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D E C I S I O N
of 26 November 2003

Case Number: T 0187/01 - 3.2.4

Application Number: 92202935.0

Publication Number: 0534564

IPC: A01J 7/00

Language of the proceedings: EN

Title of invention:
An implement for milking animals automatically

Patentee:
MAASLAND N.V.

Opponent:
DeLaval International AB

Headword:
Dead time/MAASLAND

Relevant legal provisions:
EPC Art. 100(a), (b) and (c), 114(2)

Keyword:
"Added matter: main request and first auxiliary request (yes); second auxiliary request (no)"
"Sufficiency of disclosure (yes)"
"Inventive step: second auxiliary request (yes)"
"Late filed facts"

Decisions cited:
-

Catchword:
-

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Case Number: T 0187/01 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 26 November 2003

Appellant: (Opponent)	DeLaval International AB P O Box 39 S-147 21 Tumba (SE)
Representative:	Gray, Helen Mary Albihns GmbH Grasserstrasse 10 D-80339 München (DE)
Respondent: (Proprietor of the patent)	MAASLAND N.V. Weverskade 10 NL-3155 PD Maasland (NL)
Representative:	Corten, Maurice Jean F.M. Octrooibureau Van der Lely N.V. Weverskade 10 NL-3155 PD Maasland (NL)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 1 December 2000 rejecting the opposition filed against European patent No. 0534564 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: C. A. J. Andries
Members: P. Petti
H. Preglau

Summary of Facts and Submissions

I. An opposition filed against the European patent EP-B-534 564 was rejected by the opposition division with its decision dispatched on 1 December 2000.

Claim 1 of the patent as granted reads as follows:

"1. An implement for automatically milking animals, such as cows, comprising a milking parlour with a milking robot and a computer (27), the milking robot being provided with a robot arm carrying one or more teat cups (2) to be applied to the teats of an animal's udder, the teat cups (2) being connected to a milk line system (4, 5) to discharge the milk obtained via said teat cups (2) to a milk tank (6), the implement further comprising at least three of the following sensors: a temperature-sensitive sensor (23), a flow-sensitive sensor (24), a sensor (25) for establishing the electrical conductivity of a flow of milk and vacuum-sensitive sensor (26), the information of these sensors being supplied to the computer (27) and processed therein, characterized in that, in order to obtain a more reliable indication of heat or illness, particularly mastitis, of the animal, the computer (27) is arranged to process the information of the temperature sensor (23) and/or the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time between the instant when one of the teat cups (2) has been connected to a teat, established by the vacuum-sensitive sensor (26), and the instant when the

flow of milk from this teat has started, established by the flow-sensitive sensor (24)."

II. The opposition was based on Articles 100(a), (b) and (c) EPC. During the proceedings before the opposition division the arguments submitted by the opponent with regard to Article 100(c) EPC related only to a feature in the characterising portion of Claim 1 of the patent as granted according to which "in order to obtain a more reliable indication of heat or illness, particularly mastitis, of the animal, the computer is arranged to process the information of the temperature sensor (23) and/or the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time...".

III. On 7 February 2001 the opponent (hereinafter appellant) lodged an appeal against this decision and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on 4 April 2001.

During the written phase of the proceedings, the arguments submitted by the appellant with regard to Article 100(c) EPC related only to the feature referred to in section II above.

IV. Oral proceedings were held on 26 November 2003.

V. During the oral proceedings the proprietor of the patent (hereinafter respondent) filed amended claims upon which two auxiliary requests were based.

The amended Claim 1 upon which both first and second auxiliary requests are based reads as follows:

"1. An implement for automatically milking animals, such as cows, comprising a milking parlour with a milking robot and a computer (27), the milking robot being provided with a robot arm carrying one or more teat cups (2) to be applied to the teats of an animal's udder, the teat cups (2) being connected to a milk line system (4, 5) to discharge the milk obtained via said teat cups (2) to a milk tank (6), the implement further comprising at least three of the following sensors: a temperature-sensitive sensor (23), a flow-sensitive sensor (24), a sensor (25) for establishing the electrical conductivity of a flow of milk and a vacuum-sensitive sensor (26), the information of these sensors being supplied to the computer (27) and processed therein, characterized in that, in order to obtain a more reliable indication of heat or illness of the animal, the computer (27) is arranged to process the information of the temperature sensor (23) in combination with the dead time between the instant when one of the teat cups (2) has been connected to a teat, established by the vacuum-sensitive sensor (26), and the instant when the flow of milk from this teat has started, established by the flow-sensitive sensor (24)."

The amended Claim 2 upon which the first auxiliary request is also based reads as follows:

"2. An implement for automatically milking animals, such as cows, comprising a milking parlour with a milking robot and a computer (27), the milking robot being provided with a robot arm carrying one or more teat cups (2) to be applied to the teats of an animal's udder, the teat cups (2) being connected to a milk line system (4, 5) to discharge the milk obtained via said teat cups (2) to a milk tank (6), the implement further comprising at least three of the following sensors: a temperature-sensitive sensor (23), a flow-sensitive sensor (24), a sensor (25) for establishing the electrical conductivity of a flow of milk and a vacuum-sensitive sensor (26), the information of these sensors being supplied to the computer (27) and processed therein, characterized in that, in order to obtain a more reliable indication of mastitis of the animal, the computer (27) is arranged to process the information of the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time between the instant when one of the teat cups (2) has been connected to a teat, established by the vacuum-sensitive sensor (26), and the instant when the flow of milk from this teat has started, established by the flow-sensitive sensor (24)."

