



12 **EUROPEAN PATENT APPLICATION**

21 Application number: **91106444.2**

51 Int. Cl.⁵: **A61H 33/02**

22 Date of filing: **22.04.91**

30 Priority: **23.04.90 IT 2105490 U**

43 Date of publication of application:
30.10.91 Bulletin 91/44

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

71 Applicant: **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)

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

57 In a mouth for hydromassage is provided a device for the cleaning/disinfection of said mouth; the device includes a pipe (36) which, through a aperture driven by an electric valve (42), connects

the inside cavity (24) of the mouth with an output service feed opening in which are provided a plurality of small pipes (39) directed to the inside wall (14) of the bath.

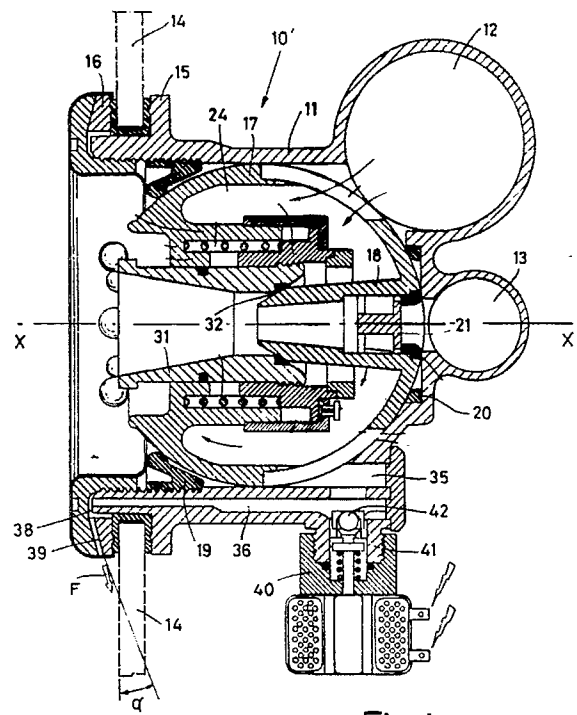


Fig.1

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 on turn, causes air suction which is mixed with the water ejected from the mouth under form of jet.

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 disassembling 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 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 an 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 mouth for hydromassage 10 presents an outer envelope 11 which incorporates the air 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 inserted 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 on the level with 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 towards down and forming an acute angle, preferably greater than 10 degrees with the wall 14 of the bath.

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 correspondence to the connection 41; in such way it is allowed the cleaning and/or disinfection of the mouth and the bath.

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 therefore 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 bath.

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 where to 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 does not get out from the scope of the coverage.

Claims

1. Mouth for hydromassage, comprising 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, said service mouth comprising a plurality of small pipes directed to the wall of a bath where to the mouth for hydromassage is applied.
2. Mouth for hydromassage, as in claim 1, characterized in that said actuator is selected among an 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.
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.

