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

(11) Publication number : **0 454 029 B1**

(12) # EUROPEAN PATENT SPECIFICATION

(45) Date of publication of patent specification : **03.08.94 Bulletin 94/31**

(51) Int. Cl.^{5} : **A61H 33/02**

(21) Application number : **91106444.2**

(22) Date of filing : **22.04.91**

(54) **Device for cleaning a mouth for hydromassage.**

(30) Priority : **23.04.90 IT 2105490 U**

(43) Date of publication of application : **30.10.91 Bulletin 91/44**

(45) Publication of the grant of the patent : **03.08.94 Bulletin 94/31**

(84) Designated Contracting States : **AT BE CH DE DK ES FR GB GR IT LI LU NL SE**

(56) References cited :
EP-A- 119 581
EP-A- 252 435
EP-A- 396 118

(73) Proprietor : **Jacuzzi Europe Spa**
S.S. Pontebbana km 97,2
I-33098 Valvasone (Pordenone) (IT)

(72) Inventor : **Ianni, Carmelo**
Via Resistenza, 49
33034 Fagagna (Udine) (IT)
Inventor : **Furlan, Livio**
Via Molinari, 47
33170 Pordenone (IT)

(74) Representative : **Michelotti, Giuliano**
c/o SAIC BREVETTI S.r.l.
Viale Bianca Maria 15
I-20122 Milano (IT)

EP 0 454 029 B1

Description

The present invention relates to an improved mouth of hydromassage.

As it is known the hydromassage consists in striking the body of the customer, plunged in a bath, with a water jet under pressure mixed with air, delivered from one or more mouths mounted in the bath.

Several kinds of mouths for hydromassage are well known, the operation whereof consist in passing an amount of water through a cross-section having the shape of a Venturi tube, causing in such way a depression which in turn, causes air suction which is mixed with the water ejected from the mouth under form of jet. Such a mouth is disclosed in the EP-A-0119 581.

There are several technical requirements connected with the mouth in question: for example it is necessary to avoid the water flowing back from the bath into the mouth and therefore into the hydromassage feed circuit during the normal use of the bathtub; moreover it is necessary to avoid the stagnation of water inside the body of the mouth that involves evident hygienic problems; moreover these mouths must present an easy desassembling for the access to the internal parts for cleaning, maintenance and/or repair.

These and still other requirements have been fulfilled by the provisions stated in the italian patent applications of the same applicant No. 22589 B/84 filed on July 17, 1984; No. 22592 B/84 filed on July 17, 1984; No. 22165 A/85 filed on September 17, 1985; No. 22221 A/87 filed on October 12, 1987.

A particularly important requirement is the possibility to clean and/or to disinfect the mouth after finishing the hydromassage, especially but not exclusively for community installations, with simple means and with the least waste of water and necessary additives. It is an object of the present invention to propose a new mouth for hydromassage adapted to solve the problem of cleaning and disinfection of said mouth.

It is therefore the subject of the present application a mouth for hydromassage including a hollow sleeve to direct a water jet, a nozzle to convey an air flow in the same direction of the water jet, said sleeve and said nozzle being contained in a hollow chamber and being connected respectively with a water duct and an air duct, characterized in that it includes at least a pipe which, through an aperture driven by an actuator, connects the hollow chamber with an output service mouth including a plurality of small pipes directed to the wall of a bath whereto the mouth for hydromassage is applied.

According to a preferred embodiment the actuator is selected among a hydraulic, a pneumatic one or an electric valve.

According to another preferred embodiment the pipe is situated in the lower part of the mouth and among said pipe and the small pipes is interposed an annular manifold.

Conveniently the small pipes are radially arranged in a fanwise configuration toward the inside wall of the bath forming an acute angle, preferably greater than 10 degrees, therewith.

The particular features of the present invention, as well as merits and advantages thereof will come out from the following description provided with the enclosed drawings, wherein:

Figure 1 is a sectional view of a mouth with the device of cleaning/disinfection according to the present invention.

Figure 2 is a front view, partially in cross-section, of the mouth according to the present invention where it is shown the diffusion of the deterging/disinfecting liquid into the bath.

