension of the bottom portion of the bulb holder 4 of this embodiment are the same as those of the bulb holder 4 of embodiment 1, therefore, both of the

bulb holders 4 may be interchanged.

[0023] Industrial availability

[0024] The bottom housing is removably connected to the bulb holder, and thus has good generality for large-volume production. The invention is convenient for production, manufacture and use, and has high industrial availability.

10 Claims

1. A changeable lamp base, comprising
a bottom housing;
a bulb holder; and
a press-type conductor;
wherein
the bottom housing is removably connected to the bulb holder;
a protrusion is disposed at the top of the bottom housing;
a groove is disposed at the bottom of the bulb holder;
a fixed ring is rotatably connected between the bottom housing and the bulb holder; and
the press-type conductor is disposed at the top of the bulb holder.

2. The changeable lamp base of claim 1, wherein:

an outer wall of the top of the bottom housing is in the shape of a ladder; an inner diameter portion of the top of the bottom housing is a plug-in portion;
an outer diameter portion of the top of the bottom portion is a revolving portion;
an outer diameter of the plug-in portion fits with an inner diameter of the bottom of the bulb holder;
a protrusion is disposed outside the plug-in portion;
a groove is disposed inside the bottom of the bulb holder;
the bottom of the bulb holder is received in the plug-in portion;
an outer diameter of the revolving portion at the top of the bottom housing is the same as that of the bottom of the bulb holder;
one outer screw thread is disposed on the outer diameter of the revolving portion, and another co-rotating outer screw thread is disposed on the bottom of the bulb holder;
an inner screw thread is disposed in the fixed ring; and
the inner screw is engaged with the outer screw threads on the revolving portion and the bulb holder.

3. The changeable lamp base of claim 1 or 2, wherein an electric conduction post extends from a center of

the top of the bottom housing;
 an outer wall of the electric conduction post is an insulator;
 a core of the electric conduction post is a conductive metal pipe; and
 a conductive metal spring is disposed on one side of the electric conduction post.

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4. The changeable lamp base of claim 1 or 3, wherein the press-type conductor is received in the top of the bulb holder via an insulative fastener;
 the electric conduction post extends from the press-type conductive;
 a diameter of the electric conduction post fits with an inner diameter of the
 conductive metal pipe in the bottom housing; and
 an electric conduction block is disposed somewhere in an inner wall of the bulb holder. 10
5. The changeable lamp base of claim 1 or 3, wherein the press-type conductor is received in the top of the bulb holder via an insulative fastener;
 the electric conduction post extends from the press-type conductive; a diameter of the electric conduction post fits with an inner diameter of the conductive metal pipe in the bottom housing; and
 an electric conduction groove is disposed somewhere in an inner wall of the bulb holder. 15 20 25
6. The changeable lamp base of claim 1 or 4, wherein the outer housing is of a screw-type or a bayonet-type. 30
7. The changeable lamp base of claim 1 or 5, wherein a top of the inner housing is of a screw-type or a bayonet-type. 35

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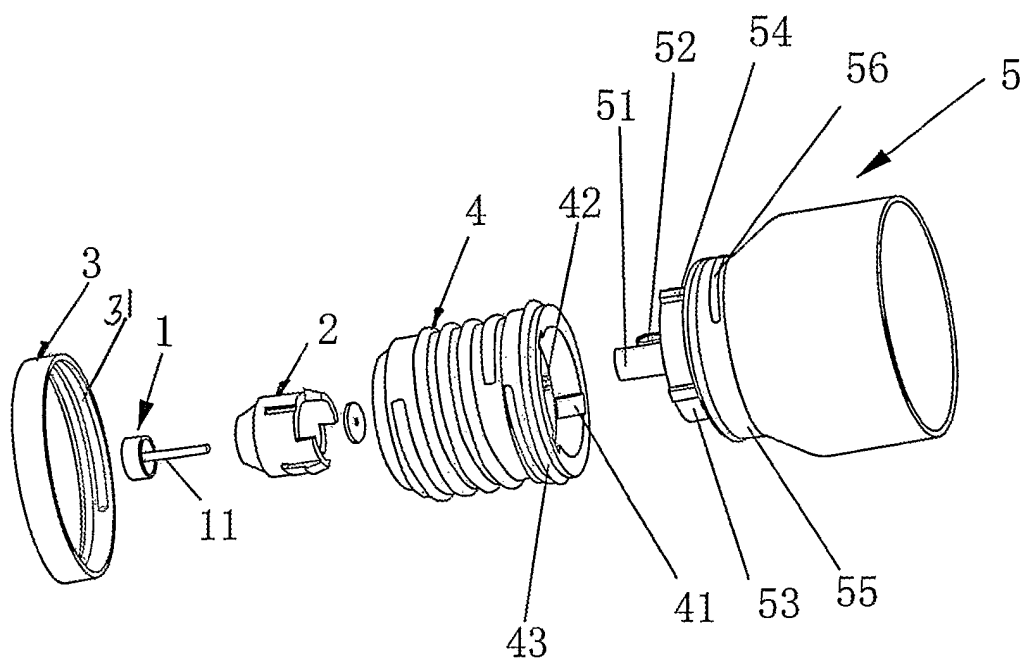


