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Remarks:

Amended claims in accordance with Rule 137(2) EPC.

(54) **Hinge device for mounting toilet seat cover**

(57) The present disclosure relates to a hinge device with a damper for mounting a toilet seat cover, comprising an upper base (11), a lower base (14) and a locking pin (10). The lower base (14) is provided with sliding ribs (26, 28) while the upper base (11) is equipped with sliding channels (19, 24) matching the ribs (26, 28), and the upper base (11) can be inserted into the lower base (14) along the set direction by which the sliding channels (19, 24) and the sliding ribs (26, 28) are matched with each other. The locking pin (10) comprises a rotatable rod (33).

In the utility model, the rod (33) of the locking pin (10) is mounted rotatable in the lower base (14), the inner end of the rod (33) extends to a limiting base (30) on the lower side of the upper base (11), the inner end of the rod (33) is provided with a limiting stopper (35) and the rotation of the rod (33) causes the limiting stopper (35) to depart from or lock into the limiting base (30). By this design, a safety apparatus (10) is added for the separation of the upper base (11) from the lower base (14) so that the present disclosure is safer.

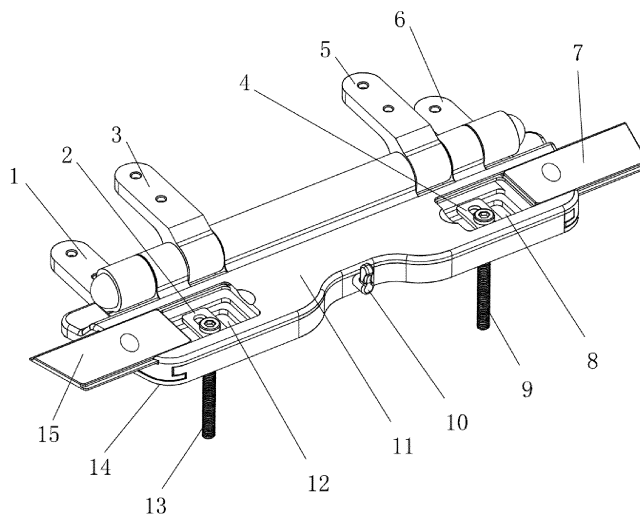


Fig. 1

Description

TECHNICAL FIELD

[0001] The present disclosure relates to a toilet, and particularly to a hinge device for mounting a toilet seat cover

BACKGROUND ART

[0002] The mounting apparatus for fixing the toilet seat cover to the toilet sanitary fittings (SF) traditionally realizes locking with screws. However, the toilet seat cover is not easy to disassemble and not convenient to repair and clean.

[0003] ZL201020204633.1 discloses a mounting apparatus for assembling/disassembling the toilet seat cover to facilitate easy assembly or disassembly of the toilet seat cover and toilet body. The apparatus is characterized by simple operation and reliable mechanism. However, the upper base and fixed blocks of the mechanism are fixed by means of interference fittings, which are difficult to disassemble.

SUMMARY OF THE INVENTION

[0004] The present disclosure aims to provide a hinge assembly for mounting a toilet seat cover with a descent control function, which is simple, safe, reliable and convenient to disassemble.

[0005] The aim of the present disclosure is achieved as stated below:

A hinge device for mounting a toilet seat cover which comprises:

An upper base, wherein two ends of the upper base are respectively equipped with a mounting base; the inner side of the mounting base are provided with a connector respectively; the rear side of the upper base is equipped with multiple rotatable connectors for mounting toilet seat circle and toilet seat cover;

A lower base, wherein two ends of the lower base are respectively equipped with a fixing hole matching the said mounting base; the connectors are inserted into the fixing holes, locking the lower base on the toilet seat; the lower base is provided with a chute; the upper base is equipped with inserts matching the chute; the inserts and the chutes are matched with each other so that the upper base can be inserted into the lower base along the set direction;

A locking pin which comprises a rotatable rod which is mounted on the lower base; the inner end of the rod extends to the limiting base on

the lower side of the upper base; the inner end of the rod is provided with a limiting stopper and the rotation of the rod causes the limiting stopper to depart from or to lock into the limiting base.

A locking pin which comprises a rotatable rod which is mounted on the lower base; the inner end of the rod extends to the limiting base on the lower side of the upper base; the inner end of the rod is provided with a limiting stopper and the rotation of the rod causes the limiting stopper to depart from or to lock into the limiting base.

[0006] Preferably, the front end of the rod is provided with a stirring handle; the limiting base includes two parallel baffle; the rod extends in between the two baffles; both the baffles are provided with limiting slots; the limiting stopper is a cuboid of which the side wall is connected to the end of the rod and the rotation of the rod causes the cuboid to insert in or depart from the limiting slot.

[0007] Preferably, wherein one of the two said limiting slots is internally provided with a flat stopper; the flat stopper presses against the limiting stopper when the limiting stopper rotates to the horizontal level towards the side on which the flat stopper is located.