With reference to figure 1 the fitting or mouth for hydromassage 10 presents an outer envelope 11 which incorporates the water duct 12 connected with a pump (not shown) and an air duct 13. The envelope 11 is fixed to the wall 14 of a bath (not shown) by means of a flange 15 and a ring nut 16, being the whole helped by suitable seal cleaners.

In the envelope 11 is housed the hollow spherical body 17 which is integral with the nozzle 18 connected with the air duct 13 and extending for a certain distance along the symmetry axis XX of the mouth for hydromassage.

The spherical body 17 may assume many angularly different positions both with respect to the axis XX and with respect to an orthogonal axis or other axes included among the first two ones.

In these movements the spherical body is helped by the cleaners 19 and 20 which have also the task to contain the water coming from the duct 12 into the assigned housing .

In the cavity of the nozzle 18 it is placed a valve 21 which may assume a "closed" position when the mouth does not deliver water, and an "open" position when the mouth, delivering water, causes a depression which draws the valve 21 allowing the air passage, which is mixed with the water delivered from the mouth.

Aligned with the nozzle 18, connected with the spherical body 17 there is the sleeve 31 which may slide along the axis XX and has an internal cavity shaped as a Venturi tube having a restriction in 32 located near the end of the nozzle 18.

The water pumped through the duct 12 is introduced in the cavity 24 of the spherical body 17 and causes a forward displacement of the sleeve 31 which comes off from the nozzle 18 carrying out an aperture wherethrough water penetrates to get out therefore from the mouth.

The water input into the above said aperture causes a depression at the level of the head of the

nozzle 18 which opens the valve 21 allowing an air drawing from the pipe 13 which is mixed with the water delivered from the mouth.

Although it has been described a kind of mouth for hydromassage, the present invention is not bound to a particular structure of mouth but may be applied to several types of mouths as it will be better understood hereinafter.

At the lower part of the mouth 10, the outer envelope 11 is provided with a duct 35, communicating with the cavity 24 of the spherical body 17 and with the pipe 36.

The pipe 36 communicates with the outside of the mouth or, better, with the inside of the bath by means of a service mouth comprising the annular connection 38 and a plurality of small pipes 39 fanwise arranged (figure 2) and directed downwards and forming an acute angle, preferably greater that 10 degrees with the wall 14 of the bathtub.

On the connection 41 it is screwed an actuator 42 of hydraulic or pneumatic type or preferably an electric valve, which makes completely free the passage from the duct 35 to the pipe 36 plugging the hole in corrispondence to the connection 41; in such way it is allowed the cleaning and/or disinfection of the mouth and the bathtub.

In fact the water containing detergents and/or disinfectants is pumped in the duct 12 wherefrom arrives to the cavity 24 of the spherical body 17 flowing therefor through the duct 35 into the pipe 36 and subsequently into the connection 38 to reach the small pipes 39 into the inside of the bath and finally go out according to the direction indicated by the arrows F and F′ to strike the walls of said bathtub.

Acting on the actuator or electric valve 42 to close the passage between the duct 35 and the pipe 36 and obviously eliminating the pumping of the water whereto detergents and/or disinfectants have been added, the mouth 10 may carry out again its normal function of hydromassage.

In the case it is wanted to simply obtain a normal drainage of the remaining water contained in the mouth after deactivating of the normal function of hydromassage, it is possible to act on the electric valve by allocating it a third position besides the preceeding ones of "closing"/"opening"; alternatively it is possible to substitute the electric valve 42 with a cap of the type indicated with 40 which closes the water passage through the hole of the connection 41.

The present invention has been described in relation to a preferred not limitative embodiment, being understood that conceptually equivalent modifications or variants of such modifications do not get out from the scope of the coverage, as defined by the claims.

Claims

1. Mouth for hydromassage to be mounted on a wall (14) if a bathtub, comprising a hollow sleeve (31) to direct a water jet, a nozzle (18) to convey an air flow in the same direction of the water jet, said sleeve (31) and said nozzle (18) being contained in a hollow chamber and being connected respectively with a water duct (12) and an air duct (13) including at least a pipe 36 which, through an aperture connects the hollow chamber with an output service mouth, characterized in that said aperture can be opened and closed by an actuator (42) and in that said service mouth comprising a plurality of small pipes (39) directed to the wall (14) of the bathtub.

