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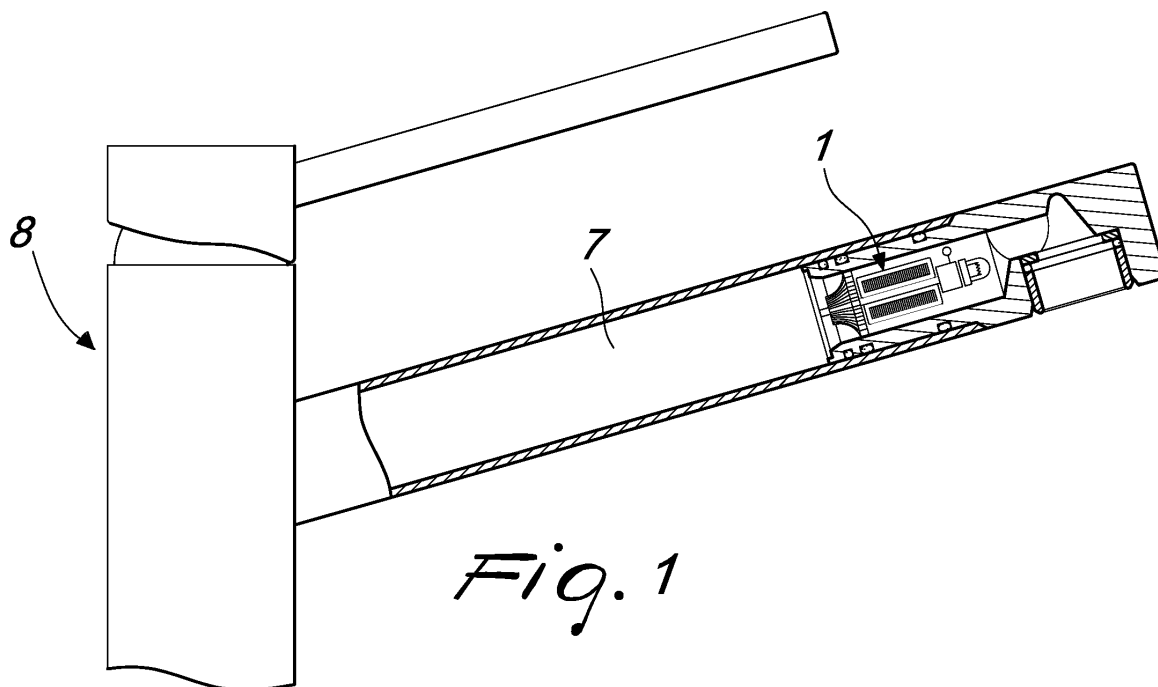
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(54) **Device for changing the color of the water dispensed from a faucet and the like**

(57) A device (1) for changing the color of the water dispensed from a faucet (8) and the like being arranged

downstream, with respect to the flow of water, of the control for opening and closing the water to be dispensed from the faucet (8).



## Description

**[0001]** The present invention relates to a device for changing the color of the water dispensed from a faucet and the like. More particularly, the invention relates to a device which is adapted to change the color of the water dispensed from a faucet, shower head, and the like, as a function of the flow and/or temperature and/or pressure of the water that is dispensed.

**[0002]** Devices are currently known which allow to change the color of the water dispensed from a faucet and the like as a function of the flow and/or temperature and/or pressure of the water that is dispensed.

**[0003]** The device generally consists of an electric generator which converts the mechanical energy provided by the motion of the water into an electrical potential difference, which allows to drive one or more light-emitting elements and vary their intensity and color.

**[0004]** Conventional devices, as mentioned above, are usually arranged upstream of the water opening and closure valve and therefore are always under the pressure of the water, regardless of whether the faucet is open or closed.

**[0005]** Moreover, conventional devices, located in the region described above, suffer the drawback of requiring electric wires which run through the faucet along its extension until they arrive at the light sources, which are usually provided at the aerator, if provided.

**[0006]** The passage of electric wires within an element inside which water flows is obviously subject to specific statutory provisions, and the electric wires must run within an appropriately provided tube which is separate from the flow of running water. This entails high costs during production as well as during the installation of the faucet with a device for adjusting and changing the color of the water being dispensed.

**[0007]** The aim of the present invention is to provide a device for changing the color and color intensity of the water dispensed from a faucet and the like, which does not require electric wires arranged along the extension of the spout of the faucet.

**[0008]** Within this aim, an object of the present invention is to provide a device for adjusting the color of water dispensed from a faucet and the like which is not subjected to the continuous pressure of the water, regardless of the open or closed condition of the faucet.

