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Datasheet for the decision of 15 December 2008

Case Number: T 1451/06 - 3.5.03

Application Number: 97948038.1

Publication Number: 0944868

IPC: G05D 23/12

Language of the proceedings: EN

Title of invention:
Valve system for servo control of fluid flows

Applicant:
American Standard International Inc.

Opponent:
-

Headword:
Mixing valve/AMERICAN STANDARD INTERNATIONAL

Relevant legal provisions:
EPC Art. 56, 113(1)

Keyword:
"Inventive step - no (all requests)"
"Oral proceedings held in absence of appellant"

Decisions cited:
-

Catchword:
-

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Case Number: T 1451/06 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 15 December 2008

Appellant: American Standard International Inc.
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Decision under appeal: **Decision of the Examining Division of the European Patent Office posted 28 February 2006 refusing European application No. 97948038.1 pursuant to Article 97(1) EPC 1973.**

Composition of the Board:

Chairman: A. S. Clelland
Members: B. Noll
M.-B. Tardo-Dino

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division to refuse European patent application No. 97948038.1 on the ground that the subject-matter of claim 1 then on file lacked an inventive step. In the reasons for the decision, the examining division referred, inter alia, to the following documents:
D8: US-A-4 761 836 and
D9: EP-A-0 042 523.

II. The applicant (appellant) lodged an appeal against the decision and in the notice of appeal requested that the decision be set aside. Together with the statement of grounds the appellant filed sets of claims 1 to 11 according to a main and four auxiliary requests. Oral proceedings were conditionally requested.

III. In a communication accompanying the summons to oral proceedings the board gave a preliminary opinion on clarity, added subject-matter and inventive step.

With a response dated 14 November 2008 the appellant filed a set of claims 1 to 11 of an "amended Main Request". Arguments were also provided. In addition, in a discussion of clarity, the appellant further requested that "from the Main and Auxiliary Requests" the words "or elliptical" and the phrases "closed area opposite the inlet apertures" and "at or close to the principle [*sic*] axis" be deleted and that "the Main and Auxiliary Requests" be amended by replacing "close proximity" with "adjacent".

IV. Independent claim 1 of the amended main request reads as follows:

"A fluid mixing valve (19,35;30;40;50;90) suitable for servo control of fluid flows, comprising:

a valve body (35) having at least two fluid inlet ports (32) and at least one fluid outlet port (34);

an inlet valve disk (1) having an inlet valve disk contact surface (6) and an outlet valve disk (10) having an outlet valve disk contact surface,

the inlet valve disk (1) also having two inlet apertures (2,3), having a cross section that is sectorial at the inlet valve disk contact surface (6), the apertures (2,3) being separated by a dividing piece (8),

the first inlet aperture (2) communicating with a first of the two inlet ports (32), and the second said inlet aperture (3) communicating with a second of the two inlet ports (32);

a barrier (33) on the inlet side of the valve disk (1) separating inlet fluids (78,79) from the inlet ports (32) so that the two inlet fluids (78, 79) do not mix until after they have passed through the two inlet apertures (2,3) in the inlet valve disk (1);

the outlet valve disk (10) contact surface and the inlet valve disk (1) contact surface (6) being arranged in substantially planar sealing contact with one another, the outlet valve disk (10) having an outlet aperture (12) in communication with the outlet port (34), and a sealing area (11) that is greater than or equal to the combined area of the two inlet apertures (2,3)

so that the sealing area (11) of the outlet valve disk (10) can cover and close the two inlet apertures (2,3),

the outlet valve disk (10) being capable of rotation relative to the inlet valve disk (1), about its principal axis between:

a. a shut off position where both of the inlet apertures (2,3) are closed by the outlet valve disk (10),

b. a first inlet opened position where the first inlet aperture (2) and the outlet aperture (12) are aligned to allow fluid (78) to flow from the first inlet port (32) through the first inlet aperture (2) via the outlet aperture (12) to the outlet port (34), whilst at the same time the second inlet aperture (3) is closed by the valve disk (10),

