

(19)



(11)

**EP 2 527 545 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
**28.11.2012 Bulletin 2012/48**

(51) Int Cl.:  
**E03C 1/04<sup>(2006.01)</sup> E03C 1/04<sup>(2006.01)</sup>**  
**A47K 3/28<sup>(2006.01)</sup>**

(21) Application number: **12168976.4**

(22) Date of filing: **22.05.2012**

(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**

(71) Applicant: **Fima Carlo Frattini S.P.A.**  
**28024 Briga Novarese (Novara) (IT)**

(72) Inventor: **Frattini, Andrea**  
**28024 Gozzano (Novara) (IT)**

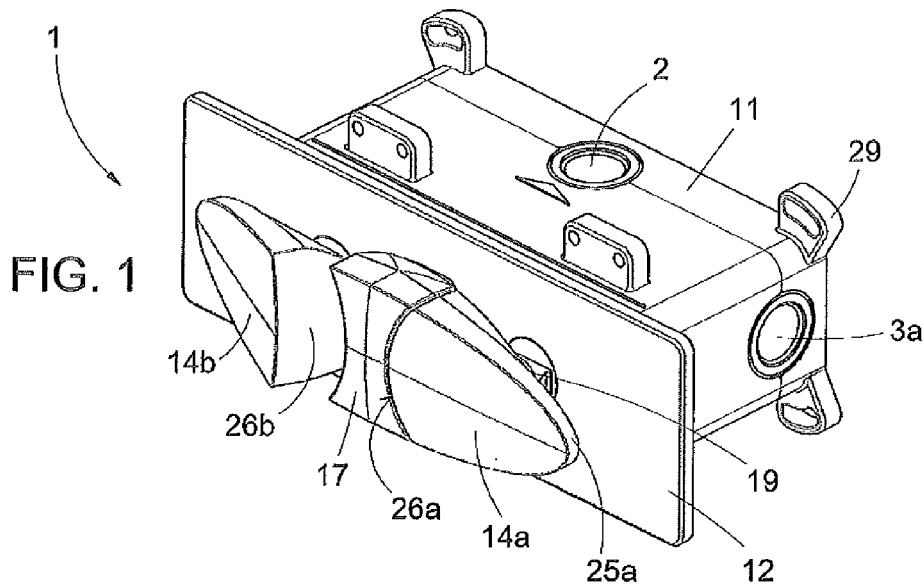
(74) Representative: **Petruzziello, Aldo**  
**Racheli S.r.l.**  
**Viale San Michele del Carso, 4**  
**20144 Milano (IT)**

(30) Priority: **26.05.2011 IT MI20110182 U**

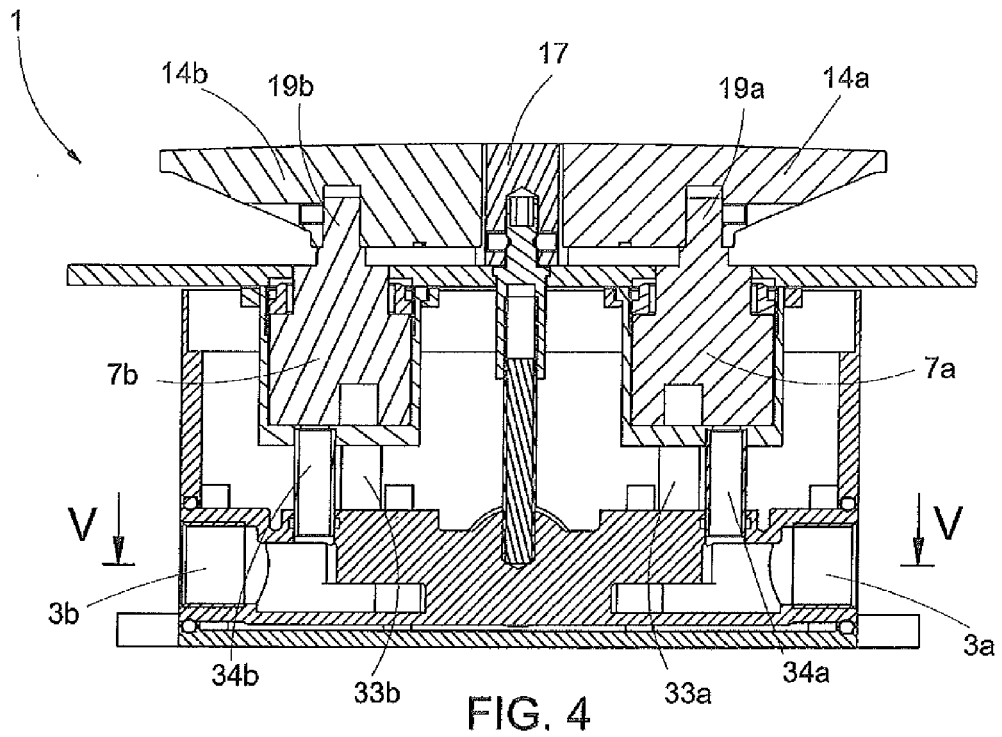
(54) **Built-in tap assembly with double mixer**

