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**Datasheet for the decision
of 14 June 2007**

Case Number: T 0289/05 - 3.2.04

Application Number: 95200841.5

Publication Number: 0677243

IPC: A01J 7/00

Language of the proceedings: EN

Title of invention:

A method of automatically milking animals and an implement for applying same

Patentee:

MAASLAND N.V.

Opponent:

DeLaval International AB

Headword:

Stripping/MAASLAND

Relevant legal provisions:

EPC Art. 100(c), 123, 54, 56

Keyword:

"Added subject-matter (no)"
"Extension of protection (no)"
"Novelty (yes)"
"Inventive step (yes)"

Decisions cited:

-

Catchword:

-



Case Number: T 0289/05 - 3.2.04

D E C I S I O N
of the Technical Board of Appeal 3.2.04
of 14 June 2007

Appellant I: DeLaval International AB
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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
26 January 2005 concerning maintenance of the
European Patent No. 0677243 in amended form.

Composition of the Board:

Chairman: M. Ceyte
Members: P. Petti
T. Bokor

Summary of Facts and Submissions

I. An opposition - based upon Articles 100 a) and c) EPC - was filed against the European patent No. 677 243. The opposition division by its decision dated 26 January 2005 found that the patent in an amended version filed as auxiliary request during oral proceedings before the opposition division met the requirements of the EPC.

II. On 28 February 2005 the opponent (hereinafter appellant I) lodged an appeal against this decision and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 25 May 2005.

The patent proprietor (hereinafter appellant II) lodged a further appeal on 11 March 2005 and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 2 June 2005.

III. Oral proceedings before the board were held on 14 June 2007.

During oral proceedings appellant II filed as sole request a set of amended claims. Claim 1 of this sole request reads as follows:

"An implement for automatically milking animals including one or more milking robots (8) and a computer (10) by means of which the animals are milked, teat cups (18) and a collector element (20) to which milk obtained from each udder quarter is supplied through separate milk lines (19), in one or more of which lines (19) a mastitis sensor (25) for automatically detecting mastitis and a milk flow sensor (26) are incorporated,

as well as means for stopping the milking process by neutralizing the underpressure in the teat cups and/or means for disconnecting the teat cups, **characterized in that** in response to signals coming from the milk flow sensor (26) and signals (M) from the mastitis sensor (25) and making use of an udder quarter dependent threshold value (D1) for the milk flow stored in the computer and a further mastitis dependent threshold value (D2) stored in the computer, the milking process is continued after the milk flow has fallen to below said quarter dependent threshold value (D1) until a control signal is generated by the computer and applied to said means to stop the milking process by neutralizing the underpressure in a relevant teat cup (18) and/or for disconnecting same, when the milk flow in a relevant milk line has fallen to below said mastitis dependent threshold value (D2) stored in the computer or as an alternative when a predetermined time interval has elapsed after the milk flow has fallen to below said quarter dependent threshold value (D1), while the milking process is stopped if mastitis is not detected and the milk flow has fallen below the udder quarter dependent value (D1)."

IV. Appellant I requested that the decision under appeal be set aside and the patent be revoked.

Appellant II requested that the decision under appeal be set aside and the patent be maintained on the basis of the following documents:

- Claims: 1 to 12 filed during oral proceedings on 14 June 2007;

- Description: pages 2 to 6 filed on 3 December 2004;
- Drawings: sheets 1/3 to 3/3 of the patent specification.

