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

(11) EP 1 561 870 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
10.08.2005 Bulletin 2005/32

(51) Int Cl.[7]: **E03D 9/02**

(21) Application number: **05075267.4**

(22) Date of filing: **02.02.2005**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU MC NL PL PT RO SE SI SK TR
Designated Extension States:
AL BA HR LV MK YU

(30) Priority: **06.02.2004 NL 1025418**

(71) Applicant: **Tiger Products B.V.**
NL-5667 AX Geldrop (NL)

(72) Inventor: **Wijdeveld, Wilhelmus Jozef**
5231 ME S'Hertogenbosch (NL)

(74) Representative: **Valkonet, Rutger et al**
Algemeen Octrooi- en Merkenbureau
P.O. Box 645
5600 AP Eindhoven (NL)

(54) Toilet as well as a holder for a cleaner, which can be placed in a toilet

(57) The invention relates to a toilet comprising a housing to be mounted on a floor or a wall, in which a bowl is present, which bowl is connected to an outlet for connection to a toilet drain on the one hand and to a flushing water channel for connection to a flushing water reservoir on the other hand.

The invention further relates to a holder suitable for receiving a cleaner composition for use in a toilet, which holder comprises an envelope through which and which the toilet flushing water can flow and in which the cleaner composition can be placed.

The object of the invention is to provide a different type of toilet as well as a holder for a cleaner of a more durable construction, which toilet and which holder both look more exclusive to the public, with the holder furthermore being suitable for repeated use and, above all, not being liable to fouling and having a more effective cleaning effect on the bowl.

According to the invention, the toilet is characterized in that the housing is provided with an opening that terminates in the flushing water channel, in which a holder for a cleaner composition can be placed.

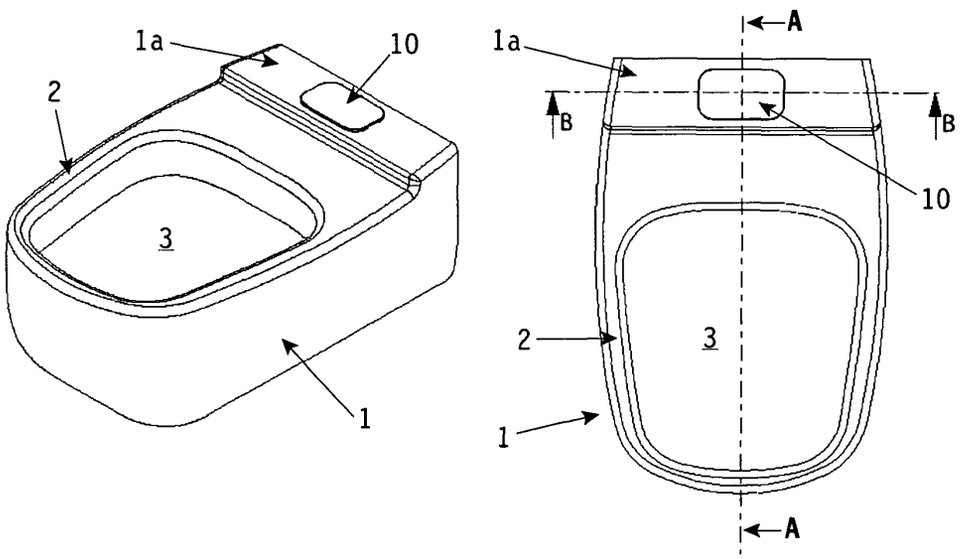

Fig. 1

EP 1 561 870 A1

Description

[0001] The invention relates to a toilet comprising a housing to be mounted on a floor or a wall, in which a bowl is present, which bowl is connected to an outlet for connection to a toilet drain on the one hand and to a flushing water channel for connection to a flushing water reservoir on the other hand.

[0002] The invention further relates to a holder suitable for receiving a cleaner composition for use in a toilet, which holder comprises an envelope through which and round which the toilet flushing water can flow, in which the cleaner composition can be placed.

[0003] Holders suitable for containing a toilet cleaner (a scenting or disinfecting agent) as referred to in the introduction are generally known by the name of "toilet bowl block". Usually, the known "toilet bowl blocks" are in the form of an envelope of plastic material, in which the cleaner (in solid, granular liquid form) can be placed. The envelope is attached to the rim of the toilet by means of a suspension member (usually in the form of a hook-shaped element). During use of the toilet, the flushing water flows round the envelope (and the cleaner), so that part of the cleaner is washed from the envelope into the bowl, delivering a fresh perfume essence or acting as a disinfectant.

