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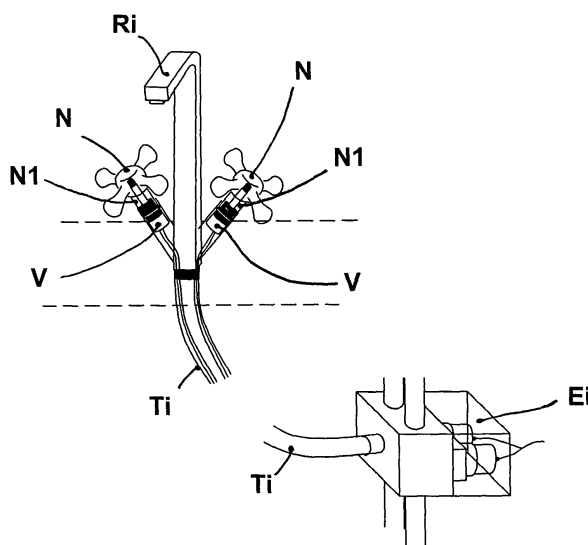
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(54) **Electrically controlled mixing valve**

(57) The invention is a new system for mixing water and regulating the flow rate, comprising an electric control and supply unit (Zi) and a manifold-mixer (C) comprising in turn one or more solenoid valves (Ei) connected to and regulated by suitable electronic adjusting devices (P, Pm, Pp), and wherein each solenoid valve (Ei) comprises two through holes (F1) and (F2) for connection to the hot water (Tc) and cold water (Tf) pipes and at least one further hole (F3) for the insertion of a supply pipe (Ti) that conveys water to the sanitary fixture (Ui) to which

water must be provided. Said solenoid valves (Ei) may be connected to the same two hot water (Tc) or cold water (Tf) pipes, and be positioned side by side or overlapped. The electric control and supply unit (Zi) processes the data coming from the adjusting knobs (N) and feeds the solenoid valves (Ei). The system also comprises one or more sensors (flood sensor Sa, temperature sensor, pressure sensor, etc) and presence detectors and vocal controls for regulating the flow rate and the mixing ratio of the water being dispensed.



**Fig. 6**



European Patent  
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# EUROPEAN SEARCH REPORT

Application Number  
EP 06 42 5303

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 4 688 273 A (LYNG BJOERN [NO]) 25 August 1987 (1987-08-25)	1-4,7	INV. E03C1/05 F16K11/078
Y	* column 5, line 24 - line 35; figure 1 *	5,6	
Y	EP 0 387 396 A2 (ORAS OY [FI]) 19 September 1990 (1990-09-19) * figure 2 *	5,6	
A	DE 32 11 188 A1 (DANFOSS AS [DK]) 6 October 1983 (1983-10-06) * page 10, line 8 - line 11 *	5,6	
<div style="text-align: center;">-----</div> <p><del>The present search report has been drawn up for all claims</del></p>			<div style="text-align: center;">TECHNICAL FIELDS SEARCHED (IPC)</div> <p>E03C F16K</p>
Place of search		Date of completion of the search	Examiner
Munich		20 April 2007	Geisenhofer, Michael
<div> <div> <p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone</p> <p>Y : particularly relevant if combined with another document of the same category</p> <p>A : technological background</p> <p>O : non-written disclosure</p> <p>P : intermediate document</p> </div> <div> <p>T : theory or principle underlying the invention</p> <p>E : earlier patent document, but published on, or after the filing date</p> <p>D : document cited in the application</p> <p>L : document cited for other reasons</p> <p>&amp; : member of the same patent family, corresponding document</p> </div> </div>			

EPO FORM 1503 03.82 (P04C01)

**CLAIMS INCURRING FEES**

The present European patent application comprised at the time of filing more than ten claims.

- ☐ Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims and for those claims for which claims fees have been paid, namely claim(s):
- ☐ No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for the first ten claims.

**LACK OF UNITY OF INVENTION**

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

see sheet B

- ☐ All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.
- ☐ As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.
- ☐ Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:
- ☒ None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:

1 - 7



The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1-7

Electrically operated water delivery system comprising  
motor-driven solenoid valves in hot and cold water supply  
lines:  
details of the electric control providing input information  
on user-selected temperature and flow rate;

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2. claim: 8

Electrically operated water delivery system comprising  
motor-driven solenoid valves in hot and cold water supply  
lines:  
flood sensor for leakage indication;

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3. claim: 9

Electrically operated water delivery system comprising  
motor-driven solenoid valves in hot and cold water supply  
lines:  
temperature sensors in the supply line to the faucet  
providing feed-back to the electric control (thermostat  
functionality);

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4. claim: 10

Electrically operated water delivery system comprising  
motor-driven solenoid valves in hot and cold water supply  
lines:  
display;

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5. claim: 11 (first alternative)

Electrically operated water delivery system comprising  
motor-driven solenoid valves in hot and cold water supply  
lines:  
presence detector;

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6. claim: 11 (second alternative)

Electrically operated water delivery system comprising  
motor-driven solenoid valves in hot and cold water supply  
lines:  
vocal control device;

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**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 06 42 5303

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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20-04-2007

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