V. Appellant I essentially argued as follows:

- The feature "making use of an udder quarter threshold value (D1) for the milk flow stored in the computer and a further mastitis dependent threshold value (D2) stored in the computer", was added to claim 1 after filing. This feature infringes the requirements of Article 123 EPC (Article 100 (c) EPC) because it introduces a teaching, namely to make use of the threshold value D2 in combination with the use of a predetermined time period after the milk flow has fallen to below the threshold value D1, which is not disclosed and is also inconsistent with the application as filed.
- The claimed subject-matter lacks novelty (Article 54 EPC) with respect to document EP-A-534 565 (D4).
- The skilled person starting from either document D4 or from the article by D. Schillingmann "*Versuchsanlage zum automatischen Melken - Konzeption und Ergebnisse*", in "*Robotereinsatz in der Landwirtschaft am Beispiel des Melkens*", Tagung Braunschweig-Völkenrode, 5/6 December 1990, pages 70 to 91 (hereinafter document D1) - in combination with the teaching of either the article by O. W. Schalm and S. W. Mead, "*The effect of incomplete milking of chronic mastitis caused by streptococcus agalactiae*", in *Journal of Dairy*

Science, Vol. XXVI, No.9, Sep. 1943, pages 823 to 832 (hereinafter document D2) or the book "*Machine Milking and Lactation*", Burlington 1992, pages 366 to 372 (hereinafter document D3) -would arrive at the claimed subject-matter without exercising any inventive skill. Therefore, the subject-matter of claim 1 lacks an inventive step (Article 56 EPC).

VI. Appellant II essentially contested these arguments.

Reasons for the Decision

1. The appeals are admissible.
2. *Amendments (before and after grant)*
 - 2.1 Amended claim 1 differs from claim 25 of the application as filed essentially in that the following expressions have been added:
 - a) "one or more milking robots (8)" (after "[the implement] including",
 - b) "and a computer by means of which the animals are milked" (after "[the implement] including teat cups (18)")
 - c) "[...] and making use of an udder quarter dependent threshold value (D1) for the milk flow stored in the computer and a further mastitis dependent threshold value (D2) stored in the computer, the milking process is continued after the milk flow has fallen below said quarter

dependent threshold value (D1) until a control signal is generated by the computer and applied to said means...",

- d) "for automatically detecting mastitis" (after "mastitis sensor (25)"),
- e) "means to stop the milking process by neutralising..." (instead of "means for neutralising..."),
- f) "as an alternative" (before "when a predetermined time interval a predetermined time interval has elapsed after the milk flow has fallen to below said quarter dependent threshold value (D1)"),
- g) "while the milking process is stopped if mastitis is detected and the milk flow has fallen below the udder quarter dependent value (D1)".

Amendments a) to c) had been made before grant, while the further amendments were made after grant.

Feature a) can be derived from claim 25 of the application as filed in so far as it refers to claim 1 in which "one or more milking robots" are mentioned.

Feature b) can be derived from page 13, lines 32 to 36 of the application as filed, according to which "teat cups are automatically connected ... with the aid of the milking robot", in conjunction with page 15, lines 12 to 15, according to which the pulsator of a teat cup "is controlled by the computer".

Feature c) can be derived from claim 25 in conjunction with claims 1, 3 and 5 of the application as filed in so far as claim 25 clearly indicates that the milking process is stopped when the milk flow has fallen below a mastitis dependent threshold value **or** when a predetermined time interval has elapsed after the milk flow has fallen under an udder quarter-dependent threshold value (i.e. D1) and claims 1, 3 and 5 of the application as filed clearly indicate that the udder quarter is further stripped if the milk flow has fallen under a defined threshold value (D1) either during a defined time interval (claim 3) or until the milk flow has fallen to below the threshold value D2 (claim 5). Moreover, the passage on page 15, lines 1 to 3, of the application as filed, according to which "in the computer 10, threshold values D1 and D2 may have been recorded in a programme for the milk flow in the lines 19, or these threshold values may be entered via a keyboard", makes it clear that each of the threshold values (D1 and D2) may be "stored in the computer".

Feature d) is a clarification of the terms "mastitis sensor" in so far as this feature makes it clear that the mastitis sensor provides a signal which can be used for detecting mastitis. This feature can be derived from page 4, lines 3 to 5 of the application as filed ("A mastitis detection ... is obtained when milk conductivity sensors are used as mastitis sensors ...").

