(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 2 786 686 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
08.10.2014 Bulletin 2014/41

(51) Int Cl.:
A47K 13/12 *(2006.01)* ***E05F 3/20*** *(2006.01)*

(21) Application number: **14163259.6**

(22) Date of filing: **02.04.2014**

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR
Designated Extension States:
BA ME

(30) Priority: **02.04.2013 TR 201303991**

(71) Applicant: **Kaleseramik Canakkale Kalebodur Seramik Sanayi Anonim Sirketi**
Istanbul (TR)

(72) Inventor: **MANAVOGLU, Mustafa**
Istanbul (TR)

(74) Representative: **Dericioglu Kurt, Ekin**
Ankara Patent Bureau Limited
Bestekar Sokak No: 10
Kavaklidere
06680 Ankara (TR)

(54) Quick release toilet cover hinge

(57) The present invention relates to a toilet cover hinge (1), which is developed to easily mount and remove toilet covers (K) to and from toilets, and which does not require tools such as a screwdriver, allen wrench, etc. for connection or removal thereof, and which comprises at least one damper (9) that enables the toilet cover (K) to be opened and closed at the preferred speed.

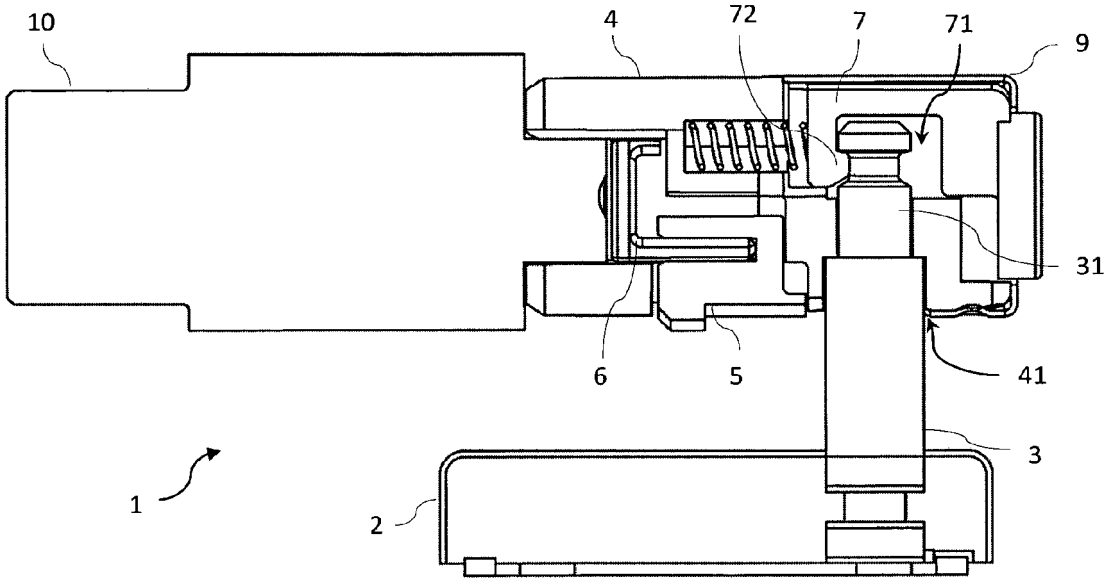

Figure 2

EP 2 786 686 A1

Description

Field of the Invention

[0001] The present invention relates to a toilet cover hinge, which is developed to easily mount and remove toilet covers to and from toilets, and which does not require tools such as a screwdriver, allen wrench, etc. for connection or detachment thereof.

Background of the Invention

[0002] Western style toilet or WC is generally a toilet system comprised of a seat, a seat cover, a reservoir and a flush system. It is a toilet type which enables to transfer human excrement to the sewage system via gutter. Western style toilet differs from the squat toilet by the fact that it has a seat and a water reservoir. Today, covers of these toilets are connected fixedly and tools such as a screwdriver, allen wrench, etc. are required for removing them. When cleaning the toilets, removing the toilet cover facilitates cleaning and ensures hygiene. Removing the toilet cover during cleaning thereof enables every part of the toilet surface to be easily cleaned. It is very important for health reasons that the toilet and toilet covers can be cleaned separately by enabling the cleaning person to easily mount and remove the toilet cover.

