

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 6 December 2011**

Case Number: T 1681/09 - 3.2.04

Application Number: 02708883.0

Publication Number: 1370131

IPC: A01J 9/04

Language of the proceedings: EN

Title of invention:

Cooling of milk in an automatic milking system

Patentee:

DeLaval Holding AB

Opponent:

Octrooibureau Van der Lely N.V.

Headword:

-

Relevant legal provisions (EPC 1973):

EPC Art. 54(3)

Keyword:

"Claim Interpretation"

"Novelty (yes - main request)"

"New ground for opposition (not admitted)"

"Remittal (yes - main request)"

Decisions cited:

G 0010/91

Catchword:

-



Case Number: T 1681/09 - 3.2.04

D E C I S I O N
of the Technical Board of Appeal 3.2.04
of 6 December 2011

Appellant: DeLaval Holding AB
(Patent Proprietor) P.O. Box 39
SE-147 21 Tumba (SE)

Representative: Schmidt, Karsten
ZACCO GmbH
Bayerstrasse 83
D-80335 München (DE)

Respondent: Octrooibureau Van der Lely N.V.
(Opponent) Weverskade 110
NL-3147 PA Maassluis (NL)

Representative: Corten, Maurice Jean F.M.
Octrooibureau Van der Lely N.V.
Weverskade 110
NL-3147 PA Maassluis (NL)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 19 June 2009
revoking European patent No. 1370131 pursuant
to Article 101(3)(b) EPC.

Composition of the Board:

Chairman: M. Ceyte
Members: A. de Vries
T. Bokor

Summary of Facts and Submissions

I. On 7 August 2009 the Appellant (Proprietor) lodged an appeal against the Opposition Division's decision of 19 June 2009 to revoke European patent No. 1 370 131 and simultaneously paid the prescribed appeal fee. The grounds of appeal were filed on 28 October 2009.

II. Opposition was filed against the patent as a whole and based on Article 100(a) EPC in combination with Articles 54 and Article 56 for lack of novelty and inventive step respectively.

The Opposition Division in its decision held that the ground of lack of novelty prejudiced maintenance of the patent in view of the following document:

D1: WO-A-01/56370

D1 is an international publication according to Article 21 of the PCT which, under the terms of then applicable Article 158(1) EPC 1973, takes the place of European publication No. 1 251 732. It is post-published but claims an earlier priority than the contested patent, while designating the same contracting states and is thus a prior right document under Article 54(3) EPC 1973.

III. The Appellant (Proprietor) requests, as main request, that the decision under appeal be set aside and the patent be maintained as granted, or, in the alternative that it be maintained in amended form according to auxiliary requests 1 to 3, auxiliary request 1 and 3 filed with letter dated 4 October 2011, auxiliary

request 2 filed with the grounds of appeal. He also requests a final decision on the case and thus no remittal for further prosecution.

The Respondent (Opponent) requests the dismissal of the appeal. Should claim 1 according to one of the requests be found to define novel subject-matter and not to add subject-matter, he requests that the case be remitted to the department of first instance for further prosecution.

IV. Oral proceedings before the Board were duly held on 6 December 2011.

V. The wording of the independent claims of the patent as granted is as follows:

1. "A method for cooling milk in an automatic milking system, which comprises a milking robot (1) for milking animals, such as cows; a milk storage tank (5) connected to said milking robot for storing milk extracted by the milking robot; and a cooling device (7) for cooling milk stored or to be stored in said milk storage tank by cooling a bottom portion (14) of said milk storage tank, said method being characterized by the steps of:

- measuring an amount of milk extracted by said milking robot by means of a milk flow meter;
- determining a cooling need for milk stored or to be stored in said milk storage tank based on said measured amount of milk;
- measuring a quantity indicative of a temperature of an inner surface area (16) of the bottom portion of the milk storage tank; and

- cooling said bottom portion of said milk storage tank in consecutive periods, such that each period of cooling (τ_1 , τ_3) is followed by a respective period of non-cooling (τ_2 , τ_4), wherein the duration of each period of cooling and/or non-cooling is based on said measured quantity indicative of the inner surface temperature, and said determined cooling need".