(57) A description is given of a built-in tap assembly (1) with double outlet for the delivery of mixed water comprising a body or container (11) to be built into the wall wherein a hot water inlet (2) and a cold water inlet (2') and two water distribution outlets (3a, 3b) are provided and further comprising a plate (12) projecting from the container (11) which remains on view on the wall. Said

container is provided with two separate mixing cartridges (7a, 7b) which receive liquid from the hot water inlet (2) and from the cold water one (2') and distribute the mixed water separately from said water outlets (3a, 3b), each of them regulated by an appropriate distribution and regulation lever (14a, 14b) present on the plate (12) and connected to a respective one of said mixing cartridges (7a, 7b).



**EP 2 527 545 A1**



## Description

**[0001]** The present invention relates, in general, to the field of mixer taps which can be regulated manually. Specifically the present invention relates to a built-in tap assembly with double mixer provided with a double outlet for applications in bath tubs, shower stalls and the like.

**[0002]** Numerous types of taps with command lever are available commercially, suitable in other words for performing, appropriately manoeuvred, both the mixing of hot and cold water and the delivery of the water. These taps, as a first approximation, are formed by a body wherein a hot water inlet and a cold water inlet, a mixing cartridge wherein the liquid flows come into contact, a lever for regulating the mixing of the liquid flows and therefore the temperature of the water, and an outlet for releasing the mixed liquid are provided.

**[0003]** Also known commercially are so-called "double outlet" taps provided with a system such as the one described previously, wherein the delivery tap has instead two outlets via which the liquid can be distributed, provided with a valve which switches onto one or onto the other outlet. Such a system is described, for example, in the Canadian patent no. 2,217,403, wherein a tap is provided having an outlet downwards and an outlet upwards, and means for switching the flow from one outlet to the other.

**[0004]** The type of systems disclosed above summarises the functioning of many "double outlet" taps applicable for various applications. A derivation of this system for application in bath tubs or shower stalls is described in the patent FR 2 856 459, wherein a tap provides a first and a second outlet, provided with automatic means which regulate a valve for conveying totally the flow towards one or the other outlet according to whether the valve is open or closed.

**[0005]** In all the cases examined above, these "double outlet" taps allow the flow of water only via one of the two outlets, and in any case only as diversion and switching of the only flow of water previously fixed. Additionally these systems are not very practical and of difficult or aesthetically displeasing application in bath tubs, shower stalls or the like.

**[0006]** Moreover the need may arise to have two outlets of mixed water to be used simultaneously and/or at different temperatures, exploiting a single tap assembly, so as to reduce costs and overall dimensions, in addition to the case of bath tubs and shower stalls, also in the case of beauty salons, for hairdressers and the like.

**[0007]** It would therefore be useful to have a tap assembly provided with two outlets one independent of the other, able to supply in a manner that is simple for the consumer two separate flows of water.