2. Mouth for hydromassage, as in claim 1, characterized in that said actuator is selected among a hydraulic, pneumatic or an electric valve.

3. Mouth for hydromassage, as in claim 1, characterized in that said pipe is situated in the lower part of said mouth for hydromassage, when mounted.

4. Mouth for hydromassage, as in claim 1, characterized in that between said pipe and said small pipes it is interposed an annular manifold.

5. Mouth for hydromassage, as in claim 1, characterized in that said small pipes are radially arranged in fanwise configuration on the lower part of said manifold towards the inside wall of the bath.

6. Mouth for hydromassage, as in claim 1, characterized in that said small pipes form an acute angle, preferably greater than 10 degrees, with respect to the walls of the bath.

Patentansprüche

1. Armatur für Hydromassage, die an einer Wand (14) einer Badewanne angebracht ist, umfassend ein Hohlrohr (31), um einen Wasserstrahl zu leiten, einer Düse (18), um einen Luftstrom in die gleiche Richtung des Wasserstrahls zu leiten, wobei sich besagtes Rohr (31) und besagte Düse (18) in einer hohlen Kammer befinden und jeweils mit einem Wasserkanal (12) und einem Luftkanal (13) verbunden sind, dadurch gekennzeichnet, daß die Armatur mindestens ein Rohr (36) enthält, das über eine Oeffnung die hohle Kammer mit einer Serviceausgangsòffnung verbindet, und dadurch, daß besagte Oeffnung durch ein Stellglied (14) geòffnet und geschlos-

sen werden kann, wobei besagte Serviceöffnung eine Anzahl von kleinen Ròhren umfaßt (39), die auf die Wand einer Badewanne gerichtet sind.

2. Armatur für Hydromassage nach Anspruch 1, dadurch gekennzeichnet, daß besagtes Stellglied ein hydraulisches, pneumatisches oder elektrisches Ventil ist.

3. Armatur für Hydromassage nach Anspruch 1, dadurch gekennzeichnet, daß besagtes Rohr im unteren Teil besagter Armatur für Hydromassage, nach Anbringung, angeordnet ist.

4. Armatur für Wassermassage nach Anspruch 1, dadurch gekennzeichnet, daß sich zwischen dem Rohr und den kleinen Ròhren eine ringfòrmige Sammelleitung befindet.

5. Armatur für Wassermassage nach Anspruch 1, dadurch gekennzeichnet, daß die kleinen Ròhren an dem unteren Teil der Sammelleitung radial in einer fächerartigen Anordnung in Richtung der Innenwand des Bades angeordnet sind.

6. Armatur für Wassermassage nach Anspruch 1, dadurch gekennzeichnet, daß die kleinen Ròhren mit den Wänden des Bades einen spitzen Winkel, vorzugsweise gròßer als 10°, bilden.

Revendications

1. Diffuseur d'hydromassage pour être monté sur une paroi (14) d'une baignoire, comprenant une douille creuse (31) pour diriger un jet d'eau, une buse (18) pour amener un flux d'air dans la même direction du jet d'eau, ladite douille (31) et ladite buse (18) étant contenues dans une chambre creuse et étant reliées respectivement avec une conduite d'eau (12) et une conduite d'air (13), caractérisé en ce qu'il comporte au moins un tube (36) qui, à travers une ouverture met la chambre creuse en communication avec une sortie d'embouchure d'utilisation et en ce que ladite ouverture peut être ouverte et fermée par un dispositif de commande (14), ladite sortie d'embouchure d'utilisation comprenant un grand nombre de petites tubulures (39) dirigées vers la paroi de la baignoire.

2. Diffuseur d'hydromassage comme dans la revendication 1, caractérisé en ce que le dispositif de commande est choisi parmi les valves hydrauliques, pneumatiques ou électriques.

3. Diffuseur d'hydromassage comme dans la revendication 1, caractérisé en ce que le ledit tube se trouve dans la partie inférieure du diffuseur d'hydrommassage quand il est monté.