[0008] Preferably, the fixing holes are ladder-like strip-shaped holes; the connector which comprises a supporter which is adjustable in the strip-shaped hole; the rod part of the locking bolt runs through the through hole on the supporter and is connected to an expansion nut or a butterfly nut in the corresponding hole on the toilet seat, which is suitably applied to the separated or one-piece toilet seat at the same time.

[0009] Preferably, wherein upper base is provided with movable slip covers for covering the mounting base.

[0010] Preferably, wherein slip covers are provided with a pressure slot for easy moving of the slip covers.

[0011] Preferably, a notch is positioned on the wall of the upper base and closely cling to one side of the slip cover extending to the upper base.

[0012] Preferably, both left and right sides on the rear side of the upper base are provided with descent control device connectors; the upper base is further provided with clips; the upper ends of the clips are matched with the descent control device connectors to prevent the descent control device connectors from shaking and horizontally moving; the said multiple connectors are mounted on the corresponding descent control device connectors; the inner ends of the descent control device connectors are inserted into the descent control devices; a descent control device locking cover is mounted in the middle on the rear side of the upper base, and the descent control device locking cover mount the descent control device on the upper base.

[0013] Compared with the existing technology, the present disclosure has the following advantages:

In the present disclosure the rod of the locking pin

is positioned on the lower base rotatable; the inner end of the rod extends to the limiting base on the lower side of the upper base ; the inner end of the rod is provided with a limiting stopper and the rotation of the rod causes the limiting stopper to depart from or to lock into the limiting base. By this design, a safety apparatus is added for the separation of the upper base from the lower base so that present disclosure is reliably safe.

[0014] One of the two said limiting slots of the present disclosure is internally provided with a flat stopper; the flat stopper against the limiting stopper when the limiting stopper rotates to the horizontal level towards the side on which the flat stopper is located. By this design, one of the locking pins can be located while locking, which makes the operation simple, safe and reliable.

[0015] The connector of the present disclosure comprising a supporter which is adjustable in the strip-shaped hole. The rod part of the locking bolt runs through the through hole on the supporter and is connected to an expansion nut or a butterfly nut in the corresponding hole on the toilet seat, which makes the distance between the supporters adjustable if necessary, thus suitable for various types and sizes of toilet seats. The design of the expansion nut can directly insert the locking bolt into the corresponding hole on the toilet seat seal from the upside to the downside for sealing the said hole, or screw the locking bolt into the corresponding holes on the toilet seat from the downside to the upside directly with the butterfly nut for sealing the said hole when the lower base is mounted, which is suitably applied to the separated or one-piece toilet seat at the same time.

[0016] The upper base of the present disclosure is provided with a movable slip cover for covering the mounting bases, which makes the product better in appearance.

[0017] The slip cover of the present disclosure is provided with a pressure slot by which the slip cover is easy to slip under the outer force and convenient to disassemble.

[0018] In the present disclosure, notches are positioned on the wall of the upper base and closely cling to one side of the slip cover extending to the upper base. By this design, the slip cover can be ejected by using the tool when being difficultly pushed out from the upper base due to the other reasons and convenient to carry out the subsequent maintenance.

[0019] In the present disclosure, both left and right sides on the rear side of the upper base are provided with descent control device connectors. The upper base is further provided with clips, the upper ends of the clips are matched with the descent control device connectors to prevent the descent control device connectors from shaking and horizontally moving. The said multiple connectors are mounted on the corresponding descent control device connectors, the inner ends of the descent control device connectors are inserted into the descent control devices, a descent control device locking cover is

positioned the middle on the rear side of the upper base and the descent control device locking cover fixes the descent control device in the upper base. By this design, the toilet seat circle and the toilet seat cover can be closed slowly, more silently and last longer in service life.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020]

Fig. 1 is the structure schematic view of the utility model.

Fig. 2 is one of the exploded view of the utility model.

Fig. 3 is the other exploded view of the utility model.

Fig. 4 is the operation schematic view of the locking pin of the utility model.

Fig. 5 is the operation schematic view of the descent control device

[0021] 1-toilet seat connector; 2-supporter; 3- toilet seat cover connector; 4- supporter; 5- toilet seat cover connector; 6- toilet seat connector; 7-slip cover; 8-fixing hole; 9-locking bolt; 10-locking pin; 11-upper base; 12-fixing hole; 13- locking bolt; 14-lower base; 15-slip cover; 16-force applying pressure slot; 17- force applying pressure slot; 18-slop cover slot; 19-chute; 20-mounting base; 21-notch; 22-notch; 23-mounting base; 24-chute; 25-slip cover slot; 26-insert; 27-pin hole; 28-insert; 29-descent control device locking cover; 30-limiting base; 31-flat stopper; 32-baffle plate; 33-rod; 34-pull handle; 35-limiting stopper; 36-baffle plate; 37- descent control device connector; 38- descent control device; 39-descent control device; 40- descent control device connector; 41-clip; 42-clip.

