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D E C I S I O N
of 9 February 2005

Case Number: T 0864/03 - 3.2.4

Application Number: 95923588.8

Publication Number: 0716567

IPC: A01J 5/017

Language of the proceedings: EN

Title of invention:
A construction including an implement for automatically milking animals

Patentee:
Maasland N.V.

Opponent:
DeLaval International AB Patent & Trademark Department

Headword:
-

Relevant legal provisions:
EPC Art. 100(a)

Keyword:
"Novelty (yes)"
"Inventive step (no)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0864/03 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 9 February 2005

Appellant: (Opponent)
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Representative:
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 2 June 2003 concerning maintenance of European patent No. 0716567 in amended form.

Composition of the Board:

Chairman: M. Ceyte
Members: C. Scheibling
T. Bokor

Summary of Facts and Submissions

I. On 2 June 2003 the Opposition Division issued an interlocutory decision for the maintenance of the patent in an amended form. On 11 August 2003 the Appellant (opponent) filed an appeal and paid the appeal fee simultaneously. The statement setting out the grounds of appeal was received on Monday the 13 October 2003.

II. Opposition was filed on the grounds based on Article 100(a) and (b) EPC.

III. Claim 1 of the main request reads as follows:

"1. A construction including an implement for automatically milking animals, such as cows, having one or more milking boxes (1) and one or more milking robots for automatically coupling teat cups (18) to the teats of the animals, while during milking a milk tube (27) connected to a teat cup (18) is freely movable in such a manner that the teat cup can follow the animal's movements with a slight resistance, wherein a milking robot includes at least one omnidirectionally movable robot arm (19) which acts as a carrier for one of the teat cups (18), wherein the robot arm (19), whilst a teat cup is still fitted on a teat of the animal, can be brought to outside the reach of an animal standing in a relevant milking box (1), characterized in that a detector (10), more specifically a laser detector, for the determination of the position of the teats of the animals being present, this detector (10) being disposed on a separate robot arm construction (30)."

Claim 1 of the auxiliary request reads as follows:

"1. A construction including an implement for automatically milking animals, such as cows, having one or more milking boxes (1) and one or more milking robots for automatically coupling teat cups (18) to the teats of the animals, while during milking a milk tube (27) connected to a teat cup (18) is freely movable in such a manner that the teat cup can follow the animal's movements with a slight resistance, wherein a milking robot includes at least one omnidirectionally movable robot arm (19) which acts as a carrier for one of the teat cups (18), wherein the robot arm (19), whilst a teat cup is still fitted on a teat of the animal, can be brought to outside the reach of an animal standing in a relevant milking box (1), characterized in that a laser detector (10), for the determination of the position of the teats of the animals being present, this detector (10) being disposed on a separate robot arm construction (30)."

IV. The following documents played a role in the appeal proceedings:

D1: EP-B-0 300 115

D4: "Untersuchungen zum robotergestützten Melken", Dieter Schillingmann, pages 32 to 59, 100 to 107 and 134 to 139; VDI-Verlag GmbH Düsseldorf 1992

D5: DE-A-4 113 700

D8: "Prospects for automatic milking", pages 40 to 48; "Proceedings of the International Symposium on Prospects for Automatic Milking", Wageningen, Netherlands, 23 to

25 November 1992; EAAP N° 65, 1992; Pudoc Scientific Publishers

D12': English translation of the "Annual Report of Hokkaido Konsen Agricultural Experimental Station 1987"; printed and published May 1988.

V. Oral proceedings took place on 9 February 2005.

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

He withdraw his objection based on Article 100(b) EPC and mainly argued as follows: D1 is novelty destroying for the subject-matter of claim 1 according to the main request, since it is clear for a skilled person that the robot arm which carries the detectors and the robot arm which carries the teat cups are separate, i.e. can be moved independently of each other. But even if considering that both robot arms were so linked as to move together, D1 would nevertheless disclose all features of the prior art portion of claim 1 of both requests; whereas D12' would disclose a construction comprising a laser detector (implicit) which is disposed on a separate robot arm construction, and consequently, the subject-matter of claim 1 of both requests would fail to involve an inventive step. Furthermore, the subject-matter of claim 1 of both requests would not involve an inventive step when considering D8 in conjunction with D12'. The use of a laser detector is also disclosed in D4, D5 and D8.

