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**Datasheet for the decision
of 7 February 2012**

Case Number: T 0091/10 - 3.2.04

Application Number: 01204523.3

Publication Number: 1186229

IPC: A01J 5/08, A01J 7/00,
A01J 5/007, A01J 7/02

Language of the proceedings: EN

Title of invention:
A method of automatically milking animals

Patent Proprietor:
MAASLAND N.V.

Opponents:
DeLaval International AB
WestfaliaSurge GmbH

Headword:
Constant Vacuum/MAASLAND

Relevant legal provisions:
EPC Art. 56, 123(2)

Relevant legal provisions (EPC 1973):
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Keyword:
"Lack of inventive step (main and second auxiliary requests)"
"Extension of subject-matter (first auxiliary request)"

Decisions cited:
-

Catchword:
-



Case Number: T 0091/10 - 3.2.04

D E C I S I O N
of the Technical Board of Appeal 3.2.04
of 7 February 2012

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted
17 November 2009 concerning maintenance of
European patent No. 1186229 in amended form.

Composition of the Board:

Chairman: A. de Vries
Members: P. Petti
C. Heath

Summary of Facts and Submissions

- I. Two oppositions, based inter alia upon Article 100(a) EPC with respect to novelty and inventive step, were filed against the European patent No. 1 186 229.

The opposition division by its interlocutory decision dated 17 November 2009 found that the patent in an amended version based upon amended claim 1 filed during the oral proceedings on 19 October 2009 met the requirements of the EPC. In its decision it found inter alia that the subject-matter of this amended claim 1 involved an inventive step over DE-3 609 275 (D4).

- II. Opponent 01 (hereinafter appellant) lodged an appeal against this decision on 15 January 2010 and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 17 March 2010.

With the grounds of appeal, he filed document EP-A-442 383 (D12).

- III. Oral proceedings before the board were held on 7 February 2012.

- IV. The appellant requested that the decision under appeal be set aside and the patent be revoked. He also requested that document D12 be introduced into the appeal proceedings.

- V. The respondent (patent proprietor) requested that the appeal be dismissed (main request). Alternatively, he requested that the decision under appeal be set aside and the patent be maintained on the basis of either a

first auxiliary request filed by letter dated 4 January 2012 or a second auxiliary request filed during the oral proceedings before the board.

VI. The wording of claim 1 of the requests reads as follows:

Main request

"1. A method of automatically milking animals, such as cows, in which use is made of teat cups, each of which is provided with a liner made of a flexible material, by means of which the teat space of a teat cup is separated from the pulsation space that is provided to create therein a pulsating vacuum stimulating the milk yield, **characterized in that** the suction stroke and/or idle stroke and/or the vacuum level of a pulsator are controlled by electronic or computer means, in that the pulsation ratio and/or the pulsation rate and/or the vacuum level of a pulsator for each animal are individually controlled by computer means and in that during milking, the vacuum in a teat space or in a milk line connected to this space is measured permanently and is kept at a constant value through the intermediary of a computer."

Claim 1 of the first auxiliary request adds to claim 1 of the main request the following final features:

"wherein a shut off element, a vacuum sensor and a flow sensor are included in that order in each of the milk lines, wherein the vacuum being measured permanently by means of the vacuum sensors, acquired information concerning the vacuum and the milk flow in the respective lines is sent to the computer by the vacuum

sensor and the flow sensor, the computer to derive control signals from the permanently measured vacuum, which, applied to the respective shut off elements, effect that the said vacuum is kept constant."

The wording of claim 1 of the second auxiliary request differs from that of claim 1 of the main request in that the wording "or in a milk line connected to this space" has been deleted from the final feature "the vacuum ... is measured permanently and is kept at a constant value ...".

VII. The appellant and the party as of right (opponent 02) submitted inter alia that the subject-matter of claim 1 of the main request and that of the claim 1 of the second auxiliary request lacked novelty over D4 and did not involve an inventive step over this document in combination with either common general knowledge or document D12. They further submitted that claim 1 of the first auxiliary request contravened the requirements of Article 123(2) EPC.

VIII. The respondent contested the appellant's arguments. He essentially submitted that D4 did not represent a relevant springboard for arriving at the subject-matter claimed in the main and second auxiliary requests. The claimed invention was in particular based on the insight into the cause of the phenomenon of vacuum fluctuations occurring in the teat space. He further submitted that the amendments concerning claim 1 of the first auxiliary request have a basis in paragraphs [0008] and [0010] of the patent specification.

Reasons for the Decision

1. The appeal is admissible.

2. *Admissibility of document D12*

D12 was filed by the appellant with the grounds of appeal. The board considers this document to be of prima facie relevance, and its contents not so complex as that its admission can be expected to cause delay to the procedure. As, moreover, the respondent has no objection to its introduction, the Board has therefore admitted D12 into the proceedings.

