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**Datasheet for the decision
of 12 December 2024**

Case Number: T 0438/23 - 3.2.04

Application Number: 12199559.1

Publication Number: 2609845

IPC: A47L15/00, A47L15/42

Language of the proceedings: EN

Title of invention:

Dishwasher and method for detecting malfunctions thereof

Patent Proprietor:

Beko Italy Manufacturing S.r.l.

Opponent:

Electrolux Appliances Aktiebolag

Headword:

Relevant legal provisions:

EPC Art. 100 (a), 100 (b)

RPBA 2020 Art. 12 (6)

Keyword:

Grounds for opposition - insufficiency of disclosure (no) -
lack of patentability (no)
Late-filed objection - should have been submitted in first-
instance proceedings (yes) - admitted (no)

Decisions cited:

Catchword:



Beschwerdekammern

Boards of Appeal

Chambres de recours

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Case Number: T 0438/23 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 12 December 2024

Appellant: Beko Italy Manufacturing S.r.l.
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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
19 December 2022 concerning maintenance of the
European Patent No. 2609845 in amended form.**

Composition of the Board:

Chairman A. Pieracci
Members: G. Martin Gonzalez
C. Heath

Summary of Facts and Submissions

- I. An appeal was filed by the appellant proprietor against the interlocutory decision of the opposition division to maintain the patent in amended form.

The respondent opponent, originally appellant opponent, withdrew their appeal during the oral proceedings before the Board.

- II. The opposition decision decided inter alia that granted claim 1 was sufficiently disclosed and new, while it did not involve an inventive step over the combination of D1 and D6.

- III. In preparation for oral proceedings the board issued a communication setting out its provisional opinion on the relevant issues.

Oral proceedings before the Board were held by videoconference on 12 December 2024.

- IV. The appellant proprietor requests that the decision under appeal be set aside and the opposition be rejected (maintenance of the patent as granted), or that the patent be maintained according to one of the auxiliary requests 1-3, 3bis, 3ter or 4, auxiliary requests 1-3,4 having already been filed during the opposition proceedings and re-filed with the statement of grounds of appeal, auxiliary request 3 corresponding to the upheld version and thus to the dismissal of the opponent's appeal, and auxiliary requests 3bis and 3ter being filed with the proprietor's reply of 14 September 2023 to the opponent's grounds of appeal.

The respondent opponent requests that the proprietor's appeal be dismissed.

V. Independent claim 1 of the main request (patent as granted) reads as follows:

"A dishwashing machine (1) comprising a tub (2), a recirculation pump (31) for recirculating a liquid contained in the tub (2) and a drain pump (36) for draining said liquid from the tub (2), electric motor means (31,36) respectively associated with said pumps (31,36), a control unit (5,5') for acquiring and/or processing at least one electromechanical parameter associated with at least one of said motor means (31, 36) and controlling an operating cycle of the machine, wherein the control unit (5,5') being configured so that it estimates, at predetermined time intervals, said at least one electromechanical parameter associated with at least one of said electric motor means in order to detect the following malfunction situations:

- foam presence within the tub (2) exceeding a preset level;
- presence in the tub (2) of a concave object turned upwards, which at least partly prevents circulation of the liquid in the tub;

characterized in that the control unit (5,5') is also configured to detect, by means of the estimation of said at least one electromechanical parameter associated with at least one of said electric motor means, the following further malfunction situations:

- closed tap, which stops the flow of water into the tub (2);
- liquid leakage from the dishwasher (1)."