DETAILED DESCRIPTION OF THE INVENTION

[0022] The present disclosure is further described with the embodiments and the accompanying drawings:

A hinge assembly for mounting a toilet seat cover comprises:

An upper base 11, wherein two ends of the upper base 11 are respectively equipped with a mounting base 20, 23, the inner sides of the mounting bases are provided with a connector 9, 13 respectively, the rear side of the upper base 11 is equipped with multiple rotatable connectors (toilet seat connector 1, toilet seat connector 3, toilet seat connector 5, toilet seat connector 6) for mounting toilet seat circle and toilet seat cover;

A lower base 14, wherein two ends of the lower

base are respectively equipped with a fixing hole 8, 12 matching the said mounting bases, the connectors are inserted into the fixing holes and lock the lower base 14 on the toilet seat, the lower base 14 is provided with chutes 19, 24, the upper base 11 is equipped with inserts 28, 26 corresponding to the said chute, the insert 28, 26 and the chute are matched with each other, by which the upper base 11 can be inserted into the lower base 14 along the set direction;

A locking pin 10, which comprises a rotatable rod 33, wherein the rod 33 is mounted on the lower base 14, the inner end of the rod 33 extends to the limiting base 30 on the lower side of the upper base 11, the inner end of the rod 33 is provided with a limiting stopper 35, and the rotation of the rod 33 causes the limiting stopper 35 to depart from or lock into the limiting base 30. By this design, a safety apparatus is added for the separation of the upper base from the lower base so that the present disclosure is reliably safer.

[0023] Preferably, the front end of the rod 33 is provided with a stirring handle 34, the limiting base 30 includes two parallel baffle plates 32, 36, the rod 33 extends in between the two baffle plates 32 and 36, both the baffle plates are provided with limiting slots, the limiting stopper 35 is a cuboid of which the side wall is connected to the end of the rod 33, the rod 33 rotates so that the cuboid is inserted in or depart from the limiting slot.

[0024] Preferably, one of the two said limiting slots is internally provided with a flat stopper 31; the flat stopper 31 against the limiting stopper 35 when the limiting stopper 35 rotates to the horizontal level towards the side on which the flat stopper is located. By this design, one of the locking pins can be located while locking, which makes the operation simple, safe and reliable.

[0025] Preferably, the fixing holes 8, 12 are ladder-like strip-shaped holes, the connector which comprises a supporter 4, 2 which is adjustable in the strip-shaped hole, the rod part of the locking bolt 9, 13 runs through the through hole on the supporter 4, 2 and is connected to an expansion nut or a butterfly nut in the corresponding hole on the toilet seat, which makes the distance between the supporters adjustable if necessary, thus fitting for various types and sizes of toilet seats. The design of the expansion nut can directly screws the locking bolt into the corresponding hole on the toilet seat seal from the upside to the downside when the lower base is mounted.

[0026] Preferably, the upper base 11 is equipped with movable slip covers 15, 17 for covering the mounting base, which makes the product better in appearance.

[0027] Preferably, the slip covers are provided with force applying pressure slots 6, 18 by which the slip cover are easy to slip under the outer force and convenient to disassemble;

[0028] Preferably, notches 21, 22 are positioned on the wall side of the upper base 11 and closely cling to one side of the slip cover extending to the upper base 11. By this design, the slip cover can be ejected by using the tool when being difficultly pushed out from the upper base due to the other reasons and convenient to carry out the subsequent maintenance.

[0029] Preferably, both left and right sides on the rear side of the upper base 11 are provided with descent control device connectors 37, 40, the upper base is further provided with clips 41, 42, the upper ends of the clips are matched with the descent control device connectors to prevent the descent control device connectors from shaking and horizontally moving. The said multiple connectors (toilet seat connector 1, toilet seat connector 3, toilet seat connector 5, toilet seat connector 6) are mounted on the corresponding descent control device connectors 37, 40, the inner ends of the descent control device connectors are inserted into the descent control devices 38, 39, a descent control device locking cover 29 is mounted in the middle on the rear side of the upper base 11, and the descent control device locking cover mounted the descent control device in the upper base. By this design, the toilet seat and the toilet seat cover can be closed slowly, making less noise and providing a longer service life.

[0030] The embodiments as claimed above are only the preferred ones of the present disclosure and do not impose any restriction on the scope of protection of the present disclosure hereby. Hence, any equivalent replacement based on the structure, shape, principle of the present disclosure should be included in the scope of protection of the invention.

