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D E C I S I O N
of 26 April 1999

Case Number: T 0381/97 - 3.2.4

Application Number: 91108078.6

Publication Number: 0448132

IPC: A01J 7/00

Language of the proceedings: EN

Title of invention:
An implement for milking an animal

Patentee:
Maasland N.V.

Opponent:
Prolion B.V.

Headword:
Milking/MAASLAND

Relevant legal provisions:
EPC Art. 100(b), 100(c), 56, 76(1), 83

Keyword:
"New grounds for opposition - not considered"
"New documents considered - no referral to the first instance"

Decisions cited:
G 0010/91

Catchword:
-

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Case Number: T 0381/97 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 26 April 1999

Appellant: (Opponent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 5 February 1997 rejecting the opposition filed against European patent No. 0 448 132 pursuant to Article 102(2) EPC.**

Composition of the Board:

Chairman: C. A. J. Andries
Members: P. Petti
R. E. Teschemacher

Summary of Facts and Submissions

I. An opposition based upon Article 100(a) EPC was filed against the European patent No. 448 132. This patent is based on the European patent application No. 91 108 078.6 filed as a divisional application of the earlier European patent application No. 88 201 585.2 claiming the Dutch priority of 23 July 1987 and published under the publication number EP-A-300 582.

The opposition was rejected by the decision of the opposition division dispatched on 5 February 1997. In the decision, the opposition division considered the subject-matter of the independent Claim 1 of the patent as granted as involving an inventive step.

Claim 1 of the patent as granted reads as follows:

"1. An implement for milking an animal, for example a cow, which implement includes a milking parlour with a milking robot having a robot arm (7) carrying near its end one or more teat cups (80), and furthermore detection means (75) for generating a horizontally or practically horizontally directed beam, by means of which the position of one or more teats of the animal's udder can be established, characterized in that the detection means comprise a sensor (77) transmitting an upwardly directed beam and a reflecting element (78) for said upwardly directed beam to realize said horizontally or practically horizontally directed beam, the sensor (77) and/or the reflecting element (78) being movable about a substantially vertical axis."

II. On 3 April 1997 the appellant (opponent) lodged an appeal against this decision and simultaneously paid the appeal fee. A statement setting out the grounds of appeal was received on Monday 16 June 1997.

III. With the statement setting out the grounds of appeal the appellant raised *inter alia* objections concerning insufficiency of the disclosure of the patent (Article 100(b) EPC).

With the letter (facsimile) dated 22 April 1999 the appellant also raised objections under Article 100(c) EPC.

With the letter (facsimile) dated 23 April 1999 the respondent (proprietor) referred to the opinion of the Enlarged Board of Appeal in case G 10/91 and requested that the objections raised by the appellant with respect to Article 100(b) and (c) EPC be disregarded.

IV. Oral proceedings were held on 26 April 1999.

V. The appellant requested that the impugned decision be set aside and that the patent be revoked (main request).

The appellant also put forward the following auxiliary request:

"If the board maintains the patent, the board is requested to rule that due to Articles 76(1) and 83 the scope of the claims is to be read such that

- the detection means are on the upper side of the

robot arm near the end thereof, and

- the sensor is provided with the reflecting element that is pivotable or rotatable about a substantially vertical axis."

VI. The respondent requested that the appeal be dismissed.

The respondent also requested that, if documents US-A-4 530 077 (D9), EP-A-148 952 (D10) or EP-A-209 202 (D11) were to be admitted into the proceedings, then the case be remitted to the first instance.

VII. With respect to its main request, the appellant argued that the subject-matter of Claim 1 of the patent as granted did not involve an inventive step. In this respect the appellant based its arguments essentially upon documents EP-A-91 892 (D1), NL-A-8 503 580 (D2), EP-A-229 682 (D4) and also referred to documents DE-A-3 115 313 (D5), D9, D10, D11 and to the article of Karl-Ernst Biehl, "*Ultraschall-Entfernungssensor*" in *Elektronik* 26/30.12.1983, pages 113 to 115 (D8).