[0004] Once the cleaner is fully used up, the holder must be removed from the toilet and a new amount of cleaner (usually in the form of a block) must be placed in the envelope.

[0005] Such known holders are of simple construction, and usually they are intended for single use, after which they are discarded as waste. Due to their simple construction, such holders are not very strong, so that their lifespan is limited. Furthermore such known holders are inexpensive, and they can be used with various types of toilets.

[0006] On the other hand, the known holders are very liable to fouling on account of the fact that they are placed in the bowl, so that placing a new cleaner in the holder is a somewhat unsanitary activity. Also the sight of such a fouled holder has a negative effect on the appearance of the toilet and on the user's perception of the visit to the toilet.

[0007] Furthermore, the position of the holder on one side of the rim of the bowl leads to an incomplete flushing of the bowl with cleaner, so that the known holders are less functional from a sanitary point of view as well.

[0008] The object of the invention now is to provide a different type of toilet as well as a holder for a cleaner of a more durable construction, which toilet and which holder both look more exclusive to the public, with the holder furthermore being suitable for repeated use and above all, not being liable to fouling and having a more effective cleaning effect on the bowl.

[0009] According to the invention, the toilet is characterized in that the housing is provided with an opening that terminates in the flushing water channel, in which a holder for a cleaner composition can be placed. The holder is no longer placed "in view" in the bowl but in the flushing water channel, so that clean flushing water constantly flows round the holder. On the one hand no fouling of the holder occurs, whilst on the other hand the orientation of the holder in the flushing water channel enables the holder the deliver cleaner to the flushing water in a more effective manner and thus cause the bowl to be washed out completely. This latter aspect leads to a significantly improved cleaning effect of the holder.

[0010] To enable the holder according to the invention to function properly, a sealant is provided between the circumferential edge of the opening and the holder. More in particular, said sealant is self-adhesive, so that the force of the flushing water flowing past through the flushing water channel cannot affect the holder and leakage cannot occur.

[0011] In a specific embodiment, the opening can be closed by means of a cover that mates with the holder.

[0012] According to the invention, the holder is characterized in that the envelope is provided with a circumferential edge that is to mate with the circumferential edge of an opening formed in the housing of the toilet, which opening terminates in the flushing water channel, in such a manner that the envelope extends into the flushing water channel when present in the opening.

[0013] As a result of this construction, it is no longer necessary to place the holder "in view" in the bowl, but as a result of the placement of the holder in the flushing water channel, clean flushing water constantly flows round the holder. On the one hand no fouling of the holder occurs, but as a result of its orientation in the flushing water channel the holder can deliver cleaner to the flushing water in a more effective manner and thus cause the bowl to be washed out completely. This latter aspect leads to a significantly improved cleaning effect of the holder.

[0014] In one embodiment of the holder according to the invention, the circumferential edge of the envelope is supported on the circumferential edge of the opening, and a seal may be provided between the circumferential edge of the envelope and the circumferential edge of the opening in order to prevent any leakage caused by the force of the flushing water flowing past.

[0015] To enable easy access to the envelope, for example for replenishing the cleaner, the envelope is provided with an opening surrounded by the circumferential edge. Said opening can be closed by means of a cover that mates with the envelope, which cover is in a special embodiment provided with closing means that mate with the holder.

[0016] More in particular, said closing means are rotatable with respect to the envelope about an axis that is oriented perpendicularly to the cover, and the closing means comprise at least one arm extending parallel to the cover, which arm can be received in a recess formed in the envelope upon rotation of the closing means.

[0017] This makes it possible to close the envelope

by means of the cover, using a simple, durable construction of the holder according to the invention, so that the flushing water flowing past cannot escape. Optionally, a seal may be provided between the circumferential edge of the cover and the circumferential edge of the envelope.

[0018] A robust, reliable and properly sealing cooperation between the cover and the envelope can be obtained in that according to the invention the arm has a bevelled contact surface that mates with a circumferential edge of the recess. Likewise, an adequate closure can be guaranteed in that, in another embodiment, the recess is provided with a bevelled circumferential edge that mates with the arm.