[0003] The International patent document no. WO9521970, an application in the state of the art, discloses a toilet with a detachable seat and cover. It is stated that the toilet cover is connected to the toilet by a hinge mechanism and when it is desired to be cleaned, it can be easily disengaged only by pulling by a hand.

[0004] In other state-of-the-art applications, wherein the cover is enabled to be attached and detached without requiring any tools, the principle of a pin interference fitting to a blind hole is utilized. However these systems both require a great deal of power and become unusable by time due to abrasion.

Summary of the Invention

[0005] The objective of the present invention is to provide a toilet cover hinge which enables to attach and detach the toilet cover by only pressing a button without having any difficulty during cleaning the toilet, and thus to increase the useful life of attaching and detaching since the system will not be pressured during attaching and detaching, and to prevent abrasion, breaking and failure of the system in time.

[0006] Another objective of the present invention is to provide a toilet cover hinge wherein a damper is used in slow closing toilet covers and a damper replacement part (dummy part) is used in normal closing toilet covers.

[0007] A further objective of the present invention is to provide a toilet cover hinge which can be applied both to slow closing toilet covers and normal closing toilet covers.

Detailed Description of the Invention

[0008] A toilet cover hinge developed to fulfill the objectives of the present invention is illustrated in the accompanying figures, in which:

Figure 1 is the perspective view of the toilet cover hinge.
Figure 2 is the sectional view of the toilet cover hinge.
Figure 3 is the exploded view of the toilet cover hinge.

[0009] The components shown in the figures are each given reference numbers as follows:

1. Toilet cover hinge
2. Fixing part
3. Extension
    31. Secondary section
    32. Notch
4. Connector
    41. Through hole
    42. Channel
    49. Lateral surface
5. Latch
6. Latch lock
7. Push release button
    71. Recess
    72. Lug
    73. Pressing part
8. Spring
9. Casing
10. Damper

K. Toilet cover

[0010] A toilet cover hinge (1), which is developed to easily mount and remove toilet covers (K) to and from toilets, and which does not require tools such as a screwdriver, allen wrench, etc. for connection or removal thereof, basically comprises

- at least one fixing part (2) which is fixed to the upper surface of the toilet body,
- at least one extension (3) which extends from the fixing part (2) perpendicular to the toilet plane,
- a secondary section (31), which is at the upper part of the extension (3) relative to the toilet plane, and which has an outer diameter that is smaller than the outer diameter of the extension (3),
- at least one notch (32) which is located on the secondary section (31),
- at least one connector (4) which has an axis parallel

to the toilet plane,

- at least one latch (5) which enables the connector (4) to be coupled to the toilet cover (K),
- a stepped through hole (41) which is located at the connector (4), and into which the extension (3) and the secondary section (31) enters, and which is perpendicular to the toilet plane, and is in a form complying with the outer surface of the extension (3) and the secondary section (31),
- at least one channel (42) which extends from one lateral surface (49) of the connector (4) to the through hole (41) such that it receives at least a part of the secondary section (31) including the notch (32) which enters into the through hole (41),
- at least one press release button (7) having a form that may be fitted into the channel (42),
- at least one recess (71); which is located at the surface of the press release button (7) facing the through hole (41); and into which the second section (31), which passes through the through hole (41) and protrudes into the channel (42), enters,
- at least one lug (72), which is located on one side of the recess (71) facing the notch (32) located on the secondary section (31), and which can enter into and attach to the notch (32),
- at least one pressing part (73) of the press release button (7) located near the lateral surface (49) where the channel starts,
- at least one spring (8) which applies force to the press release button (7) in the direction where the lug (72) will move towards the notch (32), and
- at least one casing (9) which prevents the press release button (7) from getting out of the channel (42) and which surrounds the connector (4) at least the part thereof including the channel (42).

[0011] The fixing part (2) enables the toilet hinge (1) to be fixed to the toilet body. The fixing part (2) can be fixed to the toilet body via any method known in the art such as screwing, adhesion, interference fit connection.

[0012] An extension (3) rises from the fixing part (2) perpendicular to the toilet plane. There is a secondary section (31) at the uppermost part of the extension (3) which has an outer diameter that is smaller than the outer diameter of the extension (3). In the preferred embodiment of the invention, the secondary section (31) is coaxial with the extension (3). There is a notch (32) on the second section (31). The said notch (31) denotes recess(es) of any size, direction or angle located on the surface of the secondary section (31). In the preferred embodiment of the invention, the notch (32) is formed as a node having a smaller diameter than the outer diameter of the secondary section (31).

