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(72) Inventors:  
• **QIAN, Weian**  
**201802 Shanghai (CN)**  
• **YUAN, Yihui**  
**201802 Shanghai (CN)**  
• **YOU, Hang**  
**201802 Shanghai (CN)**  
• **YANG, Liang**  
**201802 Shanghai (CN)**

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(71) Applicant: **Geberit International AG**  
**8645 Jona (CH)**

(74) Representative: **König Szyntka Tilmann von Renesse**  
**Patentanwälte Partnerschaft mbB**  
**Zielstattstraße 38**  
**81379 München (DE)**

(54) **TOILET TOP MOUNT WATERSEALING MECHANISM**

(57) The invention discloses a top mount watersealing mechanism, and relates to the field of smart top mounts for toilets. The top mount watersealing mechanism includes a top mount base, a top mount seat ring and a watersealing material, the top mount base includes a female connector, a male connector of the top mount seat ring is inserted into the female connector, a heater is contained in the top mount seat ring and connected

with a control unit in the top mount base through an electric wire, the electric wire penetrates through the female connector and the male connector, and the male connector is filled with the watersealing material, and the watersealing material wraps the corresponding electric wire. The invention has the technical effects of protecting a smart top mount wire to achieve a watersealing effect and being convenient to detach.

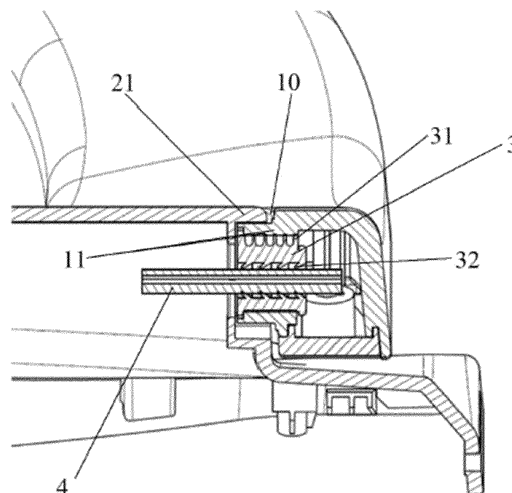


Fig. 2

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**Description****Field of the Invention**

[0001] The invention relates to the field of smart top mounts for toilets, in particular to a top mount watersealing mechanism.

**Background of the Invention**

[0002] With the improvement of people's living standards and hygiene awareness, the popularizing rate of smart toilets is getting higher and higher. Many families have already chosen smart toilets when renovating, and moreover, some families have replaced ordinary toilet covers with smart toilet top mounts. In addition, some hotels and guest houses are also equipped with the smart toilets, making the application of the smart toilets wider.

[0003] With the increase of user demands, a variety of functions have been simultaneously integrated into a single smart top mount for a toilet, such as heating, warm water cleaning, warm air drying, deodorization and sterilization, and other functions. Thus, a variety of circuit equipment is usually buried into a top mount seat ring, for example, a heating wire for toilet cover heating and a circuit, which needs to be outwards connected into the base from a joint between the seat ring and a top mount base in an extending mode. In the long-term use of the top mount, a usage environment of the top mount is usually a humid environment, or in the case that the top mount needs to be cleaned, water vapor or water drops will enter the seat ring through a joint gap between the seat ring and the top mount base and adhere to the heating wire or the circuit, resulting in risks of short circuit and electric shock. Thus, it is necessary to conduct water isolation treatment on the joint gap between the seat ring and the top mount base.

**Summary of the Invention**

[0004] In view of the above defects of the prior art, the technical problem to be solved by the invention is to provide a top mount watersealing mechanism with excellent watersealing performance.

[0005] In order to realize the above purpose, the invention provides a top mount watersealing mechanism, including a top mount base, a top mount seat ring and a watersealing material, the top mount base includes a female connector, a male connector of the top mount seat ring is inserted into the female connector, a heater is contained in the top mount seat ring and connected with a control unit in the top mount base through an electric wire, the electric wire penetrates through the female connector and the male connector, the male connector is filled with the watersealing material, and the watersealing material wraps the corresponding electric wire.