[0019] According to the invention, a cover plate may be placed over the cover. More specifically, connecting means may be provided for interconnecting the cover plate and the cover. In one embodiment, said connecting means comprise magnets, whilst in another embodiment said connecting means comprise snap connections.

[0020] The invention will now be explained in more detail with reference to a drawing, in which:

Fig. 1 shows a first embodiment of a toilet according to the invention;
Figs. 2a-2b sectional views of the toilet that is shown in Fig. 1;
Fig. 3 is an exploded view of an embodiment of a holder according to the invention;
Figs. 4a and 4b are a top plan view and a bottom plan view, respectively, of a holder according to the invention;
Figs. 5a and 5b sectional views of the holder that is shown in Fig. 4a.

[0021] For a better understanding of the invention, like parts are indicated by identical numerals in the figures.

[0022] Fig. 1 discloses an embodiment of the toilet according to the invention.

[0023] The toilet 1 is usually made of a ceramic material 1 and comprises a bowl 3 as well as a toilet rim 2. The bowl 3 is connected to an outlet (not shown) for the toilet flushing water on the one hand and to a flushing channel 4 on the other hand, which flushing channel is in turn connected to a supply line 6 for flushing water (see Figs. 2a and 2b).

[0024] In Figs. 2a and 2b, which show two sectional views of the toilet housing 1, the flushing channel 4 is shown to be configured as a passage formed in the toilet housing 1, which opens into the bowl 3 via an opening 5. In Fig. 2b, the flushing channel 4 can be connected to a supply line 6 for flushing water. The supply line 6 may be the down pipe of a cistern, for example, or the outflow opening of a washing water reservoir that is concealed in the wall on which the toilet 1 is mounted.

[0025] As already described in the introduction, a known plastic holder for a cleaner can be hooked over the toilet rim 2, round which holder the flushing water from the opening 5 flows so as to effect the delivery of an amount of cleaner to the flushing water.

[0026] The object of the invention is now to provide a toilet hat has a more exclusive appearance, which toilet is suitable for the use of a holder according to the invention, which holder can be used or than once and which is not liable to fouling, but which, in addition, is capable of delivering the cleaner to the flushing water in a more efficient manner.

[0027] According to the invention, the toilet 1 is provided with an opening 7 at its rear side 1a (see Figs. 2a and 2b), in which a holder 10 according to the invention can be placed. As is clearly shown in Figs. 2a and 2b, the holder 10 extends into the flushing channel 4, so that fouling of the holder during use of the toilet can no longer occur. On the other hand, the flushing water can flow efficiently round the holder and the cleaner 13 (e.g. a toilet bowl block), so that the flushing water is provided with a certain amount of cleaner before it flows into the bowl 3.

[0028] This achieves that the bowl 3 is completely washed with the cleaner present in the flushing water which, from a sanitary point of view, constitutes in improvement over the existing toilets and the toilet holders that are used therewith.

[0029] Fig. 3 is an exploded view of an embodiment of a holder 10 according to the invention. The holder 10 comprises an envelope 11, into which a cleaner 13, for example in the form of a block, can be placed. It is also possible, however, to use cleaners in granular or liquid form. The envelope is provided with a number of openings or slots 11b so as to make it possible for the flushing water to flow through the envelope and round the cleaning block 13 in the flushing channel 4 (see Fig. 2a).

[0030] The envelope 11 is provided with a flanged circumferential edge 11a, which is configured such that the circumferential edge 11a comes to rest on the circumferential edge numeral 7a of the opening 7 (see Fig. 2b) upon placement of the holder 11 in the opening 7 in the toilet portion 1a (see Figs. 2a and 2b). A seal 12 may be provided between the circumferential edge 11a and the circumferential edge 7a so as to effect an adequate sealing action.

[0031] The open side (or opening 11d) of the envelope 11 can be closed by means of a cover 15 after placement of the cleaner 13. The cover 15 is provided with a circumferential edge 15a, which will butt against the circumferential edge 11a of the envelope 11. Optionally a seal 14 may be provided between the cover 15 and the circumferential edge 11a.

[0032] According to the invention, in order to obtain an improved seal and closure of the envelope 11 in the toilet 1, closing means 16 are provided for closing or fitting the cover 5 on the envelope 11 in a suitably sealing manner. The closing means 16 consist of a large number of separate parts, which are mounted in an on the cover 15 and which comprise an arm element 160

provided with two projecting arms 160a and 160b, respectively.

