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**Datasheet for the decision  
of 2 February 2012**

**Case Number:** T 2452/09 - 3.2.04

**Application Number:** 02793660.8

**Publication Number:** 1465477

**IPC:** A01J 5/007, A01J 5/017

**Language of the proceedings:** EN

**Title of invention:**  
Teat cup take off

**Patentee:**  
DeLaval Holding AB

**Opponent:**  
Octrooibureau Van der Lely N.V.

**Headword:**  
Vacuum sensor /DELAVAL

**Relevant legal provisions:**  
EPC Art. 104(1)

**Relevant legal provisions (EPC 1973):**  
EPC Art. 56

**Keyword:**  
"Inventive step (no)"  
"Apportionment of costs (no)"

**Decisions cited:**  
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**Catchword:**  
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Case Number: T 2452/09 - 3.2.04

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.04  
of 2 February 2012

**Appellant:** Octrooibureau Van der Lely N.V.  
(Opponent) Weverskade 110  
NL-3147 PA Maassluis (NL)

**Representative:** Corten, Maurice Jean F. M.  
Octrooibureau van der Lely N.V.  
Weverskade 110  
NL-3147 PA Maassluis (NL)

**Respondent:** DeLaval Holding AB  
(Patent Proprietor) P.O. Box 39  
SE-147 21 Tumba (SE)

**Representative:** Schmidt, Karsten  
ZACCO GmbH  
Bayerstrasse 83  
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**Decision under appeal:** Interlocutory decision of the Opposition  
Division of the European Patent Office posted  
21 October 2009 concerning maintenance of  
European patent No. 1465477 in amended form.

**Composition of the Board:**

**Chairman:** M. Ceyte  
**Members:** P. Petti  
U. Tronser

## Summary of Facts and Submissions

I. In its interlocutory decision dated 21 October 2009 the opposition division found that, taking inter alia into account amended claim 1 according to the auxiliary request filed during oral proceedings, the European patent No. 1 465 477 met the requirements of the EPC.

The opposition division considered that the subject-matter of claim 1 involved an inventive step over US-A-4 292 926 (D1) in combination with common general knowledge.

Claim 1 held allowable by the opposition division reads as follows:

"1. A milking machine comprising

- at least one teat cup (201) for application to a teat (205) of an animal to be milked,
- a teat cup liner (202) , mounted in said teat cup (201), defining a teat receiving space (206) inside said liner (202), and a pulsating chamber (207) between said liner (202) and said teat cup (201), said liner (202) having a teat receiving end portion (203),
- a vacuum source for applying a vacuum level to the teat receiving space (206) for drawing milk from said animal,
- a pulsator for application of a pulsating vacuum to the pulsating chamber (207) for moving the teat cup liner (202) between a closed position and an open position, thereby massaging said teat of said animal, and

- a vacuum sensor (204) for sensing the vacuum level in said teat receiving end portion (203),

characterized in that

- said milking machine is arranged to remove said at least one teat cup (201) from the teats of the animal, if a vacuum level sensed by said vacuum sensor (204) indicates that the vacuum level in said teat receiving end portion (203) is rapidly increasing during milking."

II. The opponent (hereinafter appellant) lodged an appeal against this decision on 18 December 2009 and simultaneously paid the appeal fee. The grounds of appeal were received on 26 February 2010.

III. The appellant and the patent proprietor (hereinafter respondent) were both summoned to oral proceedings scheduled to take place on 4 November 2011.

By fax of 1 November 2011, that is three days before the appointed date, the appellant's representative announced that his father had died on the same day and requested postponement of the oral proceedings.

IV. The board decided to postpone the appointed date and oral proceedings were held before the board on 2 February 2012.

V. The appellant requested that the decision under appeal be set aside and the European patent No. 1 465 477 be revoked.

- VI. The respondent requested that the appeal be dismissed. He also requested apportionment of the costs of Mrs. Keijser to attend the cancelled oral proceedings on 4 November 2011.
- VII. The appellant submitted inter alia that the subject-matter of claim 1 did not involve an inventive step over D1 in combination with common general knowledge as illustrated in M.D. Rasmussen et al, "*Dynamic testing during milking*", in *National Mastitis Council, Annual Meeting Proceedings*, Nashville, 18-21 February 1996, pages 170 and 171 (E5).
- VIII. The respondent contested the appellant's arguments. He submitted that although the skilled person *could* have arrived at the claimed subject-matter, he *would* not have done so, since D1 teaches away from the proposed solution. He also submitted that the long period of time that elapsed between the publication date of document E3 and the priority date of the patent in suit was an indication that the claimed solution was not obvious.