VI. During the oral proceedings the appellant submitted new arguments under Article 100(c) EPC relating to a feature specified in the pre-characterising portion of Claim 1 of the patent as granted, namely to the feature that "the teat cups (2) [are] connected to a milk line system (4, 5) to discharge the milk obtained via said teat cups (2) to a milk tank (6)". The objection to this feature was brought forward for the first time during the oral proceedings.

VII. The appellant requested that the appealed decision be set aside and the patent be revoked.

The respondent requested that the appeal be dismissed (main request).

Auxiliarily, the respondent requested that the appealed decision be set aside and the patent be maintained,

as a first auxiliary request, on the basis of the independent Claims 1 and 2 filed during the oral proceedings, and

as a second auxiliary request, on the basis of the following documents:

- Claim 1 (of the second auxiliary request) filed during the oral proceedings;

- columns 1 and 2 of the description as filed during the oral proceedings; columns 3 to 6 of the description of the patent as granted;

- Figures 1 and 2 of the patent as granted.

VIII. The arguments of the appellant can be summarized as follows:

(i) The features of Claim 1 of the patent as granted which are referred in the above sections II and VI have no basis in the application as filed (Article 100(c) EPC).

(ii) Having regard to the content of the article by M.W. Woolford, "*The cow and the machine*" in the "Proceedings" of the "International Mastitis Symposium" in Quebec, August 1987 (document D13), the disclosure provided in the patent is insufficient to enable the skilled person to carry out the claimed invention with regard to the determination of the "dead time".

(iii) The subject-matter of Claim 1 of the patent as granted does not involve an inventive step having regard to the documents EP-A-385 539 (D1) and GB-A-2 218 888 (D2) and to the abstract in English language (hereinafter document D11) of the article (in Russian language) by E.P. Kokorina et al., "*Use of milking graphs to study interactions between quarters during machine milking of cows*", in Sel'skokhozyaistvennaya Biologiya, No. 8, 1986, pages 13 to 18.

(iv) The arguments under Article 100(a), (b) and (c) EPC which were submitted with regard to Claim 1 of the patent as granted (see the above items VIII(i) to VIII(iii)) also apply for the claims of both auxiliary requests of the respondent.

(v) The passage in column 1 (lines 22 to 30) of the amended description upon which the second auxiliary request of the respondent is based refers to the implement known from document D1 as being provided with a milk conductivity sensor. Since the characterising portion of Claim 1 of the second auxiliary request no longer refers to a milk conductivity sensor, this passage should be deleted.

The respondent essentially contested the arguments of the appellant.

Reasons for the decision

1. The appeal is admissible.

2. *The claimed subject-matter*

2.1 The feature in the pre-characterising portion of Claim 1 of the patent as granted according to which the implement comprises "at least three of the following sensors..." (column 6, lines 16 to 20) refers to four different sensors and states that "at least three" of them have to be present. According to the wording of this feature the implement may comprise either four sensors or three sensors (in each of the four possible combinations of the four sensors).

However, this feature has to be read in conjunction with the feature in the characterising portion of the claim according to which "the computer is arranged to process the information of the temperature sensor (23) and/or the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time between the instant when one of the teat cups (2) has been connected to a teat, established by the vacuum-sensitive sensor (26), and the instant when the flow of milk from this teat has started, established by the flow-sensitive sensor (24)".

Thus, it is clear from Claim 1 that the implement necessarily comprises a flow-sensitive sensor (in order to establish the instant when the flow of milk from the relevant teat has started) and a vacuum-sensitive sensor (in order to establish the instant when one of the teat cups (2) has been connected to a teat).

2.1.1 Therefore, it can be derived from Claim 1 that the implement further comprises **either** the temperature sensor 23 **or** the sensor 25 for establishing the electrical conductivity of a flow of milk **or** both sensors 23 and 25.

2.1.2 Claim 1 also defines the "dead time" as the time between the instant when one of the teat cups (2) has been connected to a teat and the instant when the flow of milk from this teat has started and makes it clear that the dead time is determined by the computer on the basis of the information supplied by the sensors 24 and 26.

2.1.3 Thus, Claim 1 has to be construed as defining an implement having the following features:

(A) the implement is suitable for automatically milking animals, such as cows,

(B) the implement comprises a milking parlour,

(B1) the milking parlour is provided with a milking robot,

(C) the implement comprises a computer (27),

(B11) the milking robot is provided with a robot arm,

(B111) the robot arm carries one or more teat cups (2) to be applied to the teats of an animal's udder,

(B1111) the teat cups (2) are connected to a milk line system (4, 5) to discharge the milk obtained via said teat cups (2) to a milk tank (6),

(E) the implement comprises a flow-sensitive sensor (24);

(E1) the flow-sensitive sensor (24) is suitable for establishing the instant when the flow of milk from this teat has started;

(F) the implement comprises a vacuum-sensitive sensor (26);

(F1) the vacuum-sensitive sensor (26) is suitable for establishing the instant when one of the teat cups (2) has been connected to a teat;

(G) the information of the vacuum-sensitive sensor (26) and of the flow-sensitive sensor (24) is supplied to the computer (27),

(G1) in the computer (27) the dead time between the instant when one of the teat cups (2) has been connected to a teat, established by the vacuum-sensitive sensor (26), and the instant when the flow of milk from this teat has started, established by the flow-sensitive sensor (24), is determined,

(H) the implement comprises at least one of the following sensors: a temperature-sensitive sensor (23) and a sensor (25) for establishing the electrical conductivity of a flow of milk;

(H1) the information of either the temperature sensor (23) or the sensor (25) for establishing the electrical conductivity of a flow of milk or both the temperature sensor (23) and the electrical conductivity sensor (25) is supplied to the computer (27),

(M) in order to obtain a more reliable indication of heat or illness, particularly mastitis, of the animal, the computer (27) is arranged to process the information of the temperature sensor (23) and/or the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time.

