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(54) **INSERT BUCKLE HEAD AND INSERT BUCKLE**

(57) An insert buckle comprising an insert buckle head (1) and an insert buckle body. One end of the insert buckle head (1) is an inserting end (2); left and right sides of the inserting end (2) are respectively provided with a slidable detachable buckle pin(3); the insert buckle comprises an insert buckle body and the insert buckle head

(1) which are inserted, buckling and matching with each other. The insert buckle head (1) and the insert buckle have the advantages that: as the insert buckle head in the insert buckle adopts the detachable buckle pins (3), the buckle pins (3) are difficult to break off or damage; the insert buckle head can be maintained and the buckle pins (3) can be replaced.

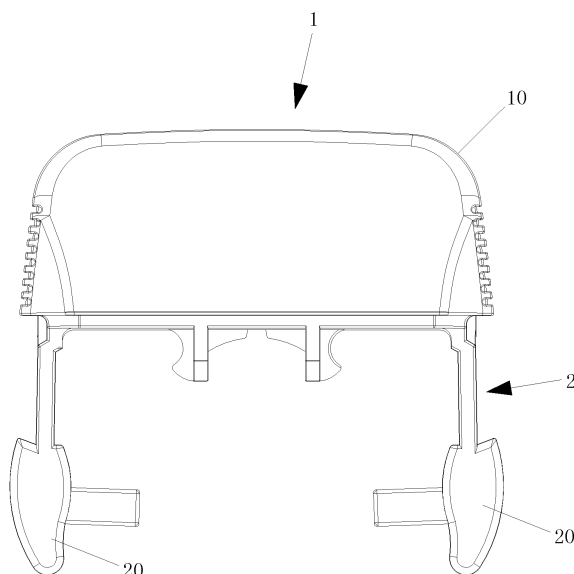


Fig. 1
(Prior Art)

Description

FIELD OF THE INVENTION

[0001] The present invention relates to the technical fields of insert buckles, in particular to an insert buckle head and an insert buckle. The application is based on the Chinese utility model patent application No.200920058481.6 filed June 16, 2009. The contents of the patent application are cited as reference in the document.

BACKGROUND OF THE INVENTION

[0002] An insert buckle in the prior art comprises an insert buckle head and an insert buckle body which are inserted, buckled and matched with each other. As illustrated in Fig. 1, one end of the insert buckle head 1 is an inserting end 2, and the other end of the insert buckle head 1 opposite to the inserting end 2 is a connecting end 10; the insert buckle head 1 can be provided with a connecting object such as braces by penetration through the connecting end 10; the inserting end 2 is used for being inserted and matched with the corresponding insert buckle body; and an elastic inserting pin 20 is respectively extended out of left and right sides of the inserting end 2. When the insert buckle head 1 is inserted, the elastic inserting pins 20 are clamped into clamping positions on the insert buckle body by virtue of the elastic deformation of the elastic inserting pins 20 so as to realize the inserting and buckling matching. Similarly, when the insert buckle is released, the elastic inserting pins 20 should be pressed as well, and the insert buckle can only be released after the elastic inserting pins 20 are driven to be withdrawn from the clamping positions on the insert buckle body. However, when the insert buckle is used, the elastic inserting pins 20 can produce a fatigue effect after repeated bending and thus are easy to break off. As the elastic inserting pins 20 and the insert buckle head 1 are subject to integrated forming, the insert buckle head 1 cannot be used again once the elastic inserting pins 20 are broken off. Moreover, as the insert buckle head 1 cannot be maintained, the whole insert buckle or the whole insert buckle head 1 should be replaced.

SUMMARY OF THE INVENTION

[0003] The invention aims to provide an insert buckle head for overcoming the defects in the prior art. As the insert buckle head adopts detachable buckle pins, the buckle pins are difficult to break off or damage. Moreover, the insert buckle head can be maintained, and the buckle pins can be replaced.

[0004] Another aim of the invention is to provide an insert buckle for overcoming the defects in the prior art. As the insert buckle head in the insert buckle adopts the detachable buckle pins, the buckle pins are difficult to break off or damage. Moreover, the insert buckle head

can be maintained, and the buckle pins can be replaced.