[0006] Further, the watersealing material is a flexible material.

[0007] Further, the flexible material is silica gel.

[0008] Further, an outer wall of the watersealing material includes a plurality of outer folds, and a groove is included between each outer fold and a proximate outer fold.

[0009] Further, an inner wall of the watersealing material wrapping the electric wire includes a plurality of inner folds, and the inner folds extend towards connecting ends of the male connector and the female connector.

[0010] The invention has the technical effects of protecting a wire of a smart top mount to achieve a watersealing effect and being convenient to detach.

[0011] The conception, specific structure and produced technical effects of the invention will be further explained below in combination with the drawings to fully understand the purposes, features and effects of the invention.

**Brief Description of the Drawings**

[0012] By reading the detailed description of the non-restrictive embodiment with reference to the drawings below, other features, purposes and advantages of the invention will be more apparent:

Fig. 1 shows a structural diagram of a top mount of the invention;

Fig. 2 shows a section view of the top mount of the invention;

Fig. 3 shows a structural diagram of a male connector side of the top mount of the invention; and

Fig. 4 shows a structural diagram of a watersealing material of the top mount of the invention.

[0013] The description on signs of the drawings: 1-top mount seat ring; 11-male connector; 2-top mount base; 21-female connector; 3-watersealing material; 31-outer fold; 32-inner fold; 4-electric wire; 10-gap.

**Detailed Description of the Embodiment**

[0014] A preferred embodiment of the invention is introduced below with reference to the drawings of the description to make its technical contents clearer and convenient to understand.

[0015] As shown in Fig. 1 to Fig. 4, the invention provides a top mount watersealing mechanism, including a top mount seat ring 1, a top mount base 2 and a watersealing material 3, the top mount base 2 includes a female connector 21, a male connector 11 of the top mount seat ring 1 is inserted into the female connector 21 to make the top mount seat ring 1 pivotable with the top mount base 2 as a fulcrum, a heater is contained in the top mount seat ring 1 and connected with a control unit in the top mount base 2 through an electric wire 4, the

electric wire 4 penetrates through the female connector 21 and the male connector 11, the male connector 11 is filled with the watersealing material 3, and the watersealing material 3 wraps the corresponding electric wire 4.

[0016] The female connector 21 and the male connector 11 are usually arranged to be hollow to facilitate passage of the electric wire 4.

[0017] Further, the watersealing material 3 is a flexible material.

[0018] Further, the flexible material is silica gel, which makes it more tightly bonded with the male connector 11, and has better watersealing performance.

[0019] Further, an outer wall of the watersealing material 3 includes a plurality of outer folds 31, and a groove is included between each outer fold 31 and a corresponding proximate outer fold. An outer diameter of the watersealing material 3 can be slightly larger than an inner diameter of the male connector 11. Thus, the watersealing material is not prone to being loosen from the male connector 11, thereby enhancing a sealing effect. In addition, when liquid flows in from a gap 10 between the male connector 11 and the female connector 21, each outer fold 31 can prevent the liquid from flowing into the top mount seat ring 1 or the top mount base 2. Even if part of the liquid flows in, under ideal conditions, the liquid can be gradually blocked by the first, second or third outer fold or the like, which increases the reliability of the watersealing material 3. Further, an inner wall of the watersealing material 3 wrapping the electric wire 4 includes a plurality of inner folds 32, and the inner folds 32 extend towards connecting ends of the male connector 11 and the female connector 21. A gap between the electric wire 4 and the watersealing material 3 can be filled with the inner folds 32 after the electric wire 4 penetrates through, the inner folds 32 can also be made to stay at positions where they are located in the pivoting process of the top mount seat ring 1 while fixing the electric wire 4, which prevents problems of functional circuits of the top mount caused by abrasion or displacement of the electric wire 4 due to frequent pivoting of the seat ring.