Fig. 1

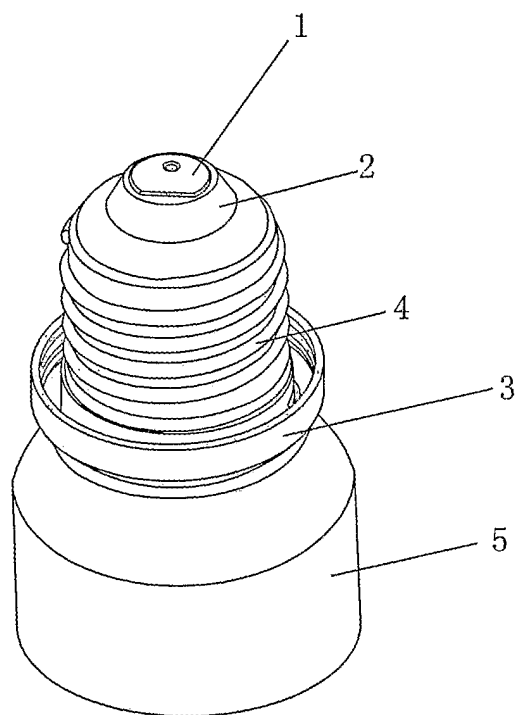


Fig. 2

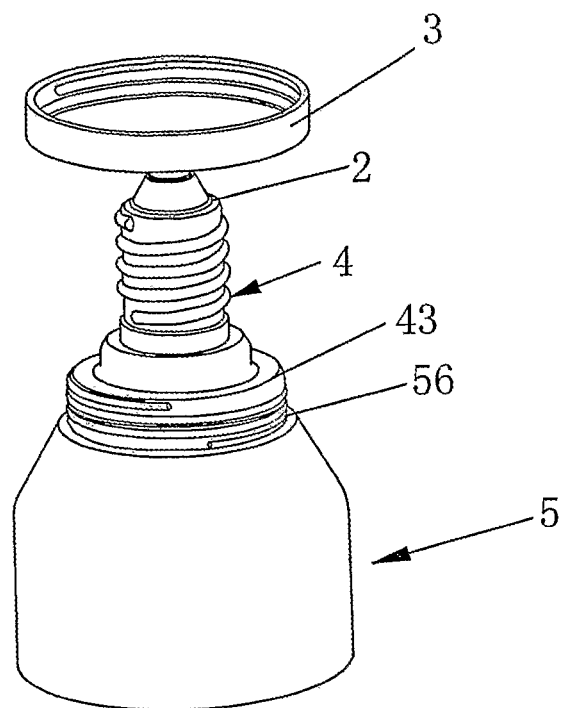


Fig. 3

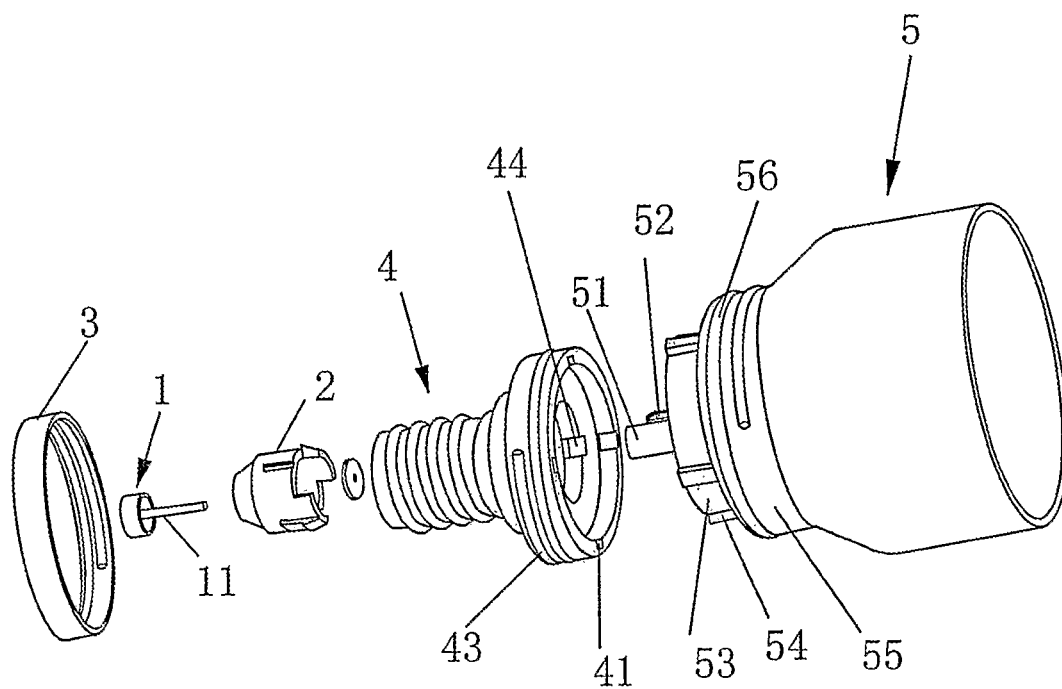


Fig. 4

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2005/001221

A. CLASSIFICATION OF SUBJECT MATTER		
(IPC ⁷) H01J5/50, H01K1/42, H01R33/94		
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)		
(IPC ⁷) H01J5/+, H01K1/+, H01R33/+		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
The patent applications published and the patent announced by Chinese Patent Office. IPC as above.		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
EPODOC, WPI, CNPAT, PAJ;		
Lamp, light, slot, groove, opening, hole, flange, project, protrude, conduct, contact, thread, screw, worm;		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	CN1264152A (TOSHIBA LIGHTING & TECHNOLOGY), 23 Aug. 2000 (23.08.2000), line 14 ~ line 20, Page 4, line 20 ~ line 26, page 6, in the description, and Fig 1,2	1,6
A		2-5
Y	CN2263836Y (DI WEI CO. LTD), 01 Oct. 1997 (01.10.1997), line 19, Page 2 ~ line 5, page 3, in the description, Fig. 2,4,5	1,6
A	JP2003-168302A (TOSHIBA LIGHTING & TECHNOLOGY), 13 June.2003 (13.06.2003), the whole document.	1-6
A	US6469427B1 (MATSUSHITA ELECTRONICS CORP), 22 Oct.2002 (22.10.2002), the whole document	1-6
☐ Further documents are listed in the continuation of Box C. ☒ 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 "E" earlier application or patent but published on or after the international filing 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 later than the priority date claimed "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 "&" document member of the same patent family		
Date of the actual completion of the international search 02 Nov. 2005 (02.11.2005)		Date of mailing of the international search report 17 · NOV 2005 (17 · 11 · 2005)
Name and mailing address of the ISA/CN The State Intellectual Property Office, the P.R.China 6 Xitucheng Rd., Jimen Bridge, Haidian District, Beijing, China 100088 Facsimile No. 86-10-62019451		Authorized officer Ran, Chunyan Telephone No. (86-10)62084967

Form PCT/ISA /210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CN2005/001221

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.: 7
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:
Because the skilled persons can't understand what structure the appendent feature "said interior cover" in the claim 7 indicates on earth, and can't conclude what structure it is from the description and figures in the present, so the claim 7 can't define clearly the scope of the invention. Therefore no meaningful international search can be carried out for claim 7.

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:

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 fees, 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 and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN2005/001221

Patent Documents referred in the Report	Publication Date	Patent Family	Publication Date
CN1264152A	23.08.2000	JP2000-323020A	24.11.2000
		US6582269B2	24.06.2003
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Form PCT/ISA /210 (patent family annex) (April 2005)