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(54) **Faucet assembly including a metering element for delivering cleaning, disinfectant liquids and the like**

(57) The present invention relates to a faucet assembly including a metering element for delivering cleaning, disinfectant liquids and the like, which faucet is provided with a water delivery barrel (1) having a sensor (3) driving a solenoid valve (11) for controlling the delivery of water.

The main feature of the invention is that the faucet assembly further comprises, at the delivery mouth (2) thereof, a tube (20) for delivering a cleaning or disinfectant liquid, said tube (20) being controlled by a pump (21) communicating with a tank of the cleaning or disinfectant liquid, and which is driven by a driving (10) set controlled by the sensor (3).

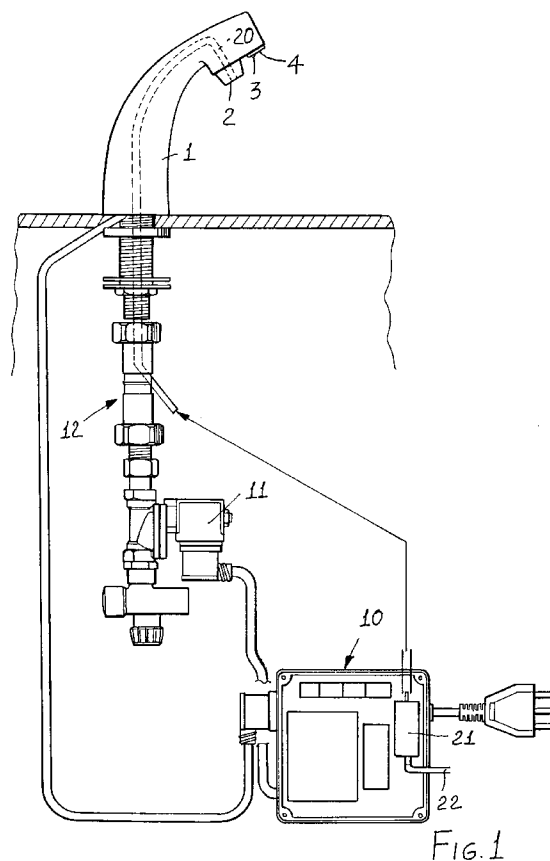


FIG. 1

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Description

BACKGROUND OF THE INVENTION

The present invention comprises a faucet assembly including a metering element for delivering cleaning, disinfectant liquids and the like.

Faucet assemblies provided with infrared sensors for controlling the delivery of water as an user puts his/her hands under the faucet are already known and broadly used mainly in public environments.

In such an application, the liquid soap or other disinfectant liquid delivering or metering device always constitutes a separated element which does not allow to rationally use the faucet since an user must at first withdraw the cleaning agent or soap and then arrange his/her hands under the faucet.

SUMMARY OF THE INVENTION

Accordingly, the aim of the present invention is to solve the above mentioned problem, by providing a faucet assembly, including a cleaning or disinfectant liquid metering or delivering device or element, which allows to perform, by a single element, the water delivery function as well as the cleaning material and/or disinfectant material delivery function.

Within the scope of the above mentioned aim, a main object of the present invention is to provide such a faucet assembly which is controlled by a managing controlling logic unit allowing to set a desired and very simple delivery operating cycle, by allowing to greatly reduce the washing water consumption.

Another object of the present invention is to provide such a faucet assembly which is very reliable and safe in operation.

Yet another object of the present invention is to provide such a faucet assembly, including a cleaning liquid delivering element or device, which can be easily made starting from easily available elements and materials and which, moreover, is very competitive from a mere economic standpoint.

According to one aspect of the present invention, the above mentioned aim and objects, as well as yet other objects, which will become more apparent hereinafter, are achieved by a faucet assembly, including a delivery element for delivering cleaning, disinfectant liquids and the like, said faucet assembly including a water delivery barrel provided with a sensor driving a solenoid valve for controlling the delivery of water, characterized in that said faucet assembly further comprises, at an outlet mouth thereof, a tube for delivering a cleaning or disinfectant liquid, said tube being controlled by a pump communicating with a tank of one of said liquid and being controlled by a driving assembly in turn driven by said sensor.