**[0009]** Another object of the present invention is to provide a device for adjusting the color of the water which allows to vary the intensity and color of the water that is dispensed as a function of the flow and/or temperature and/or pressure.

**[0010]** This aim and these and other objects, which will become better apparent hereinafter, are achieved by a device for changing the color of the water dispensed from a faucet and the like, characterized in that it is arranged downstream, with respect to the flow of water, of the control for opening and closing the water to be dispensed from said faucet.

**[0011]** Further characteristics and advantages of the invention will become better apparent from the description of preferred but not exclusive embodiments of the device according to the present invention, illustrated by way of non-limiting example in the accompanying drawings, wherein:

Figure 1 is a partially sectional view of the device according to the present invention, accommodated within an exemplifying faucet;

Figure 2 is a schematic view of the device according to the present invention.

**[0012]** With reference to the figures, the device according to the present invention, generally designated by the reference numeral 1, comprises electric power generation means 2, which are adapted to convert mechanical energy, supplied by the motion of the water, into a difference in electrical potential. The generated energy is sent to an electronic microcircuit 3, which is adapted to manage the output to one or more light sources 4 (for example a LED) and to vary the intensity and color as a function of the flow of water and/or temperature and/or pressure.

**[0013]** Conveniently, the microcircuit 3 is provided with at least one probe 5 which is adapted to detect the temperature or pressure or flow of the water.

**[0014]** The light emission can be for example focused by using lenses 6 and/or conveyed to specific points by using plastic material such as Plexiglas and/or optical fibers.

**[0015]** The peculiarity of the invention consists in that the device 1 is accommodated downstream of the control for opening and closing the water, so as to not be always under pressure, regardless of the open or closed condition of the faucet. Conveniently, the device 1 is accommodated within the dispensing spout 7 of a faucet 8, at the front end of the spout 7, i.e., where the aerator is normally arranged.

**[0016]** In any case, the device 1 according to the present invention is located in the region of the spout 7 that lies closest to the water dispensing outlet, so as to substantially eliminate the need for electric wires that travel through the faucet along its extension.

**[0017]** If it is not possible to accommodate the device 1 proximate to the aerator, the device is positioned after the cartridge or the bonnet valves or in any case, as mentioned earlier, in the region located after the mechanical mixing of the water and in any case after the control for opening and closing the water.

**[0018]** The device according to the invention therefore allows to change the color of the water dispensed from the faucet, driving the at least one light source 4 and also adjusting its color intensity, without the need to have electrical wires arranged along the spout of the faucet, and with extremely simple installation, especially if the device is located at the aerator. In this case, it would therefore be possible to replace a conventional aerator, which is already installed, with an aerator of the type that accom-

modates the device according to the invention, so as to convert an existing faucet into a faucet which can change the color of the water that is dispensed.

**[0019]** Moreover, it is possible for example to use the energy generated by the electric generator 2 to enrich the dispensed water with ions obtained by electrolysis of the water, by utilizing the electrochemical reaction of anodes and cathodes immersed in a solution.

**[0020]** The generated ions have the capability of inhibiting partly the chlorine and limescale contained in water and have also the capability of providing other beneficial effects.

**[0021]** The device according to the invention therefore overcomes the disadvantage of having to deploy electric wires along the spout of the faucet as well as the disadvantage arising from having known types of devices always under the pressure of the water regardless of the open or closed condition of said faucet.

**[0022]** In practice it has been found that the device according to the invention fully achieves the intended aim and objects.

**[0023]** The device thus conceived is susceptible of numerous modifications and variations, all of which are within the scope of the appended claims. Thus, for example, the device can also be inserted within the mixing cartridge in the part of the cartridge arranged after water mixing. All the details may further be replaced with other technical equivalent elements.

**[0024]** In practice, the materials used, as well as the contingent shapes and dimensions, may be any according to requirements and to the state of the art.

**[0025]** The disclosures in Italian Patent Application no. MI2007A000475, from which this application claims priority, are incorporated herein by reference.