With respect to its auxiliary request, the appellant submitted that this request was the consequence of the disagreement expressed by the respondent with regard to the introduction of the grounds for opposition according to Articles 100(b) and (c) EPC.

Reasons for the Decision

1. The appeal is admissible. Objections made in written proceedings in this respect were not maintained in the oral proceedings.

2. *Fresh grounds for opposition*

According to the opinion of the Enlarged Board of Appeal in case G 10/91 (OJ EPO 1993, 420), fresh grounds for opposition may be considered in appeal proceedings only with the approval of the patentee (see section 18).

In the present case, the respondent not only requested during the written phase of the proceedings that the objections raised by the appellant with respect to Article 100(b) and (c) EPC be disregarded (see the above section III) but also expressly confirmed during the oral proceedings its disagreement for the introduction of fresh grounds for oppositions.

Therefore, the objections under Articles 100(b) and (c) EPC raised by the appellant are not considered in this appeal proceedings.

3. *The subject-matter of Claim 1 of the patent as granted*

3.1 Claim 1 specifies in the pre-characterising portion the feature that there are provided "detection means for generating a horizontally or practically horizontally directed beam, by means of which the position of one or more teats of the animal's udder can be established"

(hereinafter feature a).

According to the first feature in the characterising portion (hereinafter feature b) "the detection means comprise a sensor (77) transmitting an upwardly directed beam and a reflecting element (78) for said upwardly directed beam to realize said horizontally or practically horizontally directed beam".

The characterising portion of the claim also specifies the feature "the sensor (77) and/or the reflecting element (78) being movable about a substantially vertical axis" (hereinafter feature c).

3.2 Features a, b and c, when read together, define a 'scanning' beam, i.e. a horizontally (or practically horizontally) directed beam suitable for performing a swinging movement about a substantially vertical axis, this beam being suitable for scanning a disc-shaped portion of the space in which one or more teats of the animal's udder can be found in order to establish its or their position.

This also means that the horizontally (or practically horizontally directed) beam is a rather directional signal having little degree of divergence.

In this context, it is clear from the description of the patent (column 5, lines 41 to 51) that the reflecting element 78 can be turned about a substantially vertical axis by means of an operating motor so that a disc-shaped portion of the space can be scanned by the reflected beam, this disc-shaped portion being approximately either a flat plane located

perpendicular to the rotational axis of the reflecting element or a conical surface having this axis as its axis of symmetry.

Thus, features a, b and c implicitly define the position of the vertical axis about which the 'scanning' (i.e. the horizontal) beam rotates. In other words, the position of the vertical axis substantially corresponds to that of the upwardly directed beam. This was also confirmed by the respondent during the oral proceedings.

3.3 According to feature a, the position of one or more teats can be established by means of the horizontal (or practically horizontal) beam. It is clear from the description of the patent (column 5, lines 28 to 35) that the 'scanning' beam permits the determination of the position of the teat by calculating the distance between the sensor and the teat knowing the data as to the direction (i.e. the angular position) of the "scanning" beam.

3.4 Having regard to the comments in sections 3.2 and 3.3 above, it is clear that the swinging movement of the "scanning beam" is produced by the swinging movement of the reflecting element 78 about the substantially vertical axis. It is also clear that the rotation of the sensor 77 transmitting the upwardly directed beam cannot produce any swinging movement of the horizontal (or practically horizontal) beam reflected by the reflecting element 78 without rotation of the reflecting element itself.

Thus, it has to be considered that the expression "the

sensor (77) **and/or** the reflecting element (78) being movable..." (emphasis added) can only define two alternatives, namely a first alternative according to which only the reflecting element rotates about the vertical axis and a second one according to which the reflecting element **and** the sensor (i.e. as an unity) rotate about the vertical axis.

A third alternative according to which only the sensor 77 rotates about the vertical axis - although formally possible on the basis of the term "and/or" - is not realistic.

3.4.1 The board cannot accept the argument of the respondent according to which the swinging movement of the reflected beam can be obtained by the rotation of the sensor 77 without rotation of the reflector 78, provided that the upwardly beam transmitted by the sensor 77 has a square or rectangular cross section.

