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(54) **Bath tub with structurally improved hydromassage system**

(57) A bathtub with hydromassage system comprises a pump (13) for feeding water under pressure to nozzles (12) which emit jets of water into the tub. The nozzles (12) are connected to the feed pump by means of at least one manifold (15) disposed close to the bot-

tom of the tub and at a level lower than that of the nozzles connected to it.

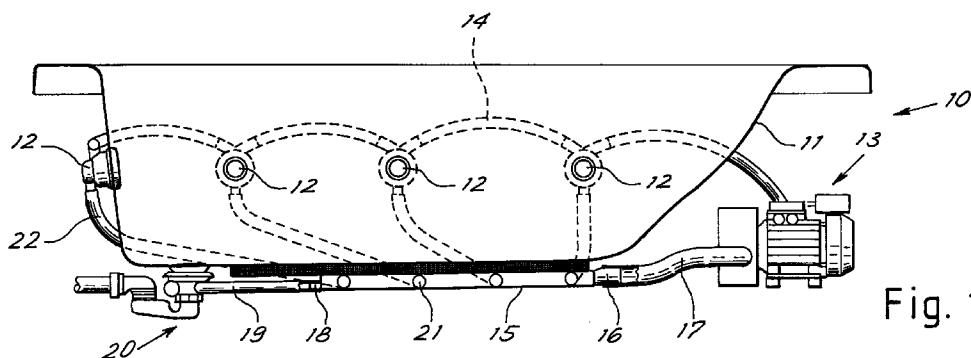


Fig. 1

Description

This invention refers to a bathtub with a hydromassage system.

In hydromassage systems, it is important for the water not to stagnate when the system is turned off. For this purpose, for example, the pumps are provided with a discharge connected to the drain in the bathtub. When the drain is opened, the discharge of the pump also automatically opens, so that the pump circuit is drained of the water contained in it.

In the known technique, the various nozzles for emission of the mixed air-water jets, which are disposed on the walls of the tub, are interconnected, usually in series, by means of pairs of pipes (one for the air and one for the water) which run horizontally along the side wall of the tub between the nozzles. The first nozzle of the series is connected to the electric pump which sends the water to the entire series of nozzles.

However, a disadvantageous of the known technique is that along the horizontal path of the pipes there are various points in which the water is liable to stagnate when the system is switched off. Very often, the ability of the worker in the factory who fits the hydraulic system in the tub is decisive in reducing the points of stagnation to a minimum. In particular, the pipes must be installed so that they do not form bends along their horizontal path. Even after correct installation, during the packing, transportation or when fitting the bathtub in place the pipes can be accidentally bent and shifted from their ideal configuration.

The general scope of this invention is to obviate the aforementioned problems, by providing a hydromassage bath tub in which the hydraulic system is easily assembled, without the need for particular arrangements, and in which points of stagnation of the water in the system are avoided and discharge of the residual water is simplified. This scope is achieved according to the invention by providing a hydromassage bathtub comprising means for supplying water under pressure to nozzles which emit jets of water into the bathtub, characterized by the fact that the nozzles are connected to the supply means through at least one manifold disposed close to the bottom of the tub and at a level lower than that of the nozzles connected to it.

The innovative principles of this invention and its advantages with respect to the known technique will be more clearly evident from the following description of a possible exemplificative and non-restrictive embodiment applying such principles, with reference to the accompanying drawings, in which:

- figure 1 shows a schematic partial cutaway side view along the line I-I of figure 2, of a hydromassage bathtub made according to the invention;
- figure 2 shows a lower plan view of the tub of figure 1. With reference to the figures, a hydromassage bathtub,

generically indicated by reference 10, comprises a plurality of nozzles 12 disposed through the wall 11 of the bathtub which look out onto the inside of the tub.

The nozzles are connected to means which feed water under pressure, for example comprising an electric pump 13 which sends water to the nozzles at the right pressure. The nozzles are also interconnected by pipes 14 which convey a flow of air to be mixed with the jet of water emitted from each nozzle.

According to the innovative principles of this invention, disposed below the nozzles and close to the bottom of the tub, advantageously secured to the bottom of the tub, is at least one manifold 15, which at one end has an inlet 16 connected, by means of a pipe 17, to the delivery side of the pump 13, and at the other end has an outlet 18 connected, by means of a pipe 19, to the auxiliary discharge of a drain 20 for emptying the bathtub. The drain is of the known type which when operated opens both the discharge of the water in the bathtub, and the auxiliary discharge, in the known technique for example directly connected to the pump discharge. Alternatively, the manifold can be emptied by means of an appropriate solenoid valve connected between the manifold and the drain.

The manifold 15 extends longitudinally along the bathtub, with its bottom advantageously sloping towards the outlet pipe fitting 18, and has lateral pipe fittings 21 connecting it, by means of pipes 22, to the nozzles 12.

The connecting pipes between the nozzles and the manifold extend substantially in a vertical direction. The number of lateral pipe fittings 21 is advantageously equivalent to the number of nozzles to be fed.

The pipe fitting 18 is positioned higher than the auxiliary discharge of the drain so that the pipe 19 slopes towards the latter. Likewise, the inlet 16 is lower than the pump 13.

The assembly of the hydraulic circuit of the bathtub is extremely simple. Once the nozzles have been fitted and the pipe fitting 15 has been secured in place, it is sufficient to connect the pipes between the nozzles and the manifold, between the manifold inlet and the pump and between the manifold outlet and the drain. It is not necessary to take any particular precautions in positioning the pipes, since the pipes are necessarily directed downwards, thereby automatically preventing stagnation.

While the system is in operation the pump distributes water to the various nozzles through the manifold 15.

When the system is turned off and when the drain is opened the water flows through the discharge duct 19, and the nozzles, the pump, the manifold and the connecting pipes are emptied completely.

Compared to the known technique with nozzles in series, the solution according to the invention allows a substantially uniform distribution of the water, without losses or differences in pressure in the delivery of water to the various nozzles.

The foregoing description of an embodiment apply-

ing the innovative principles of this invention is obviously given by way of example in order to illustrate such innovative principles and should not therefore be understood as a limitation to the sphere of the invention claimed herein. For example, even though the use of a single manifold is economically advantageous, it is also possible to provide several manifolds distributed along the bathtub, connected with one another in series or parallel to serve groups of nozzles. Moreover, the shape of the manifold may be different from the one shown. In particular, its cross-section may narrow as it moves away from the inlet 16.

Claims

1. Hydromassage bathtub comprising means (13) for feeding water under pressure to nozzles (12) which emit jets of water into the bathtub, characterized by the fact that the nozzles (12) are connected to the feed means through at least one manifold (15) disposed close to the bottom of the tub and at a level lower than that of the nozzles connected to it.
2. Hydromassage bathtub as claimed in claim 1, characterized by the fact that the manifold (15) is disposed on the bottom of the bathtub and extends along it in a longitudinal direction, the manifold being provided at one end with an inlet pipe fitting (16) for connection to said feed means (13) and being laterally provided with pipe fittings (21) for ducts (22) connecting it to the nozzles (12).
3. Hydromassage bathtub as claimed in claim 2, characterized by the fact that the manifold (15) has a discharge pipe fitting (21) connected to the drain (20) of the bathtub.
4. Hydromassage bathtub as claimed in claim 3, characterized by the fact that the discharge pipe fitting (18) is at one end of the manifold which is opposite to the inlet pipe fitting (16).
5. Hydromassage bathtub as claimed in claim 2, characterized by the fact that the ducts (22) are directed substantially upwards from the manifold to the nozzles, laterally embracing the bathtub.

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