**[0008]** The main object of the present invention is, therefore, that of providing a built-in tap assembly with double outlet with mixer which has the advantages described above, able also to eliminate, or at least reduce, the disadvantages stated above with reference to the

state of the art.

**[0009]** Another object of the present invention is that of providing a tap assembly with double outlet, which is simple to make and can be obtained at competitive production costs. These and other objects, which will be made clearer herein below, are achieved in accordance with the invention with the features listed in the appended independent claim 1.

**[0010]** Advantageous aspects of the invention are disclosed by the dependent claims.

**[0011]** According to the invention a tap assembly with double outlet is provided for the delivery of mixed water comprising a body or container to be built into the wall wherein a hot water inlet and a cold water inlet and two water distribution outlets are provided and also comprising a covering plate or rose projecting from the container which remains on view on the wall. Said container is provided with two separate mixing cartridges which receive liquid from the hot water inlet and from the cold water one and distribute the mixed water separately from two different water outlets, each of them regulated by an appropriate distribution and regulation lever present on the covering plate and connected to a respective mixing cartridge.

**[0012]** Such a tap assembly also has a pleasing aesthetic appearance thanks to the plate (rose) on view and to the two distribution levers with a curved shape. It will simply be necessary to actuate one of the two levers to obtain a flow of water from the required outlet. The water is distributed by lowering the lever while the mixing is obtained by rotating the lever around a pin. With a tap assembly according to the invention the simultaneous distribution and/or at different temperatures of water via the two outlets is also possible.

**[0013]** Further features of the invention will be made clearer by the following detailed description, referred to one of its embodiments purely by way of a non-limiting example illustrated in the accompanying drawings, in which:

Figure 1 is a perspective view of a built-in tap assembly with double mixer according to the invention, showing one command lever in active position and the other one in rest position;

Figure 2 is a plan view from above of the tap assembly of Figure 1;

Figure 3 is a frontal view of the tap assembly according to the invention with both levers in the rest position;

Figure 4 is a median section view taken along the plane IV-IV of Figure 3; and

Figure 5 is a section view taken along the plane IV-IV of Figure 4.

**[0014]** In the accompanying drawings identical or similar components or parts are denoted by the same reference numerals.

**[0015]** Referring to the accompanying drawings, a tap

assembly 1 with double outlet and with double mixer according to the invention is shown, showing a hot water inlet 2 and a cold water one 2', two mixed water outlets 3a, 3b and two regulation levers 14a, 14b for controlling the mixing and the delivery of the water. The tap assembly 1 has a symmetry along the two median planes so that the references to the inlets, to the outlets and to the levers are wholly equivalent one to the other and do not involve any distinction in the structure of the tap.

[0016] The built-in tap assembly 1 is provided with a container or body preferably in plastic material 11, to be built into the wall, and a covering plate 12, commonly referred to as rose. The plate 12 projects from the container 11, and remains on view after the installation of the tap assembly. The two regulation levers of curved shape 14a, 14b project therefrom, attached to respective pins 19a, 19b. The levers 14a, 14b can be lowered to allow the delivery and to regulate the flow of liquid or rotated together the pins 19a, 19b to regulate the mixing of hot and cold water. In fact the two operations on the levers are, generally, performed simultaneously to allow the distribution of appropriately mixed water.

[0017] At the corners of the body 11 there are four lugs 29 for the attachment of the built-in tap assembly.

[0018] Figure 1 and Figure 2 show respectively a perspective view and a view from above of the built-in tap assembly 1 according to the invention wherein the lever 14b is lowered to allow the distribution of the mixed water.

[0019] Referring now to Figures 4 and 5, the functioning of the tap with double outlet according to the invention will be described in greater detail.

[0020] Figure 5 shows a section taken along a transverse plane in proximity of the base of the container 11. In the embodiment illustrated the container 11 has a parallelepiped shape and has the two inlets for hot water 2 and cold water 2' in opposite positions on its two larger faces, flowing respectively into a hot water chamber 30 and into a cold water chamber 30'. Obviously, by reversing the inlets, the functions and the considerations that follow do not change. Inside the container 11 two mixing cartridges 7a, 7b are also positioned, in communication with the two liquid outlets 3a, 3b.