2.1.4 According to feature M, the computer is arranged to **process** the information of either the sensor 23 or the sensor 25 or both sensors **in combination** with the dead time.

The meaning of the wording used in feature M "arranged to process ... in combination..." has to be determined in order to define the claimed subject-matter so as to permit the comparative analysis of the claimed subject-matter with the content of the application as filed (in view of Article 100(c) EPC) as well as with the prior art (in view of Article 100(a) EPC).

Claim 1 does not contain any further information which can contribute towards establishing the meaning of the "processing in combination" referred to in feature M.

The description of the patent as granted refers to the terms "arranged to process ... in combination..." only in the passage (column 1, lines 31 to 42) which recites the characterising portion of Claim 1.

The introductory part of the description of the patent refers to the "processing of the signals originating from the sensors" in column 3 (lines 40 to 46) and

indicates that this "processing" permits the indication of whether the dead time and/or the electrical conductivity have exceeded their predetermined values. According to a passage in the part of the description which refers to the drawings (column 5,lines 50 to 54) the information from the sensors 23, 24, 25 and 26 is "further processed" in the computer and "made knowable on the display screen of a monitor".

According to feature M the aim of such a "processing" is "to obtain a more reliable indication of heat or illness, particularly mastitis, of the animal".

Having regard to the description of the patent, this indication consists in providing the farmer with the information of to which extent the dead time determined in the computer and at least one of the output signals of the sensors 23 and 25 have exceeded by a certain percentage their predetermined values.

Therefore, feature M has to be construed as defining a computer arranged to process the information originating **either** from the sensor 23 **or** from the sensor 25 **or** from both sensors **in conjunction with but independently of** the dead time so as to provide a more reliable indication of heat or illness of the animal. In other words, it has to be understood that the processing in the computer of a first information (for instance the information of at least one of the sensors 23 and 25) provides an indication of heat or illness of an animal (see for instance the passage in column 1, lines 12 to 22 according to which the temperature of the milk indicates the body temperature of the cow which is higher than normal with cows in heat and with

sick cows) and that the processing of a second additional information (for instance the information relating to the dead time) also provides an indication of heat or illness, such that a **more reliable** indication of heat or illness is provided (information given by two sources).

2.1.5 The reference to mastitis in feature M, due to the term "particularly", has to be considered as defining an optional feature.

2.1.6 Having regard to the above comments concerning feature M, Claim 1 of the patent as granted defines three different implements having in common the features from A to G1 (see section 2.1.3 above) wherein

(a) the first implement is provided with a temperature sensor 23 whose information is supplied to the computer, which is arranged to process the information of the temperature sensor and the dead time (as a further information) in order to obtain a more reliable indication of heat or illness of an animal;

(b) the second implement is provided with a sensor 25 for establishing the conductivity of a flow of milk whose information is supplied to the computer, which is arranged to process the information of the sensor for establishing the electrical conductivity of the milk and the dead time (as a further information), in order to obtain a more reliable indication of heat or illness of an animal; and

(c) the third implement is provided with both sensors 23 and 25 whose information is supplied to the computer, which is arranged to process the information of the temperature sensor, that of the sensor for establishing the electrical conductivity of the milk and the dead time (as a further information), in order to obtain a more reliable indication of heat or illness of an animal.

2.2 Claim 1 according to the first and second auxiliary requests essentially differs from Claim 1 of the patent as granted in that feature M has been replaced by the following feature:

(M') in order to obtain a more reliable indication of heat or illness of the animal, the computer (27) is arranged to process the information of the temperature sensor (23) in combination with the dead time.

2.2.1 It has to be noted that the pre-characterising portion of Claim 1 of the first and second auxiliary requests refers to the expression "at least three of the following sensors: a temperature-sensitive sensor (23), ... a sensor (25) for establishing the electrical conductivity of a flow of milk and ...". However, the characterising portion of the claim no longer refers to the sensor for establishing the electrical conductivity of a flow of milk. Therefore, having also regard to the comments in the above section 2.1, it is clear from Claim 1 of these auxiliary requests that the implement necessarily comprises a temperature-sensitive sensor and, optionally, may also comprise a sensor for

establishing the electrical conductivity of a flow of milk.

2.2.2 Having regard to the above comments, Claim 1 of the first and second auxiliary requests has to be construed as defining an implement provided with features A to G1 (see section 2.1.3 above) and M' (see section 2.2) as well as the features according to which "the implement comprises a temperature-sensitive sensor (23)" (feature H') and "the information of the temperature-sensitive sensor (23) is supplied to the computer (27)" (feature H'1).

In other words, Claim 1 of these auxiliary requests relates to the first implement referred to in section 2.1.6(a).

