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**Datasheet for the decision  
of 11 September 2014**

**Case Number:** T 2180/10 - 3.2.04

**Application Number:** 98932627.7

**Publication Number:** 0926945

**IPC:** A01J5/007, A01J5/017

**Language of the proceedings:** EN

**Title of invention:**

A CONSTRUCTION INCLUDING AN IMPLEMENT FOR MILKING ANIMALS

**Patent Proprietor:**

MAASLAND N.V.

**Opponents:**

WestfaliaSurge GmbH  
DeLaval International AB

**Headword:**

**Relevant legal provisions:**

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

**Keyword:**

Amendments - added subject-matter (no)  
Sufficiency of disclosure - (yes)  
Novelty - (yes)  
Inventive step - (yes)

**Decisions cited:**

**Catchword:**



**Beschwerdekammern  
Boards of Appeal  
Chambres de recours**

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Case Number: T 2180/10 - 3.2.04

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.04**  
**of 11 September 2014**

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**Decision under appeal:** **Decision of the Opposition Division of the  
European Patent Office posted on 30 August 2010  
rejecting the opposition filed against European  
patent No. 0926945 pursuant to Article 101(2)  
EPC.**

**Composition of the Board:**

<b>Chairman</b>	A. de Vries
<b>Members:</b>	S. Oechsner de Coninck
	T. Bokor

## Summary of Facts and Submissions

- I. By its decision dated 30 August 2010 the opposition division rejected the oppositions against the European patent No. 926945. On 19 October 2010 the appellant (opponent 2) filed an appeal and paid the appeal fee simultaneously. The statement setting out the grounds of appeal was filed on 10 January 2011.
- II. Two oppositions were filed and revocation of the patent in its entirety was requested pursuant to Article 100(c), 100(b) EPC and 100(a) EPC in combination with Articles 52(1), 54 and 56 EPC for lack of novelty and inventive step.
- III. The opposition division held that the grounds for opposition mentioned in Article 100 (a), (b) and (c) EPC did not prejudice the maintenance of the granted patent unamended having in particular in regard to the following documents that also played a role in the appeal proceedings:

D1:EP-A-0 551 956

D2:EP-A-0 679 331

D6:EP-A-0 657 097

D16: D. Schillingmann, 'Versuchsanlage zum automatischen Melken Konzeption und Ergebnisse, VDI/MEG Kolloquium Landtechnik, Tagung Braunschweig Volkenröde, 5./6. Dezember 1990, pp. 70-91, Heft 9, Robotereinsatz in der Landwirtschaft am Beispiel des Melkens

D19: Mein, G.A. et al., "Milking the 30,000-pound herd", Journal of dairy science, Oct. 1993, vol. 76(10), p. 3294-3300.

- IV. Oral proceedings were held on 11 September 2014.
- V. The appellant requests that the decision be set aside and the patent be revoked in its entirety.  
The respondent (patent proprietor) requests that the Board dismisses the appeal and maintains the patent as granted (main request) or to maintain the patent according to an auxiliary request, filed with letter of 13 July 2011.  
The party as of right (opponent I) made neither requests nor submissions during the appeal proceedings.
- VI. The independent claim 1 as granted reads as follows:
- i) A construction including an implement for milking animals, such as cows,
  - ii) whereby the implement is provided with adjusting means with the aid of which the milking duration, i.e. the period of time in which the animal is milked, is adjustable,
  - iii) the adjusting means comprising a computer, characterised in that
  - iv) the computer is suitable to compare the actual milk yield with the optimal milk yield and that, when the actual milk yield has achieved the optimal milk yield, milking is ended
  - v) such that the milking machine is only used during that period of time in which the cow gives her milk at the highest rate.

The numbering of the features (i,ii...v) has been added by the Board in accordance with the numbering of the Appellant.