c. a second inlet opened position where the second inlet aperture (3) and the outlet aperture (12) are aligned to allow fluid (79) to flow from the second inlet port (32) through the second inlet aperture (3) via the outlet aperture (12) to the outlet port (34), whilst at the same time the first inlet aperture (2) is closed by the outlet valve disk (10), and

d. a mixing position wherein the outlet aperture (12) overlaps with both of the inlet apertures (2,3) to allow fluids (78,79) to flow from said two inlet ports (32) through the two inlet apertures (2,3) and through the outlet aperture (12), and mix downstream of the outlet aperture (12) so

that outlet fluid (80) can exit the outlet port (34),

characterised in that:

the outlet aperture (12) of the outlet valve disk (10) extends there through [sic] and is substantially sector shaped, and where the arc of the sector shape opens to the periphery (10) of the outlet valve disk (10) and;

the inlet valve disk (1) has no outlet aperture, and in the plane of the inlet valve disk contact surface (6) the two inlet apertures (2,3) are adjacent."

The claims of the auxiliary requests are discussed in the Reasons for the Decision, see point 5 below.

V. With a submission dated 10 December 2008 the appellant requested a postponement of the oral proceedings and that the application "be put into abeyance" on the ground that "the Applicant in this case, American Standard International Inc, no longer beneficially own this patent application", and that "exactly who is the new owner is not clear". By means of the postponement "the true owner's intentions can be ascertained before further steps are taken in this matter by the EPO or the Board".

VI. In a communication sent by facsimile on 11 December 2008 and on behalf of the board the Registrar informed the appellant that the request for postponement of the oral proceedings was refused.

VII. Oral proceedings were held on 15 December 2008 in absence of the appellant who had informed the board in

a further submission that he would not attend the oral proceedings. At the end of the oral proceedings the board announced its decision.

Reasons for the Decision

1. Procedural matters

1.1 The board summoned the appellant to oral proceedings in accordance with the conditional request made by the appellant in the statement of grounds (Article 116(1) EPC). Having verified that the appellant was duly summoned the board decided to continue the oral proceedings in the absence of the appellant (Rule 115(2) EPC and Article 15(3) RPBA).

1.2 The request for postponement of the oral proceedings as well as the request that the prosecution of the application be put into abeyance have no legal basis and were not allowed as, contrary to the appellant's opinion, the legal status as to ownership of the application is clear: pursuant to Rule 22 (3) EPC it continues to be the property of American Standard International Inc, who was recorded in the European Patent Register as the applicant at the date the request for postponement of the oral proceedings was filed. In the absence of any request for registration of a transfer of the application pursuant to Rule 22 (1) EPC there is nothing which could be seen as a transfer of ownership in progress. Thus in respect of the current proceedings American Standard International Inc remains the application's legal proprietor. The alleged uncertainty about the ownership was not therefore

considered an adequate reason for cancelling the oral proceedings (cf. the "Notice of the Vice-President of Directorate General 3 of the European Patent Office dated 16 July 2007 concerning oral proceedings before the boards of appeal of the EPO", OJ 2007 Special edition No 3, 115).

1.3 Nor is the alleged uncertainty about the patent proprietor considered a serious reason to allow the request that the prosecution of the application be put in abeyance pursuant to Rule 142 (1) EPC, which provides for an interruption of proceedings in certain cases of legal incapacity of either an applicant or its representative. A mere allegation in the absence of any evidence is not sufficient.

1.4 In the communication accompanying the summons, observations inter alia under Article 84 and Article 56 EPC were made in respect of claim 1 of all requests as pending at the time and the appellant was informed that at the oral proceedings these points would be discussed. Consequently, the appellant could reasonably have expected the board to consider at the oral proceedings these objections not only in respect of claim 1 of the requests pending at the time but also in respect of any amended version of claim 1 of the main and the auxiliary requests filed by the appellant in response to the summons to oral proceedings.

1.5 In deciding not to attend the oral proceedings the appellant chose not to make use of the opportunity to comment at the oral proceedings on any of these objections but, instead, chose to rely on the arguments

as set out in the written submissions, which the board duly considered below.

1.6 In view of the above and for the reasons set out below, the board was in a position to give at the oral proceedings a decision which complied with the requirements of Article 113(1) EPC.