2.3 Claim 2 according to the first auxiliary request differs from Claim 1 of the patent as granted in that feature M has been replaced by the following feature:

(M'') in order to obtain a more reliable indication of mastitis of the animal, the computer (27) is arranged to process the information of the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time.

2.3.1 Thus, Claim 2 of this request relates to an implement which is further specified with respect to the second implement referred to in section 2.1.6(b) and is provided with all the features from A to G1 (see section 2.1.3 above) as well as with the features that "the implement comprises a sensor (25) for establishing

the electrical conductivity of a flow of milk" (feature H'') and that "the information of the sensor (25) for establishing the electrical conductivity of a flow of milk is supplied to the computer" (feature H''1), wherein in this implement "the computer (27) is arranged to process information of the sensor (25) for establishing the electrical conductivity of a flow of milk in combination with the dead time (as a further information), in order to obtain a more reliable indication **of mastitis** of an animal" (feature M'').

3. *Articles 100(c) EPC and 123 EPC*

3.1 With respect to the feature objected to by the appellant for the first time during the oral proceedings (see section VI above):

3.1.1 The appellant asserted that feature B1111, which is specified in Claim 1 of the patent as granted, has no basis in the application as filed (Article 100(c) EPC).

3.1.2 With regard to this objection, the respondent argued that it had been submitted in a very late stage of the proceedings and asked the board to remit the case to the first instance if the patent could not be maintained on the basis of one of his requests.

3.1.3 The objection to feature B1111 was submitted at the beginning of the oral proceedings on 26 November 2003. Since this feature had not been previously objected to, the objection has to be considered as a new "fact" submitted for the first time during the oral proceedings. Furthermore, there was no relationship between the issues which were discussed during the oral

proceedings and the objection itself. Thus, this objection could have been submitted at least before the oral proceedings.

It also has to be assumed that the appellant himself had enough time to elaborate arguments relating to this objection whereas it is clear on the other hand that the respondent needed time to react to this objection in order to either develop arguments or propose amendments.

3.1.4 In this respect, the appellant argued that this objection, although it had been submitted in a late stage of the proceedings, should be considered by the board, having regard to the fact that also the respondent had submitted two new requests for the first time during the oral proceedings.

The board cannot accept this argument for the following reasons:

(i) Although the objection to feature M had been submitted by the appellant in the statement setting out the grounds of appeal, the discussion of this issue during the oral proceedings allowed the focussing on new arguments which had not been previously submitted, for instance the arguments relating to the absence of a disclosure in the application as filed of the relationship between milk conductivity and heat (see the following sections 3.2.1 and 3.2.2). Thus, the submission of the auxiliary requests during the oral proceedings can be considered as being a reaction of the respondent to these new arguments.

(ii) Furthermore, it is clear that the appellant did not need any time to elaborate new arguments with respect to the new requests of the respondent, since the arguments submitted by the appellant with respect to the main request also apply *mutatis mutandis* for the auxiliary requests (see the above section VIII, point iv).

3.1.5 If the board had admitted the objection against feature B1111, this would have resulted in an unbalanced situation in which the parties would not have had equal treatment. On the other hand, the submission of the auxiliary requests did not produce such an unbalanced situation.

Moreover, if the objection against feature B1111 had been admitted, this would have resulted in an undue prolongation of the proceedings.

3.1.6 In view of the above comments and having regard to the general principles of equal rights and of economy of the proceedings, the board disregards the objection to feature B1111 as being a fact which was not submitted in due time (Article 114(2) EPC).

3.2 Article 100(c) EPC with respect to the main request:

3.2.1 Feature M in Claim 1 of the patent as granted *inter alia* defines an implement in which the computer is arranged to process in addition to the information of the sensor for establishing the electrical conductivity of the milk the dead time (as a further information), in order to obtain a more reliable indication of **heat**

or illness of an animal (see the above section 2.1.4). Thus, feature M implies a relationship between electrical conductivity of the milk and **heat** of the animal.

3.2.2 The application as filed (see EP-A-534 564) systematically refers to the sensor for establishing the electrical conductivity of the milk as providing the indication that the animal suffers from mastitis (see for instance the passages in column 2, lines 20 to 27; in column 5, lines 23 to 34; in column 6, lines 31 to 48 as well as in column 8, lines 11 to 24, in which the sensor 25 is even referred to as "mastitis sensor").

Thus, the application as filed refers to the sensor for establishing the electrical conductivity of the milk as a sensor which can provide an indication that the animal suffers from a specific disease (mastitis) **without disclosing** the information that this sensor can provide indication of **heat** of the animal.

3.2.3 None of the passages referred to by the respondent as representing a basis for feature M (i.e. column 1, lines 23 to 25; column 5, lines 7 to 26; column 6, lines 31 to 48; column 8, lines 24 to 29) indicates a relationship between electrical conductivity of the milk and heat. In particular, it has to be noted that the sentence referred to by the respondent, according to which "...it is important to know whether mastitis or any **other disease** is concerned" (column 5, lines 25 and 26; emphasis added) has to be read in the context of the passage in column 5, lines 21 to 32, which clearly refers to a relationship between milk conductivity and mastitis.

3.2.4 Thus, the subject-matter of Claim 1 of the patent as granted extends beyond the content of the application as filed and the ground for opposition mentioned in Article 100(c) EPC prejudices the maintenance of the patent as granted.

