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**Datasheet for the decision
of 8 March 2019**

Case Number: T 1679/15 - 3.2.04

Application Number: 08779306.3

Publication Number: 2152064

IPC: B08B9/032, A01J7/02

Language of the proceedings: EN

Title of invention:

Method and arrangement in a milking system

Patent Proprietor:

DeLaval Holding AB

Opponent:

Octrooibureau Van der Lely N.V.

Headword:

Relevant legal provisions:

EPC Art. 56

Keyword:

Inventive step - (yes)

Decisions cited:

Catchword:



Beschwerdekammern
Boards of Appeal
Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 1679/15 - 3.2.04

D E C I S I O N
of Technical Board of Appeal 3.2.04
of 8 March 2019

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

Respondent: DeLaval Holding AB
(Patent Proprietor) Box 39
147 21 Tumba (SE)

Representative: Gray, Helen Mary
Zacco GmbH
Bayerstrasse 83
80335 München (DE)

Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
6 August 2015 concerning maintenance of the
European Patent No. 2152064 in amended form.

Composition of the Board:

Chairman J. Wright
Members: E. Frank
W.v.d Eijk

Summary of Facts and Submissions

I. The appellant-opponent lodged an appeal, received 25 August 2015, against the interlocutory decision of the Opposition Division posted on 6 August 2015 concerning maintenance of the European Patent No. 2152064 in amended form. The appellant paid the appeal fee at the same time. The statement setting out the grounds of appeal was filed on 16 December 2015.

II. Opposition was filed against the patent as a whole and based on Article 100(a) for lack of novelty and inventive step. The division held that the patent as amended according to an auxiliary request met all requirements of the EPC, inter alia, because the subject matter of claim 1 involved an inventive step having regard to the following document, amongst others:

D5: US6089242

With its grounds of appeal, the appellant-opponent filed the following further documents:

D10: Nederlandse Norm NEN-OISO 5707 (en) "Milking machine installations - Construction and performance" (ISO 5707: 2007, IDT), sections 8.10 to 9, notes 1 and 2.

D11: A. FRIIS et al. Improving the hygienic design of closed equipment. In: Handbook of hygiene control in the food industry. Edited by H.L.M. Lelieveld et al. Woodhead Publishing Limited, Abington, Cambridge, UK, 2005.

D12: Reinemann et al. System Design and Performance Testing for Cleaning Milking Systems. Paper presented at the NRAES Conference, Designing a Modern Milking Center: Parlors, Milking Systems, Management and Economics, December 1995.

III. Oral proceedings before the Board were duly held on 8 March 2019.

IV. The appellant-opponent requested that the decision under appeal be set aside and that the European patent No. 2152064 be revoked.

The respondent-proprietor requested that the appeal be dismissed and the patent thus be maintained as upheld by the opposition division.

V. The independent claims 1 and 8 of the patent as upheld in the decision under appeal read as follows:

1. "Method of monitoring the supply of cleaning liquid from a cleaning line (1) to a milking system,
- the milking system composing at least two milking stations (4A-D) and milk conduits (2).
- the cleaning line (1) comprising supply conduits (3A-D) connectable to the milk conduits at the milking stations and arranged to apportion cleaning liquid to the milking stations, so that cleaning liquid flows through the milking stations,
wherein the method comprises
- measuring a value of the flow of the cleaning liquid through the respective milking stations by means of a respective flow sensor,
- transferring said values of the measured flows to a control unit (7, 17, 18), and

regulating the supply of cleaning liquid to the milking system as a response to the value of the measured flows".

8. "Arrangement for monitoring the supply of cleaning liquid from a cleaning line (1) to a milking system wherein

- the milking system comprises at least two milking stations (4A-D) and milk conduits (2, 2A-D),
- the cleaning line (1) comprises supply conduits (3A-D) connectable to the milk conduits (2A-D) at the milking stations (4A-D) and arranged to apportion cleaning liquid to the milking stations,
- so that cleaning liquid flows through the milking stations
- the arrangement comprises a first control unit (7,17,18) and flow sensors (20A-D, 22,26A-D), characterised in that
- a respective flow sensor (20A-D, 22, 26A-D) is adopted to measure a value of the flow of cleaning liquid through a respective milking station (4A-D), and provide said values to the control unit (7, 17, 18), the arrangement further comprising means (21, 22, 23, 25,27) for regulating the supply of cleaning liquid to the milking system as a response to the values".

