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Datasheet for the decision of 2 October 2008

Case Number: T 1337/07 - 3.2.04

Application Number: 00102533.7

Publication Number: 1040786

IPC: A47L 15/23

Language of the proceedings: EN

Title of invention:
Dishwashing machine with pulsed water spray jets

Patentee:
ELECTROLUX HOME PRODUCTS ITALY S.p.A.

Opponent:
Miele & Cie. KG

Headword:
-

Relevant legal provisions:
EPC Art. 52, 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 1337/07 - 3.2.04

D E C I S I O N
of the Technical Board of Appeal 3.2.04
of 2 October 2008

Appellant: (Opponent)
Miele & Cie. KG
Schutzrechte/Verträge
Carl-Miele-Strasse 29
D-33332 Gütersloh (DE)

Respondent: (Patent Proprietor)
ELECTROLUX HOME PRODUCTS ITALY S.p.A.
Corso Lino Zanussi 30
I-33080 Porcia (Pordenone) (IT)

Representative:
Giugni, Valter
PROPRIA S.r.l.
P.O. Box 365
Via della Colonna, 35
I-33170 Pordenone (IT)

Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 26 July 2007 rejecting the opposition filed against European patent No. 1040786 pursuant to Article 102(2) EPC.

Composition of the Board:

Chairman: M. Ceyte
Members: A. de Vries
C. Heath

Summary of Facts and Submissions

I. The Appellant (Opponent) lodged an appeal, received on 8 August 2007, against the decision of the Opposition Division posted 26 July 2007 to reject the opposition, and simultaneously paid the appeal fee. The statement setting out the grounds was received 20 November 2007.

Opposition was filed against the patent as a whole and based on Article 100 (a) together with Articles 52(1) and 56 EPC 1973, for lack of novelty and inventive step.

The Opposition Division held that the grounds for opposition under Article 100 EPC 1973 did not prejudice the maintenance of the patent as granted having regard in particular to the following document:
D1: EP-A-0 795 292

During the appeal proceedings the Board considered the following textbook excerpt of its own motion:
L.Nelik, "Centrifugal and Rotary Pumps: Fundamentals with Applications", Boca Raton, FA. (US): CRC Press, 1999, Chapter 3: "Concept of a pumping system"
referred to as "Nelik".

II. Oral proceedings in appeal were duly held before this Board on 2 October 2008.

III. The Appellant (Opponent) requests that the decision under appeal be set aside and the patent be revoked in its entirety.

The Respondent (Proprietor) requests that the appeal be dismissed.

IV. The wording of claim 1 of the granted patent is as follows:

"Dishwashing machine, comprising a washing vessel in which there are accommodated at least a rack supporting the washload items, as well as spraying means (8, 9) having at least a main nozzle (10) and at least an auxiliary nozzle (12) adapted to release respective water spray jets, said spraying means being supplied by a circulation pump (13) adapted for an alternating sequence of operating periods and pauses in which the pressure of the water supplying said spraying means is at its highest and its lowest value, respectively, wherein said spraying means (8, 9) also comprises control means (21) adapted to substantially shut off said auxiliary nozzle (12), or said main nozzle (10), during said operating pauses only"

V. The Appellant argued as follows:

In the dishwashing machine of D1 the diverting device 6 as control means alternately feeds a single one of sets of nozzles, or both in combination during washing and pre-washing/rinsing phases respectively. A pressure regime is derivable from claim 9 and column 7, lines 21 to 23, read in conjunction with column 1, lines 52 to 53. The first passage suggests increasing the rotation speed of the pump for joint feeding, while the second indicates that pump head is proportional to the square of the rotation speed. Therefore by virtue of the pump speed increase, pump head must necessarily be raised when changing from single set to joint feeding. Thus, pressure in the prewashing/rinsing stages with joint

feeding is higher than in the washing, single set feeding stage, corresponding to claim 1. The graphs of figure 5 are irrelevant in this respect as they merely show output pressure at an individual nozzle, whereas claim 1 refers to the pressure of the water supplying the nozzles, before it reaches the nozzles.

VI. The Respondent argued as follows:

Figure 5 is the only source of concrete information in D1 regarding pressure in the different phases. The working point 150 for prewashing/rinsing with joint feeding at increased pump speed gives a pressure which, though higher than H2, is still less than H1 of working point 149 for washing with single set feed. It might be possible to increase pump speed and flow rate during prewashing/rinsing so that point 150 gives a higher pressure, but this goes against D1's teaching.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC 1973 and is therefore admissible.

2. *Background*

The invention concerns a dishwasher with vessel, rack and spraying means with main and auxiliary nozzles supplied by a circulation pump in an alternating sequence of high pressure operating periods and low pressure pauses. The spray means comprises control means adapted to shut off one of the auxiliary or main nozzles only during a low pressure operating pause. By

thus limiting the water spray through both nozzles during the less critical operation pause efficiency loss during low pressure pause periods and thus reduction in overall performance is reduced, see as filed description page 2, second paragraph (paragraph [004] of the specification).

3. *Novelty*

3.1 It is undisputed that D1 discloses a dishwasher with standard components (see e.g. figure 1) such as a vessel 1, a pump 4, and spray means 11, 12, as well as racks, see column 8, line 47. As shown in figures 2 and 3, see also column 4, lines 35, to column 5, line 21, the spray means includes first nozzles 21-28 and second nozzles 31-38, either of which can be said to include main, the other auxiliary nozzles. The groups are set in separate manifolds 17,18 fed by respective coaxial ducts 47,48 in turn selectively connectable to the recirculation pump 4 via a diverting device 6, see column 5, line 46, to column 6, line 1. The diverting device can be regarded as a control device in the sense of claim 1; it operates so that during pre-washing and rinsing phases the two manifolds - one with main, the other with auxiliary nozzles - are fed *in combination*, while in the washing phase they are fed *intermittently,* i.e. either one or the other (col.3, ln.29-35). The pre-washing, washing and rinsing period can be said to be an alternating sequence of operating periods.