3.2.5 Therefore, the main request of the respondent has to be rejected.

3.3 Article 123(2) EPC with respect to Claim 2 of the first auxiliary request:

3.3.1 Feature M'' in Claim 2 of this request defines an implement in which the computer is arranged to process the dead time (as a further information) in addition to the information of the sensor for establishing the electrical conductivity of the milk in order to obtain a more reliable indication of mastitis of an animal (see the above section 2.3.1).

Having regard to the comments in the above sections 2.1.4 and 2.3.1, feature M'' implies that the dead time can provide an indication of mastitis of an animal and that this information in conjunction with the information originating from the sensor for establishing the electrical conductivity of the milk can provide a more reliable indication of mastitis. In other words, feature M'' implies a relationship between mastitis and dead time.

3.3.2 The application as filed indicates a relationship between either dead time and heat or dead time and illness (in general), without indicating a specific relationship between dead time and mastitis.

3.3.3 Thus, due to feature M'', the subject-matter of Claim 2 of the first auxiliary request extends beyond the content of the application as filed and this claim contravenes the requirements of Article 123(2) EPC.

3.3.4 Therefore, the first auxiliary request of the respondent has to be rejected.

3.4 Articles 100(c) and 123 EPC with respect to the amended Claim 1 upon which the second auxiliary request is based:

3.4.1 Feature M' (which replaces feature M in Claim 1) has a basis in a passage of the description of the application as filed according to which "a more reliable indication signal of heat or illness is obtainable from parameters such as the … **temperature** of a milk flow …, and possibly by combination **of one** or several such parameters with the **dead time** by means of a computer" (column 5, lines 7 to 18; emphasis added).

Moreover, the application as filed also contains a passage according to which a computer is provided "to determine the **dead time** and, in conjunction with the information originating from the **temperature-sensitive sensor**, to produce an indication of any probable heat or illness of the animal" (column 2, lines 12 to 20, emphasis added).

Therefore, this amendment does not contravene the requirements of Article 123(2) EPC.

3.4.2 Feature M' relates to only one of the three different implements defined by Claim 1 of the patent as granted (see the above sections 2.1.6 and 2.2.2). Therefore, this amendment limits the extent of protection of the claim and does not contravene the requirements of Article 123(3) EPC.

3.4.3 The arguments submitted by the appellant with respect to feature M, in so far as they also apply for feature M', can be summarized as follows:

(a) The wording "arranged to process the information of ... in combination with the dead time..." indicates that the computer is arranged **not only** to process a signal corresponding to the dead time in addition to the signal of the temperature sensor, i.e. to process both signals independently of each other (in such a way that each signal is compared with a corresponding threshold value) **but also** to process the signals (dead time and temperature) so as to determine a combined signal (which can be compared with a single threshold value) which is indicative of illness or heat of an animal.

(b) The application as filed refers to a computer which is arranged to process the information originating from the temperature sensor in conjunction with the dead time without any inter-relationship between the signal corresponding to

the dead time and the signal of the temperature sensor (i.e. without any combined processing).

(c) Thus, the **wording** of feature M' has no basis in the application as filed and extends beyond its content such that Article 100(c) EPC prejudices the maintenance of the patent on the basis of the second auxiliary request.

3.4.4 The board cannot accept these arguments of the appellant for the following reasons:

(i) Article 100(c) EPC refers to cases in which "the **subject-matter of** the European patent extends beyond the content of the application as filed" (emphasis added). This means that, if an objection under Article 100(c) EPC is raised against an independent claim of a European patent, the **subject-matter** of this claim, i.e. the matter for which protection is sought, has to be identified and compared with the application as filed in order to establish whether this subject-matter extends beyond the content of the application as filed. In order to identify this subject-matter, **the meaning of the wording** of the claim has to be defined.

(ii) According to Article 113(2) EPC, a patent may only be granted on the basis of a text submitted or agreed by the applicant. This means that the proprietor of a patent has the choice of the **words** used in the patent.

Having regard to the fact that the claims of a patent represent generalisations of examples which are specifically disclosed in the description, the meaning of the wording of a claim cannot be defined by isolating the claims from the description.

(iii) In the present case, it is decisive to define the meaning of the wording "arranged to process the information of ... in combination with the dead time..." (which is present in all independents claims of all requests). This has to be done by considering the claim in the general context of the description.

(iv) Having regard to the comments in the above section 2.1.4, this wording has to be construed as relating to a computer which is arranged to process a signal corresponding to the dead time in addition to but independently of the signal of the temperature sensor.

3.4.5 Therefore, Claim 1 of the second auxiliary request does not contravene the requirements of Articles 123(2) and (3) EPC. Furthermore, having considered the arguments submitted by the appellant in respect of feature M', the ground for opposition mentioned in Article 100(c) EPC does not prejudice the maintenance of a patent on the basis of this claim.

3.5 Article 123 EPC with respect to the description upon which the second auxiliary request is based:

3.5.1 The amendment to the description in column 1, lines 31 to 42 only relates to its adaptation to the amended Claim 1. This amendment does not contravene the requirements of Article 123 EPC.

The appellant referred to the passage in the description of the patent as granted, column 1, lines 22 to 30, and asserted that this passage should be deleted. In this respect the appellant essentially argued as follows:

(a) This passage refers to the prior art implement known from document D1 as an implement comprising a milk conductivity sensor providing a signal indicating the health of the animal.

(b) Claim 1 of the second auxiliary request no longer refers to a sensor for establishing the conductivity of a flow of milk providing a signal indicative of illness.