The Respondent (patentee) mainly argued as follows: D1 does not disclose to dispose the detector on a separate robot arm construction in the meaning of the patent in

suit. In D1, the robot arm carrying the detectors is linked to the robot arm carrying the teat cups in its movement along rail 16, i.e. in the longitudinal direction of the milking box. Furthermore, D12' does disclose neither a milking box, nor a robot arm that can be brought outside the reach of an animal, nor does it explicitly disclose a laser detector. D4 and D8 do not disclose to dispose the detector on a separate robot arm construction either. Therefore, no combination of the cited prior art documents could lead a skilled person to the subject-matter of claim 1 according to the main or the auxiliary request.

The Respondent requested that the appeal be dismissed as main request, i.e. that patent be maintained as amended during the oral proceedings before the opposition division and as auxiliary request, cancellation of the decision under appeal and maintenance of the patent on the basis of claim 1 as submitted by letter of 10 January 2005.

Reasons for the Decision

1. The appeal is admissible.

2. *Main request - Novelty:*

2.1 The expression "more specifically" is considered to have the same meaning as "more particularly". As indicated in the Guidelines for Examination, part C, chapter III, 4.6 the feature following such an expression, in the present case "that the detector is a laser detector", is to be regarded as optional.

2.2 From D1 (second embodiment; column 8, line 34 to column 9, line 6; figures 4 and 5) there is known a construction including an implement for automatically milking animals, such as cows, having one or more milking boxes (Figure 3, reference signs 66, 67) and one or more milking robots (Figure 5) for automatically coupling teat cups (91 to 94) to the teats of the animals, while during milking a milk tube (100) connected to a teat cup (91) is freely movable in such a manner that the teat cup can follow the animal's movements with a slight resistance, wherein a milking robot includes at least one omnidirectionally movable robot arm (Figure 6) which acts as a carrier (30) for one of the teat cups (91); whilst a teat cup is still fitted on a teat of the animal, the robot arm can be brought to outside the reach of an animal standing in a relevant milking box (column 6, lines 55 to 58); a detector (83, 84), for the determination of the position of the teats of the animals is disposed on a carriage (87) ("Mitnehmerwagen") which is moved until the udder of the animal is detected (implicit since the animal is not moving).

2.3 It is not indicated in D1 whether or not the carriage supporting the detectors is linked in its movements to the robot arm construction for carrying the teat cups.

2.4 The Respondent argued that, from Figure 5 of D1, it will be clear for a skilled person, that the carriage supporting the detectors and the robot arm for carrying the teat cups are both fixed on a toothed belt, which is driven by a motor schematically indicated on the left hand side of the rail 16.

This point of view cannot be shared by the Board.

2.5 There is no indication in D1 that the item schematically indicated in Figure 5, on the left hand side of the rail 16 is a motor, or that what is supported on said rail is a toothed belt.

However, it is clear from the description that the robot arm for carrying the teat cups allows movements in a longitudinal, transversal and vertical direction with respect to the milking box. Especially arm 17 can be displaced in a vertical and a horizontal direction with respect to beam 18 (see Figure 6). Thus, although no motor or other actuator is represented in Figure 5 for this purpose, some actuation devices must nevertheless be present.

Therefore, it is not possible to conclude that no specific motor is provided for the longitudinal movement of the carriage supporting the detectors, just because no such specific motor is represented in Figure 5.

2.6 However, since there is no clear and unmistakable disclosure in D1 that the robot arm carrying the teat cup is able to be displaced independently from the robot arm supporting the detectors, novelty of subject-matter of claim 1 according to the main request is given with respect to D1. No other prior art document has been cited against novelty and the Board is satisfied that none of the cited prior art documents discloses all features of claim 1 according to the main request.