14. "An arrangement for cooling milk in an automatic milking system, said milking system comprising a milking robot (1) for milking animals, such as cows; a milk flow meter (2) for measuring an amount of milk extracted by said milking robot; a milk storage tank (5) connected to the milking robot for storing milk extracted by the milking robot; and a cooling device (7) for cooling milk stored or to be stored in said milk storage tank by cooling a bottom portion (14) of said milk storage tank, characterized in that said arrangement comprises:

- a sensor (15) for measuring a quantity indicative of a temperature of an inner surface area (16) of the bottom portion of the milk storage tank; and
- a controller (17) for determining a cooling need for milk stored or to be stored in said milk storage tank based on said measured amount of milk; and for controlling said cooling device to cool said bottom portion of said milk storage tank in consecutive periods, such that each period of cooling (τ_1 , τ_3) is followed by a respective period of non-cooling (τ_2 , τ_4), wherein the duration of each period of cooling and/or non-cooling is based on said measured quantity indicative of the inner surface area temperature, and said determined cooling need".

VI. The Appellant argued as follows:

The term "cooling need" in claim 1 must be interpreted in the light of the description. There, it clearly designates a quantitative notion, something that is calculated from the milk amount as sole measured quantity. The description, in particular specification paragraphs [0048], [0050] and [0052], gives concrete information on how that calculation is performed. It is the energy for cooling a given amount of milk by a given temperature drop. Reading "cooling need" as a Boolean quantity goes completely against the patent's teaching.

D1 may be concerned with the same problem of avoiding freezing of small amounts of milk. However, it offers a different solution with refrigerant temperature controlled by regulating the vapour pressure in the evaporator. D1 neither suggests nor implies calculating a cooling need, and using it to determine cooling or non-cooling periods. Thus, page 7 indicates that a cooling period ends in response to evaporator temperature and pressure falling below some set value. Restart is after a time period determined by milk quantity and/or temperature, not a cooling need. There is no indication how this restart should proceed, it might be simply when measured milk quantity and temperature rise above set values. In any case determination of time period is not the same as determining a cooling need.

The Board should not remit the case but give a final decision. This would provide legal certainty after a long period of uncertainty.

VII. The Respondent argued as follows:

Nowhere does the patent provide a clear definition of what is meant by "cooling need". Specification paragraph [0048] may refer to an energy amount, but it is the energy required to cool the tank, not milk for storage. Paragraph [0052] on the other hand does not mention cooling need but gives an amount of time.

If "cooling need" is to be understood as an energy amount determined not only by measured milk amount but also temperature difference the claim lacks essential detail. It is then justified to give it a much broader reading.

The term could mean nothing more than a "yes" or a "no" to the question whether the milk needs cooling. The fact that it is calculated does not exclude such a reading, as a Boolean could also be the result of a calculation based on milk amount.

On page 7 D1 clearly discloses controlling the cooling assembly on the basis of a measured flow of milk to be stored. This means that in D1 also a cooling need within the normal meaning of the word "need" is determined as otherwise no control of the cooling assembly would be necessary. In any case the statement on page 7 of D1 that the a time period is determined implies that a calculation takes place, which is on the basis of milk amount. This reflects that fact that the idea and physics underlying D1 and the patent are essentially the same.

If page 7 were to be read as meaning that the compressor restarts when measured milk amount exceeds a given value, than the given value itself represents the cooling need.

Remittal seems appropriate to ensure full two instance consideration of inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. *Background & Claim Interpretation*

2.1 The patent is concerned with cooling of milk in an automatic milking system with milking robot. The main idea as expressed in granted method claim 1 is to cool the milk storage tank in consecutive cooling and non-cooling periods, where the duration of each (cooling and/or non-cooling) period is based on a measured quantity indicative of the temperature at the bottom of the tank and the cooling need determined from the amount of milk (to be) stored measured with a milk flow meter. This allows even small amounts of milk to be cooled rapidly without the risk of freezing, specification paragraph [0006].

Further independent claim 14 rephrases the method of claim 1 in terms of an arrangement for cooling milk.

2.2 Claim 1 includes the term "cooling need", firstly in a step of "determining a cooling need for milk stored or to be stored ... based on [the] measured amount of milk" and in a final step of cooling in consecutive periods where "the durations of each period of cooling and/or non-cooling periods is based on ... the determined cooling need". The claim does not expressly state what is meant by this term, nor does the term, in the Board's understanding, represent common usage in either the field of milk cooling or cooling in general.