(c) Therefore, this passage can be used to interpret the claim so as to extend the protection beyond the extent defined by the wording of the claim itself in so far as the passage refers to a milk conductivity sensor while the characterising portion of Claim 1 no longer refers to this sensor.

3.5.2 The board cannot accept this argument for the following reasons:

(i) As pointed out in the above section 2.1.6, Claim 1 of the patent as granted was also directed to an implement in which the information of a milk

conductivity sensor is supplied to the computer and the computer is arranged to process the dead time in addition to the information of the milk conductivity sensor in order to obtain a more reliable indication of heat or illness of an animal.

(ii) Although the amended Claim 1 of the second auxiliary request also refers to a milk conductivity sensor (see the above section 2.2.1), it is clear that this claim is directed to an implement comprising at least three sensors, namely a temperature sensor, a milk flow sensor and a vacuum sensor and that the signal originating from the **temperature** sensor and a signal corresponding to the **dead time** provide a more reliable indication of heat or illness. Therefore, it is clear from this amended Claim 1 that the milk conductivity sensor could be a fourth sensor of the implement which could be used - when an indication of illness has already been obtained - to establish whether mastitis is concerned. This interpretation is consistent with the description of the patent (column 3, lines 3 to 8). However, an implement as referred to in the above section 2.1.6, point (b) is no longer defined by this amended Claim 1.

(iii) The passage referred to by the appellant refers to the prior art known from document D1. Moreover, the sentence in the description of the patent preceding this passage makes it clear that the implement known from document D1 is provided with a temperature sensor and that the milk temperature

in so far as it is indicative of the body temperature of the animal "is higher than normally with cows in heat and with sick cows" (column 1, lines 16 to 22).

It is clear that document D1 discloses an implement provided *inter alia* with a conductivity sensor supplying a signal which "is a measure of the health of the udder" because "in the case of mastitis, the conductivity of the milk is higher than that of the milk obtained from a healthy udder…"(see D1: column 9, lines 43 to 50) and with a milk temperature sensor indicating the body temperature of the cows to be milked, which temperature "is higher than normally with cows in heat and with sick cows" (see D1: column 11, lines 29 to 35).

Therefore, the passages of the description which refer to document D1 describe correctly the prior art known from this document.

(iv) The aim of the invention is to provide a more reliable indication of illness **or heat** of an animal. It is clear that this aim is obtained by processing not only the information originating from the temperature sensor (as in the prior art implement) but also the dead time as a further information. Moreover, it is clear from the remaining parts of the description of the patent (which do not relate to the prior art) that the milk conductivity can be used to indicate a specific disease, i.e. mastitis (but not heat).

The passages referring to the prior art in the description of the patent could be used to interpret the claim only in order to better define in what the teaching of the claim consists. Having regard to the information content of all passages referring to the prior art known from document D1 (column 1, lines 1 to 30) and to the wording of the amended Claim 1, an interpretation of this claim according to which the claim also defines an implement as referred to in the above section 2.1.6 is not possible.

4. *Article 100(b) EPC*

4.1 With respect to Article 100(b) EPC the appellant generally argued that the description of the patent would not provide the skilled person with sufficient information to use the dead time as an indication of heat or illness.

4.1.1 The board cannot accept this argument for the following reasons:

(i) It is clear from the description of the patent that the invention is essentially based upon the idea of using the "dead time" to obtain an indication of heat or illness. It is clear from Claim 1 that the dead time is the time between the instant when one of the teat cups has been connected to the teat (as established by a vacuum-sensitive sensor) and the instant when the milk flow starts (as established by a flow-sensitive sensor). Moreover, it is clear from the description of the patent that the instant when

the teat cup is connected is determined by means of the vacuum sensor 26 which establishes "whether a sufficient vacuum prevails in the milk line 4 and the teat cup 2" (see column 5, lines 35 to 38) and that the instant when the milk flow starts is determined by means of the flow sensor 24 which establishes whether or not there is milk in the milk line 4 (see column 5, lines 26 to 31).

(ii) The description of the patent refers to the dead time as a parameter indicating the heat or the illness of an animal when it exceeds by a certain percentage a predetermined value (column 2, lines 46 to 51).

Moreover, it is stated in the description of the patent that the predetermined value of the dead time "will be different not only for various animals, but it will also change as the animals grow old" (see column 2, lines 42 to 44) and that the predetermined value of the dead time can be determined for each cow as a progressive average of the latest measurements of the dead time (see column 3, lines 20 to 22 in conjunction with lines 13 to 20).

(iii) Thus, the description of the patent contains general information about how to determine the predetermined value of the dead time, wherein the determination of the particular predetermined value for each animal can be arrived at by a simple routine test.

That means that the normal average dead time of the healthy animal can be determined and that it is up to the skilled person to define the allowable deviation percentage to be taken into account in order to decide that the animal is ill or estrous.

(iv) Furthermore, in order to establish the insufficiency of the disclosure, the burden of proof is upon the opponent. In the present case no experimental data which could give evidence of an insufficient disclosure of the invention have been submitted by the appellant.

4.2 With regard to Article 100(b) EPC, the appellant also referred to document D13 and to the general knowledge of the skilled person and more specifically argued as follows:

(a) It is clear that the "dead time" as a parameter indicating heat or illness of an animal corresponds to the period of time between the instant when a teat cup is connected to the corresponding teat and the instant when the milk ejection reflex is evoked by stimulation of the teat and/or udder. This parameter is also called "latent period of milk ejection" (see for instance document D11).

