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Datasheet for the decision of 9 July 2013

Case Number: T 0130/10 - 3.2.04

Application Number: 02079537.3

Publication Number: 1279327

IPC: A01J7/02, A01J5/017

Language of the proceedings: EN

Title of invention:
An implement for automatically milking animals

Patent Proprietor:
MAASLAND N.V.

Opponent:
DeLaval International AB

Headword:

Relevant legal provisions:
EPC Art. 100(c), 76(1), 123(2), 100(a), 56

Keyword:
Amendments - added subject-matter (no)
Inventive step - main request (yes)

Decisions cited:

Catchword:

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Case Number: T 0130/10 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 9 July 2013

Appellant: (Opponent)	DeLaval International AB P O Box 39 147 21 TUMBA (SE)
Representative:	Gray, Helen Mary ZACCO GmbH Bayerstrasse 83 80335 München (DE)
Respondent: (Patent Proprietor)	MAASLAND N.V. Weverskade 110 3147 PA Maassluis (NL)
Representative:	Corten, Maurice Jean F.M. Octrooibureau Van der Lely N.V. Weverskade 110 3147 PA Maassluis (NL)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 15 December 2009 concerning maintenance of the European Patent No. 1279327 in amended form.**

Composition of the Board:

Chairman: A. de Vries
Members: E. Frank
T. Bokor

Summary of Facts and Submissions

I. The appeal lies from the decision of the opposition division, dated 18 November 2009 and posted on 15 December 2009, to maintain the European patent No. 1 279 327 in amended form according to the main request received 25 June 2008.

II. The appellant (opponent) filed a notice of appeal on 18 January 2010, paying the appeal fee on the same day. The statement of grounds of appeal was submitted on 23 April 2010.

III. A communication pursuant to Article 15(1) RPBA was issued after a summons to attend oral proceedings, which were duly held on 9 July 2013. The following evidence has been considered for the purposes of the present decision:

D1: DE-A-4113700;
D2: Artmann, R. et al. "Lokalisierung der Zitzenpositionen mittels Ultraschall- und Bildverarbeitungssystem", VDI/MEG Kolloquium Landtechnik, Heft 9, Robotereinsatz in der Landwirtschaft am Beispiel des Melkens, Tagung Braunschweig-Völkenrode, 5./6. Dezember 1990, pp. 127-152;
D3: EP-A-0360354

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

The respondent (proprietor) requested that the appeal be dismissed, i.e. the patent be maintained in an amended form as approved by the opposition division, or in the alternative, the decision under appeal be set aside and the patent be maintained in an amended form on the basis

of claims 1 and 2 of the auxiliary request filed on 25 June 2008.

V. The wording of claim 1 as maintained by the opposition division, now main request, reads as follows:

"An implement for milking animals, such as cows, provided with:

- a milking robot including a robot arm (14; 26) which is adapted to carry teat cups (21), said robot arm carrying a camera, and
- a detector (22) for detecting the position of a teat relative to the robot arm (14;26), characterized in that the detector (22) comprises said camera, which camera is disposed pivotably on the robot arm (14; 26)."

VI. The appellant argued as follows:

Claim 1 described a camera which was disposed pivotably, i.e. describing how the camera was mounted on the robot arm. The camera thus now could be displaced with respect to the robot arm, eg., by means of an intermediate mounting member. This was not originally disclosed in the parent application, since claim 25 as filed addressed an inherent feature of the camera itself, i.e. that the camera was pivotable as such, but otherwise "sitting" on the robot arm. The newly added displacement of a camera in claim 1 was contrary to the original description of a rotating movement through the axis of the camera to determine the teat's position, cf. page 10 of the parent application. Therefore, the subject-matter of claim 1 had been extended. As to inventive step, based on his common general knowledge and starting from the figure 3c embodiment of D1, the skilled person would replace the two

advantageous stereo cameras by a simple technical equivalent, viz. a pivotably disposed camera, if he was looking for an alternative. Moreover, claim 1 as maintained merely required that the detector comprised a camera, i.e. the robotic arm could also be part of the detector, as well as the whole assembly. Consequently, the camera of claim 1 was not necessarily needed to detect. Thus, starting from the figure 3a embodiment of D1 it would be obvious for the skilled person to replace the described monitoring camera by a pivotably disposed camera, if he had to get the best view of the udder. Therefore claim 1 lacked an inventive step in the light of D1 and common general knowledge. Additionally, claim 1 was obvious in the light of D3 and D1(or D2).