Feature e) has the same meaning of the feature in claim 25 of the application as filed which defines "means for neutralising the underpressure in a relevant teat cup (18) and/or for disconnecting same".

Feature f) can be derived from claim 25 in conjunction with claims 1, 3 and 5 of the application as filed.

Feature g), which was specified in granted claim 1, can be derived from page 1, lines 21 to 23 of the application as filed.

2.1.1 With regard to feature c) the following has to be noted:

- (i) This feature has to be read in conjunction with the feature according to which "the milking process is continued after the milk flow has fallen to below the udder quarter dependent threshold value (D1) until a control signal is generated when the milk flow in a relevant milk line has fallen to below said mastitis dependent threshold value (D2)... **or** as an alternative when a predetermined time interval has elapsed after the milk flow ..."
(hereinafter feature h; emphasis added).
- (ii) In this respect, appellant I argued that features (c) and (h) - because of the presence of the conjunction "and" (in feature (c)) and of the disjunction "or" (in feature (h)) are mutually incompatible and allow an interpretation of claim 1 according to which the "further mastitis dependent threshold value (D2)" is used even when the milking process is stopped on the basis of an elapsed predetermined period of time, this interpretation having no basis in the application as filed.

In reply to this argument, Appellant II argued that amended claim 1 has to be interpreted as defining a single implement suitable for stopping the milking process according to both the above mentioned possibilities, i.e. an implement whose operating mode (with respect to stopping the milking process after stripping) can be selected.

- (iii) The board finds that the presence of the conjunction "and" in feature (i) introduces an inconsistency within the claim which calls for the definition of the meaning of features (c) and (h) in order to establish whether (or not) the mastitis dependent threshold value D2 is used when the milking process is stopped after a predetermined time interval.

On the one hand, the board cannot accept the interpretation referred to by appellant I as being possible, firstly because it has no technical sense and secondly because it is inconsistent with the patent specification, according to which "**Instead of** the second threshold value D2 it is also possible to utilize a predetermined time interval ...", see the passage in column 9, lines 30 to 34 (emphasis added) corresponding to page 15, lines 32 to 36 of the application as filed. Moreover, it is clear from the patent specification that if mastitis is detected the milking process is continued with the purpose of providing a therapeutic treatment of the

udder quarter which is infected with mastitis and is stopped later either when the milk flow falls to below a second threshold value D2 which is lower than the value D1 or (as an alternative) when a predetermined time interval has elapsed (without making use of the second threshold value D2), see column 1, line 44 to column 2, line 2 of the patent specification, corresponding to page 3, lines 29 to 38 of the application as filed. These two possibilities of stopping the milking process (in case of mastitis detection) are separately defined in claims 3 and 5 of the patent specification as well as of the application as filed.

On the other hand, the board cannot accept the interpretation referred to by appellant II (see section 2.2.2 above) because neither does amended claim 1 (as well as granted claim 18) define any means for selecting the operating mode of the implement, nor does the patent specification (as well as the application as filed) clearly and unambiguously disclose an implement in which the operating mode can be selected automatically or manually.

- (iv) Thus, amended claim 1 covers the two following alternatives, both clearly disclosed in the application as filed: when mastitis has been detected and after the milk flow has fallen under an udder quarter dependent threshold value D1 stored in the computer the milking process continues either until the milk flow has fallen under a mastitis dependent threshold

value D2 stored in the computer (first alternative) or until a predetermined time interval has elapsed after the milk flow has fallen under said quarter dependent threshold value D1 (second alternative). As rightly submitted by appellant I, there is no support in the application as filed for an alternative combining the mastitis dependent threshold valued D2 and the predetermined period of time for stopping the milking process. For the avoidance of doubts, the board finds that claim 1 covers any implement that functions according to only one of the two possible alternatives (and it is not required that the implement should be able to select one of the alternatives).