(b) It is common general knowledge in the technical field of milking that two types of milk can be drawn from different parts of an udder quarter. A first type of milk, which is present in the cistern and in the large duct of the teat and is

called "pre-milk" or "cistern and large duct milk", starts to flow as soon as vacuum is applied to a teat cup connected to a teat. A second type of milk (called "alveolar milk") which is stored in the alveolar spaces of the mammary gland can only flow when the milk ejection reflex has been evoked. In some countries, notably Germany, milking regulations require that "pre-milk" be separated from "alveolar milk" when milk is harvested for human consumption.

(c) It is clear from the opposed patent that the dead time is the time between the instant when vacuum is applied to a teat cup and the instant when the milk flow sensor detects the beginning of the milk flow. The milk flow sensor of the implement described in the patent would detect the beginning of the flow of "pre-milk", since the "pre-milk" would begin to flow immediately after application of vacuum. Thus, the milk flow sensor would not detect the flow of the "alveolar milk" and the latent period of ejection would not be measured. In other words, the dead time calculated by the computer of the implement described in the opposed patent would always be zero.

(d) This conclusion concerning the flow of pre-milk can also be derived from Figure 3 on page 4 of document D13 which shows a graph with two milk yield versus time curves. The first curve (i), which relates to a cow "not having a milk ejection at cluster attachment" (i.e. when the teat cups have been connected to the teats), has an initial step between the instant "zero" and the time when

the milk ejection occurs, while the second curve (ii) which relates to a cow in which the milk ejection is established at cluster attachment has no initial step. However, the first curve (i) clearly indicates that there is a milk flow from the beginning (immediately after cluster attachment) even if the ejection reflex is not evoked.

(e) Therefore, the patent does not provide the skilled person with sufficient information to detect the beginning of the flow of "alveolar milk".

4.2.1 In these respects the respondent argued as follows:

(a) It is common general knowledge in the technical field of milking that "pre-milk" has to be separated from "alveolar milk".

(b) The removal of "pre-milk" before proper milking can be simultaneous with teat cleaning. This happens for instance in the milking robots manufactured by the appellant himself, which are provided with a separate teat cleaning device in the form of a fifth teat cup which applies water, vacuum and air-pressure and by means of which the pre-milk is removed from the teat and separated together with water.

(c) The skilled person on the basis of his general knowledge would immediately understand that the pre-milk has to be removed from the teats before a sufficient vacuum is applied to the teat cups referred to in the patent in suit. Thus, the

latent period of milk ejection (i.e. the dead time defined in the patent in suit) can be determined and can provide - in conjunction with the temperature of the milk an indication of heat or illness of an animal.

4.2.2 It has to be noted that both parties referred to the general knowledge of the skilled person as including the information that "pre-milk" has to be separated from "alveolar milk" when milk is harvested for human consumption. The arguments of the appellant are based upon the assumption that the skilled person reading the patent in suit would be provided with the information that the teat cup has to be connected to the teat for milking without previously removing the pre-milk. In other words, the arguments of the appellant suppose that the skilled person interprets the teaching of patent against his own technical knowledge. Therefore the board cannot accept these arguments of the appellant.

4.3 Having regard to the comments above, the ground for opposition mentioned in Article 100(b) EPC does not prejudice the maintenance of the patent on the basis of the second auxiliary request of the respondent.

5. *The prior art referred to by the appellant*

5.1 Document EP-A-385 539 (D1) discloses an implement for automatically milking animals, such as cows, comprising a milking parlour provided with a milking robot having a robot arm carrying one or more teat cups 2 to be applied to the teats of an animal's udder, the teat cups being connected to a milk line system 3, 4, 8, 9

to discharge the milk obtained via said teat cups 2 to a milk tank 6 (see column 7, lines 19 to 37), each teat cup being associated with a milk meter 4. The implement further comprises a computer 22 and a vacuum-sensitive sensor 44 for ascertaining whether vacuum is present in the milk meter, wherein the information S8 of the sensor 44 is supplied to the computer.

Moreover, there is a milk level sensor 21 supplying a signal S2 to the computer. According to a passage in the description, the end of the milking procedure can be detected by means of the milk level sensor but this can also be done by means of a milk flow sensor (see column 4, lines 28 to 34).

Furthermore, the implement disclosed in document D1 comprises a milk temperature sensor providing a measure of the body temperature of the cow and thus an indication of heat or illness (see column 11, lines 29 to 35) and a milk conductivity sensor 27 supplying a signal S4 to the computer and providing an indication of whether the cow has mastitis.

5.2 Document D2 discloses an implement for automatically milking cows comprising a teat cup attaching mechanism 30 provided with milking means 31 incorporating teat cups 21 and a microprocessor unit 57. Moreover, it has to be understood from document D2 that the implement is also provided with vacuum sensing means (i.e. vacuum sensors 55) and milk flow sensing means. According to the sentence on page 18, lines 8 to 12, during the attachment of the teat cups to the teats, the microprocessor unit 57, "regulates the vacuum supply to the teat cups, and monitors vacuum and milk flow

sensing means for each teat cup to validate successful attachment".

5.3 Document D11 refers to "the latent period of milk ejection" and states that tests show that "cows classed as having low stress resistance" have a longer latent period.