[0013] In the preferred embodiment of the invention, the connector (4) is cylindrical. In different embodiments of the invention, it can be a triangular prism, rectangular prism or any other geometric form. There is a through hole (41) in the connector (4) which is perpendicular, i. e. at a radial direction, to the axis of the connector (4). The inner surface of the through hole (41) is in the form of a countersunk bore complying with the stepped outer surface formed by the extension (3) and the secondary section (31). This way, after the extension (3) enters into the through hole (41), it is fitted into the countersunk bore, and after this point the connector (4) cannot proceed further. There is a channel (42) on the upper part of the connector (4) relative to the toilet plane. The channel (42) starts from the lateral surface (49) of the connector (4) and extends towards the through hole (41). The channel (42) is long enough to encompass the entire through hole (41). Thus, the through hole (41) opens to the inside of the channel (42) and after the extension (3) enters into the through hole (41), at least one part of the secondary section (31) remains in the channel (42). While the channel (42) is preferably U-shaped, in different embodiments it may also be V-shaped or in other forms. The part of the second section (31) remaining in the channel (42) also includes the notch (32). The connector (4) is attached to the toilet cover by the help of at least one latch (5). The latch (5) can be any connection type known in the art such as interference fit lock, pin, screw, etc. In the preferred embodiment of the invention, the latch (5) can be locked or unlocked by the help of a latch lock (6). Thus, the user can disconnect the toilet cover and the connector (4) from each other whenever s/he desires.

[0014] There is a press release button (7) within the channel (42) which has a similar or the same form with the channel (42). There is at least one recess (71) on the surface of the press release button (7) facing the through hole (41). The secondary section (31) which passes through the through hole (41) and enters into the channel (42) remains in the recess (71). There is at least one lug (72), which is located on the surface of the recess (71) facing the notch (32), and which enters into the notch (32) and enables attachment. The spring (8) applies force on the press release button (7). Direction of this force allows the lug (72) to enter into the notch (32). In the preferred embodiment of the invention, there is a spring (8) between the press release button (7) and the connector (4) that pushes the press release button (7) such that it protrudes from the lateral surface (49). The spring (8) enables the lug (72) to enter into the notch (32) and remain therein. In this case, when the secondary section (31) and the extension (3) are tried to be taken out of the through hole (41), the lug (72) attaches to the notch (32), and the extension (3) and the secondary section (31) cannot get out of the through hole (41). There is a pressing part (73) on the part of the press release button (7) near the lateral surface (49). When a force is applied on the pressing part (73), the press release button (7) moves so as to compress the spring (8) in the channel (42) and the lug (72) and the notch (32) are detached.

[0015] In one embodiment of the invention, the fixing part (2) which is formed in compliance with the upper surface of the toilet body is placed on the toilet body. There is an extension (3) on the fixing part (2) which is

perpendicular to the toilet body. There is a secondary section (31) at the end part of the extension (3) which is coaxial with the extension (3) and which has an outer diameter that is smaller than the outer diameter of the extension (3). There is a notch (32) near the end part of the secondary section (31), and the lug (72), which is located in the recess on the press release button (7), fits into the said notch (32). The spring (8), which applies pressure on the press release button (7), pushes the press release button (7) and thus the lug (72) towards the extension (3). By means of this pushing, the lug (72) enters into the notch (32) and the press release button (7) does not get out of the secondary section (31). When the user prefers to remove the toilet cover (K) and the toilet seat (O) from the place that they are positioned, s/he pushes the pressing part (73) on the press release button (7) and detaches the lug (72) located on the press release button (7) from the notch (32). This way, there remains nothing that prevents movement of the secondary section (31) and the extension (3) in the through hole (41), and the toilet cover (K) and the toilet seat (O) can be removed from the place that they are positioned together with the connector (4). The protrusion at the tip of the latch (5) is placed onto the toilet cover (K) and this way the latch (5) prevents the toilet cover (K) from getting dislocated from the place that it is positioned. The latch lock (6) cancels this obstruction of the latch (5) in cases where it is preferred. The connector (4); in addition to housing the press release button (7), spring (8), latch (5) and latch lock (6) parts; preferably provides connection of these parts with the damper (10) part which enables the toilet cover (K) and toilet seat (O) to be closed at the desired speed.