- VII. The appellant (opponent 2) mainly argues as follows:
- With respect to added matter: the amendment introducing the last feature of claim 1 taken from the original description (e.g. page 5, lines 6 to 8) in combination with optimal yield now also encompasses the possibility to monitor the optimal yield according to flow rate in a single udder quarter. Such a combination does not derive directly and unambiguously from the original disclosure as interpreted by the skilled person.
  - Concerning sufficiency of disclosure: use of optimal yield as threshold implies to stop milking when a predetermined milk quantity is produced. In this manner it cannot be ensured that stopping milking will always and exclusively correspond to the end of that period of time in which the cow gives her milk at the highest rate.
  - As for novelty: the yield threshold used in D6 to prevent the cow from being milked completely will most likely result in milking taking place when the milk flow rate is highest. Despite the different technical purpose, the inevitable consequence of milking in the claim range deprives the subject-matter of claim 1 of novelty.
  - Relating to inventive step: D19 is the closest prior art as it also aims at improving overall milk production. It is stated there that a higher yield is obtained when milking frequency is increased and milking is ended prematurely. When attempting to implement such a milking principle on a milking machine the skilled person would use the teaching of D6. This would then prompt him to use an expected milk yield per animal for controlling when the milking has to be stopped before a complete milking is reached. In doing so he would arrive at using the milk yield as a

parameter to curtail milking before the cow is completely milked i.e. in the period of time in which the milking rate is highest. Alternatively, the claimed subject-matter lacks an inventive step starting from any of the documents D1, D2 or D16 or even D6, and applying the teaching of D19. Considering that one of the constant goals of the dairy industry is to obtain a high milk production and an efficient use of the milking machine, the skilled person would seek to improve the efficiency of the milking robots described in D1, D2, D6 or D16. D19 teaches that both goals of optimising milk production using a milking robot and increasing milk production of an animal or group of animals are reached by milking an animal more frequently. It would have been obvious for the skilled person to implement such a system in the arrangements of D1, D2, D6 or D16 and so arrive at a construction wherein milking is ended only after an animal has given her milk only at the highest rate.

VIII. The respondent mainly argues as follows:

- As for added subject-matter: the top and bottom portions of page 5 in the original disclosure do not pertain to separate embodiments. Therefore no unexpected combination of features arises.
- For sufficiency, the highest rate is a notional value that the skilled person would not have any difficulty to construe such that the last feature of claim 1 represents an explanation of what is obtained and how the optimal yield should be selected.
- As for novelty the likelihood that the milking performed in D6 during that period of time during which the cow gives her milk at its highest rate



is very small. No positive disclosure is present in D6 to select the optimum as in claim 1.

- Neither document D19 or D6 is concerned with milking rate, and therefore the skilled person would not have any hint to milk during the period of time during which the milking rate is highest. Likewise D1, D2, D6 or D16 only teach to stop milking when the flow rate has fallen below a certain threshold, whereas D19 merely states that completely milking out might not always be necessary.

## **Reasons for the Decision**

1. The appeal is admissible.

Background of the invention and interpretation of claim 1

- 1.1 The patent is concerned with improving milk yield by determining the optimal milking duration, specification paragraph [0003]. Based on an empirical findings of the two tables on page 3 and figure 1, the central idea is to limit milking to the initial stage of milking (figure 1) where the milking rate is highest, by stopping milking when actual milk yield reaches a corresponding "optimal milk yield" so that the cow is only milked at the highest rate. In sole independent claim 1 this idea is realized in a construction including an implement for milking animals with means for adjusting milking time which includes a computer suitable to compare actual with the optimal milk yield, milking ending when the actual yield achieves optimal yield.

1.2 When interpreting a claim the skilled person should try with synthetical propensity, i.e. building up rather than tearing down, to arrive at an interpretation which is technically sensible and takes into account the whole of the disclosure of a patent, see Case Law of the Boards of Appeal, 7th edition, 2013, (CLBA) II.A. 6.1.

1.2.1 Relation between features iv) and v) (see point VI above):

Feature iv) indicates that the computer performs the comparison of the actual milk yield with a threshold optimum yield, and that once the threshold is attained the computer gives a signal to end milking. Immediately following feature v) further starts with: "milking is ended, such that..." and so, in a normal contextual reading of the two features, specifies the result of using the optimal milk yield as threshold to end milking, namely that the milking machine is operated to correspond to a certain production rate.

In the context of claim 1, the feature v) read in its proper context and with a mind willing to understand therefore serves the purpose of defining how the optimal milk yield stated in feature iv) has to be selected: the milk yield threshold which represents the optimal yield should be the one that permits that the milking machine is operated only when the milk production is at its highest rate. The two features are closely linked with feature v) qualifying feature iv), i.e. the optimal yield is chosen such that when used as threshold milking will be only at the highest rate.