- 2.2.1 Normally, the skilled person reads a claim in a genuine attempt to make technical sense of its content, and does so by reading its terms contextually and giving them their normal meaning were possible, see Case Law of the Boards of Appeal, 6th edition, 2010 (CLBA), II.B.5.1. Only if it is not possible to infer the meaning of terms from their context, should the reader turn to the remaining disclosure, that is description and figures, to try to interpret the term, see the CLBA, II.B.5.3.3 and the case law cited therein.
- 2.2.2 It is true that "cooling need" could be read as meaning the *state* or *condition* that milk needs to be cooled, i.e. whether or not it needs to be cooled. Such a reading however sits awkwardly with the rest of the claim, in particular the final feature. How is the *duration* of cooling/non-cooling periods to be based on a *measurable* variable, temperature, on the one hand, and the *condition* that milk needs to be cooled on the other? If, on the other hand, "cooling need" is read as meaning a concrete, quantifiable requirement for cooling, the final step becomes technically comprehensible: the duration is based on one quantity, temperature that is directly measured, and another derived quantity, the cooling need, which is determined from measured milk amount. In what respect the need is quantifiable, the Board notes, is not clear from the claim and for this it would need to turn to the description.
- 2.2.3 The description indeed confirms that only something quantifiable is ever meant by "cooling need". It also tells the reader who is genuinely interested in understanding the invention, how to quantify this

"cooling need". Specification paragraph [0032], firstly, states that "these [cooling and non-cooling] periods are continued *until the cooling need is fulfilled* as indicated by the milk flow meter and/or the [temperature] sensor 15" (emphasis added by the Board). Here, if anything it becomes clear that in imposing an *upper limit* on continuation of the cooling/non-cooling periods "cooling need" represents a quantity.

2.2.4 Further specification paragraphs [0047] to [0053], read contextually, give the only detail as to how the "cooling need" might be determined in practice. Paragraphs [0047] to [0051] relate to the cooling of an empty tank of given mass and specific heat capacity for a given temperature drop. Using the standard formula $E = cm\Delta t$ an energy amount is calculated, which paragraph [0050] labels "cooling need". From this value the compressor's power rating and cooling factor the paragraph then calculates the necessary running time of the compressor, about 6 minutes. Paragraph [0052] performs a similar calculation for a given amount of fresh milk to be cooled and stored in the (cooled) tank, producing an effective compressor running time of about 270 sec. Paragraph [0053] then describes how the cooling device is then run "in sequences of one minute followed by a rest period of two minutes ... to avoid freezing the milk".

Paragraphs [0052] and [0053] may not expressly use the term "cooling need" in connection with the cooling of the milk. Nevertheless, the Board has no difficulty whatsoever in understanding from these passages, in particular when read in conjunction with the passage in paragraph [0032] mentioned earlier, how cooling

proceeds. The one and two minute periods are alternated until the compressor has run a total time of 270 sec. The "cooling need" can then be seen as either the time the compressor must run, or the amount of energy it must extract to cool the measured milk amount by a desired temperature drop. The two differ only by a constant. The exact definition is in fact immaterial to the patent's central teaching that is clearly and unequivocally derivable from the description, if poorly defined in the claim: estimate how much cooling is needed to cool a measured amount of fresh milk down to a set temperature (this is the determining step in claim 1), and use that estimate to control the duration of the alternating sequence of cooling and non-cooling periods (the final cooling step of claim 1).

2.2.5 As noted claim 1 defines this idea poorly and this does allow for some leeway when comparing it to the prior art. Nevertheless, the claim should only be read as broadly as is justified by a reasonable, constructive interpretation of the claim, when read as a whole, and having due regard to the actual disclosure in description and drawings, see section 2.2 above. Reading "cooling need" to mean the condition that cooling is needed does not fall within such a reasonable interpretation, as it is clearly not borne out by the description.

3. *Main Request : Novelty*

3.1 D1 as a prior right document falling within the terms of Article 54(3) EPC is relevant to the question of novelty only. It is undoubtedly concerned with the same problem as the contested patent, "to be able to cool

down a small milk quantity ... without any risk of ice formation", see page 2, lines 18 to 20, of D1. D1's idea, see e.g. its claim 1, is to regulate the vapour pressure and temperature of the refrigerant to keep the cooling surface temperature above 0° (step c)) and to stop the agitator if monitored milk quantity is too low (step d)). In the first embodiment, see page 7, 2nd paragraph, and figure 1, step c) is carried out "when pressure and temperature in the evaporator drop below a pre-set value [and] the compressor is temporarily stopped".