[0005] In order to achieve the aims, the invention adopts the technical proposal that:

[0006] An insert buckle head, wherein one end of the insert buckle head is an inserting end the left and right sides of which are slidably provided with a detachable buckle pin respectively.

[0007] Elastic components for ejecting out the buckle pins are arranged between the buckle pins and the inserting end.

[0008] The left and right sides of the inserting end are provided with a guiding groove perpendicular to the insertion direction of the insert buckle head respectively; guide rails parallel to the guiding grooves are formed on the buckle pins; and the guide rails of the buckle pins are sleeved into the guiding grooves of the inserting end.

[0009] Both sides of the inserting end are provided with a stop slot respectively, and stop pins are fixed on the buckle pins and inserted into the stop slots.

[0010] The elastic components are springs, wherein first ends of the springs are sleeved on post bodies on inner faces of the buckle pins, and second ends of the springs lean against the inner face of the inserting end.

[0011] Tails ends of the buckle pins are bent inwards and formed into guiding cambers.

[0012] The other end of the insert buckle head opposite to the inserting end is a connecting end.

[0013] An insert buckle, comprising an insert buckle body and the insert buckle head, wherein the insert buckle head and the insert buckle body are inserted, buckled and matched with each other.

[0014] The invention has the advantages that: one end of the insert buckle head is the inserting end the left and right sides of which are slidably provided with the detachable buckle pin respectively; as the insert buckle head adopts the detachable buckle pins, the buckle pins are difficult to break off or damage; the insert buckle head can be maintained; and the buckle pins can be replaced.

[0015] The invention also has the advantages that: the insert buckle comprises the insert buckle body and the insert buckle head which are inserted, buckled and matched with each other; as the insert buckle head in the insert buckle adopts the detachable buckle pins, the buckle pins are difficult to break off or damage; the insert buckle head can be maintained; and the buckle pins can be replaced.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016] Fig. 1 is a structure diagram of an insert buckle head in the prior art;

[0017] Fig. 2 is a structure diagram of the embodiment 1 of the invention; and

[0018] Fig. 3 is a decomposition diagram of the embodiment 1 of the invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Embodiment 1

[0019] The embodiment relates to an insert buckle head. As illustrated in Figs. 2 and 3, one end of the insert buckle head 1 is an inserting end 2; the inserting end 2 is used for being inserted and matched with a corresponding insert buckle body which is a comparatively independent component (the insert buckle body is not shown in the figures); and the other end of the insert buckle head 1 opposite to the inserting end 2 is a connecting end 10 through which the insert buckle head 1 can be provided with a connecting object such as braces by penetration.

[0020] Left and right sides of the inserting end 2 are slidably provided with a detachable buckle pin 3 respectively. The buckle pins 3 are detachable, are independent components, and can be replaced, thus the insert buckle head 1 is a maintainable component. More importantly, the buckle pins are slidable and implement the inserting and buckling action by means of sliding and not by means of bending deformation. Therefore, the buckles pins 3 have higher structure strength, and are firmer and more durable, difficult to damage, and more difficult to break off.

[0021] Furthermore, the left and right sides of the inserting end 2 are provided with a guiding groove 5 respectively; the guiding grooves 5 are perpendicular to the insertion direction of the insert buckle head 1; guide rails 6 parallel to the guiding grooves 5 are formed on the buckle pins 3; the guide rails 6 of the buckle pins 3 are sleeved into the guiding grooves 5 of the inserting end 2; elastic components 4 for ejecting out the buckle pins 3 are arranged between the buckle pins 3 and the inserting end 2; a clamping position is formed by a groove on the left face of the inserting end 2 and a buckle pin 3 on the left side of the inserting end 2, and another clamping position is formed by a groove on the right face of the inserting end 2 and a buckle pin 3 on the right side of the inserting end 2; both ends of the inserting end 2 are provided with a stop slot 8 respectively; and stop pins 7 are fixed on the buckle pins 3 and inserted into the stop slots 8.