3. *Main request: lack of inventive step*

3.1 Document D4 discloses (see particularly column 5, lines 29 to column 7, line 19; Figure 1) a method of automatically milking animals, such as cows, in which

- use is made of teat cups (3), each of which is provided with a liner (5) made of a flexible material, by means of which the teat space of a teat cup is separated from the pulsation space (7) that is provided to create therein a pulsating vacuum stimulating the milk yield,
- the suction stroke and/or idle stroke and/or the vacuum level of a first pulsator (B1) are controlled by a computer (25),
- the pulsation ratio ("relative Dauer der Saugphase und/oder Entlastungsphase ", see claim 2 of D4) and/or the pulsation rate ("Dauer der Pulszyklen", ibidem) and/or the vacuum level ("Druck im Pulsraum", ibidem) of said first pulsator for each animal and

for each individual teat of the animals are controlled by the computer (25).

During milking, the vacuum to which the teat is subjected ("zitzenendiges Vakuum"), i.e. the vacuum in the teat space or in a milk line connected to this space, is determined *through the intermediary of the computer* (25), so that the teat can be subjected either to a pulsating vacuum having a maximum value during the suction stroke and a minimal value during the idle stroke (see column 7, lines 15 to 19; column 9, lines 37 to 41; Figure 3) or to a *constant* vacuum level of 40 kPa which is laid down in the computer (see column 7, lines 51 to 57; column 10, lines 22 to 24; Figure 2 and 4).

In the method of D4 the parameters of the pulsation vacuum as well as the vacuum level application of the vacuum to which the teat is subjected can be adjusted for each individual quarter of an udder for each animal.

Document D4 does not disclose the steps of measuring the vacuum in the teat space or in a milk line connected to this space and of arranging a closed-loop control system controlling this vacuum so that the measured instantaneous vacuum value matches a desired constant reference value.

- 3.2 The subject-matter of claim 1 of the main request differs from the method according to D4 in that the vacuum in the teat space or in a milk line connected to this space **is measured permanently** and **is kept** at a constant value.

3.3 These distinguishing features remove undesirable vacuum fluctuations which may occur in the teat space or in the milk line connected to the teat space, see specification paragraph [0010]. As indicated there this can be achieved by a control loop feedback mechanism, which on the basis of the difference (error) between the measured vacuum (process variable) and the desired constant vacuum value (reference value) laid down in the computer keeps the vacuum at this constant value.

In the method of D4 use is made of two-chamber teat cups ("Zweiraum-Zitzenbecher"), each with flexible liner (5) defining the teat space, and of a measuring device (9) comprising a measuring vessel (11). The measuring vessel (11) includes a collecting vessel (19) provided with a floating valve (21) through which the milk may flow from the collecting vessel (19) into a transport line (20). The measuring vessel (11) forms part of a milk line connected to the teat space. The vacuum to which the teat is subjected is produced by a vacuum source to which the measuring vessel (11) is connected via a vacuum line (29), a second pulsator (A1) and a vacuum valve (V₁). In the method of D4 vacuum fluctuations in the teat space may occur for instance due to the fact that the pulsating movement of the teat cup liner (5) produces cyclical variations of the volume of the space defined by teat space and the measuring vessel (11) or due to instabilities in the system vacuum.

Thus, the problem to be solved by the claimed invention is to modify the method of D4 so as to remove vacuum fluctuations in the teat space or in the milk line connected to the teat space.

3.4 Control loop systems are commonly known: in a basic control loop system a process variable is measured, a desired reference value for the process variable is set, and on the basis of the error, i.e. the difference between measured and desired reference values, a signal is send to an actuator in order to keep the process variable at the set reference value. The skilled person is an engineer involved in the design of automatic milking systems and thus possesses a good knowledge of such basic control concepts.

The skilled person confronted with the above mentioned technical problem would without ado draw on such common general knowledge to use a control loop system to keep the vacuum to which the teat is subjected (process variable) constant. In so doing he would then permanently measure the vacuum present in the teat space or in the milk line connected to the teat space. In this way he would arrive at the claimed subject-matter without exercising any inventive skill.

3.4.1 In this respect, the respondent submitted the following arguments:

- (a) In D4 it is assumed that the vacuum level in the milk line connected to the teat space *is* constant. Thus, there would be no need to measure the vacuum and to control it by means of a control loop. Therefore, this document does not represent a relevant springboard from which it could be arrived at the claimed subject-matter.

- (b) The skilled person confronted with the problem of the vacuum fluctuations in the teat space or in a milk line connected to this teat space has to arrive at an insight into the cause of these fluctuations and realize that the fluctuations are caused by the pulsating vacuum in the pulsation space of the teat cup. Therefore, even if the solution were to be obvious once the problem is stated, its inventiveness would rely on the formulation of the problem itself (problem invention).