BRIEF DESCRIPTION OF THE DRAWING

Further characteristics and advantages of the present invention will become more apparent hereinafter from the following detailed disclosure of a faucet assembly including a cleaning or disinfectant liquid delivering element, which is illustrated, by way of an indicative but not limitative example, in the accompanying drawing, the sole figure thereof is a schematic view illustrating a faucet assembly according to the invention.

With reference to the figure of the accompanying drawing, the faucet assembly including a cleaning or disinfectant liquid delivering element according to the present invention, comprises a delivery barrel 1, having a water delivery mouth 2.

Near the water delivery mouth 2, is provided a sensor, in particular an infrared ray or beam emitting sensor 3, which is associated with a photosensitive element 4, adapted to detect beams reflected by an user arranging his/her hands under the faucet.

The photosensitive element 4, in particular, is operatively connected to a driving assembly, generally indicated by the reference number 10, which drives a solenoid valve 11 arranged in the water inlet duct 12.

The main feature of the invention is that, inside the water delivery mouth 2, leads a tube or pipe 20, for delivering cleaning liquids, disinfectant liquids, and the like.

The tube 20 is connected to a pump which, through a suction duct 22, communicates with a cleaning liquid or disinfectant liquid tank.

In particular, the pump 21 is controlled by the controlling or driving circuit, in turn driven by the aforesaid photosensitive element or sensor 4.

In the operation control logic unit according to the invention, the control or drive set will control the washing cycle so that, as an user puts his/her hands under the faucet, the pump 21 will be at first operated, so as to deliver a preset dose of the cleaning liquid, disinfectant liquid or the like.

Thus, the cleaning liquid or liquid soap will directly fall on the user hands, arranged under the delivery mouth.

Upon delivering the cleaning liquid or disinfectant liquid, the operating cycle will be stopped for few seconds, so as to allow the user a proper time period to clean his/her hands.

Then, the control unit will cause the solenoid valve 11 to deliver washing and rinsing water.

This delivery can occur for a set time or it may end as the user removes his/her hands from the water outlet.

An end of cycle rest period is moreover provided for preventing the operating cycle from being repeated as the user rests under the operating ray or beam of the photosensitive element.

In order to provide a very safe operation, all of the live electronic and electric parts are held in a sealed casing and operate at a low voltage, i.e. 24 volts.

In this connection it should be apparent that the water delivery time can be adjusted depending on requirements.

From the above disclosure it should be apparent that the invention fully achieves the intended aim and objects. 5

In particular, the fact is to be pointed out that a faucet assembly has been provided, allowing, by using a single element, to deliver both the cleaning material and the washing or rinsing water, thereby allowing the possibility of setting an automatic operating cycle specifically designed to reduce to a minimum the cleaning material and water amount being delivered. 10

In practicing the invention, the used materials, provided that they are compatible to the intended use, as well as the contingent size and shapes, can be any, depending on requirements. 15

Claims 20

1. A faucet assembly, including a delivery element for delivering cleaning, disinfectant liquids and the like, said faucet assembly including a water delivery barrel provided with a sensor driving a solenoid valve for controlling the delivery of water, characterized in that said faucet assembly further comprises, at an outlet mouth thereof, a tube for delivering a cleaning or disinfectant liquid, said tube being controlled by a pump communicating with a tank of one of said liquid and being controlled by a driving assembly in turn driven by said sensor. 25 30
2. A faucet assembly according to Claim 1, characterized in that said sensor comprises an infrared emitter and a photosensitive element adapted to detect the radiation beams reflected by an user so as to drive, through said driving or control assembly, said solenoid valve. 35 40
3. A faucet assembly according to Claims 1 and 2, characterized in that the operation cycle of said faucet assembly, controlled by said drive or control set or unit, provides a starting operation of the pump, a set time period for allowing said user to put soap on his/her hands, and a further operation step, for a set time period, in which washing water is delivered. 45
4. A faucet assembly according to one or more of the preceding claims, characterized in that the operating cycle of said faucet assembly further comprises a rest period for preventing the operating cycle from being immediately restarted. 50 55