Firstly, the board does not consider this explanation of the respondent as being plausible. Secondly this explanation is not supported by the description of the patent, which does not refer to a vertical beam having a square or rectangular cross section.

3.5 By means of the detection means a flat portion of the space in a horizontal (or practically horizontal) plane can be scanned so as to check whether one or more teats are located therein. It is clear from the description of the patent (see for instance column 9, lines 8 to 12) that, if nothing is found in the scanned portion of the space, the detection means as a whole will be moved upwardly in order to scan again in a higher horizontal

plane.

4. *The prior art*

4.1 Document EP-A-91892 (D1) discloses a milking implement including a milking parlour with a milking robot having an arm suitable for carrying near its end four teat cups, a detection means being provided by means of which the position of the teats of the animal's udder in lateral and longitudinal direction can be established, the detection means comprising a first double sensor means 14 (see page 10, line 16 to page 11, line 1; Figure 5) for sensing the position of the teats in lateral and longitudinal directions and a second sensor means 18 for sensing the position of the teats in the vertical direction.

Document D1 does not provide explicit information concerning of how the first sensor means operates. However, the description of the patent in suit referring to this document (see column 1, lines 12 to 21) states that the first double sensor means generate large beams in a horizontal or practically horizontal direction.

4.2 Document D2 (for the English equivalent, see document EP-A-232 568, Figures 1 to 6, column 2, line 37 to column 5, line 49) discloses a milking implement including a milking parlour with a milking robot having an arm suitable for carrying near its end four teat cups, a detection means being provided by means of which the position of the teats of the animal's udder in lateral and longitudinal direction can be established, the detection means comprising a first

sensor unit 3 and a second sensor unit 4 disposed at right angles with respect to each other in a horizontal or practically horizontal plane, each sensor unit comprising a transmitter 8, 9, which generates an expanded beam of ultrasonic waves and transmits the ultrasonic waves in a horizontal or practically horizontal plane, and a receiver 12, 11 for the reception of the ultrasonic waves reflected by the teat to be detected (see Figure 2). It is also clear that each sensor unit is suitable for determining the distance between the sensor unit and the teat so that the two sensor units permit the determination of the position of the teat.

4.3 Document D4 discloses a milking implement including a detection means by means of which the position of a teat in a three-dimensional region located above the detection means can be established. This detection means comprises a sensor 31 transmitting a horizontally directed beam, a concave reflecting element 34 giving the horizontal beam a vertical direction, the sensor 31 and the reflecting element 34 being rotatable about a first horizontal axis (i.e. the axis 37 which is parallel to the beam transmitted by the sensor 31) and about a second horizontal axis (i.e. the axis 35 which is perpendicular to the beam transmitted by the sensor 31) so that the detection means is capable of scanning a cone portion of the space above it, e.g. by zigzagging this portion (see page 6, line 35 to page 7, line 17; Figure 3).

4.4 Document D8 concerns ultrasonic sensors suitable for measuring the distance between the ultrasonic emitter ("Ultraschallwandler") and a target ("Zielobject"), see

particularly the figure on page 115 (Bild 3).

One of these sensors comprises a housing for the ultrasonic transducer and a rotatable reflector mounted on the top end of the housing. The reflector rotates in order to set the direction of the reflected ultrasonic beam.

It has to be assumed that this sensor is not suitable for scanning a flat portion of the space. This finding was agreed by both parties during the oral proceedings.

4.5 Document D5 concerns an ultrasonic device for medical use comprising ultrasonic transducers 4, 5 and a flat reflector 101 reflecting the beams emitted by the transducers, the reflector being rotatable, the beams covering a flat portion of the space having the shape of a sector. This device is suitable for forming an image of the sector-shaped portion covered by the beams.

4.6 Document D9 concerns ultrasonic sensors comprising a ultrasonic transducer emitting a narrow ultrasonic beam and a convex reflecting surface (namely a conical surface) expanding the narrow beam.