[0022] When the buckle pins 3 are assembled, the assembly of the insert buckle head 1 can be completed only by respectively mounting the left and right sides of the inserting end 2 of the insert buckle head 1 into springs, inserting the corresponding buckle pins 3, and mounting the stop pins 7, thereby the assembly is simple and convenient. In contrast, when the insert buckle head 1 is disassembled, the buckle pins 3 and the springs on the left and right sides of the inserting end 2 of the insert buckle head 1 can be taken out only by removing the stop pins 7, thereby the disassembly is simpler and more convenient. Moreover, both the buckle pins 3 and the springs on the insert buckle head 1 are replaceable, thus

the maintenance is convenient.

[0023] The elastic components 4 are the springs, wherein first ends of the springs are sleeved on post bodies on inner faces of the buckle pins 3, and second ends of the springs lean against the inner face of the inserting end 2. Tail ends of the buckle pins are bent inwards and formed into guiding cambers.

[0024] Due to the arrangement of the guiding grooves 5 and the guide rails 6, the buckle pins 3 can slide along a specified direction. More specifically, due to the arrangement of the guiding grooves 5 and the guide rails 6, the buckle pins 3 can only slide along the insertion direction perpendicular to the insert buckle head 1. When the insert buckle head 1 is inserted into the corresponding insert buckle body, the buckle pins 3 are pressurized and slide towards the inner side direction of the insert buckle head 1; and after the buckle pins exceed the clamping positions on the insert buckle body, the buckle pins are ejected out under the action of the springs to fasten the insert buckle head 1 on the insert buckle body, consequently the connection is realized. In contrast, when the insert buckle is released, pressure is exerted on the buckle pins 3, and the buckle pins 3 are pressurized and slide towards the inner side direction of the insert buckle, consequently the insert buckle head 1 is released and can be separated from the insert buckle body at the time. After the insert buckle head 1 is separated from the insert buckle body, the buckle pins 3 are ejected out under the action of the springs and thus restored.

Embodiment 2

[0025] The embodiment relates to an insert buckle, which comprises an insert buckle body and the insert buckle head which are inserted, buckled and matched with each other. As the insert buckle head is the same with that illustrated in the embodiment 1, no further description is made on the

embodiment again.

[0026] The embodiments illustrated are preferred embodiments of the invention, so equivalent changes or modifications made on the structure, the characteristics and the principle according to the scope of the patent application of the invention are all included within the scope of the patent application of the invention.

Claims

1. An insert buckle head (1), one end of the insert buckle head (1) being an inserting end (2), **characterized in that** each of left and right sides of the inserting end (2) are provided with a slidable detachable buckle pin (3) respectively.
2. The insert buckle head (1) according to claim 1,

characterized in that elastic components (4) for ejecting out the buckle pins (3) are arranged between the buckle pins (3) and the inserting end (2).