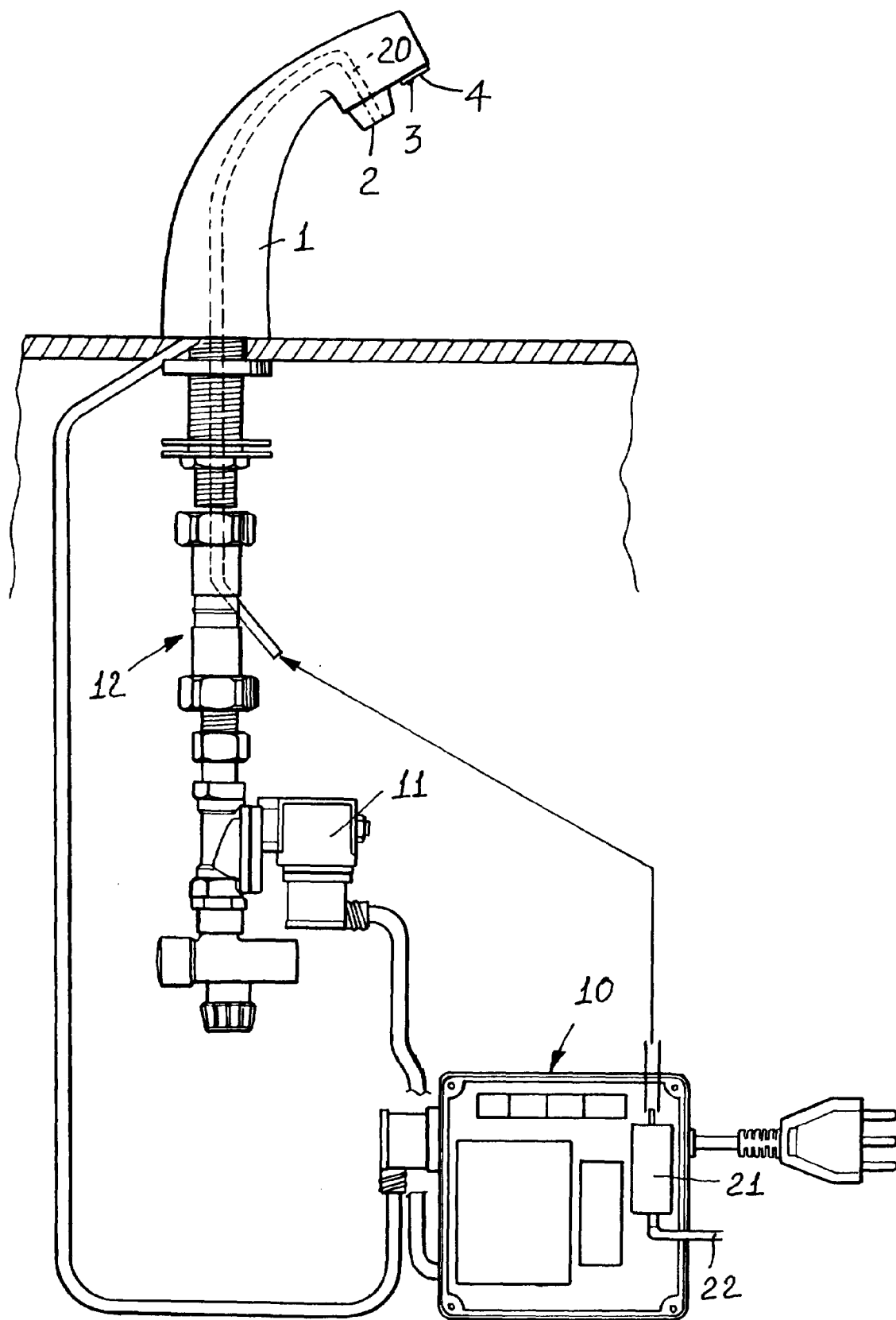


FIG. 1



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EUROPEAN SEARCH REPORT

Application Number
EP 95 83 0470

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.6)
X	FR-A-2 097 796 (AMERICAN STANDARD INC.) * claims 1,6-11; figure 1 *	1,3,4	E03C1/046
X	DE-U-93 18 479 (SEBASTIAN) * claims 1,2,4; figure 1 *	1,2	
A	WO-A-93 10311 (WASH'N' RINSE LTD.)		
A	EP-A-0 313 913 (BAUS)		
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E03C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 12 February 1996	Examiner Hannaart, J
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			

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