2.1.2 For these reasons, the ground for opposition under Article 100 (c) EPC does not prejudice the maintenance of the patent on the basis of the amendments made before grant and the amendments made after grant do not contravene Article 123 (2) EPC.

2.2 Moreover, amended claim 1 differs from claim 18 of the patent as granted in that the expression "in which the method as claimed in claims 3, 5 or in any one of the preceding claims 6 to 17 when dependent on claim 3 or 5 can be applied" has been deleted.

2.2.1 Since amended Claim 1 defines either an implement capable of carrying out the method defined in granted claim 3 or an implement capable of performing the method of granted claim 5, it does not contravene the requirements of Article 123 (3) EPC.

2.3 The amendments to the dependent claims and to the description concern the adaptation of these parts of the patent specification to amended claim 1.

2.4 The board is also satisfied that amended claim 1 meets the requirements of Article 84 EPC.

3. *Novelty*

3.1.1 Appellant I submitted that the subject-matter of claim 1 is not novel having regard to document D4 and essentially argued

i) that claim 1 contains not only apparatus features but also method features which do not define the implement in terms of structural or functional features but only refers to how the implement can be used,

ii) and that since the implement known from document D4 has all the apparatus features defined in claim 1, it is suitable for implementing the method features defined by claim 1.

3.1.2 Document D4 does not clearly and unambiguously disclose **an udder quarter dependent threshold value** which is **stored in the computer**, as defined in amended claim 1. The passage in column 6, lines 9 to 13, according to which the stop of the milk flow "is indicated to the computer which ensures that the relevant teat cup is disconnected after the lapse of a certain period of time, e.g. of 2 to 60 s, following the occurrence of this indication" does not necessarily imply the

definition of a threshold value stored in the computer. This sentence is followed by the sentence "In this way the milk yield from the individual teats can be established" (column 6, lines 14 and 15). Having regard to the fact that the milk flow sensor is arranged in a falling portion of the milk line (see Figures 1 and 2; column 8, lines 15 to 18) the aim of disconnecting the teat cups after a defined period of time can reasonably be seen in allowing the milk present in the milk line portion upstream of the milk flow sensor to reach the milk meter, such that the milk yield can be established.

Moreover, document D4 does not clearly and unambiguously disclose an implement in which the milking process is continued **in response to** signals coming from the milk flow sensor and **signals from the mastitis sensor**, while it is stopped if mastitis is not detected.

Thus, the claimed subject-matter differs from the prior art known from D4 by the above mentioned (in bold characters emphasized) features. These features have to be considered as functional features of the implement implying at least an appropriate programming of the computer such that the decision of whether the milking process has to be stopped (or to be continued) can be taken. The board is therefore unable to accept the appellant I's submissions that all structural and functional features of the claimed implement are known from D4.

- 3.2 Therefore, the claimed subject-matter is novel (Article 54 EPC) having regard to this prior art.

4. *Inventive step*

4.1 Document D1 discloses (see Figures 3 and 5) an implement for automatically milking animals including a milking robot, a computer by means of which the animals are milked and teat cups. It can be assumed that there is a collector element to which milk obtained from each udder quarter is supplied through separate milk lines. In the milk line relative to a teat cup there is a milk sensor detecting the milk flow ("Milchfluss") and the milk conductivity ("Milchleitfähigkeit") so as to automatically detect mastitis, the implement also including means for disconnecting the teat cups when the milk flow has fallen below a predetermined threshold value (200 g/min).

In response to signals coming from the milk flow sensor a control signal is generated by the computer and applied to the means for stopping the milking process so as to automatically put the teat cup out of operation when the milk flow has fallen below said predetermined threshold value. This threshold value can be considered as being stored in the computer.

4.1.1 Thus, document D1, in so far as it refers to a threshold value, is more relevant than document D4 and has to be considered as representing the closest prior art.