4. Diffuseur d'hydromassage comme dans la revendication 1, caractérisé en ce qu'entre ledit tube et lesdites petites tubulures est intercalé un distributeur annulaire.

5. Diffuseur d'hydromassage comme dans la revendication 1, caractérisé en ce que les petites tubulures sont placées radialement en forme de pales à la partie inférieure du distributeur vers la paroi inférieure de la baignoire.

6. Diffuseur d'hydromassage comme dans la revendication 1, caractérisé en ce que ces petites tubulures forment un angle aigu, de préférence supérieur à 10 degrés, par rapport aux parois de la baignoire.

Tav. I

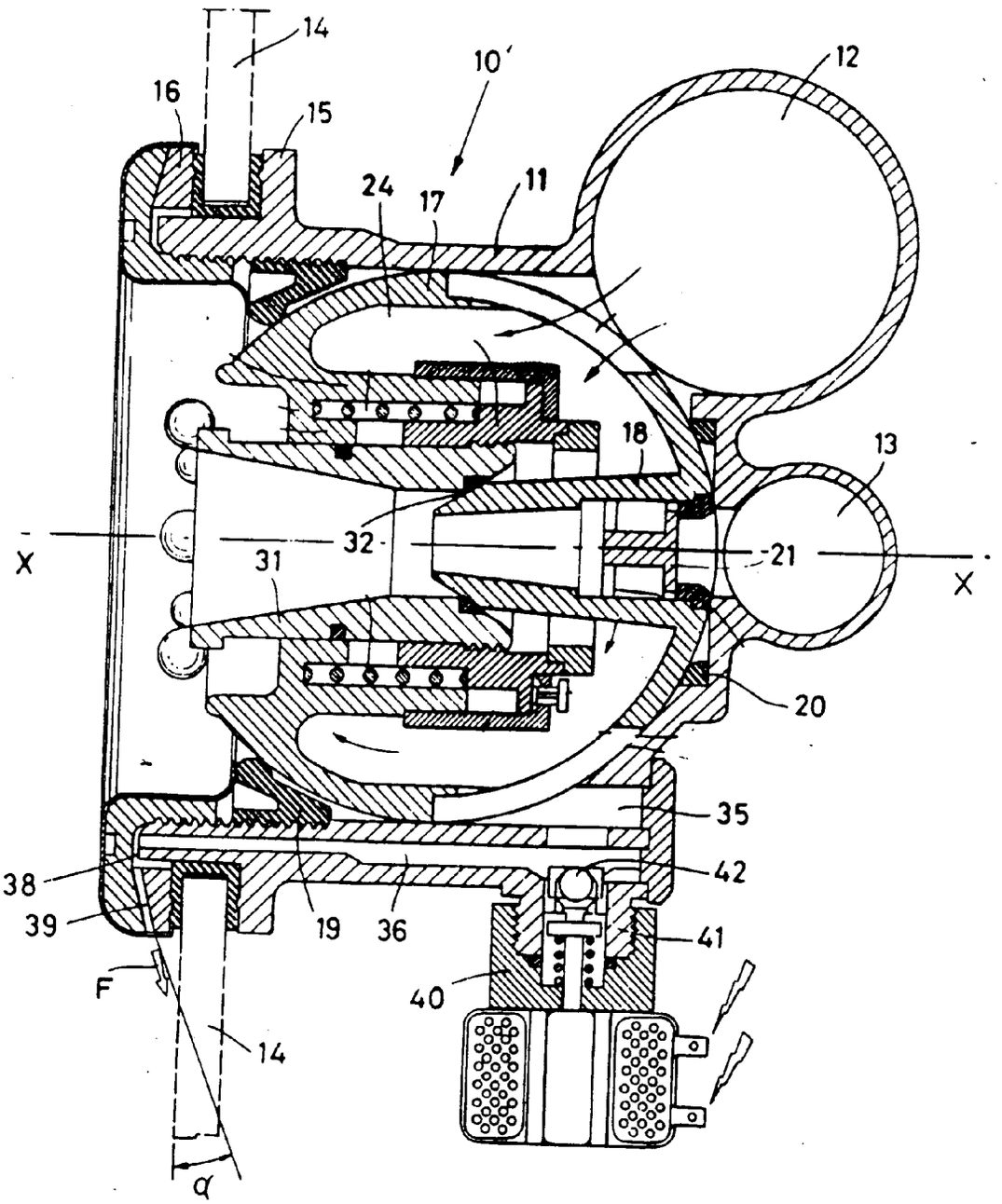
14
16
15
10'
12
24
17
11
18
13
X
32
21
X
31
20
35
38
42
39
19
36
41
F
40
14
α

