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**D E C I S I O N**  
**of 3 December 2002**

**Case Number:** T 0847/00 - 3.2.3

**Application Number:** 96306666.7

**Publication Number:** 0779111

**IPC:** B08B 9/093

**Language of the proceedings:** EN

**Title of invention:**

Method for treating liquid in a tank and liquid jetting device  
used in the method

**Applicant:**

TAIHO INDUSTRIES Co., LTD.

**Opponent:**

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**Headword:**

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**Relevant legal provisions:**

EPC Art. 56

**Keyword:**

"Inventive step - (yes) after amendment"

**Decisions cited:**

-

**Catchword:**

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Case Number: T 0847/00 - 3.2.3

**D E C I S I O N**  
**of the Technical Board of Appeal 3.2.3**  
**of 3 December 2002**

**Appellant:** TAIHO INDUSTRIES Co., LTD.  
Minato-ku  
Tokyo (JP)

**Representative:** Smith, Norman Ian  
F.J. CLEVELAND & COMPANY  
40-43 Chancery Lane  
London WC2A 1JQ (GB)

**Decision under appeal:** Decision of the Examining Division 2.3.09.113 of  
the European Patent Office posted 19 May 2000  
refusing European patent application  
No. 96 306 666.7 pursuant to Article 97(1) EPC.

**Composition of the Board:**

**Chairman:** C. T. Wilson  
**Members:** F. Brösamle  
J. P. Seitz

## Summary of Facts of Submissions

I. With decision of 19 May 2000 the examining division refused European patent application No. 96 306 666.7 in the light of

(D1) GB-A-2 113 079.

II. Against the above decision the applicant - appellant in the following - lodged an appeal on 17 July 2000 paying the fee on the same day and filing the statement of grounds of appeal on 26 September 2000.

III. Following the board's Communication pursuant to Article 11(2) RPBA in which the board expressed its provisional opinion of the case with respect to the issues of clarity, original disclosure and inventive step oral proceedings were held on 3 December 2002 before the board in which the appellant submitted a new set of claims 1 to 12.

IV. The independent claims 1 and 6 thereof read as follows:

"1. A liquid jetting device comprising a frame (2) mountable on a tank (31) which is to be cleaned, a casing (4) carried by said frame, a jet nozzle (22') carried by said casing and first and second power sources for moving the nozzle characterised in that the casing is pivotally mounted in said frame so that it can swing in a first plane about the axis of a rotatable shaft (3) which extends laterally across the inside of the casing, the nozzle (22') is formed at one end of a cylindrical tube (22) the other end of which is carried by the casing so that the tube (22) can swing with said casing about the axis of the rotatable

shaft, said other end of the cylindrical tube (22) being mounted in the casing such that the tube can swing, in response to rotation of said rotatable shaft (3), relative to said casing in a second plane about an axis perpendicular to the shaft axis, said first power source, which is supplied with driving fluid, operating to cause said swinging movement of said casing, said second power source which is supplied with driving fluid operating to rotate said shaft (3) to cause swinging movement of the nozzle in the second plane, and means (11, 14, 28) is provided to enable the driving of the first and second power sources to be controlled from outside the tank."

and

"6. A method for treating liquid stored in a tank, comprising the steps of installing in a tank at least one liquid jetting device according to any one of claims 1 to 4, said method being characterised in that the jetting of liquid is monitored from outside the tank, the nozzle is controlled so that it is caused to swing in a vertical plane by operation of the first power source (29) and is caused to swing in a horizontal plane by operation of the second power source (30)."

V. The appellant essentially argued as follows:

- the objected words "state of liquid jetting from the nozzle" have been removed from claim 1 and the feature of control with respect to the first and second power sources has been reintroduced in claims 1 and 6 so that the requirements of Articles 84 and 123(2) EPC are met;

- claim 1 has been amended to specify that the casing can swing in a first plane and that the nozzle being carried by the casing can swing relative to the casing;
- the nozzle was thereby allowed to move in two planes which are perpendicular to each other;
- the claimed subject-matter is distinguished from the disclosure of (D1) in that no concentric arrangement of a rotary cylinder and an operating rod is required;
- to meet the further requirements of the EPC an amendment to the description has been carried out and submitted to the board.

VI. The appellant requests that the decision under appeal be set aside and that a patent be granted on the basis of the following points:

- claims 1 to 12, filed during the oral proceedings;
- description: pages 1 to 3, 3a, 4 to 16, filed during the oral proceedings;
- Figures 1 to 8 as originally filed.

### **Reasons for the Decision**

1. The appeal is admissible.
2. *Clarity*

The unclear feature of originally filed claim 9 and of claim 1 according to the statement of grounds of appeal, namely to control "in accordance with a state of liquid jetting from ... the nozzle" has been deleted from claim 1 and the feature of the control with respect to the power sources has been reintroduced into claims 1 and 6 so that these claims are no longer open to an objection under Article 84 EPC.