2. In the impugned decision novelty was not at issue and the board is satisfied that none of the prior art documents at its disposal disclose all features of claim 1 of each of the requests. Consequently, the valve according to claim 1 of each of the requests is novel.

3. *The closest prior art*

The introductory portion of the application discusses known valve systems suitable for being electrically controlled or actuated and describes as a known example a servo-controlled faucet valve in which an electric motor moves the disc of a faucet valve by turning the spindle in order to restrict flow. The application was apparently drafted on the assumption this known valve is the closest prior art.

The board notes however that document D8 describes at Figures 3 to 8 a servo-controllable valve having a valve seat (15) in the shape of a flat disk and including two inlet apertures (2d, 3d) and an outlet aperture (4d). The valve body (16) is likewise disk-shaped and is provided with an approximately crescent-shaped mixing cavity (17). The valve seat and the valve body are coaxially mounted so that the cavity, when

rotated with respect to the valve seat, consecutively overlaps with none, one or both of the inlet apertures. In this way the valve allows for controllably changing the mixing ratio of the fluids from the inlet apertures.

The structure of the valve of D8 and the mixing principle thereof closely conform to those of the valve of the present application. Although the appellant considers the valve of D8 remote from that of the present application because the intended use of the D8 washing system is for a bidet whereas the claimed valve is for a shower, which can be expected to have intrinsically a substantially higher flow rate than a bidet, the board does not regard the intended use as relevant since neither D8 nor - as noted at point 4.2 below - the present application attach any significance to, or include any feature dependent on, the flow rate. Accordingly, the board considers D8 as the closest prior art for an assessment of inventive step in view of its structural similarity to the claimed invention.

4. *Main request - inventive step*

4.1 The board considers that all features of the pre-characterizing portion of claim 1, except the feature that the cross section of the inlet apertures of the inlet valve disk contact surface is sectorial, are known from D8. This has not been contested by the appellant. The valve claimed in claim 1 of the main request accordingly differs from that of D8 as regards the sectorial cross section of the inlet apertures and the characterizing features, i.e. the outlet aperture of the outlet valve disk extends therethrough and is substantially sector shaped; the arc of the sector

shape opens to the periphery of the outlet valve disk; the inlet valve disk has no outlet aperture; and in the plane of the inlet valve disk contact surface the two inlet apertures are adjacent.

4.2 The board does not concur with the appellant's opinion that the differing features of claim 1 have an impact on the flow rate of the valve; the board cannot find such a teaching in the application as filed. For this to be the case it would be necessary for the size of the cut-out sector and the inlet apertures to be specified in the claim.

4.3 The board considers the objective technical problem as being to modify the valve known from D8 such that the outlet is not necessarily on the same side of the valve as the inlets, while ensuring a substantially linear flow response. The board does not consider the feature of two inlet apertures being adjacent as relevant to the technical problem since the vague term "adjacent" is not clearly limitative and no technical teaching on the feature can be found in the application.

4.4 Mixing valves having inlet and outlet either on the same side or on different sides are known from D9. The mixing valve shown in figures 25 and 26 has a closed mixing cavity 153 and an axial outlet aperture 117 (figure 26) so that the fluid leaves the valve towards the direction of the inlet apertures. Regarding the arrangement of the inlet and outlet apertures this mixing valve is substantially identical to the mixing valve of D8.

The embodiment shown in figures 1 and 2 is designed for

a radial fluid outlet. In this embodiment, instead of having an axial outlet aperture, the side of the mixing cavity, constituted by disk 41 and plate 5, is open so that the fluid leaves the valve in a radial direction.

The teaching of D9 would motivate a person skilled in the art to modify the valve of D8 so as to permit the inlet and outlet to be on different sides. In order to enable this it would merely be necessary for a skilled person to close the outlet aperture in the valve seat and to open the valve body to the side. The skilled person is led to this solution by the teaching of figures 1 and 2 of D9 and would thus close the outlet aperture 4a in the D8 valve and open the mixing cavity towards the side by removing the material of the disk 16 in the region of the mixing cavity 17. The skilled person would further observe that the apertures of disks 3 and 4 and plate 5 in D9 (cf. page 6, line 1 to page 7, line 3) are substantially sector shaped and would see these shapes as obvious alternatives to those of the inlet apertures 2d, 3d and the mixing cavity 17 in D8, in particular as sector-shaped inlet and outlet apertures have a linear flow response with rotational angle solely due to their geometry.