[0021] From the mixing cartridges 7a, 7b two pins 19a, 19b project above whereon the regulation levers 14a, 14b are engaged. The functioning of the mixing cartridges is in itself known and will not be dealt with in detail.

[0022] In the functioning of the tap assembly according to the invention the hot water coming from the inlet 2 is conveyed towards the hot water chamber 30 and the cold water coming from the inlet 2' towards the cold water chamber 30'. From the chambers 30, 30' the hot water and the cold water are fed to the ceramic mixing cartridges 7a, 7b which have a specular structure and therefore functioning.

[0023] A rotation of the levers 14a, 14b in the plane parallel to the covering plate 12 in one direction or in the other causes a rotation of the pins 19a, 19b and therefore a mixing of the hot water and of the cold water, fed by

the cartridges by means of appropriate pipes. In the section of Figure 4 the two pipes for feeding of the hot water 33a, 33b are shown schematically.

[0024] A lowering of the levers 14a, 14b instead causes an oscillation of the pins 19a, 19b projecting from the cartridges 7a, 7b, and therefore the delivery of the water which flows out via appropriate conduits 34a, 34b and exits through the outlets 3a, 3b.

[0025] The mixing cartridges 7a, 7b are controlled by the levers 14a, 14b so as to regulate the flow of hot or cold water and the delivery through the outlets 3a, 3b.

[0026] In the rest configuration wherein the tap is not operational (Figures 3 and 4), the two levers 14a, 14b form with a fixed central element 17 a body of elliptical shape of pleasing aesthetic appearance. The element 17 has two opposite lateral concave border surfaces 21a, 21b adjacent to the levers 14a, 14b. Specifically, said border surfaces are with circular profile which traces an arc of the circumference described by the rotation of the levers 14a, 14b around the pins 19a, 19b. This circumference arc, apart from minimal differences suitable for avoiding the interference of the two elements, also defines the shape of the convex border 26a, 26b turned towards the interior of the levers 14a, 14b. In this way the lever can be rotated angularly in one direction or in the other to perform the mixing and lowered to perform the delivery.

[0027] The external border 25a, 25b of the levers 14a, 14b has an ellipsis arc shape in order to confer a compact elliptical shape together with the fixed element 17 when the levers 14a, 14b are in the rest condition. This elliptical shape can be seen in Figure 3, wherein both the levers are at rest and in alignment with the fixed central element 17.

[0028] Although an embodiment has been described and illustrated wherein the regulation levers form an assembly of elliptical shape, it is evident that this shape is uninfluential for the purpose of the present invention, without detriment optionally to a coupling with circular profile between the levers 14a, 14b and the fixed element 17.

