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(71) Applicant: **Coatbridge Limited**
Douglas, Isle of Man (GB)

(72) Inventor: **Zigerlig, Max**
6900 Lugano (CH)

(74) Representative:
Fiammenghi-Domenighetti, Delfina
Fiammenghi-Fiammenghi,
Via San Gottardo 15
6900 Lugano (CH)

(54) **Flexible component for removing limescale from water distribution devices**

(57) Flexibly deformable component (5) positioned around holes or vents for the outflow of water from the terminal part of distributor devices (10), this component (5) being moved and/or deformed manually to remove the layer of limescale deposited on it and on parts adjacent to it of the said distributor devices (10). The said component is made of a liquid silicon mixture.

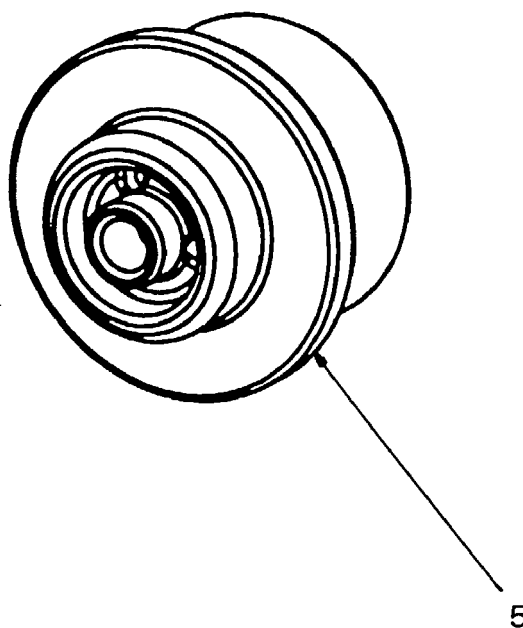


FIG. 3

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Description

[0001] This invention concerns the field of sanitary equipment and in particular the sector covering the construction of devices such as shower or water jets, designed to distribute hot and/or cold water by a predetermined procedure, or with a standard jet, high turbulence jet, etc.

[0002] After a certain period of use of such devices, depending on the hardness of the water system and the average usage temperature, calcium carbonate, usually referred to as limescale accumulates at the terminals and between the holes or vents for passage of water, which in the long term impairs proper operation of such devices, partially blocking the holes or vents through which the water passes and affecting their aesthetic appearance.

[0003] To limit the consequences of this problem, in recent times, flexibly deformable components have been used around or near these holes or vents, whereby by moving or deforming these manually, the limescale accumulations can be removed from their surfaces and from the apertures of the said water holes or vents, reinstating proper operation of the various types of supply device.

[0004] The above flexibly deformable components are, at the present state of technology, made of rubber, a material which unfortunately firstly hardens after prolonged use, losing its elasticity and flexibility and, secondly tends to nonetheless favour the adherence of thin layers of limescale which become more difficult to remove the more the rubber used is, or becomes, rigid with little elasticity.

[0005] The inventor of the present invention has replaced the rubber with a liquid silicon mixture, of a type known to engineers in the sector, which offers adherence resistance, elasticity and flexibility characteristics far superior to those of rubber or similar elastomers.

[0006] Also, since these components, depending on state of technology, clean the outside surface of the terminal of the distributor device but do not remove the limescale from inside the holes or vents through which the water passes, which then become blocked over a period of time, the aforesaid inventor has had the idea of making the entire terminal of a liquid silicon mixture, with the said holes or vents for the water supply made directly in this.

[0007] Given the stated elastic pliability of a liquid silicon mixture, by pressing the outside surface of the terminal of the distributor device manually, the interior walls of the said holes or vents can also be bent, removing the limescale and extending the operating life of the device in question.

[0008] The subject of this invention thus consists of a flexibly deformable component as described in the attached claim 1, characterised by the characteristic part of this same claim.

[0009] The subject of this invention is in fact a flexibly deformable component which itself forms the terminal part of a distributor device, as explained in the attached claim 2.

[0010] A description is now given of a preferred form of construction of a flexible component as per the invention applied to a water jet, namely on a device which distributes water with high turbulence.

In this description, reference is also made to the attached drawings which show:

- Figure 1: details of the arrangement of the rubber device applied to a shower jet according to the present state of technology;
- Figure 2: an exploded perspective view of a water jet comprising a limescale-prevention distributor terminal constructed according to this invention, namely entirely of a liquid silicon mixture;
- Figure 3, finally, is an enlarged perspective view of the limescale-prevention distributor terminal only as shown in Figure 2.