1.2.2 Furthermore, the patent specification explains the general concept of the invention, see paragraph [0013], see also the application as filed (published as

WO99/03330) the top of page 5, in reference to the immediately preceding tables and graphs in figures 1 and 2: choosing a favorable duration of time during which the animal is milked said favorable duration being the one during which the cow gives her milk at her highest rate. Here it is clear that "highest rate" refers to the first phase of milking shown in figure 1 and is determined from past historical data. It does not represent an actual highest value in a current milking cycle but rather has a more notional function as describing the high rate phase in a general milking cycle. In other words the notional highest rate reflects a theoretical or expected highest value based on statistical data. The term "optimal yield" serves as a parameter to identify this notional "highest rate" phase, as follows from the following paragraphs [0014] to [0016], which describe a specific embodiment of the invention using a milking robot realising the general concept. Milk production is measured cumulatively and the measured value compared to an "optimal (milk) quantity" or yield as a threshold for stopping milking. Here "optimal quantity" is predetermined (for example using historical data of tables 1 and 2, last column but one), and chosen to ensure that milking is in the notional highest rate phase. In the following the board will interpret the "period of time in which the cow gives her milk at the highest rate" to correspond to the above notional highest rate phase.

2. Extension of subject-matter - Article 100(c) EPC
- 2.1 Claim 1 as granted combines the features of claim 1 (features i and ii), claim 6 (feature iii) and one of the possibilities from claim 21 (feature iv) of the original application ("achieved" rather than "exceeded" though this is of little import as in the Board's

opinion the two terms convey the same technical information to the skilled person, given that total yield for any given individual milking is a monotonously increasing quantity). Furthermore claim 1 also includes the limitation derived from page 5, lines 6 to 8 of the description: "such that the milking machine is only used during that period of time in which the cow gives her milk at the highest rate" (feature v).

2.2 The appellant submitted that feature v) of claim 1 indicates the requirement that the milking machine is used only during that period of time in which the cow gives her milk at the highest rate, corresponding to the phase in the graph of fig 1 in which effectively all four udder quarters are milked. Feature iv), however, defines how milking should be terminated by the computer; the corresponding functional implementation is described in the final paragraph of the description of the application as filed. In particular on page 5, lines 38-39 it is suggested that the signal given by the computer to end milking could be performed on the basis of milk quantity in a single udder quarter. Therefore the skilled person is faced with a not originally foreseen combination of obtaining the highest rate in a cumulative manner while performing the control on the basis of the milk yield from a single udder quarter.

2.3 The board does not follow this line of argumentation. The paragraph bridging pages 4 and 5 of the original application, from which the feature v) added in claim 1 is derived is seen by the Board as explaining the general concept of the invention. The immediately following two paragraphs on page 5 continued onto page 6 in the Board's view then describe the operation of a

milking robot that implements the general concept of the invention. In other words the description of the operating robot at the bottom of page 5 does not relate to an alternative embodiment but rather details the possible operation of a milking robot implementing the invention's methodology i.e. the different steps set out in the above general concept. Reading these passages thus the skilled person will immediately understand that where the final paragraphs on page 5 describe disconnecting the milking machine when the cumulative quantity exceeds (or achieves) a specific value - the optimal quantity - this is given as a specific example of how to end milking so as to realise the general method in the preceding paragraph at the top of page 5. In particular, using the optimal quantity or yield, milking can be continued in the initial 3 minute phase in which the milking rate is at the nominally highest rate as stated at the top of page 5 in reference to figure 3. This contextual reading will also lead the skilled person to read "optimal milk quantity" at the bottom of page 5 (final two lines) as referring to the cumulative amount of all the quarters considered together. Such a reading is also in line with the two tables and figure 1 which indeed show values for the cumulative amount from all rather than individual teats.

Therefore the skilled person is able to directly and unambiguously derive from the original application that the optimal milk yield (feature iv) was foreseen to correspond to that period of time during which the cow gives her milk at her highest rate (feature v).

2.4 Thus, the subject-matter of Claim 1 of the patent as granted does not extend beyond the content of the application as filed and the ground for opposition

mentioned in Article 100(c) EPC does not prejudice the maintenance of the patent as granted.