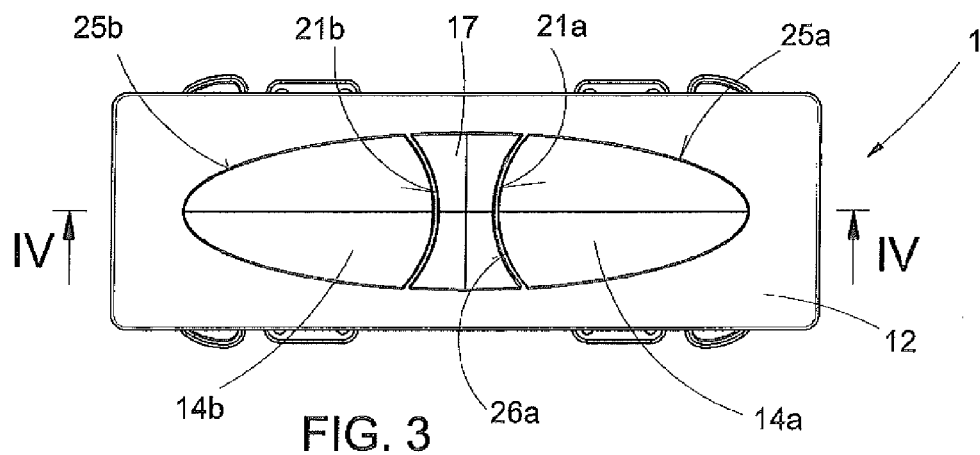
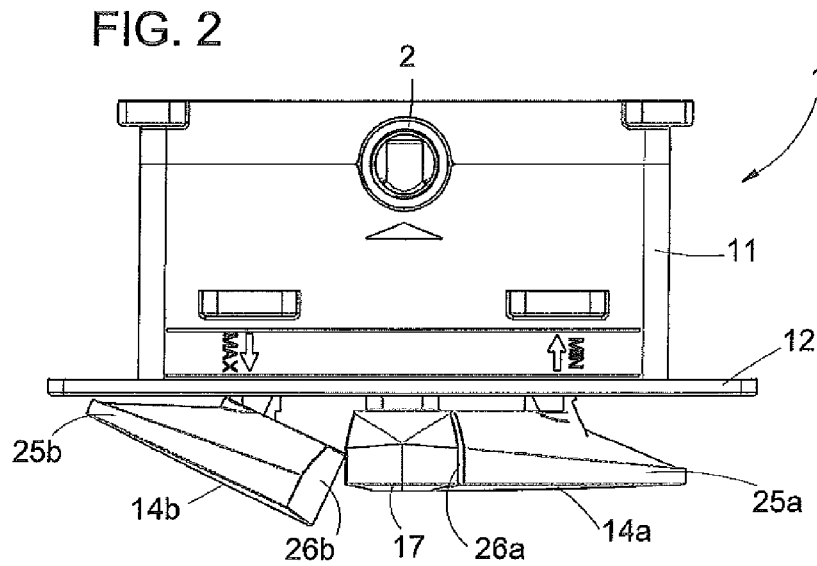
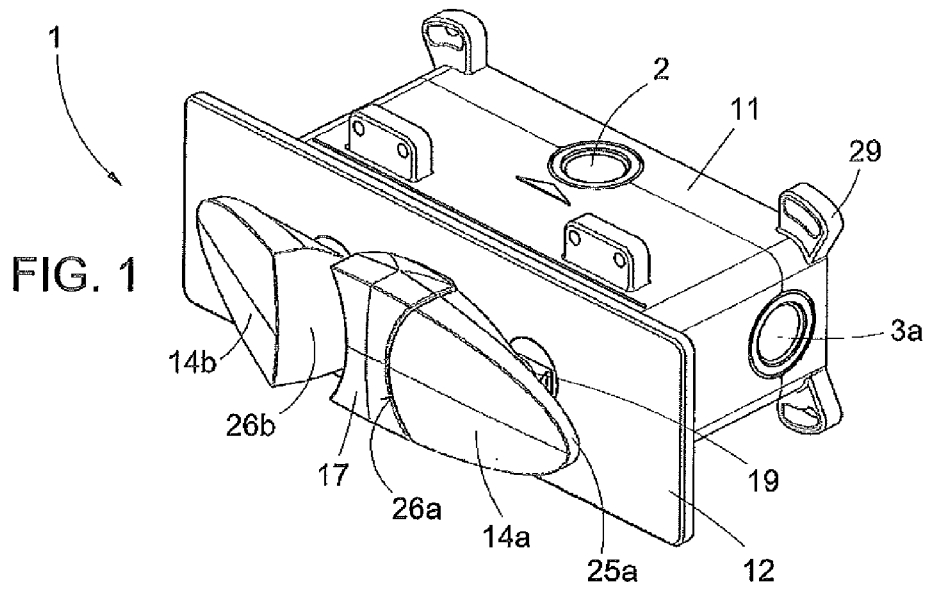
[0029] From what has just been described the advantages of the built-in tap assembly according to the invention appear clear, provided with two different mixing cartridges and two different water outlets, commanded by respective regulation and distribution levers.