2. The top mount watersealing mechanism according to claim 1, **characterized in that** the watersealing material is a flexible material.

5 3. The top mount watersealing mechanism according to claim 2, **characterized in that** the flexible material is silica gel.

10 4. The top mount watersealing mechanism according to one of the preceding claims, **characterized in that** an outer wall of the watersealing material comprises a plurality of outer folds, and a groove is comprised between each outer fold and a proximate outer fold.

15 5. The top mount watersealing mechanism according to claim 4, **characterized in that** an inner wall of the watersealing material wrapping the electric wire comprises a plurality of inner folds, and the inner folds extend towards connecting ends of the male connector and the female connector.

## Claims

1. A top mount watersealing mechanism, **character-** 45  
**ized in that** the top mount watersealing mechanism  
 comprises a top mount base, a top mount seat ring  
 and a watersealing material, the top mount base  
 comprises a female connector, a male connector of  
 the top mount seat ring is inserted into the female 50  
 connector, a heater is contained in the top mount  
 seat ring and connected with a control unit in the top  
 mount base through an electric wire, the electric wire  
 penetrates through the female connector and the  
 male connector, the male connector is filled with the 55  
 watersealing material, and the watersealing material  
 wraps the corresponding electric wire.

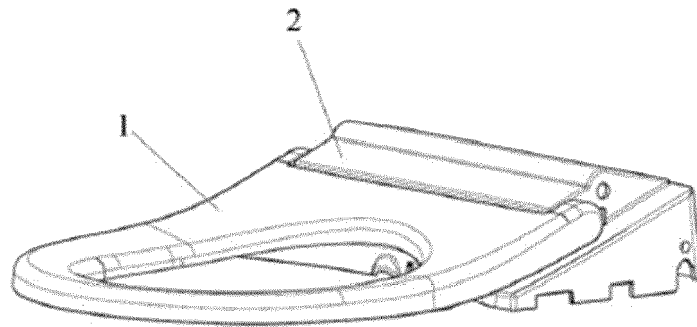


Fig. 1

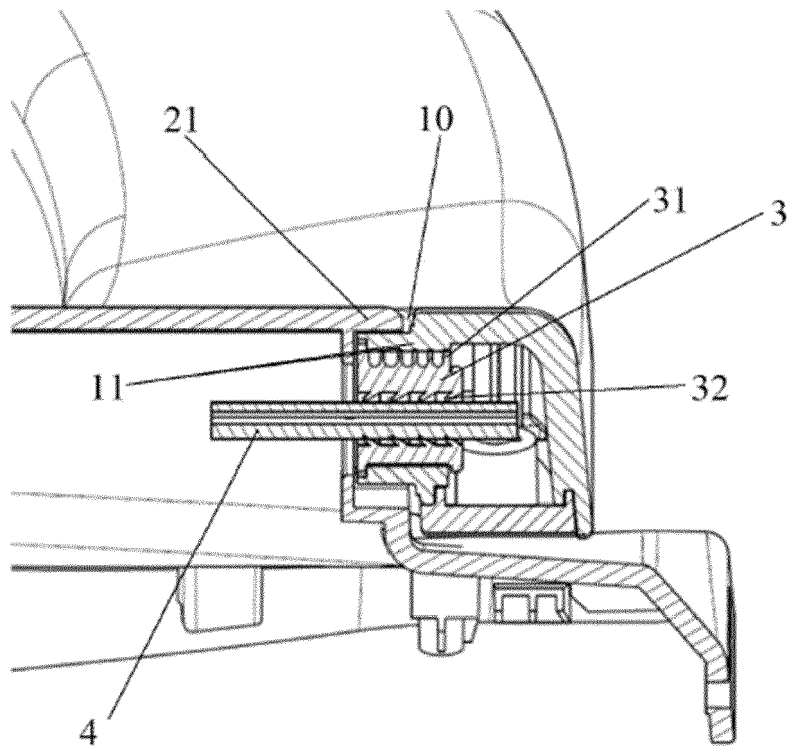


Fig. 2

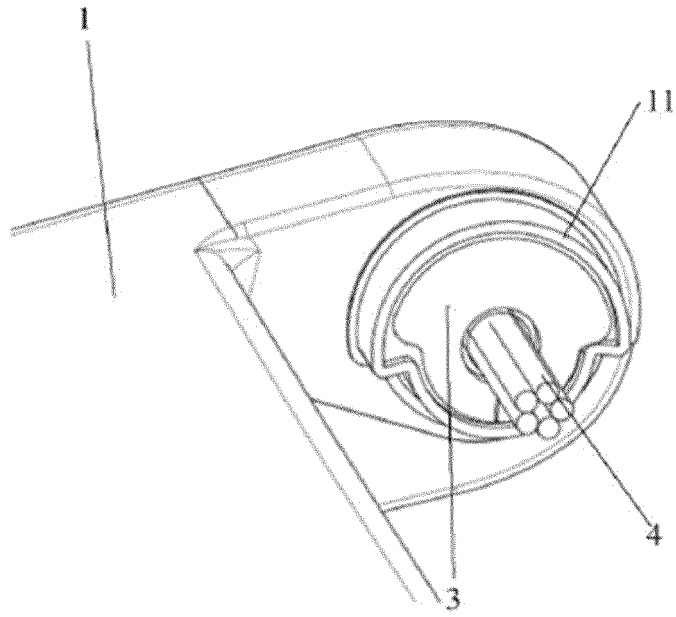


Fig. 3

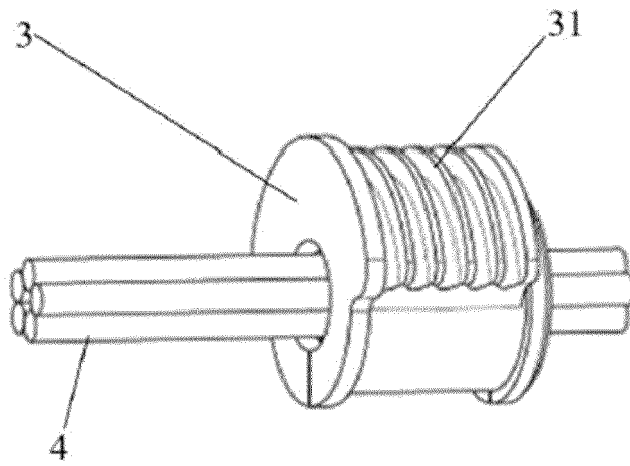


Fig. 4



EUROPEAN SEARCH REPORT

Application Number  
EP 21 20 4784

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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	WO 2004/075708 A1 (MATSUSHITA ELECTRIC IND CO LTD [JP]; SHINTANI MOTOKIYO ET AL.) 10 September 2004 (2004-09-10) * figures 1-9 *	1-5	INV. A47K13/30
X	KR 200 410 526 Y1 (WOONGJIN COWAY CO.) 7 March 2006 (2006-03-07) * figures 1-6 *	1-5	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47K
1 The present search report has been drawn up for all claims			
Place of search <b>The Hague</b>		Date of completion of the search <b>8 March 2022</b>	Examiner <b>Boyer, Olivier</b>
CATEGORY OF CITED DOCUMENTS 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		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	

EPO FORM 1503 03.82 (P04C01)

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

EP 21 20 4784

5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
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08-03-2022

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
<b>WO 2004075708 A1</b>	<b>10-09-2004</b>	<b>CN 1753636 A</b>	<b>29-03-2006</b>
		<b>KR 20050107762 A</b>	<b>15-11-2005</b>
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82