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

(11) Publication number : **0 557 233 A1**

(12) EUROPEAN PATENT APPLICATION

(21) Application number : **93500020.8**

(51) Int. Cl.[5] : **A61H 33/02**

(22) Date of filing : **17.02.93**

(30) Priority : **18.02.92 ES 9200479**
11.01.93 ES 9300022

(43) Date of publication of application :
25.08.93 Bulletin 93/34

(84) Designated Contracting States :
DE DK ES FR GB IT PT SE

(71) Applicant : **IBERSPA, S.A.**
Industria s/no
E-08660 Balsareny (Barcelona) (ES)

(72) Inventor : **Ibanez Sapina, Miguel**
c/o Iberspa, S.A. Industria s/No
E-08660 Balsareny Barcelona (ES)

(74) Representative : **Pastells Teixido, Manuel**
c/o PASTELLS & ARAGONES, S.L., Pau Claris, 138
E-08009 Barcelona (ES)

(54) Nozzle for hydromassage baths.

(57) It is an object of the invention to provide a nozzle which drains completely when the bath-tub is emptied while at the same time the nozzle is simplified. To this end, there is installed beside the pressurized water pipe (4) a valve device (7) communicating laterally with said pipe (4) and at the top thereof with the nozzle mouth (2), so that the valve (7) is closed with the water pressure and when the pressure is removed, the valve (7) opens by gravity. A further feature is that the spring (22) which bears against the articulated bushing (13), through which the water-air mixture is discharged, and which is mounted in the interior of the sleeve (15') attached to the nozzle body member mouth (2), bears, at the opposite end, against internal projections (23) on the inner periphery of the rear open end of the sleeve (15'), between which draining towards the valve device (7) is facilitated.

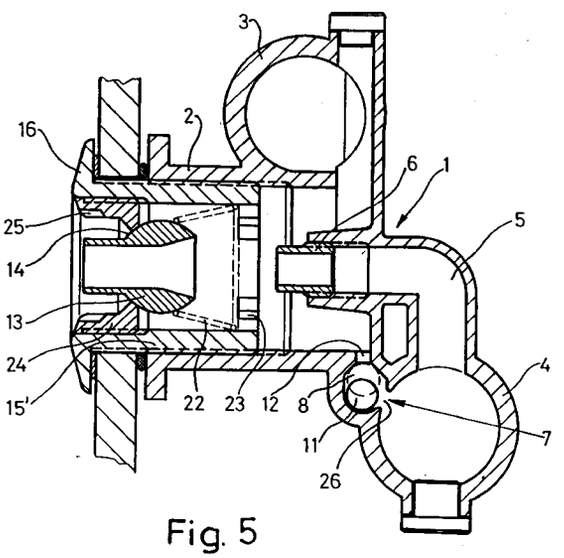

Fig. 5

EP 0 557 233 A1

The invention relates to a nozzle for hydromassage bathtubs.

Bathtubs are known which comprise, mounted in the side walls thereof, nozzles known as "jets" in which the air, the water temperature and pressure are combined to provide a beneficial relaxing massage for the body.

There are several models of such bathtubs on the market and they fulfil their function, nevertheless they have the serious problem that the nozzles thereof, when the bathtub is being drained, are not left completely empty of water, some of which is retained in corners of the nozzle body member and which, in time, gives rise to the formation of mould and fungi, with the consequent harm for the user.

This problem becomes aggravated mainly in those bathtubs not comprising a continuous circuit in which the water is purified and reused and in those in which, therefore, draining is periodic and fairly regular.

As a precedent of this type of nozzles, there may be mentioned EP-A-0 396 118 in which the nozzle body member is provided at the side thereof with an electromagnetically opened passage and a valve which opens automatically when the water pressure drops.

Also known is EP-A-0 297 246 which comprises a drain valve using a spherical closure member.

Yet another precedent is US-A-4 972 531 which also relates to one of these nozzles provided with an orientatable articulated bushing through which the water-air mixture exits.

It is an object of this invention to provide a nozzle in which, when the bathtub is drained, the draining is complete even in the nozzle itself.

It is also an object of this invention to simplify the manufacture of the nozzle, it being, a feature that the valve device in installed in a small space which communicates laterally with the pressurized water supply pipe and at the top thereof with the nozzle mouth, with the opening of the valve device determining complete draining of the nozzle to said pipe, which is located below the mouth of the nozzle body member.