3. The insert buckle head (1) according to either one of claims 1 or 2, **characterized in that** a guiding groove (5) perpendicular to the insertion direction of the insert buckle head (1) is respectively arranged on each of the left and right sides of the inserting end, guide rails (6) parallel to the guiding grooves (5) being formed on the buckle pins (3) and the guide rails (6) of the buckle pins (3) being slidably sleeved into the guiding grooves (5) of the inserting end (2). 5
10
4. The insert buckle head (1) according to claim 3, **characterized in that** both sides of the inserting end (2) are provided with a stop slot (8) respectively, stop pins (7) being fixed on the buckle pins (3) and inserted into the stop slots (8). 15
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5. The insert buckle head (1) according to any one of claims 2 to 4, **characterized in that** the elastic components (4) are springs, first ends of each of the springs (4) being sleeved on post bodies on the inner faces of the buckle pins (3), second ends of the springs leaning against the inner face of the inserting end (2). 25
6. The insert buckle head (1) according to any one of claims 1 to 5, **characterized in that** the tail ends of the buckle pins (3) are bent inwards and formed into guiding cambers. 30
7. The insert buckle head (1) according to any one of claims 1 to 6, **characterized in that** the other end of the insert buckle head (1), opposite to the inserting end (2), is a connecting end (10). 35
8. An insert buckle, **characterized in that** it comprises an insert buckle body, and an insert buckle head (1) according to any one of claims 1 to 7, the insert buckle head (1) and the insert buckle body inserted therein buckling and matching with each other. 40
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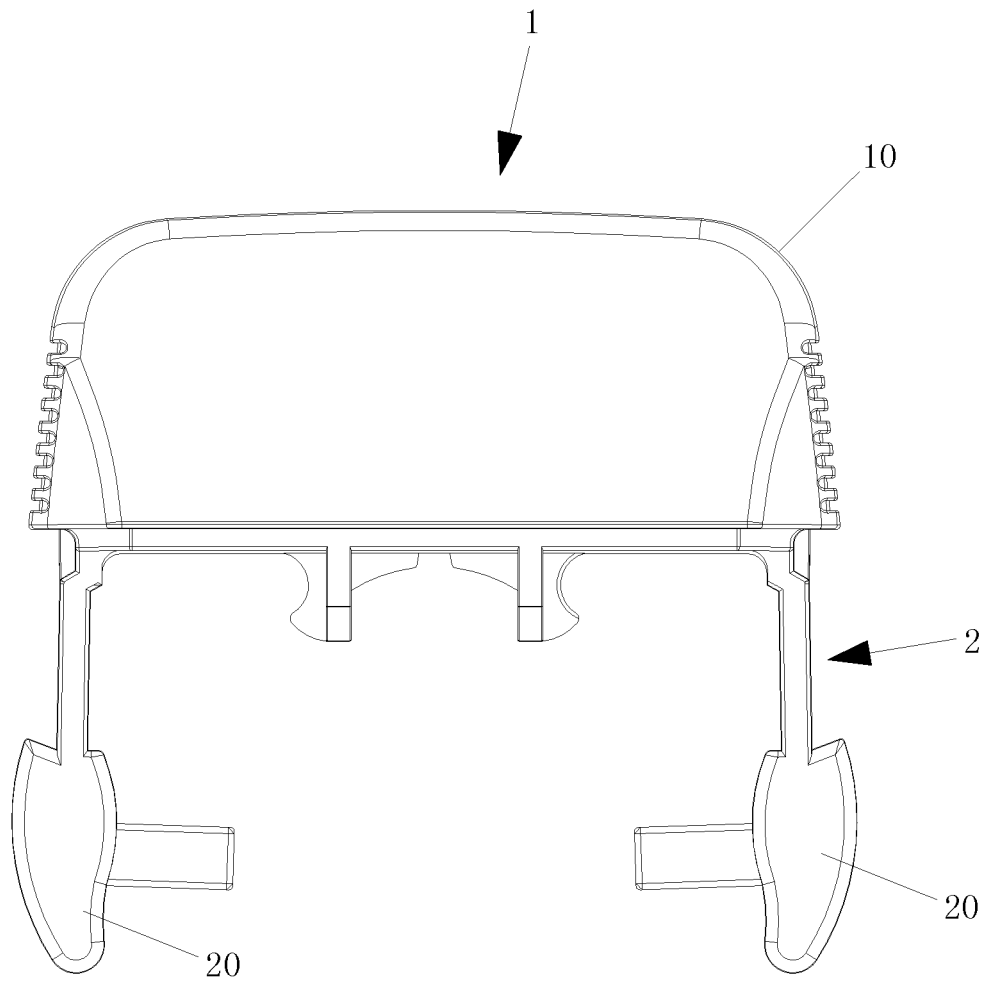


Fig. 1
(Prior Art)