[0033] Cams 161a-161b may be mounted on the arms 160a-160b, which cams 161a-161b can be fixedly mounted to the arms 160a-160b by means of a respective screw or locking pin 162a-162b. The arm element 160 (together with the cams 161a-161b) can be rotatably connected to the cover 15 by means of a clamp construction. To that end the cover 15 is provided with a recessed portion 15b, in which an opening (not shown) is present, in which a sealing ring 165 can be placed, as well as a cap 166. The cap 166 is provided with a stub 166a, which extends through the sealing ring 165 and into the opening formed in the recessed portion 15b, and which can mate with a guide ring 163, the arm element 160 and a locking clamp 164.

[0034] As a result of this configuration and construction of the closing means 16, the arm element 160 can rotate about a vertical axis with respect to the cover 15 and the envelope 11.

[0035] The operation of the closing means 16 will now be explained in more detail with reference to Figs. 3, 4b and 5a. According to the invention, the envelope 11 is provided with two locking openings or locking recesses 11c, which are located near the free end of the arms 160a-160b, and more in particular the cams 161a-161b. Upon placement of the cover 15 on the envelope 11, the orientation of the closing means 16, and more in particular of the cams 161a-161b, with respect to the cover 15 and the envelope 11 is as shown in the top plan view of Figs. 4b.

[0036] After placement of the cover 15 on the circumferential edge 11a of the envelope 11 (whether or not with the seal 14 therebetween), the user can turn the cap 166 by hand. Since the arm element 160 is connected to the cap 166, locked against rotation with respect to said cap 166, by means of a keyed connection, the arm element 160 will likewise rotate about the vertical axis, so that the cams 161a-161b extend into the recesses 11c in the envelope 11.

[0037] In one embodiment, the circumferential edge 11c' of the recesses 11c is bevelled, so that a clamped closure of the cover 15 on the circumferential edge 11a of the envelope 11 is obtained when the cams 131a-131b extend into and abut against the recess 11c. In another embodiment, the cam 161a-161b is provided with a curved surface 161', which comes into contact with the circumferential edge of the opening 11c upon rotation of the closing means 16. Further rotation of the closing means 16 will cause the cover 15 to be pressed down on the circumferential edge 11a of the envelope 11, into sealing contact therewith, or on the seal 14 that is present between the circumferential edge 15a of the cover 15 and the circumferential edge 11a of the envelope 11.

[0038] Usually the seal 12 is an adhesive-type seal, for example silicone paste, so that the envelope 11 can be installed in the toilet 7 in such a manner as to permanently adhere to the circumferential edge 7a of the opening 7 (see Fig. 2 b).

[0039] With this construction of the closing means 16, the cover 15 can be detached from the envelope 11 in a simple manner by rotating or turning the rotary means in opposite direction, so that the cams 161a-161b are released from the recesses 11c and the cover 15 can be removed from the envelope 11 together with the closing means 16. Thus the user can gain access to envelope 11, for example for replenishing the cleaner 13.

[0040] Optionally, in order to obtain an aesthetically improved appearance, the cover 15 may be screened jointly with the closing means 16 by means of a cover plate 18. The cover plate 18 is likewise provided with a circumferential edge 18a, which extends precisely round the circumferential edge 15a of the cover 15. Connecting means may be present between the cover plate 18 and the cover 15, which connecting means may comprise snap connections in one embodiment (not shown), whilst in another embodiment (shown in Figs. 3, 4b, 5a) they comprise magnets 17.

[0041] Usually the cover plate 18 is made of a magnetic material or provided with a magnetic foil on the side that faces towards the cover 15. In that embodiment, the magnets 17 are permanently fitted in the recesses 167 in the cap 166. On the other hand, the magnets 17 may be permanently fixed to the cover plate 18 (for example by means of a glue or other adhesive) and be positioned in such a manner that upon placement of the cover plate 18 on the closed cover 15, the magnets 17 can be received in the recesses 167 formed in the cap 166. The cap 166 is preferably made of or provided with a magnetic material in that case.

[0042] The recesses 167 also function to facilitate the manual turning and opening of the cover.

[0043] Fig. 5a shows the above-described construction of the closing means 16 in sectional view, whilst Fig. 5b shows the envelope 11 provided with both the cover 15 and the cover plate 18.

[0044] Fig. 4a furthermore shows a bottom plan view of the holder 10, seen from the flow channel 4 (Fig. 2a).