VI. In the present decision, reference is made to the following documents:

- (D1) WO 2006/033027 A1
- (D2) JP 2002 51964 A
- (D3) US 2006/0219262 A1
- (D6) JP 2005 296095 A

VII. The parties' arguments relevant to the decision are discussed in detail in the Reasons for the Decision.

Reasons for the Decision

1. Background

The invention relates to a dishwasher and a method for managing its operation, in particular for quickly and efficiently monitoring malfunctions or incorrect use. This is based on the creation of a virtual sensor (see patent specification para 0010). This sensor operates by analysing an operating variable (e.g. current, voltage, rpm, torque, etc. - see patent specification para 0024) associated with one of the dishwasher's motors (such as the motor for drain pump or for the recirculation pump). This makes it possible to detect operational problems or incorrect use during the washing cycle, see paras 0001-0010.

2. Main request - Sufficiency of disclosure
 - 2.1 The respondent opponent challenges the opposition division's finding that claim 1 is sufficiently disclosed, Art 100(b) EPC. The Board is not convinced by the opponent's arguments.
 - 2.2 Claim 1 requires the detection of four specific malfunction situations - foam presence, presence of a concave upturned object, closed tap, and liquid leakage - using an electromechanical parameter of the motor of the pump.
 - 2.3 The opponent argues that while the examples in the patent specification only cover the use of motor torque, the broad scope of the claim, which merely requires "at least one electromechanical parameter", leads to insufficiency of disclosure. They contend that there is no guidance on how to implement, in practice, the other parameters listed in paragraph [0033] of the patent specification. Additionally, they put forward that certain combinations from that list would not work - for example, using motor speed to detect foam presence. They also cite decision **T 1404/05**, which they interpret as establishing that if embodiments within the scope of the claim cannot be carried out by the skilled person, the claim is open to objection for insufficiency of disclosure.
 - 2.4 The Board notes the opponent's reference to decision **T 1404/05**. That decision concerns vaguely formulated claims and establishes that, where part of the subject-matter claimed cannot be carried out on one of several possible constructions of a vaguely formulated claim, the claim is open to objection under Article 100(b) EPC. However, as argued by the appellant proprietor,

the contested claim 1, while arguably broad, is not vaguely formulated. It clearly requires the use of an electromechanical parameter of a motor pump, which is precise in scope for the skilled person, and specifies the detection of four distinct malfunctions: foam presence, an upturned bowl or similar object, water leakage, and a closed tap. These claimed elements are neither vague nor ambiguous; they have precise and clear meanings. Therefore, the reasoning in **T 1404/05** does not apply to the present case.

- 2.5 Otherwise, as argued by the patent proprietor and not contested by the opponent, the patent specification provides at least one detailed embodiment for detecting each malfunction using motor torque as a parameter: foam presence (paras 0035-0041, Figs. 3 and 4); presence of a concave upturned object (para 0056, Fig. 8); closed tap (para 0054, Fig. 6); and liquid leakage (paras 0055, 0069, Fig. 7). These methods rely on measured mean torque (ME_Mean) and torque standard deviation (ME_DevStd) of the motor, which reflect different load states of the motor pump (S0, S1, S2), as described in paragraphs [0034]-[0039] of the patent specification. The specification further clarifies the context in which these motor load states are sensed, such as during specific washing program steps or sub-steps, whether data is collected continuously or at intervals, and any additional procedures required for the detection of the malfunction. For example, in detecting foam presence, once the pump enters state S2 (faulty state) during a holding sub-step P2 of a washing cycle, a further procedure is triggered: the pump is operated at a lower speed. If the motor pump transitions from state S2 to state S1, foam presence is confirmed (see paragraphs [0035] and [0038]).

- 2.6 Each of the above cited examples provide a clear starting point for the skilled person to develop routine variations of the claimed detection methods within the scope of the claim. A skilled person - an engineer in dishwasher design with common general knowledge in electric machine design and control - can readily correlate the described motor load states to other electromechanical motor parameters, as those listed in paragraph [0033] of the specification. This enables the skilled person, without undue burden, to implement similar strategies using other electromechanical parameters for detecting each malfunction and to determine which specific parameters are workable for each detection while ruling out combinations of parameters and malfunctions making no technical sense, as found by the opposition division (see point 9.3 of the appealed decision).