In the board's view it would have been obvious for the person skilled in the art to apply this teaching of D9 to the valve disclosed in D8 in order to solve the problem identified above. Consequently, claim 1 of the main request lacks an inventive step (Article 56 EPC).

4.5 The appellant further argued that a skilled person would not have considered D9 as relevant prior art since the D9 valve comprises three superposed plates

and is not adaptable for servo control. The board finds these arguments unconvincing. The skilled person would understand that three superposed plates are only provided for independently controlling temperature and flow. However, the problem of arranging the outlet aperture either for axial or for radial outlet of the fluid would be understood by the skilled person as being separate to the problem of controlling the temperature and flow. Consequently, the skilled person would not be discouraged from applying this teaching to a valve only designed for common control of temperature and flow and thus having only two disks. Furthermore, the board notes that there is no feature in claim 1 specific to servo control, the claim merely requiring that the valve be suitable for servo control. From this the board concludes that a person skilled in the art would not restrict him or herself to servo controlled valves when seeking a solution to the problem identified above.

5. *The wording of claim 1 of auxiliary requests 1-4*

It is not wholly clear to the board how certain of the amendments requested at pages 6 and 7 of the letter of 14 November 2008 and mentioned at point III above should be applied to the claims of the various requests. The board understands that claim 1 of the first auxiliary request adds to claim 1 of the main request the feature

> "each having its sector apex close to the point where the principal axis of the outlet valve disk intersects the inlet valve disk".

The board further understands that claims 1 of the second and third auxiliary requests become identical

due to the requested amendments and differ from claim 1 of the first auxiliary request merely in omitting the reference in the last feature of the claim to the two inlet apertures being "adjacent". Finally, the board understands claim 1 of the fourth auxiliary request to differ from claim 1 of the main request in the addition of the words "of the outlet valve disk" in sub-features b, c and d, and in that the last feature reads

> "each of the two inlet apertures (2, 3) in the plane of the inlet valve contacting surface (6) of the inlet valve disk (1), has its sector apex close to the point where the principle [*sic*] axis of the outlet valve disk (10) intersects the inlet valve disk (1)".

6. *First auxiliary request - inventive step*

The board notes from figure 2 of D9 that the movable parts of the known valve are rotatable around an axis. The first paragraph on page 6 of D9 discloses that the inlet sectors on the upper side of disk 3 are adjacent insofar as the term has any meaning, and coaxially arranged on the disk from which the board concludes that their apices are close to the axis of rotation. Thus, the feature added in claim 1 of the first auxiliary request is known from D9. The subject-matter of claim 1 of the first auxiliary request does not therefore involve an inventive step for the same reasons as for the main request.

7. *Second and third auxiliary requests - inventive step*

Regarding claim 1 of the second and third auxiliary requests the board considers that this claim does not

differ in substance from claim 1 of the first auxiliary request since as noted above the words "are adjacent" are not clearly limitative. Furthermore, it is explicitly mentioned in D9 (cf. lines 3 to 10 on page 6 of D9) that one side of an inlet sector is adjacent one side of the other sector. Thus, the subject-matter of claim 1 of the second and third auxiliary requests does not involve an inventive step for the same reasons as for claim 1 of the first auxiliary request.

8. *Fourth auxiliary request - inventive step*

The board understands the last feature of claim 1 of the fourth auxiliary request as merely an alternative form of wording of the last two features of claim 1 of the first auxiliary request. No difference in substance is apparent and the board therefore concludes that the subject-matter of claim 1 of the fourth auxiliary request does not involve an inventive step for the same reasons as for claim 1 of the higher requests.

9. Since the subject-matter of claim 1 of all of the requests fails to meet the requirement of inventive step the appeal cannot be allowed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Magliano A. S. Clelland