Even though the articulated bushing, in a simplified version, is held resiliently in the different positions thereof by the action of resilient fingers formed in the sleeve screwed into the mouth of the nozzle, it has been contemplated in a second version, that the articulated bushing be held in place by arranging a threaded bushing engaged in the front open end of the sleeve, and a spring which bears at the rear against projections provided on the inner periphery of the rear open end of said sleeve. Complete draining is achieved through these projections towards the rear of the nozzle body member, where the valve device is located.

This second version allows the passage towards the inner water discharge bushing to be left clear for cleaning purposes by removing the threaded bushing, the articulated bushing and the spring and without having to remove the sleeve from the nozzle body member, thereby avoiding subsequent problems in the later attachment of said sleeve to the body member caused by possible movements of said body member relative to the hole of the bathtub in which the nozzle is mounted and which are difficult to correct, in view of the embedded installation thereof.

These and other features will be better understood from the following detailed description, to facilitate which there are attached two sheets of drawings in which two embodiments given only as a non-limiting example of the scope of the present invention have been illustrated.

In the drawings:

Figure 1 is an elevation view in cross section of the nozzle unit.

Figure 2 is a longitudinal sectional view of the articulated bushing.

Figure 3 is a plan view of the ball valve support member;

Figure 4 is a front elevation view of the mouth of the valve body member,

Figure 5 is an elevation view of a second version of the nozzle unit,

Figure 6 is a cross section view of the sleeve housing the articulated bushing of Figure 5, and

Figure 7 is a front elevation view of the threaded bushing attached to said sleeve, also as per Figure 5.

In the drawings, the nozzle comprises a body member 1 with front mouth 2, above which there is transversely disposed the tubular expansion 3 for connexion to the pipe in communication with the ambient air and underneath the nozzle there is provided the tubular expansion 4 for connexion to the pressurized water supply, driven by the corresponding pump.

The tubular expansion 4 is in communication with the mouth 2 through an elbowed passage 5 which receives at the front end thereof the threaded bushing 6 aligned with the axis of the mouth 2.

Juxtaposed in front of the tubular expansion 4 there is a valve device 7 comprising a space 8 in communication at the side thereof with said expansion and which has an opening at the bottom closed by a threaded plug 9 (Figure 1) which extends upwardly forming vertical radial walls 10 on which there rests a ball valve 11. The space 8 is in communication at the top thereof with the mouth 2 through an orifice 12.

In the mouth 2 of the nozzle there is orientatably installed the articulated bushing 13 having a stepped inside diameter and a spherical outer surface 14. The articulated bushing is retained by a sleeve 15 screwed into the mouth 2 with a front flange 16 and a circular inner rib 17 against which the articulated bushing bears by way of the spherical surface. The bushing is retained by the pressure of two resilient op-

posed fingers 18 and 19 provided on the said sleeve.

When the nozzle is in operation, the pressure of the water flowing from the expansion 4 will push the ball valve 11 against the orifice 12, sealing it while the water flows through the passage 5 towards the bushing 6, there being formed in the rear portion of the nozzle 2 a depression which, by Venturi effect, will suck air from the expansion 3, with the pressurized water-air mixture forming bubbles being jetted out through the articulated bushing 13 previously oriented by the user.

When the bathtub B is drained, the water level goes down and the ball valve 11 will drop by gravity to rest on the walls 10, leaving the orifice 12 free. The water in the nozzle mouth 2 will drain through said orifice and will flow between the walls 10 to the expansion 4 from where it will reach the bathtub bottom.

No water will be left in the nozzle since any water that could remain in the hollow 20 of the sleeve 15 will pass through the thread, to which end said sleeve will be provided at the rear end portion thereof with a slight clearance in the thread relative to that of the mouth 2.

Nevertheless, said clearance may be replaced by one or more longitudinal grooves21 provided in the thread of the mouth 2 (Figure 4).

As shown in Figure 5, the articulated bushing 13 is orientatably installed in the mouth 2 of the nozzle. The bushing 13 is supported in position in the interior of a sleeve 15' threadedly connected to said mouth 2, the articulated bushing being held resiliently, which is achieved by way of a conical helical spring 22 which bears at the front end thereof against the articulated bushing 13 and at the opposite end thereof bears against internal projections 23 on the inner periphery of the rear open end of the sleeve 15', between which there is a passage for draining towards the valve device 7 adjacent the front of the tubular expansion 4.