[0045] It will be apparent that this toilet holder according to the invention provides a more exclusive embodiment of a toilet holder, which on the one hand is durable and suitable for repeated use, and which, in addition, is not liable to fouling because the holder can be fitted in the toilet in a position which is relatively clean, seen from a sanitary viewpoint. Furthermore, placement of the holder in the flow channel of the toilet leads to a more effective cleaning of the bowl, because the flushing water flows round the cleaner before it flows into the bowl, thus carrying along part of the cleaner towards the outflow opening and the bowl (Fig. 2b).

Claims

1. A toilet comprising a housing to be mounted on a

floor or a wall, in which a bowl is present, which bowl is connected to an outlet for connection to a toilet drain on the one hand and to a flushing water channel for connection to a flushing water reservoir on the other hand, **characterized in that** the housing is provided with an opening that terminates in the flushing water channel, in which a holder for a cleaner composition can be placed.

2. A toilet according to claim 1, **characterized in that** a sealant is provided between the circumferential edge of the opening and the holder.

3. A toilet according to claim 2, **characterized in that** said sealant is self-adhesive.

4. A toilet according to any one or more of the preceding claims, **characterized in that** the opening can be closed by means of a cover that mates with the holder.

5. A holder suitable for receiving a cleaner composition for use in a toilet, which holder comprises an envelope through which and round which the toilet flushing water can flow, in which the cleaner composition can be placed, **characterized in that** the envelope is provided with a circumferential edge that is to mate with the circumferential edge of an opening formed in the housing of the toilet, which opening terminates in the flushing water channel, in such a manner that the envelope extends into the flushing water channel when present in the opening.

6. A holder according to claim 5, **characterized in that** the circumferential edge of the envelope is supported on the circumferential edge of the opening.

7. A holder according to claim 6, **characterized in that** a seal can be provided between the circumferential edge of the envelope and the circumferential edge of the opening.

8. A holder according to any one or more of the claims 5-7, **characterized in that** the envelope is provided with an opening surrounded by the circumferential edge.

9. A holder according to claim 8, **characterized in that** said opening can be closed by means of a cover that mates with the envelope.

10. A holder according to claim 9, **characterized in that** said cover is provided with closing means that mate with the holder.

11. A holder according to claim 10, **characterized in that** said closing means are rotatable with respect to the envelope about an axis that is oriented perpendicularly to the cover.

12. A holder according to claim 10 or 11, **characterized in that** said closing means comprise at least one arm extending parallel to the cover, which arm can be received in a recess formed in the envelope upon rotation of the closing means.

13. A holder according to claim 12, **characterized in that** the arm has a bevelled contact surface that mates with a circumferential edge of the recess.

14. A holder according to claim 12, **characterized in that** the recess is provided with a bevelled circumferential edge that mates with the arm.

15. A holder according to any one or more of the claims 9-14, **characterized in that** a seal maybe provided between the circumferential edge of the cover and the circumferential edge of the envelope.

16. A holder according to any one or more of the claims 9-15, **characterized in that** a cover plate maybe placed over the cover.

17. A holder according to claim 16, **characterized in that** connecting means are provided for interconnecting the cover plate and the cover.