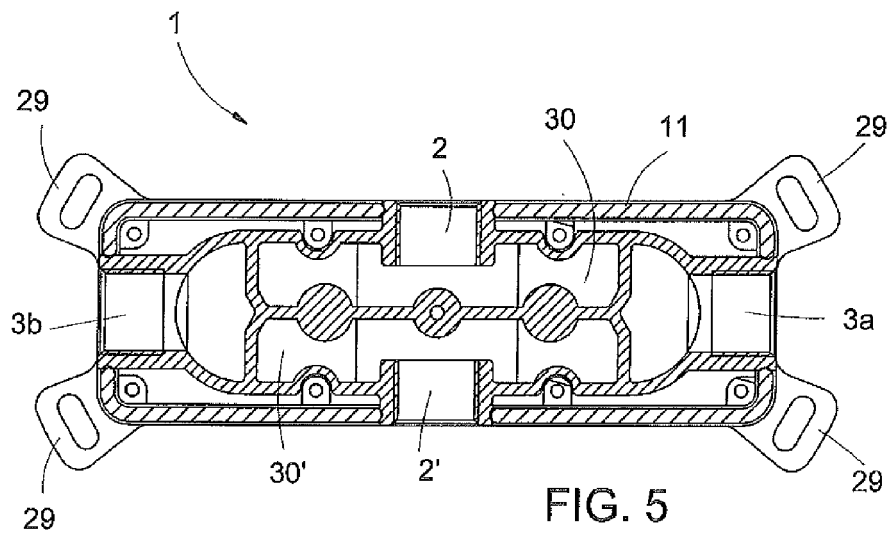
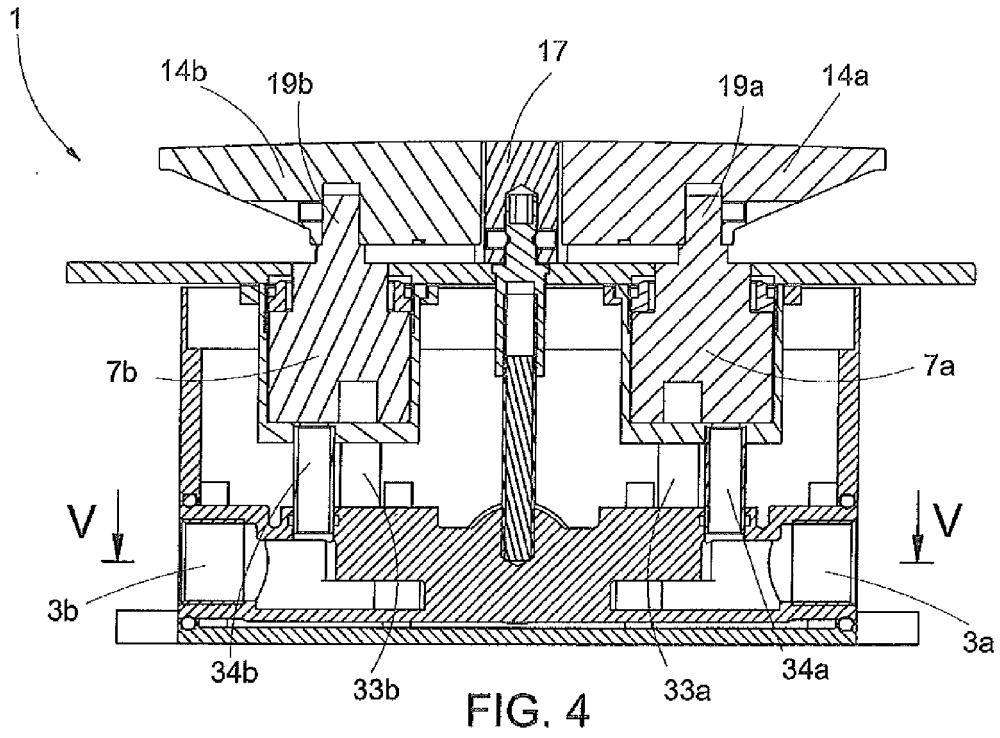
[0030] Numerous detail variations and changes can be made to the embodiment of the invention described above, within the reach of a person skilled in the art and in any case coming within the scope of the invention expressed by the appended claims.