The spring 22 resiliently pushes the articulated bushing 13 against the threaded bushing 24, attached to the front open end of the sleeve 15' which, for handling purposes, is provided with notches 25 formed on the inner periphery of the front open end thereof with a view to facilitating, by removal of the threaded bushing, of the articulated bushing 13 and of the spring 22, direct access to the bushing 6 through which the water exits and allowing cleaning thereof when necessary.

In this case, the valve device 7 is simplified and the ball valve 11 is located in a cavity 8 closed at the bottom thereof and communicating at the side with the tubular expansion 4 through a hole 26 through which the ball valve 11 is inserted under pressure. This cavity is in communication at the top thereof with the nozzle mouth 2 through the orifice 12.

This valve device could be of any other type, for example, it could comprise a stopper member operated by a spring, the force of which is overcome by the pressure of the water flowing through the tubular expansion 4.

Claims

1.- A nozzle for hydromassage bathtubs, of the type comprising a body member (1) attached to one pipe (3) connected to the ambient air and to another pipe (4) connected to the pressurised water circuit, said body forming a threaded front mouth (2) where there is affixed a sleeve (15) orientatably resiliently retaining the water-air mixture discharge articulated bushing (13), also comprising a valve device (7) which is closed by the water pressure, characterised in that the valve device (7) is installed in a small space (8) communicating at the side thereof, through a hole (26), with the water supply pipe (4) and at the top thereof, through a hole (12), with the mouth (2) of the nozzle body member, the opening of the valve device determining complete draining of the nozzle towards the pipe (4), which is situated under the mouth (2) of the nozzle body member.

2.- The nozzle for hydromassage bathtubs of claim 1, wherein the spring (22), resiliently pressing against the articulated bushing (13) mounted in the interior of the sleeve (15') attached to the mouth (2) of the nozzle body member, bears at the opposite end to the one bearing against said articulated bushing (13), against internal projections (23) on the inner periphery of the rear open end of the said sleeve (15'), between which draining towards the valve device (7) is facilitated.