Claims

1. A toilet cover hinge (1), which is developed to easily mount and remove toilet covers (K) to and from toilets, and which does not require tools such as a screwdriver, allen wrench, etc. for connection or removal thereof, basically **characterized by**

- at least one fixing part (2) which is fixed to the upper surface of the toilet body,
- at least one extension (3) which extends from the fixing part (2) perpendicular to the toilet plane,
- a secondary section (31), which is at the upper part of the extension (3) relative to the toilet plane, and which has an outer diameter that is smaller than the outer diameter of the extension (3),
- at least one notch (32) which is located on the secondary section (31),
- at least one connector (4) which has an axis parallel to the toilet plane,
- at least one latch (5) which enables the connector (4) to be coupled to the toilet cover (K),
- a stepped through hole (41) which is located at the connector (4), and into which the extension (3) and the secondary section (31) enters, and which is perpendicular to the toilet plane, and is in a form complying with the outer surface of the extension (3) and the secondary section (31),
- at least one channel (42) which extends from one lateral surface (49) of the connector (4) to the through hole (41) such that it receives at least a part of the secondary section (31) including the notch (32) which enters into the through hole (41),
- at least one press release button (7) having a form that may be fitted into the channel (42),
- at least one recess (71); which is located at the surface of the press release button (7) facing the through hole (41); and into which the second section (31), which passes through the through hole (41) and protrudes into the channel (42), enters,
- at least one lug (72), which is located on one side of the recess (71) facing the notch (32) located on the secondary section (31), and which can enter into and attach to the notch (32),
- at least one pressing part (73) of the press release button (7) located near the lateral surface (49) where the channel starts,
- at least one spring (8) which applies force to the press release button (7) in the direction where the lug (72) will move towards the notch (32), and
- at least one casing (9) which prevents the press release button (7) from getting out of the channel (42) and which surrounds the connector (4) at least the part thereof including the channel (42).

2. A toilet cover hinge (1) according to Claim 1, **characterized by** the notch (32) which is in the form of a node having a smaller diameter than the outer diameter of the secondary section (31).

3. A toilet cover hinge (1) according to Claim 1 or Claim 2, **characterized by** the through hole (41) which is in the form of a countersunk bore.

4. A toilet cover hinge (1) according to any one of the preceding claims, **characterized by** the latch (5) which holds the toilet cover (K) by means of the protrusion it has.

5. A toilet cover hinge (1) according to any one of the preceding claims, **characterized by** at least one latch lock (6) which enables the latch (5) to be locked and which thus prevents dislocation of the toilet cover (K).

6. A toilet cover hinge (1) according to any one of the preceding claims, **characterized by** the damper (10) which enables the toilet cover (K) and the toilet seat (O) to be moved at the preferred speed.