3.2 Paragraph 2 of page 7 of D1 continues by stating that the control will "restart the compressor after a time period determined by the milk quantity in the tank and/or milk temperature". This is the critical passage cited in the contested decision and again by the Respondent, as implying both the determining step and the final cooling step. This does certainly describe a sequence of two consecutive cooling periods with at least the first followed by a non-cooling period, as in the cooling step of claim 1 of the granted patent. It is also clear that milk quantity can be measured by upstream milk meters, page 7, lines 23 to 24, corresponding to the first characterizing feature of granted claim 1.

3.3 What the Board is unable to derive *unequivocally* from D1, however, is granted claim 1's feature of *determining a cooling need*, as the Board understands that feature, see above. There is no indication in D1, express or implicit, of anything like a "cooling need", in the sense of a concrete, quantifiable cooling requirement, much less determining this based on

measured milk amount. The statement in lines 16 and 17 of page 7 that the restart is after a time period determined by the milk quantity does not necessarily mean that this time period is first calculated in a separate step. The passage mentions temperature as another determining factor. In that case D1, see page 7, lines 9 to 10, suggests starting and stopping in response to transducer temperature, that is when sensed temperature rises or drops below some threshold. A similar control in response to measured milk amount rising above a set level is effected for the agitator, feature d) of claim 1 of D1. It is therefore quite reasonable to imagine that lines 16 and 17 of page 7 refer to a similar control of the compressor control, which restarts when sensed milk amount reaches a given threshold value. It is then arguable whether the threshold milk amount equates with a "cooling need", but even so, that threshold value is not determined by the *measured* milk amount. Consequently, a reasonable reading of lines 16 and 17 of page 17 allows for at least one mode of realization that does *not* involve a separate determination of quantifiable cooling need. For this reason the Board concludes that the determination step defined in claim 1 is not *directly and unambiguously* derivable from D1.

- 3.4 Nor is the Board swayed by the argument that the patent and D1 essentially teach the same solution to the same problem. In the Board's view they rather represent alternative solutions. D1's teaching is directed at a feedback control scheme based on monitoring and controlling refrigerant vapour pressure so that the cooling temperature never drops below a set temperature. The patent's teaching, on the other hand, concerns

estimating the cooling requirement from the measured amount of milk and then cooling in small steps until that estimate is met, so ensuring that the system never cools more than needed.

- 3.5 In the light of the above the Board finds that the subject-matter of claim 1 as granted is novel over Article 54(3) document D1. It adds that it finds the same for the arrangement claimed in granted claim 14, which merely reformulates the various steps of the method of claim 1 in terms of functionally defined features of the cooling arrangement.

4. *New ground*

The issue of insufficient disclosure, Article 100(b) EPC, is first raised with the Respondent's reply to the statement of the grounds of appeal. This constitutes a new ground of opposition, the introduction of which requires the Proprietor's express consent, see decisions G 10/91 (OJ EPO, 1993, 421). Absent such consent the Board must disregard this new ground.

5. *Remittal*

The appealed decision addressed only novelty with regard to prior right document D1, though lack of inventive step had also validly been raised as an opposition ground with regard to other prior art. Though no party can claim an absolute right to a two instance consideration, it is not uncommon for the Boards to exercise their discretion under Article 111(1) EPC with a view to ensuring that all issues of a party's case that may be decisive are considered by two

instances. As the patent is still far from expiry, the Board sees no particular reason in conceding to the Appellant's request for a final decision to the detriment of the Respondent's interest in a two instance consideration of the remaining issue of inventive step.

This is all the more so as neither the Appellant nor the Respondent addressed the issue of inventive step in any great detail in their written submissions in the appeal. The Appellant has merely submitted that "the concept of controlling the cooling of a milk storage tank based on cooling need is totally absent from the prior art" without mentioning any particular prior art, let alone citing relevant passages thereof. The Respondent has referred only very generally to its first instance submissions.

The Board adds that the main purpose of oral proceedings before the Board is to hear the parties as regards contentious issues that have already been adequately substantiated in the written stage of the appeal proceedings (and which it will have identified in the annex to the summons), before finally deciding those issues. This is clearly not the case here as regards inventive step.

In the light of the above the Board finds it appropriate in exercising its discretion under Article 111(1) EPC to remit the case to the department of first instance to now decide that issue.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.

The Registrar

The Chairman

D. Hampe

M. Ceyte