3. Sufficiency of disclosure - Article 100(b) EPC

3.1 The appellant submitted that in particular due to irregular milking behaviour of each animal it is in practice impossible to ensure that the milking is performed only during that period of time in which the cow gives her milk at the highest rate. In particular because the invention uses a flowmeter whereas the threshold should be set in terms of milk yield, i.e. a cumulative amount, it is inevitable that when the optimal yield is reached the actual rate may already have dropped below the actual highest value so that milking is not only in the period of the actual highest rate.

3.2 However, the Board does not agree with this view. In view of the interpretation given to claim 1 under item 2 here above, the skilled person will understand from a contextual reading of claim 1 and with a mind intent on making technical sense of the claim that the "optimal milk yield" refers to the yield that the cow is expected to produce in the initial milking phase (see figure 1) in which the cow gives her milk at the highest rate. The milking rate curve, the relation between milking rate (kgs/min) and milking time, of an average cow is known (see figure 1 of the patent) so that the expected "optimal milk yield" can be estimated. The patent for example states that the above milking behaviour is recorded on a database for each cow ([0004], claims 6-8). As stated "highest rate" is a notional term identifying the initial high rate milking phase determined from past data, while "optimal milk yield" is a corresponding parameter that provides an

appropriate choice of cut off such that each milking is nominally only in the "highest rate" phase, allowing for shorter but more productive milkings. Milk production (on average for many milkings) can then be expected to be maximised. See for example the last two columns of the two tables which gives the highest production for a production per milking run of 14,5 kg corresponding to the initial 3 minutes milking phase at which the milking rate is nominally highest, see figure 1. The Board is convinced that for the skilled person, who comes to the patent with a mind willing to understand its teaching, this is sufficiently clear.

- 3.3 The Board concludes that the patent provides the skilled person with practical instructions that are sufficiently clear and complete for determining an "optimal milk yield" such that milking will only be during a period of time during which the cow gives her milk at the "highest rate".

#### 4. Novelty

- 4.1 D6 discloses the use (in an automatic milking arrangement) of a threshold value for the milk yield to avoid too much calcium being withdrawn from the animal (col. 4, lines. 1 -11).

- 4.2 The Appellant argued that the threshold value used in D6 to prematurely end milking is an optimal yield in a broad sense and that curtailing before complete milking is achieved (see col 3, lines 52-55) would inevitably result in milking during a period of highest flow rate, even if the aim of D6 is not to optimise overall milk production and efficiency.

4.2.1 Such a reasoning cannot be followed by the board. The skilled person cannot read in D6 any information on the milking rate let alone that there is a period in which milking rate is highest. Although he might be aware of the average milking pattern as shown in figure 1 of the present patent, he still cannot directly and unambiguously derive any link between the yield threshold and a period of time during which the cow gives her milk at her highest rate.

4.2.2 Indeed, as also acknowledged by the appellant, the early ending of milking in D6 serves the purpose of leaving enough calcium to the cow for health reasons. The milking time or milk yield in D6 has therefore to be determined as a function of residual calcium content. On the contrary the optimal milk yield as defined in the present patent is meant to ensure milking at the notional highest rate. It may be that occasionally a specific value of the milk yield threshold in D6 may result in the cow being milked only in the period of highest rate, for example the computer of D6 may command the disconnection of the teats at a very early stage that happens to lie within the first stretch of figure 1 of the disputed patent i.e. in the stretch where the milk production is highest. This would merely represent a coincidence but does not represent a specific, definite teaching as encapsulated in claim 1 to choose an optimal yield as threshold with the specific aim of ensuring that milking is only in the highest rate phase. That teaching is new.

4.3 The Board concludes that the subject-matter of claim 1 of the patent in suit differs from that of D6 in the use of an optimal yield as cut off or threshold such that milking is only when the cow gives her milk at the highest rate. Consequently, novelty of the subject-



matter of claim 1 is given with respect to the document D6 cited by the appellant.

5. Inventive step

5.1 Documents D19 and D6

5.1.1 The appellant substantiated lack of inventive step in particular with respect to document D19. D19 also deals with the improvement of milking a herd of cows with robot milkers and indeed appears to represent a suitable starting point. In the abstract of D19 it is disclosed that the milk production can be increased with robot milkers (page 3299, left hand column, second paragraph) by milking more frequently and not milking out completely some of the cows, namely the high producing ones.