According to Figure 4 of this document, the conical reflector is rotatably driven about its axis. However the rotation of the reflector does not result in providing a 'scanning' beam but in the change of the configuration of the reflected beam (see column 3, liners 44 to 51).

4.7 Document D10 relates to an ultrasonic sensor suitable

for scanning a flat portion of the space in order to determine the position of an object. This sensor comprising an ultrasonic transducer (transmitting/receiving element) emitting an ultrasonic beam scanning directly (either by translating or by rotating) a flat portion of the space without there being any reflection of the scanning beam by a reflecting element.

4.8 Document D11 concerns an implement for milking an animal including a detection means by means of which the position of a teat in a three-dimensional region located above the detection means can be established, the detection means comprising a transducer transmitting an upwardly directed beam. No reflecting element for the beam emitted by the transducer is provided, the transducer itself being pivotable about two perpendicular axis x, y lying in a substantially horizontal plane.

5. *Novelty*

The subject-matter of Claim 1 is novel. Novelty was not disputed.

6. *The closest prior art and the problem to be solved*

6.1 The closest prior art is the milking implement known from document D2 (see the above section 4.2) whose content corresponds to the preamble of Claim 1.

6.1.1 Although in the description of the patent it is acknowledged that document D1 corresponds to the preamble of Claim 1, this document is less relevant

than document D2, not only because it does not contain explicit information concerning the method used to determine the position of the teats but also because it clearly defines a third sensor for detecting the vertical position of the teats.

6.1.2 Document D4 is less relevant than documents D1 and D2 because it relates to a milking implement comprising a sensor by means of which the entire udder of the animal is scanned from below, i.e. from a position lower than the teats.

6.2 The ultrasonic sensors used in the implement known from document D2 are not suitable for emitting a 'directional' beam. In other words, none of these sensors is suitable for 'scanning' a flat portion of the space, so that both ultrasonic sensors are necessary to determine the position of a teat of the animal's udder.

6.3 The subject-matter of Claim 1 of the patent as granted is distinguished from this prior art by the features specified in the characterising portion which - having regard to the comments in the above sections 3.2 to 3.4 - define

(a) a detection means generating a 'directional' beam which is horizontally directed, this 'directional' beam being rotatable along a substantially vertical axis so that the beam can 'scan' a flat portion of the space, and

(b) a detection means comprising a sensor transmitting an upwardly directed beam and a reflecting element

for the upwardly directed beam to realize the horizontally or practically horizontally directed beam, wherein (in order to obtain a 'scanning' beam) at least the reflecting element is movable (i.e. rotatable) about a substantially vertically axis.

The feature under item (a), i.e. the fact that a 'directional' beam performs a 'scanning' movement, make the use of a **single** detecting means for establishing the position of one or more teats of the animal's udder possible.

The features under item (b) permit the improvement of the milking implement with respect to the compactness of the detection means.

6.3.1 Thus, the problem to be solved is to improve the milking implement by providing simple and effective detection means in a compact mounting arrangement.

7. *Inventive step*

7.1 Starting from the milking implement according to document D2, the solution of this problem requires two steps.

A first step which corresponds to feature (a) consists in the change of the detection method. The implement according to document D2 makes use of two transducers emitting wide beams, each of the beams covering a flat portion of space in a horizontal plane, such that the two transducers permit the determination of the position of a teat by measuring the distances between

the teat and each of the transducers. Besides, according to Claim 1 of the patent in suit, a sensor emitting a narrow directional beam is provided, which may rotate about a vertical axis and thus is suitable for 'scanning' a sector shaped portion, such that the position of the teat may be determined by measuring the angular position of the beam when it detects the presence of a teat and the distance between the detected teat and the sensor.

The second step corresponds to the features under item (b) and consists in achieving a constructive arrangement allowing the rotation of a directional beam about a vertical axis.

Thus, the two steps are not independent of each other, step (b) requiring that the step (a) be made first.