18. A holder according to claim 17, **characterized in that** said connecting means comprise magnets.

19. A holder according to claim 17, **characterized in that** said connecting means comprise snap connections.

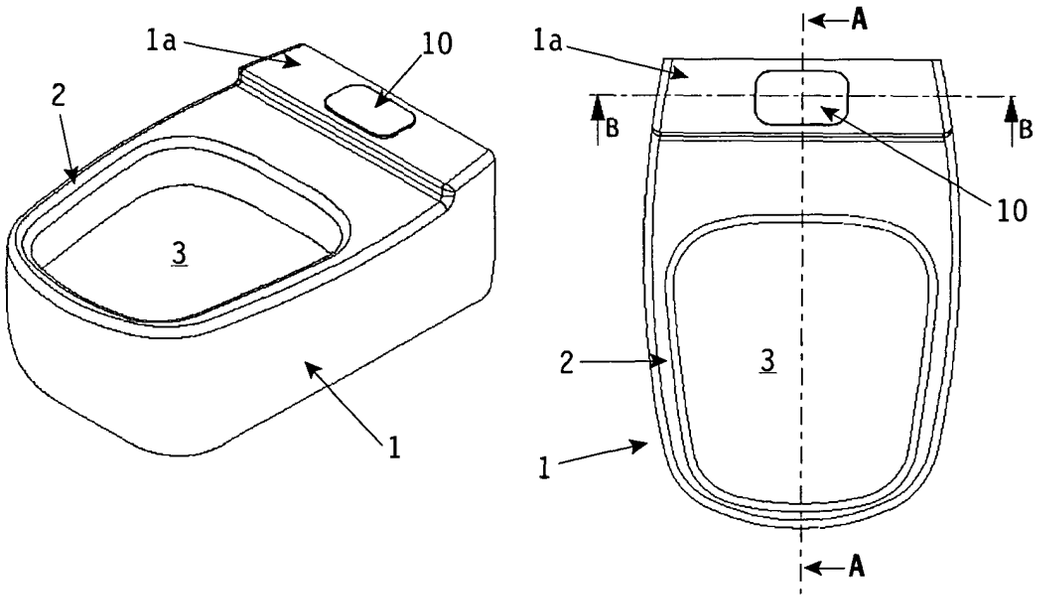

Fig. 1

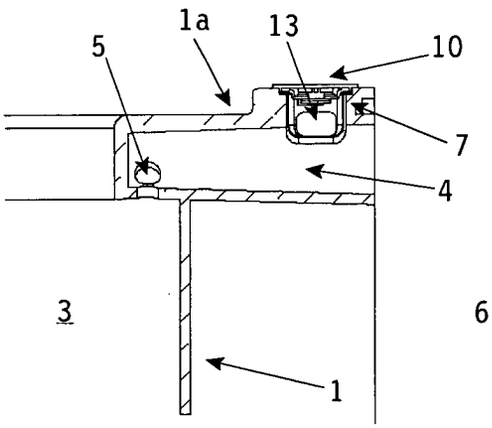

Fig. 2A

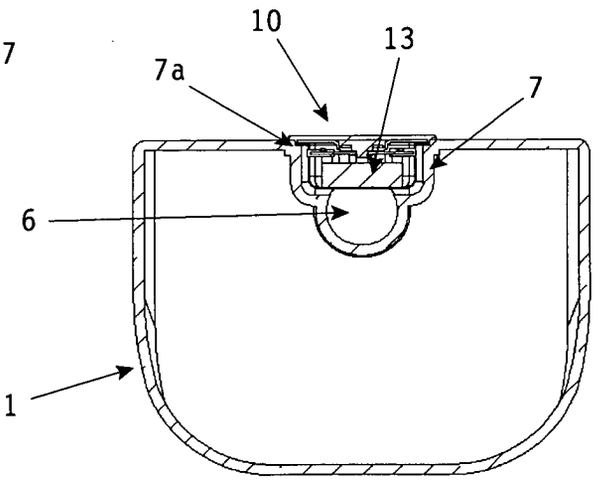

Fig. 2B

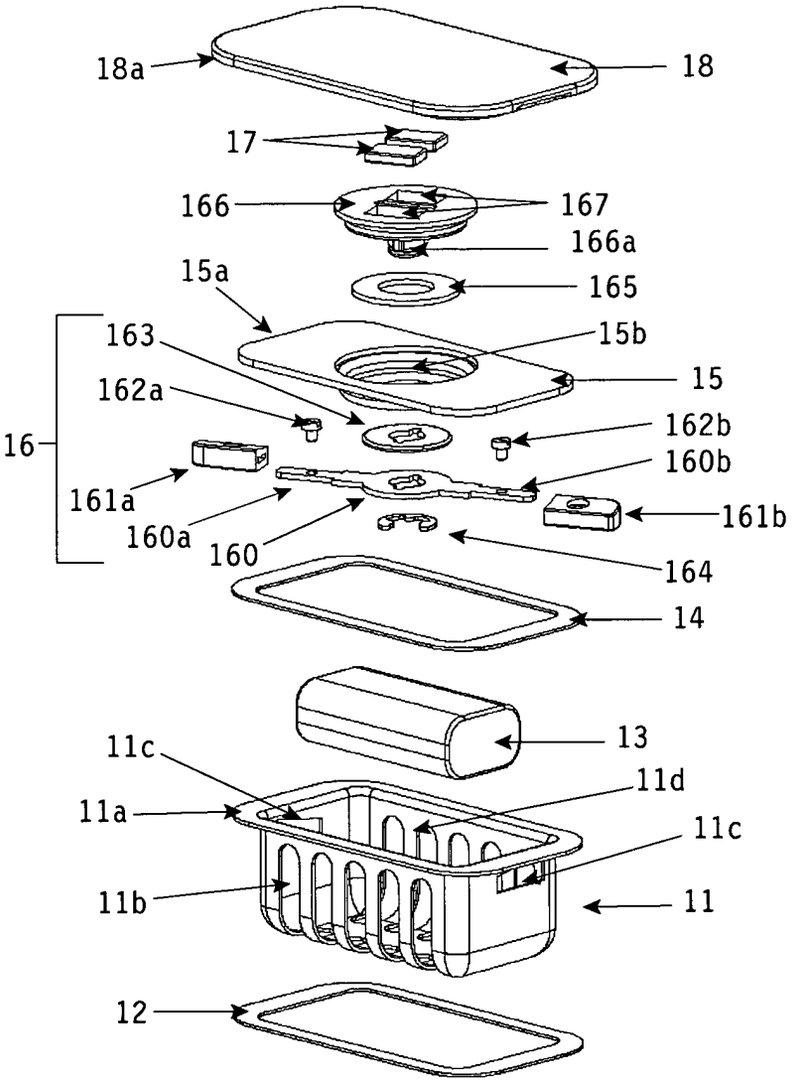
18a
18
17
166
167
166a
15a
165
163
15b
15
162a
162b
16
160b
161a
161b
160a
160
164
14
13
11c
11d
11a
11c
11b
11
12