VII. The respondent argued as follows:

The term "pivotable" comprised both pivoting about an axis or about an intermediate arm. Moreover, if a camera was pivotable on an arm, it had to be disposed pivotably. In this regard, the meaning of claim 1 was identical to that of claim 25 as filed, in compliance with Article 76(1) EPC.

Furthermore, D1 already taught the skilled person the alternative of one laser and camera at fixed positions, if he started from the stereo camera embodiment of figure 3c. None of the cameras of figure 3c were pivotable, and there was also no hint to change that. Moreover, in contrast to the requirement of claim 1, the monitoring camera of D1's figure 3a embodiment did not form part of the detector to determine the position of the teat. Thus, there was no reason to provide a pivotable camera for reasons of picture analysis in figure 3a. Moreover, the reciprocating scanning principle of D3 was completely different to the triangulation applied in D1 (or D2) and, thus, the

rotating receiver diode would never be replaced by a camera of D1 (or D2). Therefore, claim 1 involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

2.1 The appellant argued that the wording "which camera is disposed pivotably on the robot arm" of claim 1 of the patent as maintained differed in meaning from "there is disposed a pivotable camera on the robot arm" as stated in claim 25 of the patent's parent application, WO98/0521.

However, as advanced by the respondent, the skilled person in the field of mechanics using normal reading skills would immediately understand from parent claim 25 that, in its usual sense, the disposal of a pivotable camera on an arm refers to any arrangement of the camera so as to pivot thereon. The wording of parent claim 25 thus both encompasses a camera pivotable per se in its own right about (any) axes but fixedly attached to the robot arm, as well as a camera mounted by means of an intermediate pivoting element which is not part of the camera itself and is located between the camera and the arm. This corresponds to what the skilled person understands from claim 1 as maintained when he again reads that claim using normal reading skills. In conclusion the Board sees no discernible substantive difference between the two formulations. That is, a camera being disposed pivotably on the robot arm as required by claim 1 as maintained can be directly and unambiguously deduced by the skilled person from the disclosure of claim 25 as filed (cf. also point 3 of the opposition division's decision).

2.2 Otherwise, it is common ground that the subject-matter of claim 1 as maintained is based on claim 1 of the divisional application, which is identical to claim 25 of the parent application, and claim 2 of the divisional application, which in turn is based on claim 19, page 2, lines 38 to 40, and page 10, lines 5 to 11 of the parent application.

2.3 To conclude, the subject-matter of claim 1 of the main request thus complies with the requirements of Articles 76(1) and 123(2) EPC, and the corresponding Article 100(c) EPC. The description has been adapted accordingly.

3. *Inventive Step*

3.1 As for claim interpretation, for the technical meaning of a pivotably disposed camera on the robot arm of claim 1, see point 2.1 above. Claim 1 further specifies that the addressed implement for milking animals is foreseen with a detector for detecting the position of a teat relative to the robot arm and that this detector comprises the camera on the robot arm. Contrary to the appellant's view, the camera is clearly defined as forming part of the detector of claim 1. The skilled person with a mind willing to understand would not consider, eg, the arm of the robot, much less the entire milking robot, to constitute the detector.

3.2 It is common ground that document D1 forms the closest prior art, which relates to robotic milking for automatically attaching teat cups, cf. abstract of D1. To determine the position of a cow's teats in the first place, either a measuring beam method (*"Meßstrahlmethode"*: cf. figures 3a, 3b; column 10, line 42 to column 11, line 51) or a picture analysis by triangulation

("*Bildverarbeitungsverfahren*": cf. figures 3c, 3d; column 14, line 23 to column 15, line 42) is suggested, thus to detect the teat's position with respect to the robot arm. This detected data is fed into a computer to ultimately control the robot arm and to attach the teat cups of the milking equipment, cf. D1, column 14, line 68 to column 15, line 11.

3.3 The measuring beam method of figure 3a relies on sensors fixedly arranged onto the robotic arm, eg, ultrasonic or infrared sensors, in order to detect a cow's teat, cf. D1, column 10, lines 51 to 53. Moreover, a CCD video camera ("*Fernseh-Kamera CCD*") mounted on the robot arm is described in context with the figure 3a assembly, cf. column 11, lines 21 and 22, and figure 3a: "CCD". As described there the camera serves only to monitor the approach of the robot arm to the teats. As advanced by the respondent, this CCD camera does therefore not form a functional part of a detector of figure 3a's detecting arrangement, i.e. is not involved in teat position detection per se.