6. *Novelty (second auxiliary request)*

The subject-matter of Claim 1 is novel with respect to the document mentioned by the appellant. Novelty was not disputed.

7. *Inventive step (second auxiliary request)*

7.1 Both parties considered document D1 as reflecting the closest prior art.

Having regard to the comments in the above section 5.1, the subject-matter of claim 1 differs from the prior art according to document D1 essentially by features G1 and M'' (see the above sections 2.1.3 and 2.3).

7.2 With regard to the combination of documents D1 and D2 the appellant essentially argued as follows:

(a) In the implement according to document D1, when a teat cup is connected to a teat which has been folded during the connection operation, no milking can be carried out, although a vacuum is generated in the teat cup. Therefore, starting from document D1 the problem to be solved consists in providing indication of an unsuccessful attachment of the

teat cups. Thus, the skilled person would consider document D2 which relates to this problem.

(b) In the implement known from document D2, the successful attachment has to be validated by the microprocessor unit and this is done by monitoring the vacuum and the milk flow sensing means. Moreover, the microprocessor unit 57 referred to in document D2 is certainly provided with a time clock. The skilled person reading document D2 will immediately understand that the microprocessor monitors the vacuum sensing means in order to establish the instant in which the teat cup has been connected to a teat and the milk flow sensing means in order to establish whether the teat cup is correctly connected to the teat. Therefore, the skilled person derives from document D2 the teaching that the microprocessor determines the period of time between the instant when the teat cup has been connected to a teat and the instant when the flow of milk from this teat has started (this period of time corresponding to the dead time referred to in features G1 and M').

(c) The skilled person, in order to solve the problem of providing an indication of successful attachment of the teat cups, would apply the teaching known from document D2 to the implement known from document D1 and thus would arrive at an implement in which the information concerning the time between the instant when one of the teat cups has been connected to a teat, established by the vacuum-sensitive sensor, and the instant when the flow of milk from this teat has started,

established by the flow-sensitive sensor, is determined in the computer, in which this information is processed in conjunction with the information of the temperature sensor. Such an implement would not only solve the problem of providing an indication of successful attachment of the teat cups but also provide (as additional effect) an indication of heat or illness of an animal. Therefore, the skilled person would arrive at the claimed subject-matter without exercising any inventive skill.

7.2.1 The board cannot accept this argument of the appellant because it is clearly based upon an *ex post facto* analysis of document D2. This document only teaches that vacuum and milk flow sensing means have to be monitored to validate successful attachment of a teat cup and to signal an unsuccessful attachment. This **could be** done by calculating in the microprocessor unit the time between the instant when the teat cup has been connected to a teat and the instant when the flow of milk from this teat has started and by establishing whether the calculated time exceeds the threshold, as it was argued by the appellant. However, this **could also be done** by determining in the microprocessor unit whether within a predetermined period of time the vacuum sensing means indicates the presence of vacuum and the milk flow sensing flow indicates the presence of a milk flow, without calculating any time. Since document D2 is silent as to **how** vacuum and milk flow sensing means are actually monitored, it does not describe in a clear and unequivocal way the teaching that a time is calculated in the microprocessor unit.

7.3 With regard to the combination of documents D1 and D11 the appellant essentially argued as follows:

(a) Document D11 refers to the "latent period of milk ejection", which corresponds to the "dead time" referred to in the patent in suit. This document teaches that there is a correlation between the stress resistance of the cows and the expected latent period.

(b) The skilled person reading document D11 would immediately realize that the information relating to the latent period is indicative of health of the cow.

(c) Thus, the skilled person would apply the teaching of document D11 to the implement according to document D1. Since the implement known from document D1 is provided with a vacuum-sensitive sensor and a milk flow sensor, it would be obvious for the skilled person to use these sensors to determine the latent period and, thus, to arrive at the claimed subject-matter.

7.3.1 The board cannot accept this argumentation of the appellant because, having regard to following comments, the argument referred to in section 7.3, point (c) is clearly based upon an *ex post facto* consideration:

(i) Document D11 does not disclose how the latent period of milk ejection has been determined.

(ii) Since document D1 does not refer to the dead time as a parameter indicative of the health of the cow, it cannot suggest how the dead time has to be determined. The fact that the implement known from document D1 is provided with a vacuum-sensitive sensor and a milk flow sensor does not suggest that these sensors can be used to determine the dead time. In this respect, it has to be noted that document D1 does not refer to the milk flow sensor as detecting the beginning of the milk flow but refers to it as a sensor detecting the end of the milking procedure (see column 4, lines 28 to 34).

(iii) The determination of the dead time is not the only possible way of measuring the latent period of milk ejection. As referred to by the appellant himself during the oral proceedings, this latent period can be determined by measuring the level of oxitocin. Therefore, the skilled person would not immediately realize that the dead time has to be determined by using the sensors of the implement known from document D1.

7.4 Having regard to the above comments, the skilled person would not arrive in an obvious way at the subject-matter of Claim 1 of the second auxiliary request of the respondent.

8. Therefore, the patent can be maintained on the basis of the documents upon which the second auxiliary request of the respondent is based.

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 in the following version:

   – claim 1 of the second auxiliary request as filed during the oral proceedings,

   – description: columns 1 and 2 as filed during the oral proceedings, columns 3 to 6 as granted,

   – figures 1 and 2 as granted.

The Registrar: The Chairman:

G. Magouliotis C. Andries