Fig. 3

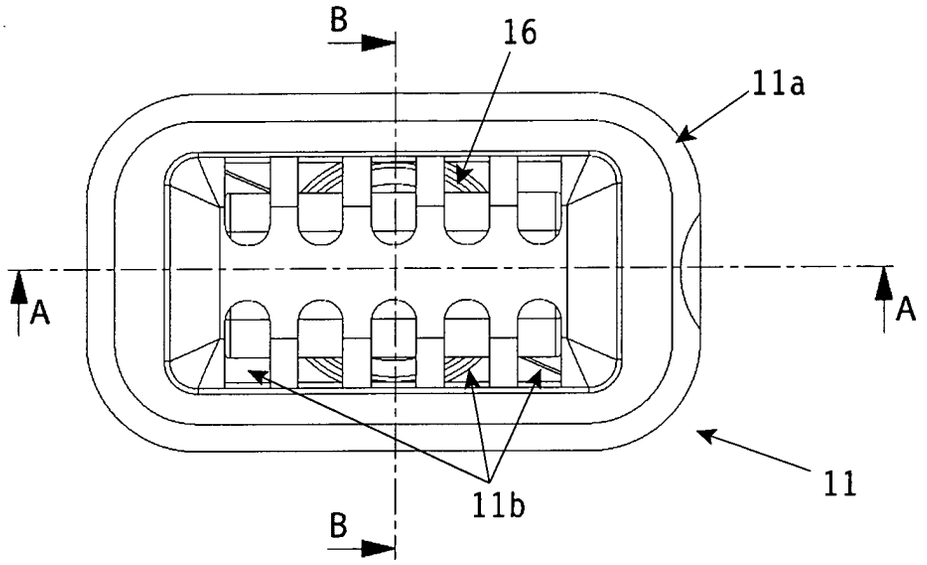

Fig. 4A

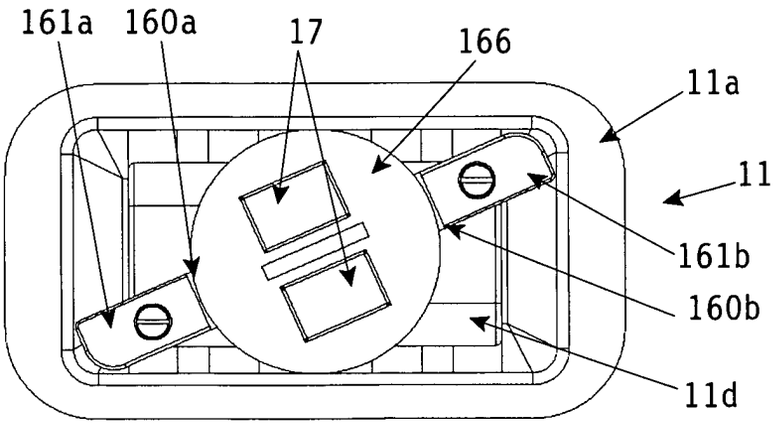

Fig. 4B

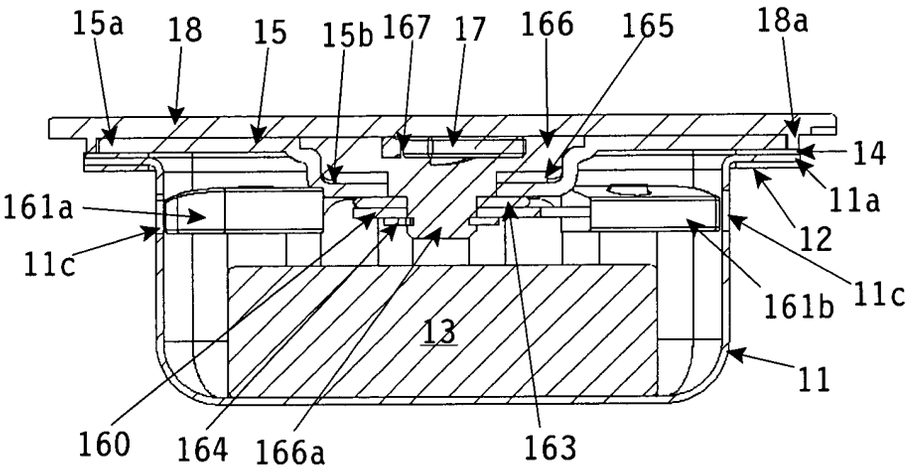
15a
18
15
15b
167
17
166
165
18a
14
11a
12
161a
11c
161b
11c
13
11
160
164
166a
163

Fig. 5A

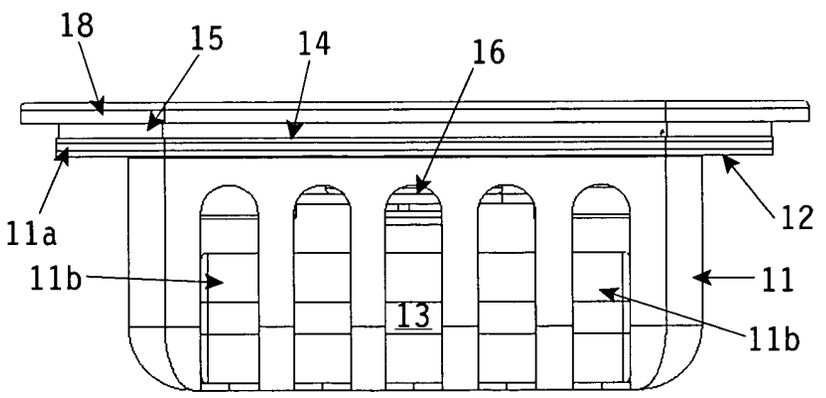
18
15
14
16
12
11a
11b
11
13
11b

Fig. 5B

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 05 07 5267

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 1 178 852 A (GRANT) 11 April 1916 (1916-04-11) * page 1, line 25 - line 90; figures *	1,4	E03D9/02
A		5	
X	AU 15116 70 A (AGOTI ET AL) 18 November 1971 (1971-11-18) * page 3, paragraph 2 - paragraph 3; figures *	1,4	
X	FR 2 782 332 A (ABITBOL SION) 18 February 2000 (2000-02-18) * the whole document *	5-11	
X	EP 0 180 451 A (BROOKLINE DELTA LTD) 7 May 1986 (1986-05-07) * page 4, line 19 - page 7, line 6; figures *	5-11	
X	DE 26 03 585 A (COLLO GMBH) 11 August 1977 (1977-08-11) * figures 2-4 *	5-8	

TECHNICAL FIELDS SEARCHED (Int.Cl.7)

E03D

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	26 May 2005	De Coene, P

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 05 07 5267

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.

26-05-2005

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 1178852 A		NONE	
AU 1511670 A	18-11-1971	NONE	
FR 2782332 A	18-02-2000	FR 2782332 A1	18-02-2000
EP 0180451 A	07-05-1986	EP 0180451 A2	07-05-1986
DE 2603585 A	11-08-1977	DE 2603585 A1	11-08-1977

EPO FORM P0459

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