5.1.2 It is common ground that the subject-matter of claim 1 differs from the disclosure of D19 in that the computer (of the robot milker) is suitable to compare the actual milk yield with the optimal milk yield and that, when the actual milk yield has achieved the optimal milk yield, milking is ended such that the milking machine is only used during that period of time in which the cow gives her milk at the highest rate (or notional highest rate phase as understood by the board see above), features iv) and v).

5.1.3 As explained above in reference to specification paragraph [0013] this particular choice of optimal yield as threshold limits milking to the notional high rate phase (figure 1), allowing more milkings of shorter duration but higher rate to be made per 24 hrs leading to an overall increase in production. In this manner a favourable milking duration is chosen that

results in a higher (or optimised) milk production, specification paragraph [0003]. The objective technical problem can be reformulated accordingly as how to modify a milking robot such as that of D19 in order to increase or optimise overall production.

5.1.4 As stated above the skilled person derives from D6 the teaching of a certain milking yield as threshold to prematurely curtail the milking operation i.e. before the cow is completely milked out (col 4, lines 1-5). In as far as he would be inclined to look towards D6 for a solution to optimising production - the Board is unconvinced that he would - and to use milking yield as alternative threshold also indicated in D6, he would still miss any hint to set the yield threshold to correspond to the time period in which the cow gives her milk at the (notional) highest rate. Neither document suggests a link between yield and the most favourable duration for achieving an optimised production, let alone that that favourable duration is the period or phase of milking in which the rate is at its notionally highest. Therefore even if the skilled person were to combine the two teachings he would not arrive at the claimed subject-matter.

5.1.5 Both documents teach similar measures to stop milking before the cow is completely milked out. In the case of D19 the purpose is to milk high producing cows more often while reducing the milking time (abstract; p. 3299, left hand column, 2nd para). However, no control threshold for operating the robot milker described therein can be recognised by the skilled person. In particular, though D19 gives empirical values for number of milkings and their duration, there is no teaching how to determine the most favourable duration at which production will be optimised. Nor is this

apparent from D6. D6 also teaches to completely avoid milking cows at the beginning of a lactation period by setting a predetermined threshold yield below the (usually) anticipated milk yield (col 4, lines 1-5). There again the skilled person cannot infer any hint to set the threshold milk yield specifically to correspond to the period of time during which the cow gives her milk at the highest rate, allowing him to so choose the most favourable duration for achieving optimal production.

Hence the skilled person still misses from the proposed combination the specific teaching to set an optimal milk yield threshold as a function of the highest milk production rate as required by claim 1 of the patent.

5.1.6 The same conclusion must hold if D6 is chosen as starting point and combined with D19. This combination is also not prejudicial to inventive step of the subject-matter of granted claim 1.

5.2 Documents D1, D2 and D16 combined with D19

5.2.1 The appellant also starts from one of the documents D1, D2 or D16 to argue against inventive step. D1, D2 and D16 are similar, in that they teach stopping milking when measured milk flow drops below a threshold (or has in fact stopped, D1).

5.2.2 The subject-matter of claim 1 differs from this prior art in that it uses an optimum milk yield as threshold for stopping, so that the machine is only used when milking rate is (notionally) highest. This choice of optimum yield is associated with improved or optimized daily production. The objective technical problem can therefore be formulated again as how to increase or optimise daily production.

5.2.3 As already mentioned above, D19 teaches that milking frequency can be increased and production improved (at least for some cows) by not milking them out completely (page 3299). The graph in figure 4 for example indicates that an increased production is obtained by milking between 2 and 8 times per day. However as stated above D19 fails to suggest using an optimal yield as threshold that allows the highest rate phase of milking to be chosen as giving the most favourable duration for production. In the Board's view such a combination will rather lead the skilled person to try to determine a favourable target milk flow rate to be used as threshold in the robot milkers of D1, D2 or D16 such that all the cows can be milked several times a day. Applying the teaching of D19 to one of the milking implements of D1, D2 and D16 therefore does not obviously lead the skilled person to adopt a threshold in terms of milk yield.

5.3 Thus the Board holds that these combinations do not prejudice inventive step of claim 1 as granted. The Board therefore also confirms the appealed decisions positive finding of inventive step, Article 100(a) with Articles 52(1) and 56 EPC.

**Order**

**For these reasons it is decided that:**

The appeal is dismissed.

The Registrar:

The Chairman:



G. Magouliotis

A. de Vries

Decision electronically authenticated