Fig.1

Tav. II

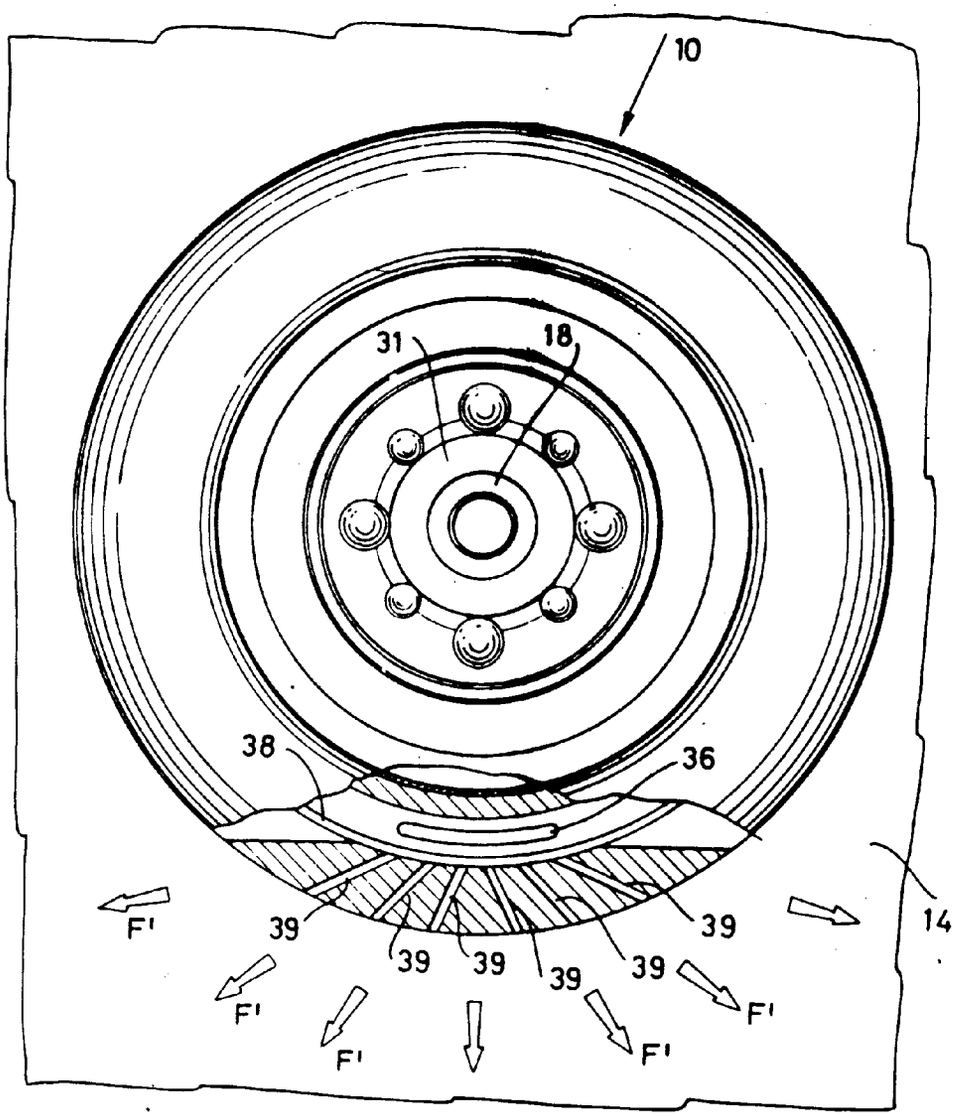

Fig.2