[0011] Looking at Figure 1, it will be noted that, in the latest state of technology, movable flexible rubber components 7i are arranged round the distribution holes 8i of a distributor device 9 of a shower jet type.

[0012] Even just by replacing these rubber components 7i with others of identical profile and position but made of liquid silicon mixture, more efficient removal of limescale is achieved, as well as a longer service life for the said flexible components.

[0013] The problem still remains, however, of how to clean the limescale off the interior surfaces of these holes and, as already stated, the inventor has designed a flexibly deformable unit which itself forms the terminal part of a distributor device: Figure 2 shows this solution constructed for a water jet, which, as well known to engineers in the sector, operates as follows:

[0014] Water from a mixer valve, not shown, is conducted by means of a pipe 6 to the body of the water jet 1 which, by means of the main supply pipe, carries the water to the lower hemispherical cup which has admission ports appropriately designed to form a helical profile to alter the direction of the water jet from axial movement on the supply channel to radial.

[0015] This directionality of the water flow enables easy rotation of the turbine 3 which generates intense turbulence and acceleration of the water flow, and this is thrust towards the diffuser plate 4 which is profiled to regulate, by calibration of the outlet holes, the volume of water necessary for the limescale-prevention distributor unit 5 to determine the type of jet (degree of direction and level of spray). In addition, the shape of the turbine is designed to create a pulsed jet.

(The limescale-prevention distributor unit is shown in clearer detail in Figure 3).

[0016] If the limescale-prevention distributor unit 5 is constructed entirely of a liquid silicon mixture, accumulations of limescale on the outside surfaces can be removed by simply rubbing; in addition, by exerting pressure in the appropriate direction on this, flexing can be achieved which bends the interior surfaces of the holes and vents through which the water passes with consequent detachment of the limescale adhering to them.

[0017] This results in a distributor device which is easy to clean, offers a long service life and, as a further favourable feature, has an enhanced aesthetic appearance in that, by the simple addition of coloured pigments to the mix, the unit can be coloured as required, which is much more pleasing to the eye than the black inevitably associated with the use of rubber.

[0018] The flexible component as per this invention can obviously be made in different forms from that described thus far and shown in the figures, depending on the design requirements and the type of distributor device to be produced; for example, in the case of a shower jet, the flexible component as per the invention can consist of the perforated distributor plate.

[0019] The various forms of construction thus obtained are still covered by the scope of protection provided by this application for patent where based on the characteristics in the attached claim 1 or in the subsequent claims dependent on this.

Claims

1. Flexibly deformable component (7i, 5) positioned around holes (8i) or vents for the outflow of water from the terminal part of distributor devices (9, 10), this component (7i, 5) being moved and/or deformed manually to remove the layer of limescale deposited on it and on parts adjacent to it of the said distributor devices (9, 10), characterised in that it is made of a liquid silicon mixture.
2. Component as per claim 1, characterised in that this is designed to itself form the terminal part (5) of a distributor device (10), the said vents or chambers for the passage of water being constructed in it.
3. Component as per one of the above claims, in which the said liquid silicon mix is coloured with a pigment of the required colour.