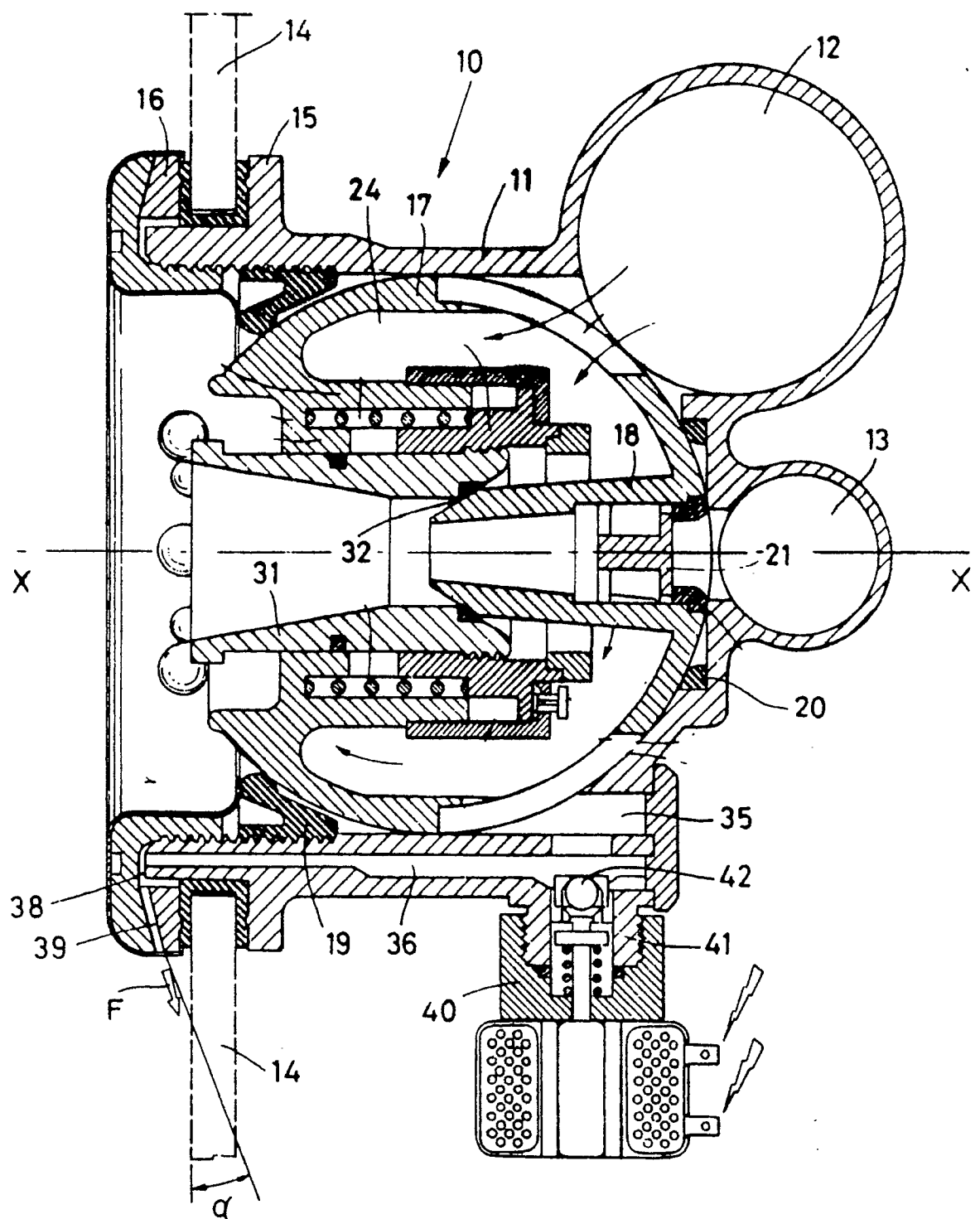


Fig.1

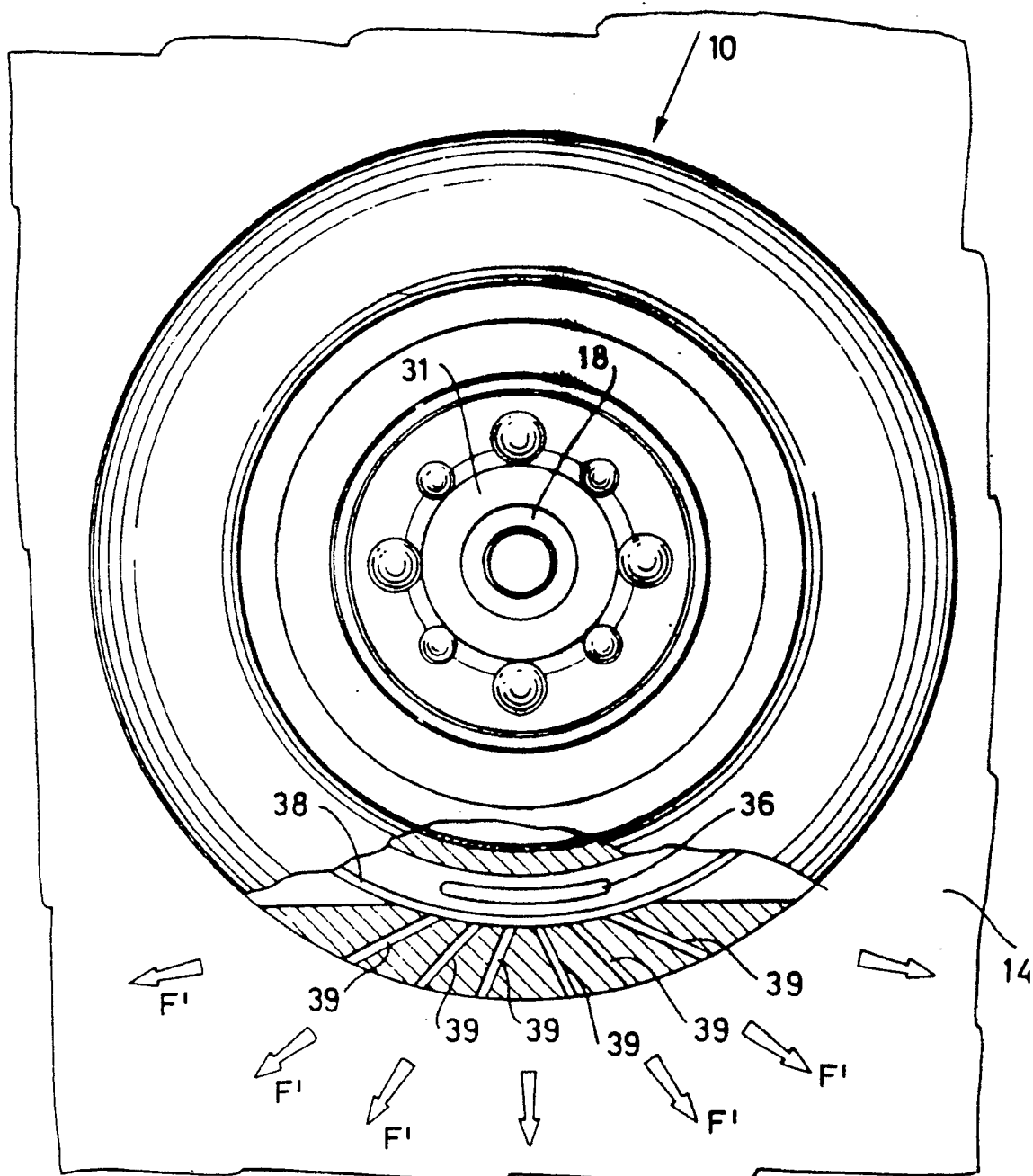


Fig.2



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 91 10 6444

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.5)
A	EP-A-119 581 (VIEGENER) * page 4, line 2 - page 5, line 24 * * figures 1,3 * ---	1,3,6	A61H33/02
P,A	EP-A-396 118 (KFOMA SRL) * column 5, line 19 - column 6, line 46 * * figures 1,3,10 * ---	1,2	
A	EP-A-252 435 (FRÄNNINGE) * column 2, line 41 - column 3, line 49 * * column 4, line 40 - line 53 * * figures 2,5-7 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A61H
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 05 JULY 1991	Examiner Schönleben J.E.F.
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		I : theory or principle underlying the invention F : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document	