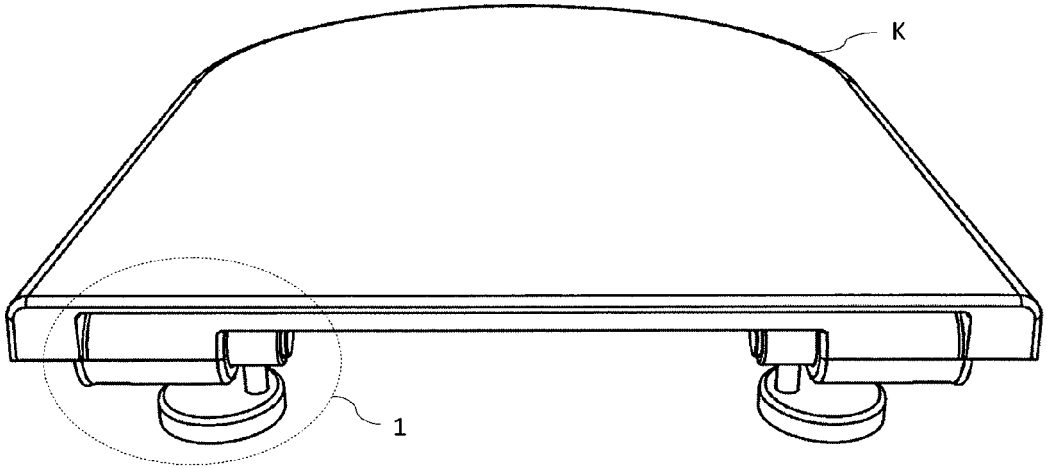

Figure 1

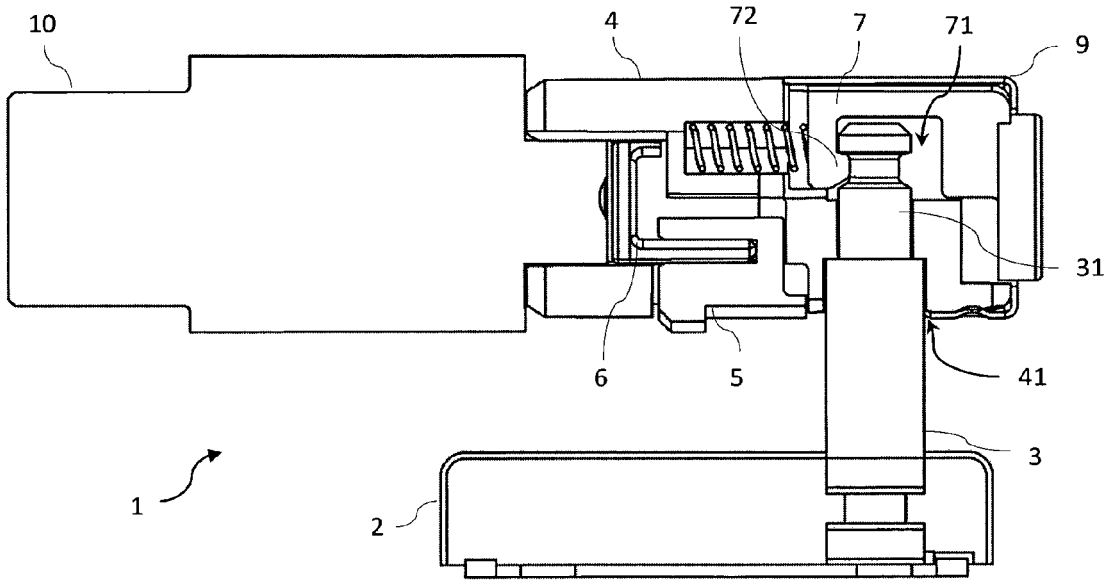

Figure 2

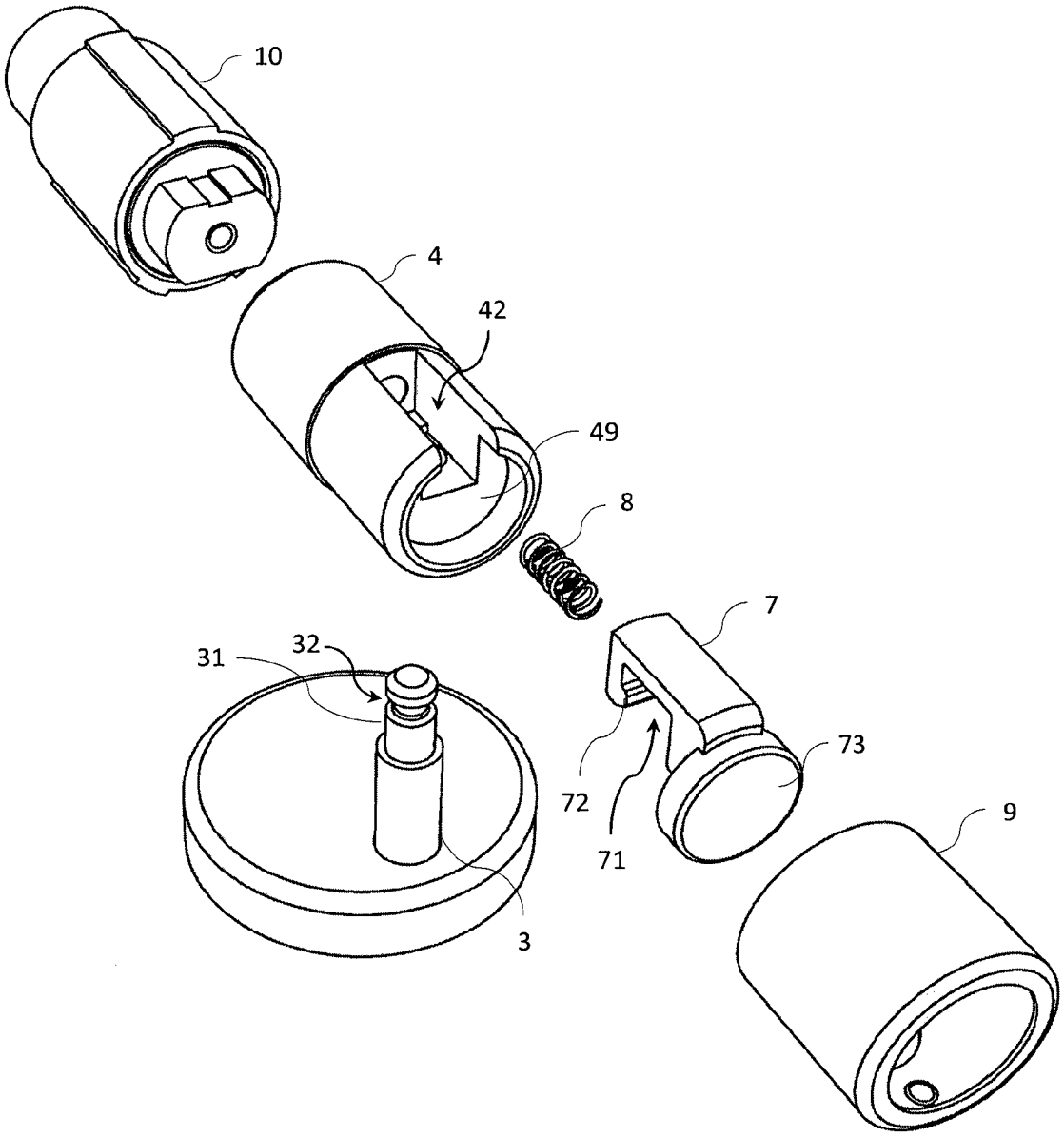

Figure 3

Europäisches Patentamt
European Patent Office
Office européen des brevets

EUROPEAN SEARCH REPORT

Application Number
EP 14 16 3259

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Y	EP 2 324 745 A2 (WDI XIAMEN TECHNOLOGY INC [CN]) 25 May 2011 (2011-05-25) * figures 1-3 *	1-6	INV. A47K13/12 E05F3/20
Y	WO 2013/022409 A1 (ECZACIBASI YAPI GERECLERI SANAYI VE TICARET ANONIM SIRKETI [TR]; MANAV) 14 February 2013 (2013-02-14) * figures 1,2 *	1-6	
A	US 5 768 718 A (SORIMACHI AKIRA [JP]) 23 June 1998 (1998-06-23) * figures 2,3 *	4,5	
A	CN 202 397 383 U (SHANGHAI KOHLER ELECTRONICS TECHNOLOGY CO LTD) 29 August 2012 (2012-08-29) * figure 3 *	1,4,5	
A	WO 2012/162959 A1 (PENG DONG [CN]; YU XINGYI [CN]) 6 December 2012 (2012-12-06) * figures 2,3,5b *	1-6	TECHNICAL FIELDS SEARCHED (IPC)
A	DE 10 2006 020205 A1 (PAGETTE GMBH [DE]) 8 November 2007 (2007-11-08) * figures 6-8 *	4,5	A47K E05F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	21 July 2014	Isailovski, Marko

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 14 16 3259

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
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-07-2014

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 2324745 A2	25-05-2011	CN 201782694 U	06-04-2011
		EP 2324745 A2	25-05-2011
WO 2013022409 A1	14-02-2013	NONE	
US 5768718 A	23-06-1998	NONE	
CN 202397383 U	29-08-2012	CN 202397383 U	29-08-2012
		US 2013097772 A1	25-04-2013
WO 2012162959 A1	06-12-2012	CN 102258347 A	30-11-2011
		WO 2012162959 A1	06-12-2012
DE 102006020205 A1	08-11-2007	NONE	

EPO FORM P0459

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

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- WO 9521970 A **[0003]**