## Claims

1. Built-in tap assembly (1) with double outlet for the delivery of mixed water comprising a body or container (11) to be built into the wall wherein a hot water

- inlet (2) and a cold water inlet (2') and two water distribution outlets (3a, 3b) are provided and also comprising a covering plate (12) projecting from the container (11) which remains on view on the wall, together with means of command of the delivery, **characterised in that** said container is provided with two separate mixing cartridges (7a, 7b) which receive liquid from the hot water inlet (2) and from the cold water one (2') and distribute the mixed water separately to said water outlets (3a, 3b), each of them regulated by a respective distribution and regulation lever (14a, 14b) projecting from the plate (12) and connected to a respective one of said mixing cartridges (7a, 7b) by means of a respective pin (19a, 19b).
2. Built-in tap assembly (1) with double outlet wherein said hot water (2) and cold water (2') inlets flow into respective chambers of hot water (30) and of cold water (30') wherefrom said mixing cartridges (7a, 7b) are fed simultaneously.
  3. Built-in tap assembly (1) with double outlet according to claim 1 or 2, wherein said container (11) has a parallelepiped shape having a symmetry along the median planes.
  4. Built-in tap assembly (1) with double outlet according to any one of the previous claims, wherein said inlets of hot water and of cold water (2, 2') are positioned in opposition on the larger faces of said body with parallelepiped shape (11) and said outlets (3a, 3b) are positioned opposite on the smaller faces.
  5. Built-in tap assembly (1) with double outlet according to any one of the previous claims, wherein said regulation levers (14a, 14b) are positioned on said pins (19a, 19b) projecting from said cartridges (7a, 7b) and so as to be lowered to allow the distribution and the regulation of the flow of the water and rotated to regulate the mixing.
  6. Built-in tap assembly (1) with double outlet according to claim 5, wherein said levers (14a, 14b) have opposite edges (26a, 26b) with a circumference arc shape so as to follow a circular profile during their rotation around the pins (19a, 19b) to regulate the mixing of the flows.
  7. Built-in tap assembly (1) with double outlet according to claim 6, wherein said levers have a semi-elliptical external profile (25a, 25b), so as to form with a fixed central element (17) on the plate (12) an assembly of elliptical shape when the levers are in rest condition.







EUROPEAN SEARCH REPORT

Application Number  
EP 12 16 8976

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	US 2 825 909 A (MORRIS EARL L) 11 March 1958 (1958-03-11) * figures 1,5,7 *	1-7	INV. E03C1/042 E03C1/04 A47K3/28
Y	EP 1 666 675 A1 (VERREAUX GODARD JOEL LEON [ES]) 7 June 2006 (2006-06-07) * figure 1 *	1-7	
A	WO 2006/108605 A1 (HANS GROHE AG [DE]; BOURULLEC RONAN [FR]; BOURULLEC ERWAN [FR]) 19 October 2006 (2006-10-19) * figures *	1	
A	US 3 333 284 A (SYMMONS PAUL C) 1 August 1967 (1967-08-01) * figures *	1	
A	JP 2001 003406 A (KVK CORP) 9 January 2001 (2001-01-09) * figure 3 *	6,7	
			TECHNICAL FIELDS SEARCHED (IPC)
			E03C F16K A47K
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 13 September 2012	Examiner Isailovski, Marko
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			

2  
EPO FORM 1503 03 82 (F04C01)



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

EP 12 16 8976

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.

13-09-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2825909 A	11-03-1958	NONE	
EP 1666675 A1	07-06-2006	EP 1666675 A1 ES 2264342 A1	07-06-2006 16-12-2006
WO 2006108605 A1	19-10-2006	DE 102005018285 A1 WO 2006108605 A1	19-10-2006 19-10-2006
US 3333284 A	01-08-1967	NONE	
JP 2001003406 A	09-01-2001	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**

- CA 2217403 [0003]
- FR 2856459 [0004]