Claims

1. A hinge device for mounting a toilet seat cover which comprises:

An upper base, wherein two ends of the upper base are respectively equipped with a mounting base; the inner side of the mounting base are provided with a connector respectively; the rear side of the upper base is equipped with multiple rotatable connectors for mounting toilet seat circle and toilet seat cover;

A lower base, wherein two ends of the lower base are respectively equipped with a fixing hole matching the said mounting base; the connectors are inserted into the fixing holes, locking the lower base on the toilet seat; the lower base is provided with a chute; the upper base is equipped with inserts matching the chute; the inserts and the chutes are matched with each other so that the upper base can be inserted into the lower base along the set direction;

A locking pin which comprises a rotatable rod

which is mounted on the lower base; the inner end of the rod extends to the limiting base on the lower side of the upper base; the inner end of the rod is provided with a limiting stopper and the rotation of the rod causes the limiting stopper to depart from or to lock into the limiting base.

2. The hinge device for mounting a toilet seat cover as claimed in Claim 1, the front end of the rod is provided with a stirring handle; the limiting base includes two parallel baffle; the rod extends in between the two baffle; both the baffle are provided with limiting slots; the limiting stopper is a cuboid of which the side wall is connected to the end of the rod and the rotation of the rod causes the cuboid to insert in or depart from the limiting slot.
3. The hinge device for mounting a toilet seat cover as claimed in claim 2, wherein one of the two said limiting slots is internally provided with a flat stopper; the flat stopper presses against the limiting stopper when the limiting stopper rotates to the horizontal level towards the side on which the flat stopper is located.
4. The hinge device for mounting a toilet seat cover as claimed in claim 1 is **characterized in that**, the fixing holes are ladder-like strip-shaped holes; the connector which comprises a supporter which is adjustable in the strip-shaped hole; the rod part of the locking bolt runs through the through hole on the supporter and is connected to an expansion nut or a butterfly nut in the corresponding hole on the toilet seat, which is suitably applied to the separated or one-piece toilet seat at the same time.
5. The hinge device for mounting a toilet seat cover as claimed in claim 1, wherein upper base is provided with movable slip covers for covering the mounting base .
6. The hinge device for mounting a toilet seat cover as claimed in claim 5, wherein slip covers are provided with a pressure slot for easy moving of the slip covers.
7. The hinge device for mounting a toilet seat cover as claimed in claim 5 is **characterized by** that a notch is positioned on the wall of the upper base and closely cling to one side of the slip cover extending to the upper base.
8. The hinge assembly for mounting a toilet seat cover as claimed in claim 1 is **characterized in that** both left and right sides on the rear side of the upper base are provided with descent control device connectors; the upper base is further provided with clips; the upper ends of the clips are matched with the descent

control device connectors to prevent the descent control device connectors from shaking and horizontally moving; the said multiple connectors are mounted on the corresponding descent control device connectors; the inner ends of the descent control device connectors are inserted into the descent control devices; a descent control device locking cover is mounted in the middle on the rear side of the upper base, and the descent control device locking cover fixes the descent control device on the upper base.

Amended claims in accordance with Rule 137(2) EPC.

1. A hinge device for mounting a toilet seat cover, which comprises:
 - an upper base, wherein two ends of the upper base are respectively equipped with a mounting base; the inner side of the mounting base are provided with a connector respectively; the rear side of the upper base is equipped with multiple rotatable connectors for mounting toilet seat circle and toilet seat cover;
 - a lower base, wherein two ends of the lower base are respectively equipped with a fixing hole matching the said mounting base; the connectors are inserted into the fixing holes, locking the lower base on the toilet seat; the lower base is provided with a chute; the upper base is equipped with inserts matching the chute; the inserts and the chutes are matched with each other so that the upper base can be inserted into the lower base along the set direction;
 - a locking pin which comprises a rotatable rod which is mounted on the lower base; the inner end of the rod extends to the limiting base on the lower side of the upper base; the inner end of the rod is provided with a limiting stopper and the rotation of the rod causes the limiting stopper to depart from or to lock into the limiting base, **characterized in that**, wherein the front end of the rod is provided with a stirring handle; the limiting base includes two parallel baffle; the rod extends in between the two baffle; both the baffle are provided with limiting slots; the limiting stopper is a cuboid of which the side wall is connected to the end of the rod and the rotation of the rod causes the cuboid to insert in or depart from the limiting slot.
2. The hinge device for mounting a toilet seat cover as claimed in claim 1, wherein one of the two said limiting slots is internally provided with a flat stopper; the flat stopper presses against the limiting stopper when the limiting stopper rotates to the horizontal level towards the side on which the flat stopper is

located.