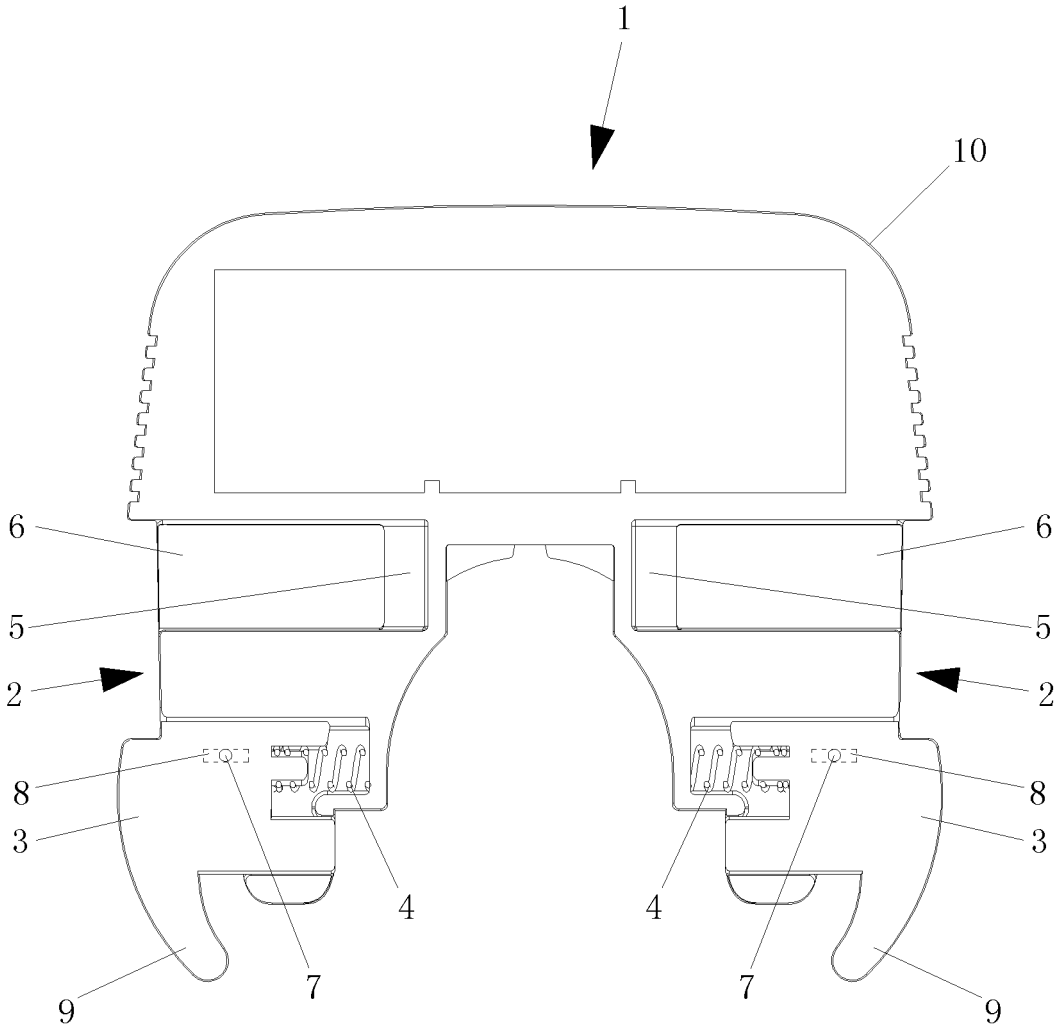


Fig. 2

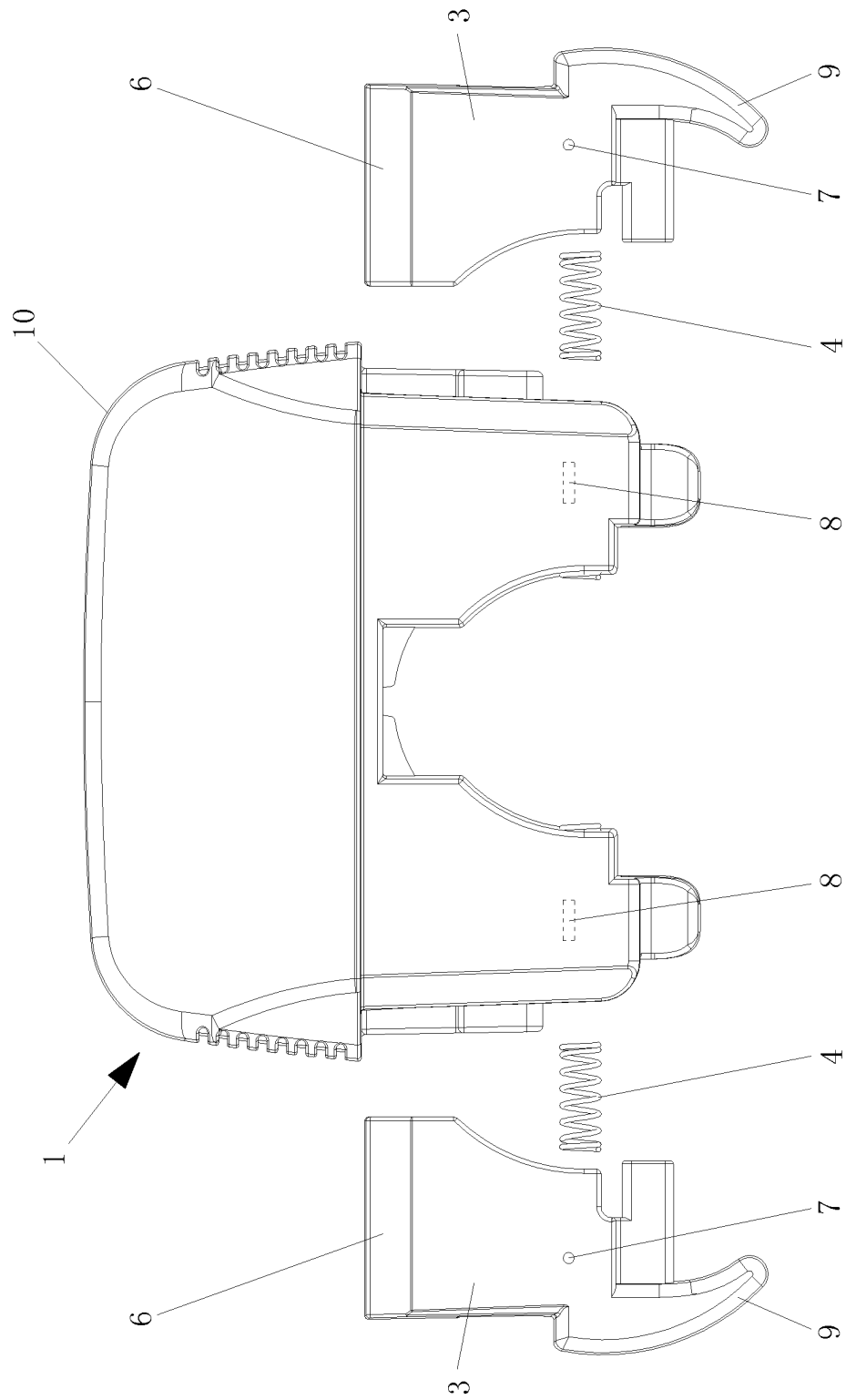


Fig. 3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2010/073099

A. CLASSIFICATION OF SUBJECT MATTER A44B 11/25 (2006.01) i

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: A44B11, A44B17, A44B18

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)

CNPAT, EPODOC, WPI, CNKI

detach+, disengag+, disassembl+, slid+, prong?, leg?, arm+, claw?, exchang+, chang+, spring+

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	CN 2498881 Y (CHEN, Angyu) 10 Jul. 2002 (10.07.2002), the description page 1, line 9 to page 2, line 21, figures 1-5.	1-8
A	US 6484372 B2 (CAPITAL SAFETY INC) 26 Nov. 2002 (26.11.2002), the whole document.	1-8
A	US 7350277 B1 (BUCKINGHAM MFG CO INC) 01 Apr. 2008 (01.04.2008), the whole document.	1-8

☒ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:	“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
“A” document defining the general state of the art which is not considered to be of particular relevance	“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
“E” earlier application or patent but published on or after the international filing date	“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
“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)	“&” document member of the same patent family
“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	

Date of the actual completion of the international search 08 Jun. 2010 (08.06.2010)	Date of mailing of the international search report 08 Jul. 2010 (08.07.2010)
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 WANG Qiuyan Telephone No. (86-10)62084130

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2010/073099

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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Form PCT/ISA/210 (continuation of second sheet) (July 2009)

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
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REFERENCES CITED IN THE DESCRIPTION

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