3. *Inventive step - main request:*

3.1 D1 is considered to be the closest prior art document.

3.2 The subject-matter of claim 1 differs from the construction according to D1 in that the detector is disposed on a separate robot arm construction.

3.3 The problem to be solved by the patent in suit is to provide a construction for a reliable detection of the teats.

3.4 From D1, it is already known to provide a robot arm for carrying a teat cup and a carriage (which is a special type of robot arm) for supporting the detectors. Since D1 is not conclusive on whether or not said robot arm and carriage are linked in their longitudinal movement, a skilled person has two possibilities to carry out the construction according to D1, either to have the carriage and the robot arm linked and moving in unison in the longitudinal direction or to have the carriage and the robot arm provided each with its own actuator system and thus, to have them separate in the meaning of the patent in suit.

3.5 If the carriage and the robot arm were linked in their longitudinal movement, only one actuator would be needed for both robot arms, which would make the construction less expensive. However, should the animal move after determination of the position of the targeted teat and thus, during the approach movement of the teat cup carrying robot arm, then the robot arm would not be able to connect the teat cup to the teat,

because the coordinates of the teat would have changed and the detectors (83, 84) would no longer be in front of the teat and thus, not be able to update the teat coordinates. Therefore, any movement of the teat cup carrying robot arm to bring it in position under a particular teat of the animal would result in a movement of the carriage supporting the detectors. Consequently, it would be necessary to perform a new teat detecting sequence.

3.6 If the carriage and the robot arm were not linked in their longitudinal movement, each robot arm would need its own actuator, which would make the construction more expensive. However, should the animal move after determination of the position of the teats and thus, during the approach movement of the teat cup carrying robot arm, then the movement of the teat would be detected by the detectors (83, 84) since the detectors would not be displaced when the teat cup carrying robot arm is moving, and thus, still be in position to monitor the targeted teat, so that the control unit controlling the robot arm carrying the teat cup, could be provided with the new coordinates of the teat. Consequently, a more reliable detection of the teat would be obtained.

3.7 Consequently, it is obvious for a skilled person that a more reliable detection of the teat can be obtained when the robot arm which carries the teat cups and the robot arm supporting the detectors are not linked in their movements, which means, when the robot arm constructions are separate. Therefore, it is obvious for a skilled person confronted with the problem of providing a more reliable detection of the teats to

select this alternative and thus, to arrive at the construction according to the patent in suit.

3.8 Therefore, the subject-matter of claim 1 according to the main request does not involve an inventive step.

4. *Auxiliary request:*

4.1 Modifications:

Claim 1 of the auxiliary request differs from claim 1 of the main request by the deletion of the wording "more specifically". This modification is not objectionable under Article 123(2) and (3) EPC.

4.2 Novelty:

D1 does not disclose either the use of a laser detector. None of the other cited documents of the prior art discloses in combination all the features of claim 1. Novelty of the subject-matter of claim 1 is given with respect to the cited prior art documents.

4.3 Inventive step:

The construction according to claim 1 of the auxiliary request differs from that disclosed in D1 in that the detector is a laser detector and is disposed on a separate robot arm construction.

As indicated with respect to the main request above, when starting from D1 a skilled person would find it obvious to dispose the detectors on a separate robot

arm construction. However, D1 does not indicate which specific type of detector should be used.

However, in D5 (column 5, lines 25 to 49) there is disclosed a milking robot using a teat detection system which is a laser detector comprising a laser beam emitting diode and a CCD camera. D4, D8 do also disclose the use of a laser detector in the same technical field of automatic milking implements.

This is in the Board's view a sufficient incentive for the skilled person to use these well known laser detectors in order to ascertain whether such use would solve the technical problem addressed to. Moreover, nothing in the prior art can be seen, which could withhold the skilled person from making use of this kind of detector, which has been already tested in the technical field of automatic milking implements.

Therefore, the subject-matter of claim 1 according to the auxiliary request does not involve an inventive step.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The European patent is revoked.

The Registrar: The Chairman:

G. Magouliotis M. Ceyte