3.4.2 The board cannot accept these arguments for the following reasons:

- (a) As already explained, in D4 the vacuum to which the teat is subjected, is set at a constant level of 40 kPa. Although D4 does not refer to vacuum fluctuations, it does not state that the set vacuum level remains constant in all circumstances. Vacuum fluctuations may well occur in the method of D4 and, on the basis of the respondent's submissions, it indeed appears realistic that they do occur, and will thus pose a problem if the skilled person wants to keep the vacuum constant as instructed by D4. Therefore, this prior art document represents a realistic starting point.
- (b) In view of the fact that the teat cup liner moves in a pulsating fashion and that this must effect the vacuum in the teat space, it is by no means surprising that the teat space will exhibit fluctuations in vacuum level. This is

what the skilled person will expect. This requires no special insight on his part. Whether or not he wishes to compensate for this effect depends on the level of fluctuation and the control accuracy required. Such considerations are routine.

Moreover, claim 1 defines a general solution to a problem concerning vacuum fluctuations in the milk line which may occur not only because of the pulsation vacuum in the pulsation space of the teat cup but also because of other reasons, e.g. because of the instability of the vacuum system. In this respect, it is observed that paragraph [0010] of the patent specification refers to "undesirable vacuum fluctuations [which] occur in the teat space and the milk lines" without indicating the cause of the fluctuations.

- 3.5 It is observed that the skilled person would also find a suggestion for solving the above mentioned technical problem in the field of milking systems: document D12 discloses a method of monitoring the control of the system vacuum of a milking installation (see claim 1) and addresses the problem of improving the stability of the system vacuum (see column 1, line 46 to column 2, line 1).

In particular, this document teaches the use of vacuum sensors in proximity of the teats of the animals in a position where the vacuum is unstable in combination with one or more control loops ("Regelkreisen") to maintain the vacuum at the desired level by means of a

computer (see claims 2 and 4; column 4, lines 14 to 22).

Confronted with the problem of an unstable, fluctuating vacuum in the teat space in a method such as that of D4 the skilled person would draw on D12's teaching to keep the vacuum at a constant value by means of a sensor prompted control loop and thus arrive at the claimed subject-matter without any inventive skill.

3.5.1 In this respect, the respondent submitted that the skilled person would not turn to D12 because it does not concern the control of the milking vacuum but that of the system vacuum in a milking system comprising a plurality of milking clusters. Moreover, since D12 suggests the use of the arithmetic average of the values measured by more vacuum sensors as control parameter ("Regelgrösse"; see column 3, lines 28 and 29), even if the skilled person were to combine D4 with D12, he would not arrive at the claimed subject-matter.

3.5.2 The board is unconvinced by these arguments for the following reasons:

- Although D12 concerns the control of the system vacuum in a milking system which may comprise a plurality of milking clusters, it clearly addresses a problem concerning vacuum instability and provides a *general* teaching of how to maintain the vacuum at the desired value.
- Although in D12 the embodiment according to Figure 1 is described as being provided with a plurality of vacuum sensors, this document clearly discloses the

possibility of using one vacuum sensor (see claim 4: "aus ... **einem** oder mehreren Drucksensoren"; emphasis added). Furthermore, claim 1 itself does not exclude the possibility of measuring the vacuum by means of a plurality of vacuum sensors.

3.6 Therefore, the subject-matter of claim 1 of the main request does not involve an inventive step (Article 56 EPC) over D4 in combination either with common general knowledge or with D12.

4. *First auxiliary request: added subject-matter*

Claim 1 of this request combines the features of claims 1 and 2 of the patent as granted and adds additional features from the description, namely regarding the particular way in which the vacuum in the teat space or connected milk line is kept constant. This involves a shut-off element, a vacuum sensor and a flow sensor included in that order in the milk line with information of the vacuum and milk flow in respective lines sent to the computer which derives control signals from sensed vacuum that are applied to the respective shut-off elements.

4.1 The respondent filed this amended claim with his reply to the grounds of appeal without submitting any information as to the parts of the earlier applications as originally filed (divisional application EP-A-1 186 229 and parent application EP-A-679 331) from which the amendments to claim 1 can be derived. During the oral proceedings before the board the respondent first cited specification paragraphs [0008] and [0010]

corresponding to paragraphs [0016] and [0018] of the divisional application as filed.

- 4.2 These passages refer to a specific embodiment shown in figure 1, which, besides the features included in claim 1, comprise other features not included. These include, for example, but not exclusively, a configuration of milk-lines discharging into a common milk jar, communicating with a milk tank, with pulsators connected to a vacuum balance tank, with the sensors and shut-off elements located at specific locations. Without submissions to the contrary, these features can be seen to be both structurally and functionally related to those included in claim 1.