3. *Amendments*

3.1 Claim 1 is based on all features of originally filed claim 1. That the nozzle "is formed at one end of a cylindrical tube" is clearly derivable from originally filed Figures 4 to 8; this is also the case for the feature of claim 1 that "said other end of the cylindrical tube ... can swing, in response ... about an axis perpendicular to the shaft axis" with respect to above Figures 4 to 8.

3.2 Claim 5 ("A tank ...") is based on originally filed claim 13, and claim 6 is based on originally filed claim 1.

3.3 Summarizing, the independent claims 1 and 6 and claim 5 are not open to an objection under Article 123(2) EPC.

4. *Novelty*

The issue of novelty needs no detailed discussion since it is obvious that the claimed subject-matter is not based on a **concentric arrangement** of a rotary cylinder and an operating rod as in (D1). The crucial issue to be decided is therefore inventive step.

5. *Inventive step*

*Claim 1*

5.1 The nearest prior art to be considered is (D1) in which cylindrical washers are bendable at flexible joints to achieve either a straight or a U-shaped arrangement, see Figures 3 to 5 and 9, in which washing liquid is jetted from the washers under high pressure to break down and fluidize the sludge in a tank which can thereafter be pumped up and discharged to the exterior of the tank. The trajectory of the tube/nozzle according to (D1) is **a cone** resulting in a spiral orbit for liquid to be jetted and in a variation of liquid pressure in dependence on the angle of the nozzle relative to the cylinder.

5.2 Owing to these shortcomings of the prior art, a need has been felt for a liquid treating method and a liquid jetting device which are capable of jetting liquid at high pressure by use of very simple equipment, controlling the amount and direction of the jetted liquid with ease and exactitude and enabling fluidization and other treatments of deposited sludge with high reliability and efficiency.

5.3 The solution to this need is laid down in claims 1 (device for jetting liquid) and 6 (method for treating liquid stored in a tank) in that the nozzle and its supporting cylindrical tube can swing **independently** in a first and a second plane being perpendicular to one another, a first and a second power source being also **independently** operable to move the nozzle in a respective one of the two planes by being supplied with driving fluid; a further feature of claims 1 and 6 is

that the first and second power sources are controlled from outside the tank.

- 5.4 It is obvious that the construction according to (D1) cannot lead a skilled person confronted with the solution of the above need to the liquid jetting device of claim 1 since (D1) is restricted to a **concentric** arrangement of rotary cylinder "12" and operating rod "29" leading to the above-mentioned trajectory of the nozzle in form of a cone and to a spiral motion of the jetted liquid whereas the subject-matter of claim 1 is based on a rotatable shaft "3" extending **laterally** across the inside of casing "4" i.e. contradictory to the teaching of (D1). From (D1) a construction for supporting a cleaning nozzle allowing its motion in **two** planes - being perpendicular to each other - these motions being **completely independent** from one another is not known and not directly derivable for a skilled person. This is also true for the feature of claim 1 with respect to the provision of two **independently working** power sources for adjusting the cleaning nozzle in the above two planes.

Not knowing the claimed liquid jetting device a skilled person would have had to completely redesign the device according to (D1) to arrive at the subject-matter of claim 1 which is a clear sign that this subject-matter is not obvious.

Claim 6

- 5.5 The independent method claim is based on a liquid jetting device according *inter alia* to claim 1 so that this method is also novel and not rendered obvious by (D1).



- 5.6 The further prior art in form of US-A-5 445 173 and US-A-1 838 634 is less relevant than (D1) since both documents only rely on a nozzle movable in **one** direction.
- 5.7 Summarising the above observations, the subject-matter of claims 1 and 6 is novel and inventive with respect to the teachings of (D1), US-A-5 445 173 and US-A-1 838 634 taken singly or in combination so that the requirements of Articles 54 and 56 EPC are met. Claims 1 and 6 are therefore allowable.
- 5.8 The dependent claims 2 to 5 and 7 to 12 relate to embodiments of the subject-matter of claims 1/6 and are likewise allowable.
- 5.9 The amended description meets the essential requirements of the EPC and can form the basis of grant. Clerical amendments of page 3a were carried out by the board and are detailed in the following "Order".

## **Order**

### **For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The case is remitted to the first instance with the order to grant a patent on the basis of the following documents:
  - claims 1 to 12 filed during the oral proceedings;
  - description: pages 1 to 3, 3a, 4 to 16, filed

during the oral proceedings with the following  
clerical amendments to page 3a thereof:

in line 2 "swing in a" is replaced by "swung in";

in line 4 "US-A-1 538 634" is replaced by  
"US-A-1 838 634" and "is a" is replaced by "in a";

- Figures 1 to 8 as originally filed.

The Registrar:

The Chairman:

A. Counillon

C. T. Wilson