- 3. The hinge device for mounting a toilet seat cover as claimed in claim 1 is **characterized in that** , the fixing holes are ladder-like strip-shaped holes; the connector which comprises a supporter which is adjustable in the strip-shaped hole; the rod part of the locking bolt runs through the through hole on the supporter and is connected to an expansion nut or a butterfly nut in the corresponding hole on the toilet seat, which is suitably applied to the separated or one-piece toilet seat at the same time. 5
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- 4. The hinge device for mounting a toilet seat cover as claimed in claim 1, wherein upper base is provided with movable slip covers for covering the mounting base. 15

- 5. The hinge device for mounting a toilet seat cover as claimed in claim 4, wherein slip covers are provided with a pressure slot for easy moving of the slip covers. 20

- 6. The hinge device for mounting a toilet seat cover as claimed in claim 4 is **characterized by** that a notch is positioned on the wall of the upper base and closely cling to one side of the slip cover extending to the upper base. 25

- 7. The hinge device for mounting a toilet seat cover as claimed in claim 1 is **characterized in that** both left and right sides on the rear side of the upper base are provided with descent control device connectors; the upper base is further provided with clips; the upper ends of the clips are matched with the descent control device connectors to prevent the descent control device connectors from shaking and horizontally moving; the said multiple connectors are mounted on the corresponding descent control device connectors; the inner ends of the descent control device connectors are inserted into the descent control devices; a descent control device locking cover is mounted in the middle on the rear side of the upper base, and the descent control device locking cover fixes the descent control device on the upper base. 30
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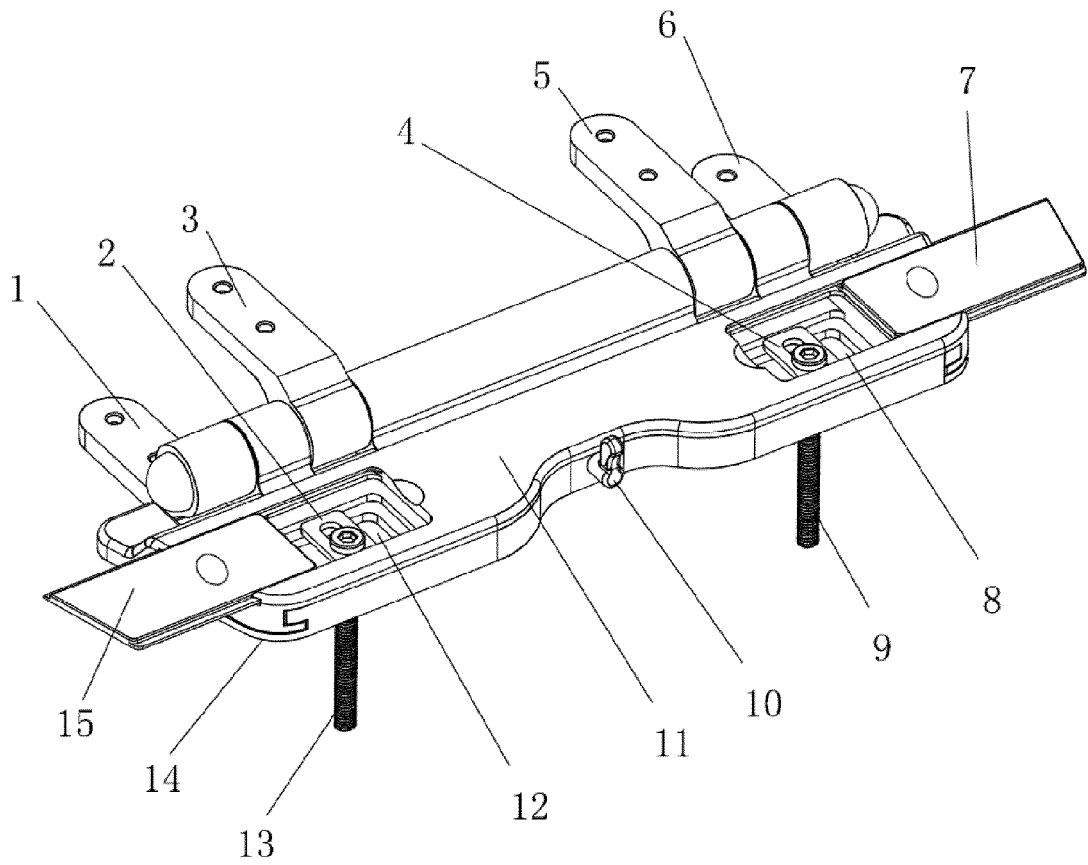