According to the established case law of the boards of appeal (see *Case Law of the Boards of Appeal of the European Patent Office*, 6th Edition, July 2010, III.2, pages 324 to 327), it is normally inadmissible under Article 123(2) EPC to extract isolated features from their initial context, unless there is no clearly recognizable functional or structural relationship among the features disclosed in combination for the embodiment.

In this respect, the respondent only submitted that it was not necessary to include all the features of the embodiment. However, he did not identify unnecessary features, nor did he explain why the features not included might not be necessary, let alone that and why they might be structurally or functionally unrelated.

Failing an adequate explanation, the board can but find that the inclusion in claim 1 of some but not all

features disclosed in combination in the description has resulted in a generalization for which there is no clear and unambiguous basis in the application as filed. Thus, the amendment adds subject-matter to the application as filed, Article 123(2) EPC. The board adds that where amendments are concerned, in particular when they ostensibly derive from the description, the onus is on the proprietor to prove that they do not contravene Article 123(2) EPC.

Therefore, the first auxiliary request has to be rejected.

5. *Second auxiliary request : lack of inventive step*

5.1 Claim 1 of this request states that "the vacuum in a teat space is permanently measured and kept at a constant value", while claim 1 of the main request states that "the vacuum in a teat space **or in a milk line connected to this space** is permanently measured and kept at a constant value" (added emphasis indicates deleted text).

5.2 In this respect, the respondent submitted that this amendment represents a further difference in addition to those previously discussed of the subject-matter of claim 1 of the main request over D4, in so far as it defines more specifically where the vacuum is measured in order to be kept at a constant value: measuring the vacuum in the teat space would have the advantageous effect of increasing the accuracy of the control of the vacuum in so far as the fluctuations are caused by the pulsating movement of the teat cup liner in the teat space. In view of this advantageous effect, the

subject-matter of claim 1 of the second auxiliary request would involve an inventive step over D4.

5.2.1 The board is unconvinced by this argument for the following reasons:

Claim 1 of the second auxiliary request does not clearly define where the vacuum is measured in so far as it does not refer to a vacuum sensor that is actually arranged *in* the teat space. The terms "the vacuum in the teat space is measured and is kept at a constant value" can also be interpreted as including *indirect* measurement of the vacuum present in the teat space. In order to measure and keep constant the vacuum present in the teat space a vacuum sensor can be arranged either in the teat space or in the milk line connected to this space. The patent specification itself describes in detail only embodiments with a vacuum sensor (12) arranged in the milk line (2) connected to the teat cup (1). Thus, it can be understood from the patent specification that a vacuum sensor (12) arranged in the milk line measures the vacuum present in the teat space or in the milk line connected to this space. In this respect, it is also observed that according to the divisional application as filed, "during milking, the vacuum **in the teat space** or in the milk line can be measured permanently by means of vacuum sensors (12) **included in the individual milk lines** (2)" (see EP-A-1 186 229, claim 18 (column 13); emphasis added).

Moreover, neither the patent specification nor the divisional application as filed refer to the advantageous effect of increasing the accuracy, and

neither in any way stresses the importance of physically measuring in the teat space. Essentially, both present the alternatives "in the teat space" or "in the milk lines connected to this space" as being equivalent.

Finally, claim 1 of the second auxiliary requests defines the solution to a problem concerning vacuum fluctuations which may also occur for reasons other than the pulsating movement of the teat cup liner (see section 3.4.2.b)).

5.3 In summary, therefore, this change in the wording of claim 1 of the second auxiliary request with respect to the main request does not represent any actual difference in the claimed method so that it lacks inventive step for the same reasons given for the main request. If it did represent an actual difference that difference is not associated with any disclosed effect that might render it technically meaningful and justify an inventive step.

5.4 In any case, even if the board were to accept that the above mentioned effect was actually achieved by the steps of measuring and keeping the vacuum *in the teat space*, the subject-matter of claim 1 of the second auxiliary request would not involve an inventive step for the following reasons:

The skilled person starting from D4 and confronted with the problem with the problem of avoiding fluctuations occurring *in the teat space* because of the influence of the pulsating vacuum in the pulsation space of the teat cup, would certainly arrange a vacuum sensor where the

fluctuations occur, i.e. in the teat space. In this respect, it is observed that it is known from D12 (claim 4) to arrange a vacuum sensor in proximity of the teats, in a position which is characterized by vacuum instability.

5.5 Therefore, the subject-matter of claim 1 of the second auxiliary request does not involve an inventive step (Article 56 EPC).

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

G. Magouliotis

A. de Vries