7.2 The appellant asserted that the characterising features of Claim 1 can be derived from document D4 in so far as this document discloses a detection means providing a directional 'scanning' beam which is rotatable about a first axis (so that the beam can 'scan' a portion of the space), the directional beam being emitted by a sensor 31 transmitting the beam in a horizontal direction and then deviated by a reflector which is rotatable about an axis 37 which is parallel to the horizontal beam transmitted by the sensor 31, and argued that the combination of this disclosure with that of document D2 (or D1) would lead to the claimed solution.

The board cannot accept this argument of the appellant, because document D4 concerns a method of sensing the

position of the teats of the animal's udder which is essentially based upon the idea of scanning the entire udder from below, the end of a teat being the object closer to the sensor and its three-dimensional position being established knowing the distance between the teat and the sensor and the angular positions of the 'scanning' beam relative to two horizontal axes which are perpendicular to each other (see page 7, lines 24 to 32). This essential idea is also reflected by the independent claim 1 of document D4 according to which "the udder is scanned from a position lower than the teats ..., the extreme end of a teat being recognized because the sensor-to-end-of-the-teat distance is less than the perceived distance to other parts of the udder located near said teat end" (see page 9, lines 5 to 10).

If the skilled person were to combine this disclosure with the closest prior art, he would be guided by the basic idea of document D4 and, thus, arrange on the implement known from document D2 (or on that known from document D1) a sensor scanning the udder from below.

Therefore, the combination of the disclosure of document D4 with the content of document D2 (or D1) does not allow the skilled person to arrive at the claimed solution in an obvious manner.

7.3 Having regard to the comments in the above sections 4.4 to 4.8, documents D8, D5 and D9 to D11 are less relevant than document D4.

Indeed, neither document D8 nor document D11 can lead to the claimed solution, because document D8 does not

imply a scanning in the meaning of the present patent but only a setting and a measuring, and document D11 teaches to scan the udder form below.

Moreover, document D9 is not concerned with a 'scanning' beam and document D10 does not disclose any reflector element. Therefore, also these documents cannot lead to the claimed solution.

Document D5 clearly relates to an ultrasonic scanning device of the type used in an ultrasonic diagnostic apparatus which is suitable for forming a tomogram of a part of the human body. Since this document has no link either to the general problem concerning the determination of the position of an object in a plane or to the specific problem concerning the mounting arrangement of a detection means in a milking implement (see the above section 6.3.1), it cannot lead to the claimed solution.

7.4 Having regard to the above comments, the board finds that the subject-matter of the independent Claim 1 is not obvious to a person skilled in the art and that the subject-matter of the independent Claim 1 involves an inventive step as required by Article 56 EPC.

8. *The auxiliary request of the appellant*

Auxiliarily, the appellant requested the board to interpret the claims, i.e. to determine their scope, on the basis of Articles 76(1) and 83 EPC (see the above section V).

Articles 76(1) EPC defines the relationship between subject-matter of a divisional **application** and the content of the earlier application as filed ("[A divisional application] may be filed only in respect of subject-matter which does not extend beyond the content of the earlier application"); Article 83 EPC relates to the sufficiency of the disclosure of an European patent **application** ("The European patent application must disclose the invention sufficiently clear and complete ... "). Thus, Articles 76(1) and 83 EPC correspond to Articles 100(c) and (b) EPC, in so far as Article 100(c) EPC defines the relationship between the subject-matter of the **patent** granted on a divisional application and the content of the earlier application and Article 100(b) EPC relates to the sufficiency of the disclosure of the European **patent**.

Thus, the auxiliary request of the appellant in fact requires that fresh grounds (Article 100(b) and (c) EPC) for opposition are considered in appeal proceedings (see the comments in the above section 2) in order to be able to give the wording of Claim 1 a restricted meaning.

In other words, if the auxiliary request of the appellant were to be examined in substance, objections based upon fresh grounds of oppositions would be

considered in appeal proceedings without there being the approval of the respondent.

Therefore, and particularly in view of the above section 2, the auxiliary request of the appellant is rejected.

9. The respondent's request to remit the case to the first instance, if documents D9 to D11 were to be admitted into the proceedings, became superfluous now that the board decided to dismiss the appeal.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

N. Maslin C. Andries