## Reasons for the Decision

1. The appeal is admissible.

2. *Inventive step*

2.1 The closest prior art is reflected by D1. It is not disputed that this document discloses all the features specified in the pre-characterising portion of claim 1, namely (see claim 2; column 5, lines 29 to 44) a milking machine comprising at least one teat cup for application to a teat (2) of an animal to be milked, a teat cup liner ("teat rubber"), mounted in said teat cup, defining a teat receiving space inside said liner, and a pulsating chamber between said liner and said teat cup, said liner having a teat receiving end portion ("inner chamber of the head of the teat cup"), a vacuum source for applying a vacuum level to the teat receiving space for drawing milk from said animal, a pulsator for application of a pulsating vacuum to the pulsating chamber for moving the teat cup liner between a closed position and an open position, thereby massaging said teat of said animal, and a vacuum sensor for sensing the vacuum level in said teat receiving end portion.

Furthermore, the milking machine of D1 is arranged to reduce the vacuum in the teat receiving space (i.e. the milking vacuum) so as to reduce the milking intensity, if a vacuum level sensed by said vacuum sensor indicates that the vacuum level in said teat receiving end portion is rapidly increasing during milking, and to remove the teat cup after reduction of the milking intensity, in dependence of whether the milk flow rate

measured by a milk flow sensor is smaller than 0,2 kg/min.

In D1, the reduction of the milking intensity initiates take off of the teat cup, i.e. starts the final milking phase which leads to the removal of the teat cup. The removal of the teat cup occurs when the milk flow rate falls below a predetermined value of e.g. 0,2 kg/min.

2.2 According to paragraph [0008] of the patent specification the main object of the present invention is to provide an apparatus that improves "the detection of the end of milk flow with respect to the occurrence in time of the end of the milk flow and detects the end of the milk flow independently for each teat". An advantage of the invention is that "a gentle treatment of a milking animal is achieved while keeping the milk yield high" (see paragraph [0016]). Moreover, the patent specification refers - in the context of prior art milking system in which the teat cups are automatically removed on the basis of the time and/or the measurement of the milk flow - to "over-milking", when a teat cup is not removed in due time, resulting in pain and injury for the animals (see paragraphs [0002] and [0003]).

The main object and the advantage of providing a gentle treatment during milking are also achieved by the milking machine of D1: According to D1 the increase of the vacuum level in the teat receiving end portion is in relationship with the reduction of the milk flow after the end of "peak flow" phase (see column 6, lines 48 to 59), wherein the milk flow change is monitored at each teat and the milking intensity is

controlled individually at all teats (see column 8, lines 44 to 50). Thus, the method of D1 improves the detection of the end of milk flow with respect to the occurrence in time and detects the end of milk flow independently for each teat. Furthermore, the milking machine of D1, in so far as it is arranged to reduce the milking intensity when the vacuum increases in the teat receiving end portion provides a gentle treatment of the animals during milking without causing pain and injury to the animals, while keeping the milk yield high.

- 2.3 The subject-matter of claim 1 differs from the milking machine of D1 in that the milking machine is arranged **to remove said at least one teat cup from the teats of the animal**, if the vacuum level sensed by the vacuum sensor in the teat receiving end portion (i.e. in the mouthpiece) indicates that the vacuum level in said teat receiving end portion is rapidly increasing during milking.

Then, the technical problem to be objectively solved is to provide a alternative milking machine which also makes it possible to achieve a gentle treatment of the animals during milking.

The claimed invention solves this problem by removing the teat cup upon detection of a rapid increase of the mouthpiece vacuum, while the solution according to D1 requires reducing the milking intensity upon detection of the mouthpiece vacuum increase.

- 2.4 It is generally known that in automatic milking systems capable of automatically removing the teat cups, the



removal has to occur a certain time after the beginning of the milking operation. It is also generally known that the beginning of overmilking, i.e. the end of the peak flow phase, is well recognized as a change in mouth piece vacuum coinciding with the change in friction between the teat and the teat cup liner as well as that during overmilking the teat may become congested so as to cause pain and injury to the animal (see E5, page 171, paragraph headed "The cow").