- 2.7 The Board thus confirms the opposition division's conclusion that claim 1 as granted is sufficiently disclosed (Art 83 EPC), as the patent specification provides clear and adequate guidance for the skilled person to implement the claimed invention.

3. Main request - Novelty
 - 3.1 The respondent opponent contests the novelty of granted claim 1.

 - 3.2 Granted claim 1 requires a control unit configured "to detect" four specific anomalies, which, in the Board's view, for a person skilled in the art means to identify them, as also held by the opposition division in section 10.2.2. Merely detecting a malfunction without identifying its nature does not anticipate the claimed feature.

- 3.3 As noted in the Board's preliminary opinion concurring with the finding of the opposition division in point 10.2.2.1 and 10.2.2.6, the dishwasher in D1 does not detect a closed tap or liquid leakage, and D6 does not detect foam presence.
- 3.4 As also outlined in the preliminary opinion (see point 6.4 thereof), the general objections of lack of novelty over all documents cited in opposition proceedings without individual reasoning, raised by the respondent opponent in section 2 of letter dated 7 September 2023, fail. These are based on the interpretation of "to detect" (not shared by the Board) as merely detecting a malfunction without identifying its nature.
- 3.5 During the oral proceedings, the opponent focused solely on D1, arguing that even under the Board's interpretation of "to detect", document D1 anticipates the subject matter of granted claim 1.

However, a successful novelty objection must be based on a direct and unambiguous disclosure of the claimed features. D1 does not disclose detection of water leakage or a closed tap. Paragraph [020], cited by the respondent opponent, states that an inappropriate amount of water in the washing chamber can be determined using the PWM duty cycle of the motor (a motor electromechanical parameter). However, an inappropriate amount of water can result from various situations. While this parameter may be used for detecting a malfunction, nowhere in D1 is there mention of detecting leakage or a closed tap. Furthermore, it may serve purposes unrelated to malfunction detection. This is indeed the case in D1. Figures 3 to 6, cited by the opponent in this respect, illustrate motor parameter measurements during different stages of the

water intake step of a dishwasher. These measurements are used to monitor and determine that the ideal amount of water for the current wash load during the appliance's water loading step has been reached, as described in paragraphs [028]-[032] of D1. Thus, no detection of any malfunction is derivable from that disclosure. The fact that measuring an inappropriate amount of water, as disclosed in D1, could theoretically be used for detecting the claimed malfunctions does not imply that such detection is disclosed.

- 3.6 The Board thus confirms the opposition division's conclusion that claim 1 as granted is new over the cited prior art, Art 54 EPC.
4. Main request - Inventive step
 - 4.1 The appellant proprietor contests the opposition division's finding regarding inventive step in section 12 of the appealed decision. The division held that granted claim 1 does not involve an inventive step over the combination of D1 with D6. The combination of D1 with common general knowledge was also under discussion during these proceedings.
 - 4.2 The novelty analysis indicates that D1 does not disclose the detection of a closed tap or liquid leakage. These differentiating features enhance the detection of malfunctioning situations, leading to the objective technical problem of improving dishwasher safety (see section 12.4 of the appealed decision).
 - 4.3 The opposition division, as stated in section 12.6 of the appealed decision and supported by the respondent opponent, held that paragraph [0013] of D6 teaches that

by detecting the motor current of the washing or draining pump, problems such as water leakage or water supply (which, according to the opposition division and the opponent, correspond to the claimed malfunction of a closed tap) can be detected.

However, as convincingly argued by the appellant proprietor during the oral proceedings, document D6 discloses the detection of faults in water supply, which is more generic than the detection of a closed tap. Paragraph [0013] of D6 (as per the human translation supplied by the patent proprietor) states: "...that a water leakage or a fault in water supply, etc. can be detected by detecting the water level drop in the washing tub". Even interpreting the claimed feature of a closed tap in its technically sensible broadest sense, as generally detecting an interruption of water intake regardless of the cause (to which claim interpretation the Board agrees), the term "fault in water supply" is broader. As argued by the patent proprietor it also encompasses cases such as reduced water pressure or a faulty water inlet valve causing reduced or unstable intake water flow rates.