3.4 As regards the picture analysis by triangulation in figure 3c, D1 invariably suggests to provide one fixedly arranged laser beam, which then intersects teats in its light plane. Otherwise the teats cannot be detected: cf. D1, column 15, lines 28 to 29. To capture this teat image, one or two CCD cameras are foreseen, which are likewise fixedly attached to the robot arm. Thus, a mono- or stereo image analysis can be obtained, whereby the mono image analysis is said to be cheaper, since the hardware can be reduced significantly, see D1, column 5, lines 45 to 55; and column 15, lines 12 to 29. Applied in this context the well-known triangulation method is based on the distance between the fixed positions of the laser beam and of the image capturing cameras. This detection scheme does not

require the cameras to be pivotable, nor are they indeed described as such.

3.5 The parties and the Board agree that the implement for milking of claim 1 differs from D1's disclosure in that the detector for detecting a teat position comprises a camera being disposed pivotably on the robot arm.

Vis-a-vis D1 this feature offers an alternative to the picture analysis practised there. In the view of the Board, the problem underlying this distinguishing feature can therefore be seen as finding an alternative way of determining the position of the teats by means of picture analysis. See patent, cf. par. [0006] and [0020].

Due to lack of documentation, such as basic handbooks or textbooks on the subject in question, the Board is not convinced that it is part of the skilled person's common general knowledge that a pivotable camera was technically equivalent to stereo cameras as argued by the appellant. Hence, the Board cannot accept the argument that the skilled person could draw on his ordinary common technical knowledge, to modify the teaching of the figure 3c embodiment of D1 by replacing the two stereo cameras by a single pivotable camera, to thus arrive at the subject-matter of claim 1. Other solutions would appear more straightforward starting from D1. For example, if the skilled person were looking for an alternative picture analysis, he would more probably be prompted to turn to one single camera in combination with a laser beam, both fixedly attached at a distance for triangulation, since this embodiment is explicitly suggested in D1 as the cheaper solution, see point 3.4 above. Moreover, starting from the figure 3a embodiment of D1, the skilled person is much less likely to arrive at a pivotable camera according to claim 1, since the monitoring camera of figure 3a's

detecting arrangement does not function as part of any detector, let alone in a method of picture analysis, cf. point 3.3 above.

3.6 Furthermore, reference is also made to documents D2 and D3, also cited by the appellant against inventive step.

Document D2 (cf. pages 142 and 143, and figure 18 (*"Bild 18"*) is concerned with the detection of teats' positions by use of picture analysis (*"Lichtschnittverfahren"*). This picture analysis in principle corresponds to the triangulation method of the figure 3c embodiment of D1, see above. As opposed to D1, D2, however, does not suggest or hint at a second camera for improved measurements by virtue of captured stereo images. The teaching of D2,therefore does not go beyond that of D1.

Document D3 (cf. figures 4,6, 7 and 8; column 9, lines 29 to 36; column 10, lines 17 to 57; column 12, lines 5 to 28) discloses a construction in which teat positions are detected by means of a reciprocating, scanning movement of a sensor means 51. This sensor comprises a laser transmitter 62 and diode receiver 66, which are both mounted on the robot arm within a housing 60 which is pivoted about a vertical axis as shown in figure 6. Teat position is derived from the size of the reflection beam on the diode and the pivot angle at which reflection occurs. As argued by the respondent, the working principle of D3 with its continuous scanning movement, and the triangulation method of D1(or D2) based on fixedly attached and spaced apart laser and camera means are, thus, considerably different and in fact can be considered as wholly alternative approaches. In that D3 does not rely on a camera and is thus not concerned with picture analysis, i.e. the patent's main area of interest, the Board indeed finds D3 not to represent a suitable starting

point. In any case in view of the different, alternative working principles underlying D3 on the one hand, and D1(or D2) on the other, the Board is unconvinced by the appellant's written submission that the skilled person would simply combine these disparate teachings and replace the reciprocating diode receiver 66 of D3 by a camera as in D1(or D2), in order to provide additional information on the colour and surface of teats and udder had to be provided (cf. also the impugned decision, point 4.2.3).

3.7 Therefore, in the light of the above, the subject-matter of claim 1 of the main request fulfils the requirements of inventive step, Articles 100(a), 52(1) and 56 EPC.

3.8 Since the main request is allowable, there is no need for the Board to consider the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Magouliotis A. de Vries

Decision electronically authenticated