3.2 The only part of D1 from which concrete, comparative pressure values for the different stages can be inferred is figure 5 in connection with column 6, line 9, to column 8, line 11. The graph of figure 5,

see column 3, lines 52-56, shows curves which "describe the functional characteristics of a pump" and the "load curves of the spraying devices" of figures 2,3 and 4, i.e. manifold with nozzles connected to the pump. The "characteristic curves" - shown for different working conditions, column 6, lines 12 to 14 - set out pump head against flow rate, see column 6, lines 21 to 24 (throughout most of the text they are denoted as H(Q), while in the figures they appear as Q(H) and Q1(H)).

The load curves are marked QL1 and Q(L1+L2) in figure 5; QL1 represents the load for a single set of nozzles fed by either manifold 17 or 18, column 6, lines 43 to 53, while Q(L1+L2) corresponds to the *cumulative* load for the two groups of nozzles, column 6, lines 54 to 58.

3.2.1 As indicated in lines 29 to 31 of column 6, the working point of the pump is defined by the intersection of the characteristic curve H(Q) with a load curve. This follows standard practice in pump applications, as illustrated in figure 6 of "Nelik", and discussed in its chapter 3, section headed "Pump Curve". The point of intersection returns the operating parameters *pump head* and *flow rate* for a given pump connected to a given load system. Pump head is directly related to the pressure drop *across* the pump, see equation (16) in "Nelik" and the two directly preceding paragraphs, that is pressure at the pump *supply* or *discharge* p_d with regard to pressure at its suction (inlet) side p_s, and *not* pressure at individual nozzles, as asserted by the Appellant.

3.2.2 The working point for a *single set* of nozzles is defined by the intersection of pump curve Q(H) and single set load curve QL1 at 149 with head H1. That for *both* sets is defined by the intersection of the same pump curve Q(H) with joint set load curve Q(L1+L2) at 60, with head H2, see the paragraph bridging columns 6 and 7. The joint set head (prewashing and rinsing) value H2 is clearly lower than single set (washing) value H1. If pump speed is increased in the joint feed prewashing and rinsing phases as suggested in claim 9 and column 7, lines 21 to 23, the characteristic pump curve becomes that marked Q1(H) in figure 5, which intersects joint feed load curve Q(L1+L2) at point 150, see also column 7, lines 27 to 31. Though the corresponding head value is not shown on the ordinate, it is evident that this lies between H1 and H2: in this case also it is lower than the single set head value H1.

3.3 The passage in the penultimate paragraph of column 1 cited by the Appellant as particularly pertinent, when read in its proper context and in the light of the general knowledge of the skilled person - a pump engineer - will not lead to the claimed pressure regime. Thus, the stated relationship between pump head and pump speed is meaningful only if load (amongst other parameters such as fluid viscosity, type of pump etc) remains unchanged. This follows from the fact that pump head depends on load (as well as these other parameters) as illustrated in particular by the characteristic pump curves of figure 5 setting pump head against flow rate as indication of pump load.

It is for this reason that the stated dependency appears in the context of a known pump system where

pump speed is varied between phases, thus contrasting it with D1's central idea which is to vary load. In this known system pump speed is reduced to lower flow rate and pump head when high jet speed is not required, column 1, lines 53 to 57. Though power consumption is then lowered, overall washing effect is compromised, as flow rate is low when it should be high, column 2 lines 20 to 24, and ideal flow and jet speed conditions for the different phases as set out in column 2, lines 7 to 12 are thus not met. D1's main idea, see abstract, on the other hand, achieves both ideal washing conditions and lower power consumption by its selective feeding of either one or both sets of nozzles, i.e. by *varying of pump load*.

From the above it follows that where load as well as pump speed is varied, as in claim 9 and column 7, lines 21 to 23, the simple relationship between pump speed and head of column 1 no longer holds and cannot be used to infer relative pressure values in this situation. Such information can only be drawn from figure 5 as outlined above.

3.4 In conclusion, the only relevant passages of D1, figure 5 and the corresponding text, consistently show a higher pressure in the single set washing phase than in joint feed, pre-washing and rinsing phases. This differs from claim 1, which requires that the control means shuts off one of the main or auxiliary nozzles during the low pressure operating pause, so that when only main or auxiliary nozzles are supplied the pressure is at its lowest. Consequently, the dishwashing machine of claim 1 is novel over D1.

4. *Inventive Step*

In column 2, lines 7 to 19, D1's sets out optimal washing conditions of *high pressure and thus high jet speed, but reduced flow rate* in the washing phase, and *high flow rate, but low jet speed* in the prewashing and rinsing phases. As noted above, it achieves this by opening up additional flow ports in the prewashing and rinsing phases, which, as illustrated in figure 5, results in a lowering of pressure. This is diametrically opposed to the idea of granted claim 1 where auxiliary flow ports are shut off in the low pressure phases. As D1 teaches away from the claimed invention, and there is no apparent reason why the skilled person might depart from this teaching, the Board holds that the invention of granted claim 1 involves an inventive step.

5. *Conclusion*

The Board confirms the appealed decision's finding that none of the grounds raised in opposition prejudice the patentability of the patent as granted. It concludes that the decision was justified in rejecting the opposition.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar The Chairman

G. Magouliotis M. Ceyte