The skilled person would immediately realize that stopping milking before overmilking represents a possible solution of the problem of achieving a gentle treatment of the animals during milking.

Thus, it would be obvious for the skilled person seeking for an alternative solution to the problem to modify the milking machine of D1, in which the beginning of overmilking is determined by detecting that the vacuum level in the teat receiving end portion is rapidly increasing during milking, so as to remove the teat cup immediately when overmilking begins. In this way, the skilled person would arrive at the claimed subject-matter without exercising any inventive skill.

2.5 In this respect, the respondent submitted the following arguments:

- (i) The skilled person would not modify the milking machine of D1 so as to remove the teat cup earlier, i.e. upon detection of a rapid increase of the mouthpiece vacuum, because the object of the invention disclosed in D1, that is to maximize

the amount of milk obtainable from an udder quarter, would not be achieved in that case.

Moreover D1, which describes a first possibility in which the reduction of the milk intensity occurs directly after a reduction of the milk flow of more than 1 kg/min and a second possibility in which the milking intensity reduction depends on the rapid increase in the mouthpiece vacuum, makes it clear that the second possibility is less exact than the first one (see column 5, lines 45 to 52). Thus, the skilled person would be strongly motivated not to use the measurement of the mouthpiece vacuum for the removal of the teat cup.

Furthermore, even if the skilled person on the basis of document E5 could modify the milking machine of D1 so as to arrive at the solution, but he would not do so because there is no hint in E5 to the achieved advantage of reducing the time delay between the actual end of the milk flow and the measurement of decreased milk flow.

- (ii) It was already known in 1973 (e.g. from G.A. Mein, *"Air Leakage past the teat and teatcup liner during milking"*, in *The Australian Journal of Dairy Technology*, March 1973, pages 31 to 36 (E3)) that during milking the end of the milk peak flow coincides with a rapid increase in the vacuum in the mouthpiece of the teat cup. The time that elapsed between the publication date of document E3 and the priority date of the patent in suit (2001) indicates that an inventive step was necessary to make the improvement claimed.

2.6 The board is unconvinced by these arguments for the following reasons:

- (i) Starting from D1 as closest prior art, the technical problem underlying the claimed invention is to provide an alternative solution to the problem of achieving a gentle treatment of the animals during milking without causing them pain and injury.

In the present case the most promising springboard from which the skilled person starts is the second possibility described in D1, according to which the take off of the teat cup is initiated by reducing the milking intensity when the mouthpiece vacuum rapidly increases. Although in D1 this second possibility is said to be not as exact as the first one, both possibilities, which are described in detail (see column 5, lines 9 to 28 and 29 to 44) and claimed independently (see claims 1 and 2) are presented as solutions of the same problem.

According to the patent specification, an accurate and timely indication of the end of the peak flow from the teat is achieved by detecting the increase of the mouthpiece vacuum. However, this occurs also in the milking system described in D1 which also proposes the measurement of the mouthpiece vacuum. Thus, the advantage referred to by the respondent is also achieved by the closest prior art and cannot establish inventive step.

(ii) Amongst others a "long-felt need" may represent a hint of the presence of inventive step. However, the very age of E3 cannot replace proof that the solution found was not obvious.

2.7 Therefore, the subject-matter of claim 1 lacks an inventive step (Article 56 EPC, 1973).

3. *Apportionment of costs*

Other than the principle laid down in Article 104(1) EPC that each party shall bear the costs it has incurred the board may on request order a party to pay another party's costs which shall include those incurred by any acts or omissions prejudicing the timely and efficient conduct of oral proceedings (Article 16(1c) Rules of Procedure of the Boards of Appeal of the EPO, supplement to OJ EPO 1/2011, p. 46).

By fax of 1 November 2011, that is three days before the appointed date, the appellant's representative announced that his father had died on the same day and requested postponement of the oral proceedings. The board is unable to see any wrongful or irresponsible conduct of his part. The appellant could not reasonably be expected to be represented by an other representative from the same firm at such short notice. The respondent's request for a different apportionment of costs is therefore refused.

**Order**

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

1. The decision under appeal is set aside.
2. The patent is revoked.
3. The request for apportionment of costs is refused.

The Registrar:

The Chairman:

G. Magouliotis

M. Ceyte