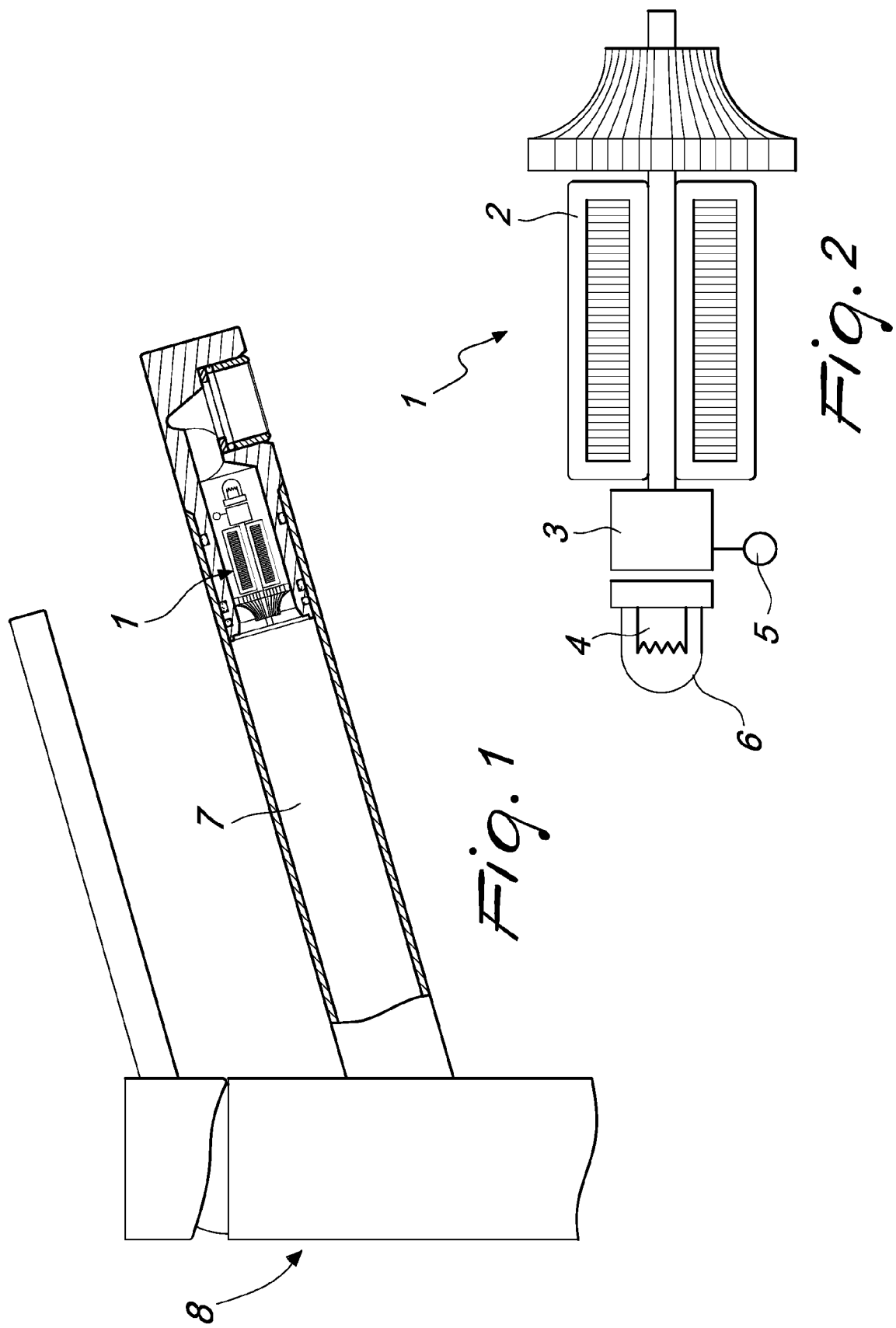
**[0026]** Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

end of the spout (7) for dispensing water from said faucet (8).

4. The device according to one or more of the preceding claims, **characterized in that** it is arranged at the aerator of said faucet (8).
5. The device according to one or more of the preceding claims, **characterized in that** it is inserted within a mixing cartridge, in the part of said cartridge arranged after water mixing.
6. The device according to one or more of the preceding claims, **characterized in that** it comprises electric power generation means (2) which are adapted to convert mechanical energy, provided by the motion of the water, into an electrical potential difference, said electric power generation means supplying a microcircuit (3) which is adapted to drive in turn at least one light source (4).
7. The device according to one or more of the preceding claims, **characterized in that** said microcircuit (3) is provided with at least one temperature or pressure or flow probe (5).
8. The device according to one or more of the preceding claims, **characterized in that** said at least one light source (4) is a LED.
9. The device according to one or more of the preceding claims, **characterized in that** said electric power generation means (2) allow to provide electrolysis of the water that passes within said faucet (8) in order to generate ions.

## Claims

1. A device (1) for changing the color of the water dispensed from a faucet (8) and the like, **characterized in that** it is arranged downstream, with respect to the flow of water, of the control for opening and closing the water to be dispensed from said faucet (8).
2. The device according to claim 1, **characterized in that** it is arranged downstream, with respect to the flow of water, of the mechanical mixing of the water within said faucet (8).
3. The device according to one or more of the preceding claims, **characterized in that** it is arranged at the



**REFERENCES CITED IN THE DESCRIPTION**

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**Patent documents cited in the description**

- IT MI20070475 A [0025]