The remainder of D6 only discloses the detection of water leakage. This is there done by observing changes in motor current during washing operations (see paragraphs [0092]-[0093] and Figure 15). During the washing operations described in D6, no water intake occurs, meaning the described method cannot detect a closed tap malfunction. Therefore, in the Board's view, D6 does not teach the detection of a closed tap malfunction using a motor electromechanical quantity.

Neither does such a teaching belong to the common general knowledge of the skilled person, contrary to the opponent's submissions. While it is common knowledge that a closed tap is a malfunction situation to be avoided, there is no evidence provided by the respondent opponent, nor is it apparent to the Board, that using a pump motor electromechanical quantity to detect such a malfunction forms part of the common general knowledge of the skilled person.

- 4.4 Nonetheless, even if this suggestion were considered derivable from D6 or common general knowledge, the Board does not see how the skilled person, without hindsight knowledge of the contested patent and the specific method disclosed therein, would have modified the dishwasher of D1 to implement such a detection as a matter of obviousness. The respondent opponent argues that the machine of D1, as described in Figures 1-6 and associated paragraphs [028]-[032], uses motor current to sense whether an appropriate water level has been reached and that the skilled person could use such motor current to detect a closed tap malfunction. However, D1 lacks any teaching on how to use that information or the steps required to detect a closed tap malfunction. This detection is not trivial per se. The contested patent contains the appropriate knowledge to perform it. It requires continuous monitoring of the pump state in S0 during the entire loading step P1, including sub-steps SP1-SP5. It involves continuing pump operation and monitoring beyond the detection of an empty tub (S0) after the first static water load sub-step SP2 to differentiate it from other potential malfunctions, such as drain pipe leakage, also initially causing an S0 motor state (see paragraphs [0053]-[0055] and Figures 5-7 of the patent specification). Such a teaching or an equivalent

teaching to detect the closed tap malfunction is neither derivable from D1, D6, nor from the common general knowledge and, in the Board's view, is also not trivial per se.

- 4.5 The Board therefore concludes that the combination of teachings from D1 with D6 and common general knowledge, or with common general knowledge alone, would not lead the skilled person to the subject matter of granted claim 1 in an obvious manner.
- 4.6 Regarding the inventive step objection starting from D2 in combination with D3 as advanced in writing, the Board noted in its preliminary opinion (see section 7.1 thereof) that this combination has been submitted for the first time in appeal. The appellant opponent's references in this respect in item 1.6 of letter dated 21 March 2024, to pages 7 and 8 of their letter to the opposition division of 9 August 2022 concern D3 as starting point, not D2. There is no apparent justification to submit a new attack against a granted claim for the first time in appeal rather than in opposition proceedings. This objection was presented again by the Board during the oral proceedings and the respondent opponent refrained from further comment. The Board therefore, having considered all the relevant aspects of the case, decided not to admit this objection into the proceedings pursuant to Art 12(6) RPBA.
- 4.7 The Board therefore concludes, contrary to the opposition division's findings, that the ground of opposition of inventive step, Art 100(a) EPC, does not prejudice the maintenance of the contested European patent.

5. Contrary to the opposition division's conclusions, the Board finds that none of the grounds of opposition under Article 100 EPC raised by the respondent opponent prejudices the maintenance of the European patent. Consequently, the decision under appeal must be set aside. The patent is to be upheld as granted and the opposition rejected, Art 101(2) EPC.

Order

For these reasons it is decided that:

1. **The decision under appeal is set aside.**
2. **The patent is upheld as granted.**

The Registrar:

The Chairman:



G. Magouliotis

A. Pieracci

Decision electronically authenticated