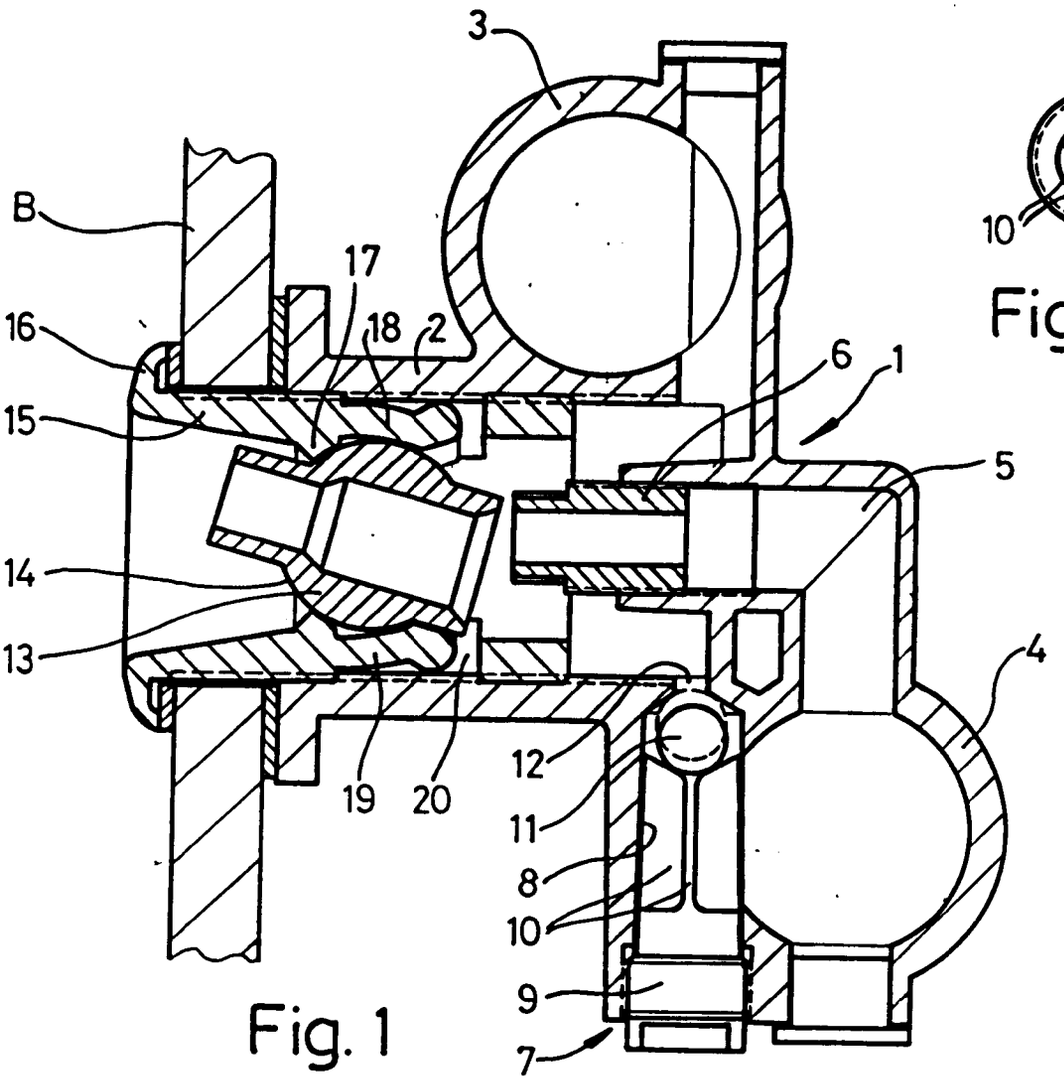

Fig. 1

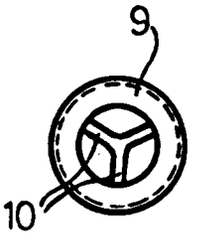

Fig. 3

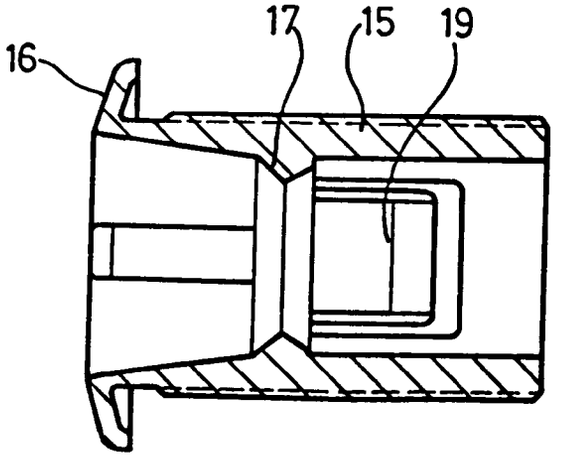

Fig. 2

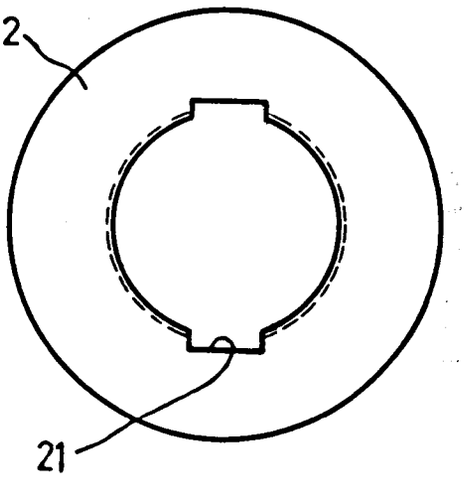

Fig. 4

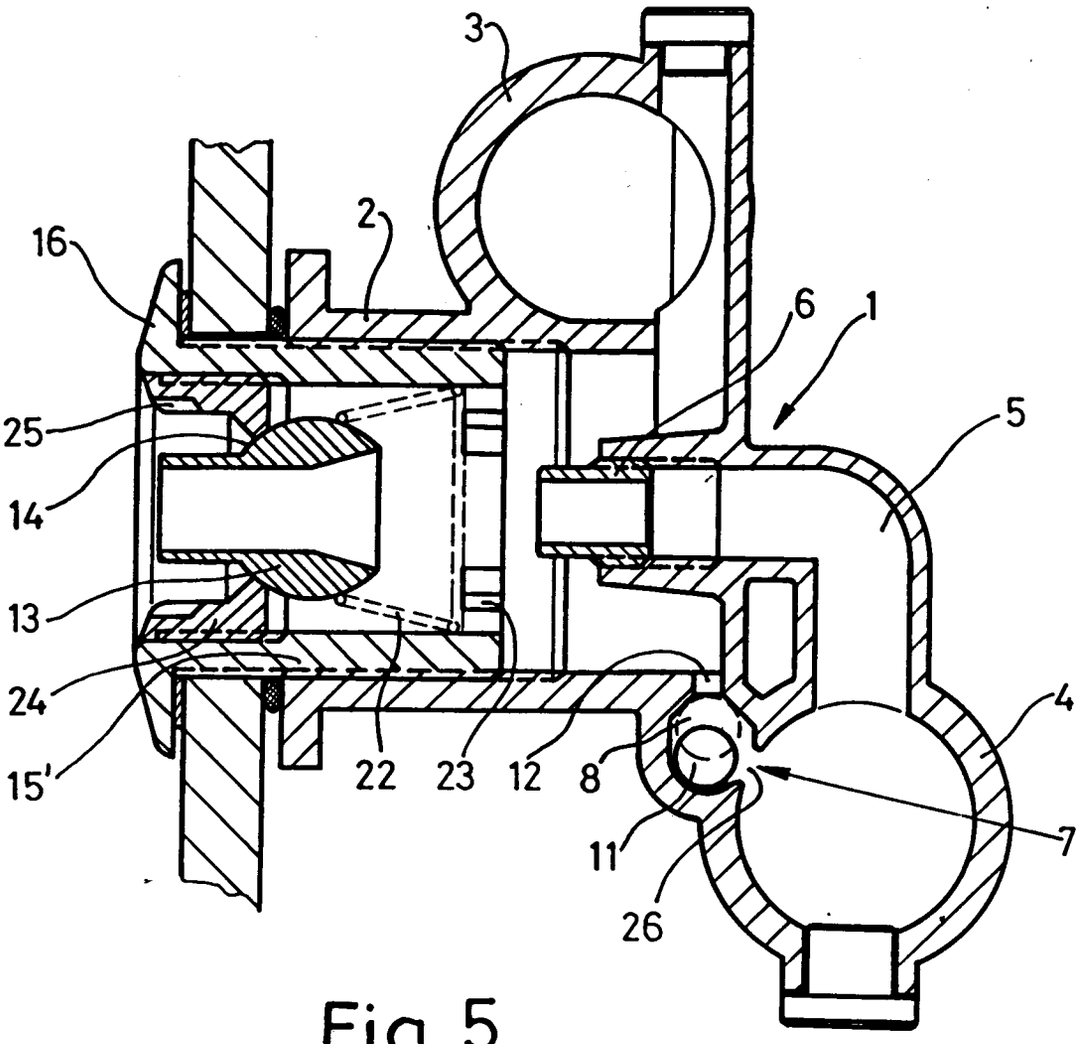

Fig. 5

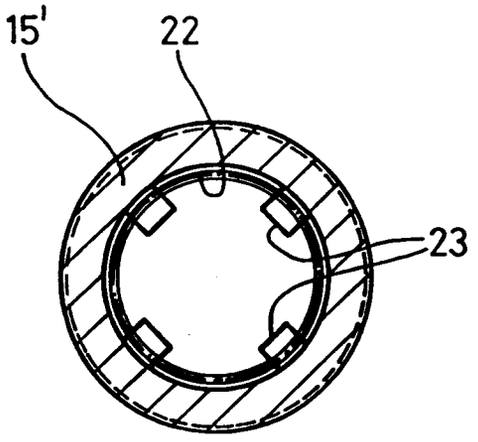

Fig. 6

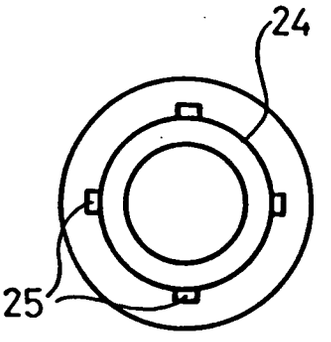

Fig. 7

European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 93 50 0020

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)
D,Y	EP-A-0 396 118 (KEOMA SRL) * column 5, line 44 - line 51; figures 1,2 * ---	1-2	A61H33/02
D,Y	EP-A-0 297 246 (SCHÜSSLER) * column 13, line 10 - line 13; figure 7 * ---	1-2	
D,Y	US-A-4 972 531 (GRAVATT) * column 2, line 58 - column 3, line 18; figures 1,4 * ---	1-2	
Y	US-A-4 593 420 (TOBIAS ET AL.) * column 3, line 6 - line 12; figures * * column 4, line 24 - line 30 * ---	2	
A	US-A-4 742 965 (MESSINGER ET AL.) * column 3, line 9 - line 28; figure 2 * ---	1	
A	US-A-4 586 204 (DANIELS) * column 5, line 51 - line 60; figures 7,8 * * column 6, line 51 - line 58 * -----	1,2	

TECHNICAL FIELDS SEARCHED (Int. Cl.5)

A61H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	10 MAY 1993	Mark Jones

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 (P0401)