PRIOR ART

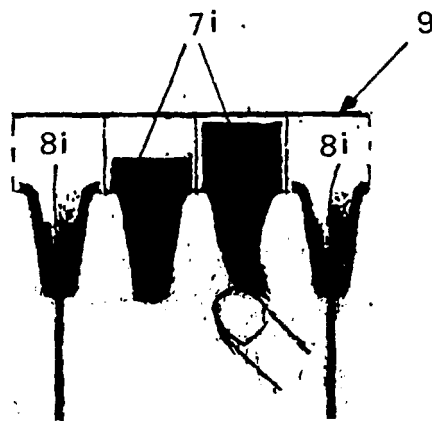


FIG. 1

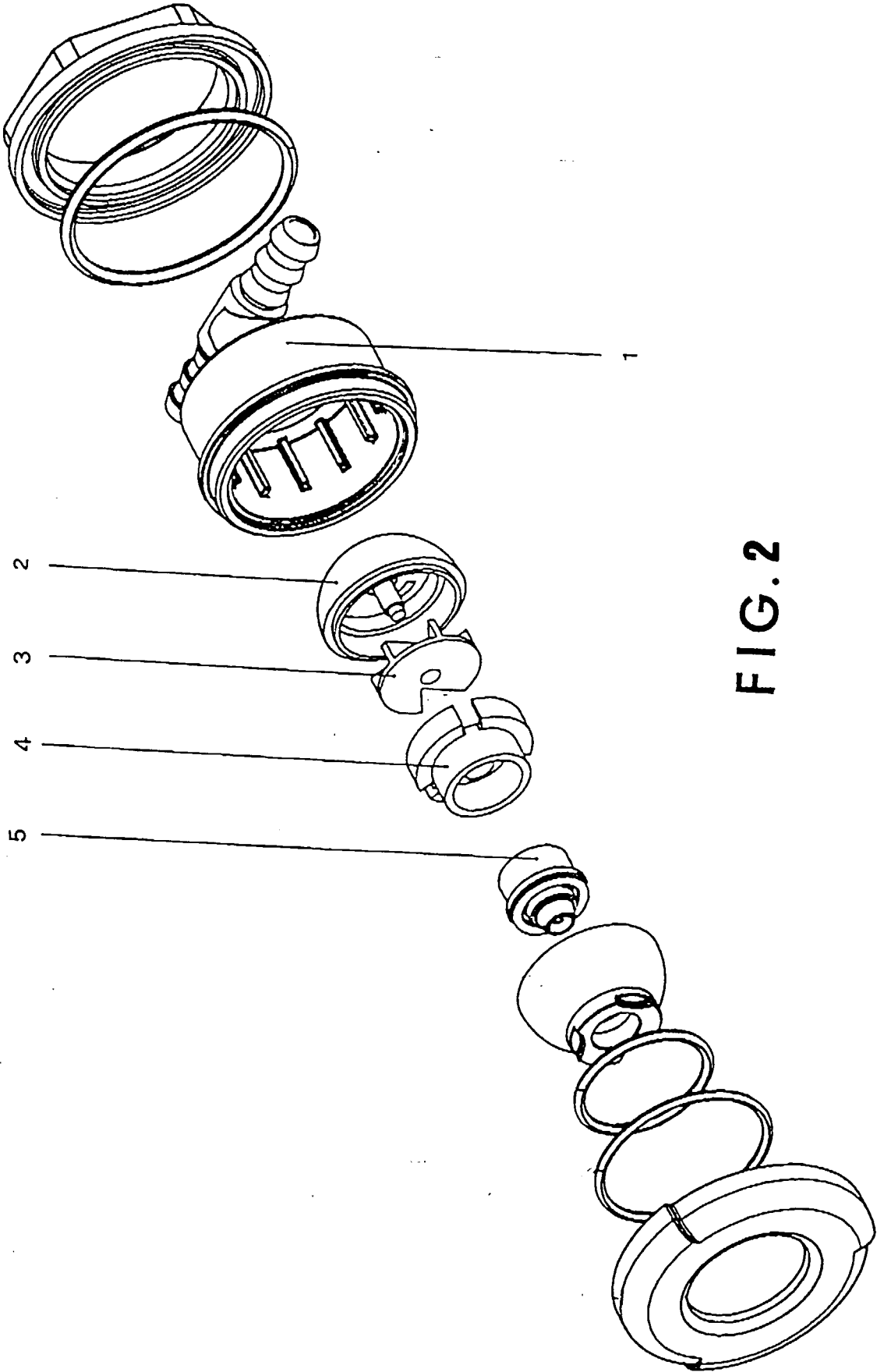


FIG. 2

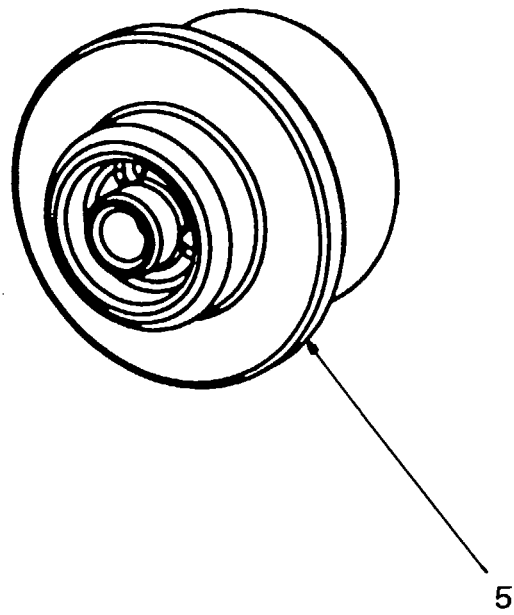


FIG. 3



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Place of search THE HAGUE		Date of completion of the search 27 April 1999	Examiner Brévier, F
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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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
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