4.2 The subject-matter of claim 1 essentially differs from the prior art known from document D1 in that

a) in response to signals coming from the milk flow sensor (i.e. when the milk flow has fallen below the udder quarter dependent threshold value D1) and signals coming from the mastitis sensor (i.e. when mastitis is detected) the milking process is continued,

a1) either until the milk flow in a relevant milk line has fallen below a mastitis dependent threshold value D2 stored in the computer (first alternative)

a2) or until a predetermined time interval has elapsed after the milk flow has fallen to below the udder quarter dependent threshold value D1 (second alternative);

b) while the milking process is stopped if no mastitis is detected and the milk flow has fallen below the udder quarter dependent threshold value D1.

4.2.1 Features a), a1) (or a2) and b) result in providing a different treatment - with respect to the expected length of the milking process - of animals for which mastitis has been detected relative to animals for which mastitis has not been detected. As stated in paragraph [0003] of the patent specification, in order to prevent mastitis it is important for the milking operation to be stopped when the milk flow has become too small (if the milking operation were to be continued, the teats could get irritated and the risk of mastitis would increase). However, once mastitis has

been detected in an udder quarter, it may be of importance to nevertheless continue milking, i.e. to automatically "strip" further the infected udder quarter, **without interrupting the milking process.**

Thus, the problem to solved may be seen in adapting an implement for automatically milking cows so as to either reduce the risk of mastitis if illness is not detected or cure mastitis if this illness is detected.

- 4.3 According to document D2 "incomplete milking may lead to increased severity of the clinical manifestation of *Str. agalactiae* infections", i.e. mastitis infections (see particularly page 832).

Moreover, it is known from "*Machine Milking and Lactation*", Burlington 1992, pages 366 to 372 (D3) that, "prior to the development of antibiotics, clinical mastitis was treated by massage and regular stripping out to remove bacteria and toxins ..." and that "incomplete milking increases the incidence of clinical mastitis or slows the resolution of clinical signs" (see particularly page 366).

Both these documents clearly indicate that "incomplete milking" has to be avoided when the animal to be milked is affected with mastitis by stripping the infected udder quarter after machine milking. Thus, the skilled person confronted with the problem of either preventing mastitis or curing the same would, in view of this teaching, certainly avoid incomplete milking by stripping these animals after machine milking.

However, to avoid an incomplete milking (by further stripping) does not necessarily means either to strip automatically or to continue the milking process.

In particular, none of documents D2 and D3 suggests continuing milking when the milk flow falls below a threshold value and mastitis has been detected. In other words, these citations do not suggest the idea of stripping the infected udder quarter **without interrupting the milking process**.

Finally, the available prior art does not suggest to use in an implement for automatically milking animals the criteria defined by features a1) or a2) for stopping the milking process of the animals which are infected with mastitis.

Thus, even if the skilled person were to apply the teaching of documents D2 and D3 to the implement known from document D1 (or D4), he would not be led to an implement for automatically milking animals in which the milking process is continued over its expected length if mastitis is detected, as defined by the above mentioned feature a).

- 4.4 Appellant I, referring to the abstract of the article "*Milking the 30,000-pound herd*", by G.A. Mein et al, in *Journal of dairy science*, October 1993, argued that "machine stripping" is a well known technique.

However, this abstract, in which it is recommended that animals weighting 30.000 lb be milked "completely with minimal machine stripping or over-milking", does not suggest that animals for which mastitis has been

detected be stripped further. Therefore, the skilled person confronted with the problem of either preventing mastitis or curing the same during a milking operation would not take this citation into consideration.

4.5 The considerations above also apply for the combination of documents D4 and D2 or D3.

4.6 Therefore, the subject-matter of claim 1 involves an inventive step (Article 56 EPC).

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 maintain the patent on the basis of the following documents:

Description: Pages 2 to 6 filed during oral proceedings before the opposition division,
Claims: 1 to 12 filed during oral proceedings before the board,
Drawings: Sheets 1/3 to 3/3 of the patent specification.

The Registrar:

The Chairman:

G. Magouliotis

M. Ceyte