Fig. 1

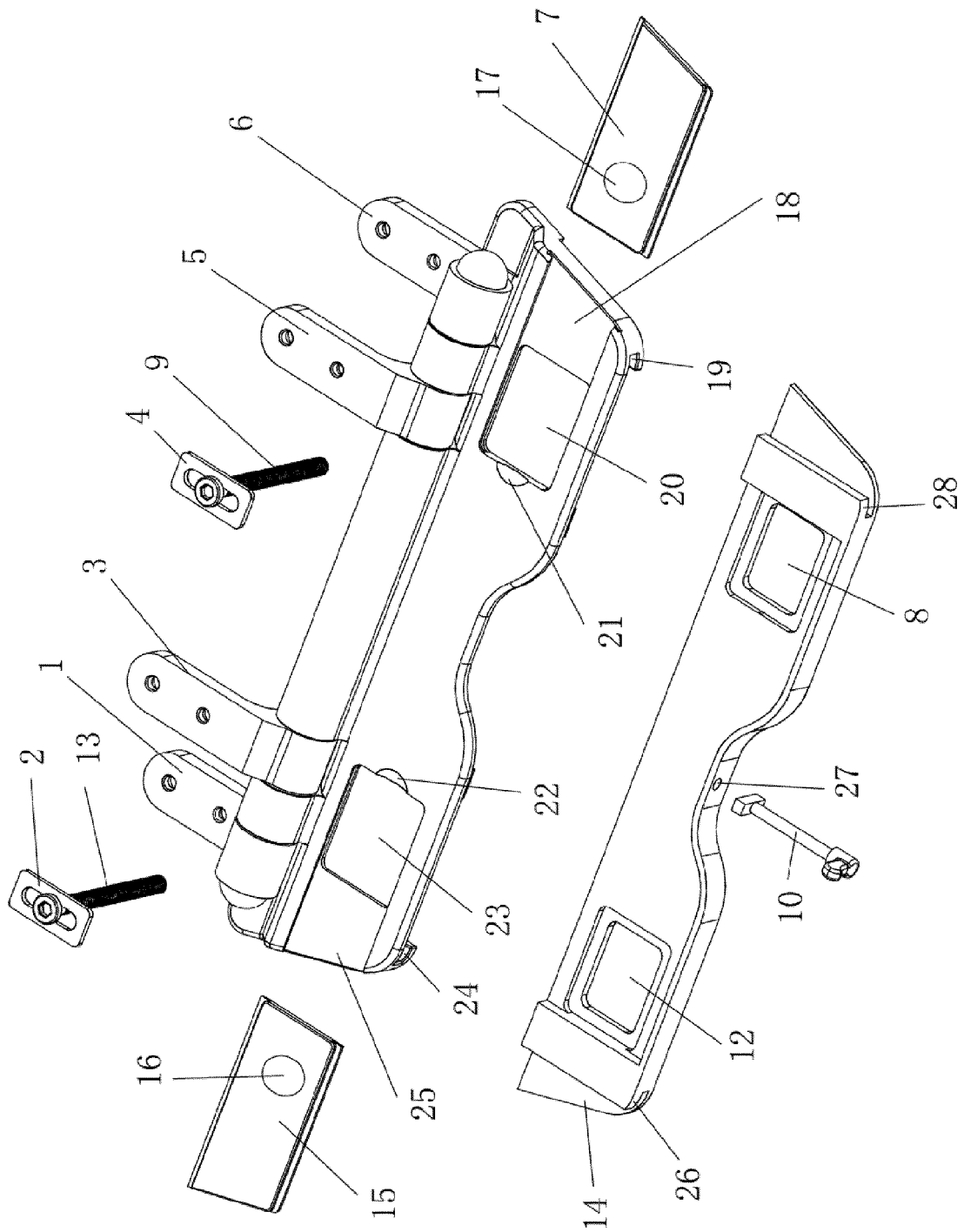


Fig. 2

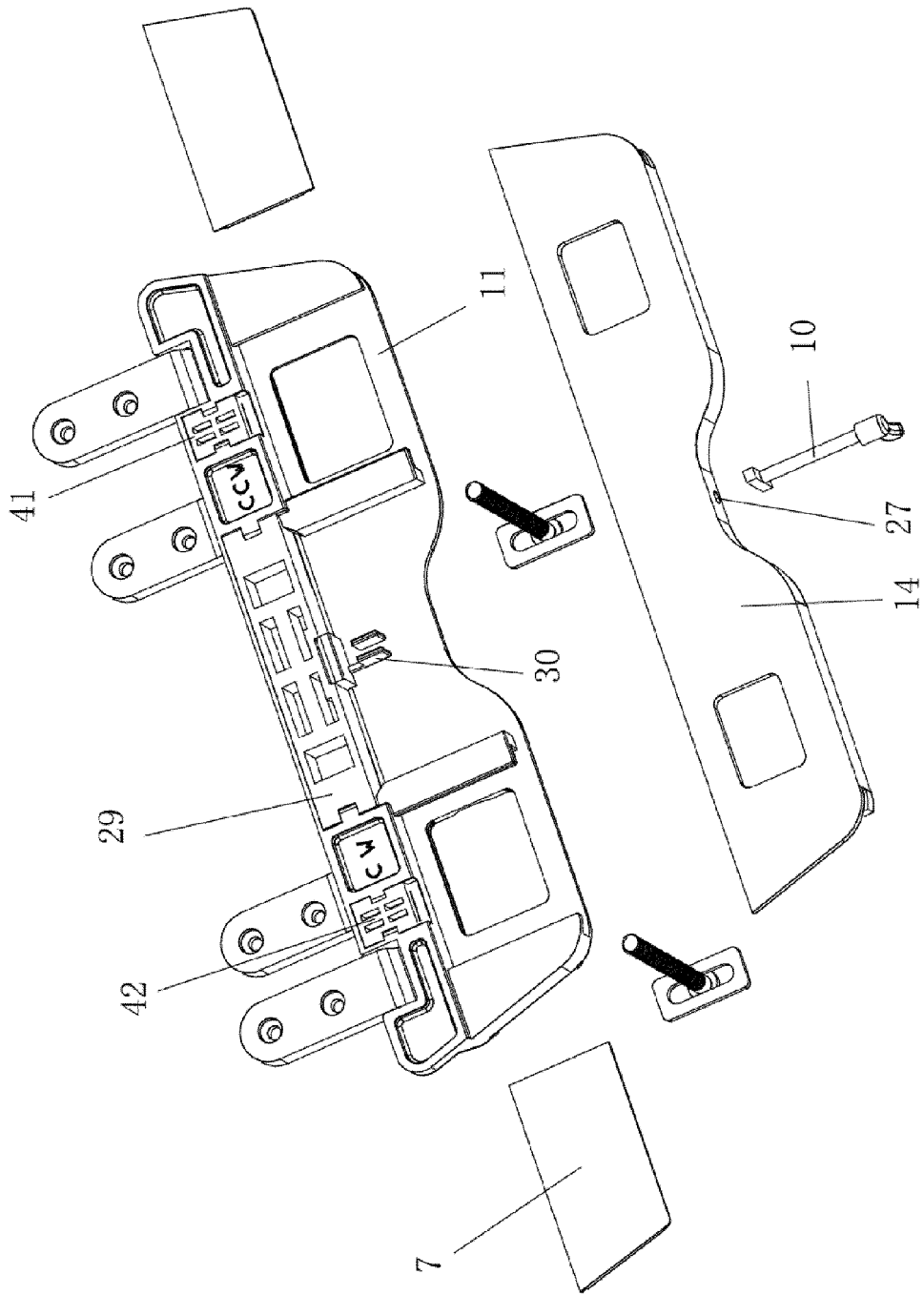


Fig. 3

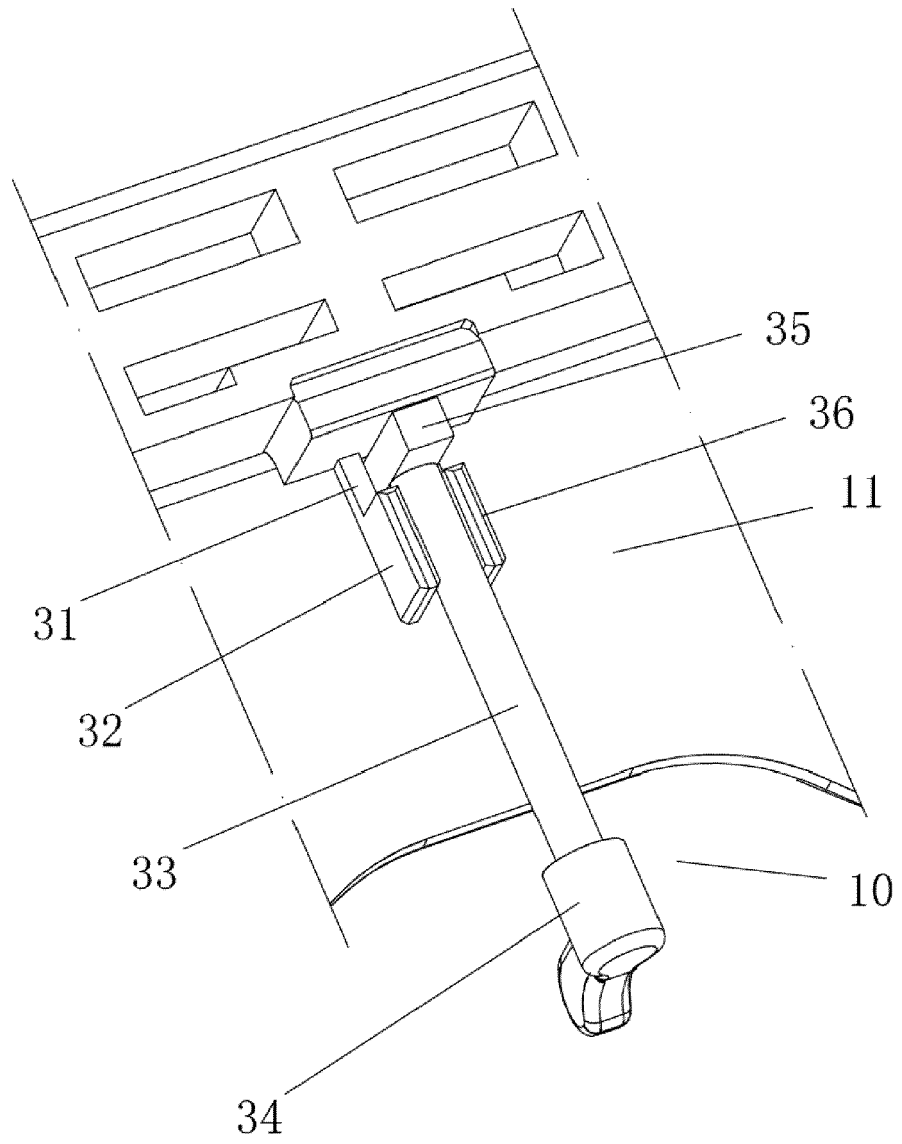


Fig. 4

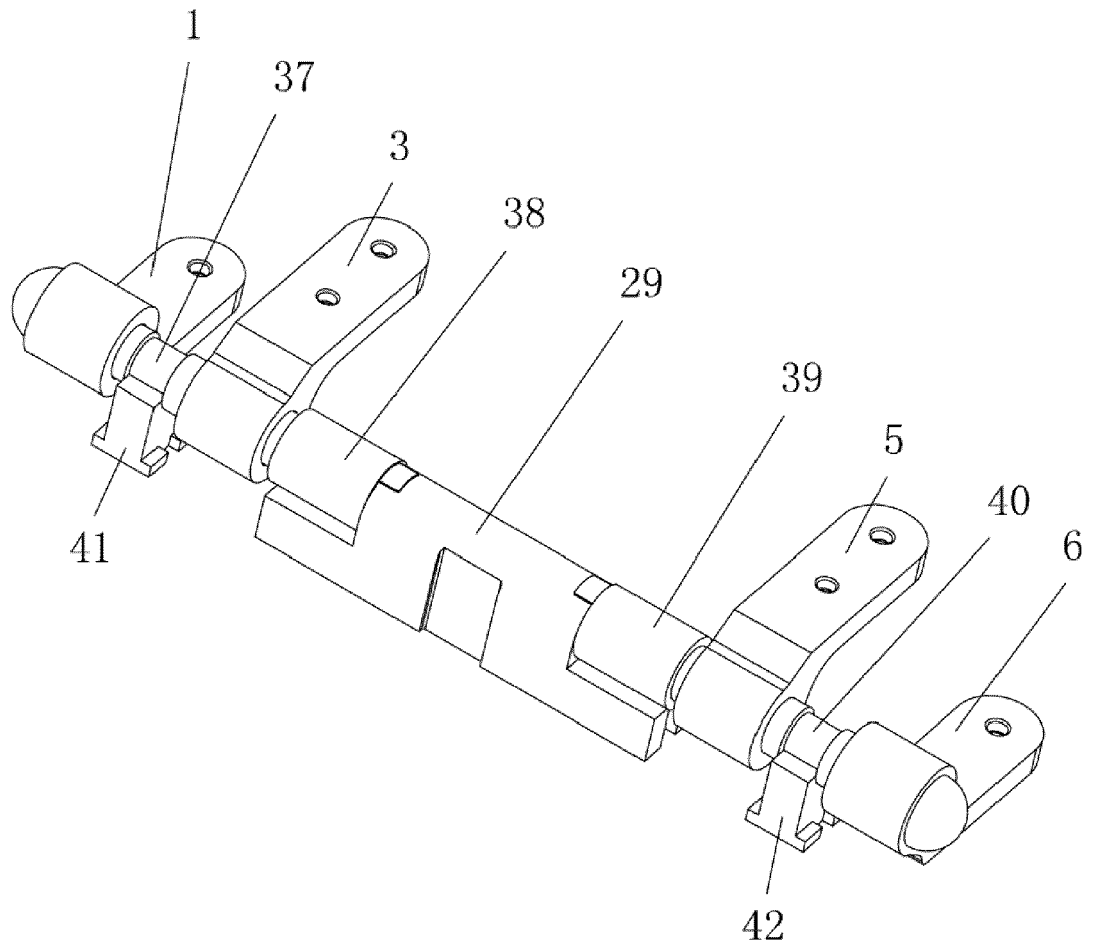


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 14 18 4783

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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	TW M 458 193 U (LUNG CHANG POTTERY MFG CO LTD [TW]) 1 August 2013 (2013-08-01)	1,4-8	INV. A47K13/26 ADD. A47K13/12
A	* figures 1, 3-8 *	2	
A	----- JP S60 167598 U (XIAMEN HAODI PLUMBING CO LTD) 7 November 1985 (1985-11-07)	5	
A	* figures 7-10 * ----- CN 201 529 079 U (XIAMEN HAODI PLUMBING CO LTD) 21 July 2010 (2010-07-21)	8	
	* figures 1-2, 4 * -----		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47K
Place of search		Date of completion of the search	Examiner
The Hague		7 November 2014	Boyer, Olivier
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			

EPO FORM 1503 03.82 (P04C01)

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

EP 14 18 4783

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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
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07-11-2014

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
TW M458193	U	01-08-2013	NONE	
JP S60167598	U	07-11-1985	JP H0225357 Y2 JP S60167598 U	12-07-1990 07-11-1985
CN 201529079	U	21-07-2010	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82