VI. The appellant-opponent argued as follows:

The subject matter of claim 1 lacks an inventive step in the light of D5 considered on its own, D5 in the light of common general knowledge as disclosed in D10 or D11 and D5 combined with D12. Starting from D5, it would be obvious to add a flow sensor to each milking station. D12 discloses such an arrangement so the combination of D5 and D12 takes away inventive step of claim 1. The same arguments apply to claim 8.

VII. The respondent-proprietor argued as follows:

None of the appellant-opponent's arguments are convincing. D5 is concerned with monitoring total flows of fluids in a clean in place milking system so it would not be obvious to add flow sensors to individual milking stations. D12 does not disclose a flow sensor in a milking station, so the combined teachings of D5 and D12 do not lead the skilled person to the subject matter of the independent claims.

Reasons for the Decision

1. The appeal is admissible.

2. Background

The invention (see published patent specification, paragraph [0001]) relates to the cleaning of milking systems and especially to the supply of cleaning liquid to a milking system.

3. Inventive step of the main request, claim 1

3.1 The opposition division's finding that D5 does not take away novelty of claim 1 (see decision grounds, point 4.3.5) is not disputed (cf. letter of appellant-opponent of 7 February 2019, page 1).

The Board considers that the subject matter of claim 1 involves an inventive step in the light of the cited prior art.

3.2 Before considering inventive step in detail, the Board considers it expedient to look at the claim term *flow*

sensor, which is an important aspect of the claimed invention (see characterising portion of the independent claims).

- 3.2.1 The Board first notes the skilled person reads the claim giving terms their usual meanings and with their mind willing to understand.

The usual meaning of the term *sensor* (see Oxford English Dictionary online, OED) is "[a] device which detects or measures physical properties or changes and provides a corresponding output or measurement in response". Nothing in claim 1 itself suggests a different meaning. Firstly the flow sensor "measures flow" and secondly the values of the measured flows are transferred to a control unit, thus the flow sensors of claim 1 are flow measuring devices that produce an output measurement which is transferable to a control unit. The description (see paragraph [0033]) confirms this interpretation, where the flow sensors are likewise explained as being arranged to measure flow of cleaning liquid and transfer the results to a control unit.

- 3.3 Inventive step from D5 alone

- 3.3.1 D5 discloses (see abstract and figures 2 and 3, column 6, lines 36 to 44) a milking system to which the supply of cleaning liquid from a cleaning line is monitored (e.g. by flow sensors 40), and thus implicitly a method for doing the same.

The milking system and its associated method is for parlour milking (see figure 3 and column 7, lines 13 to 18), with a milking line 60 which is connected to milk station 66. It is not disputed that such a parlour

would implicitly have at least two milking stations and milk conduits, not just the representative station 66 shown in figure 3.

Furthermore, the cleaning line 62 (see column 7, lines 29 to 33 with figure 3) comprises supply conduits connectable to the milk conduits at the milking stations (and on to the milk line 60) and are thus arranged to apportion cleaning liquid to the milking stations, so that cleaning liquid flows through the milking stations. Such an arrangement is also called a clean in place (CIP) arrangement.

- 3.3.2 It is common ground (cf. appellant-opponent's letter of 7 February 2019, page 1 again) that D5 does not disclose the characterising features of claim 1, which can be summarised as: measuring value of flow of the cleaning liquid through the respective milking stations by means of a respective flow sensor, transferring the values to a control unit, and regulating the supply of cleaning liquid to the system in response to measured flows.

In D5, as can be seen from figure 3, the milking station 66 does not have its own flow sensor. Rather, D5 teaches (see column 6, lines 36 to 39, column 7, lines 1 to 13 and figure 2 for example) to monitor total flows of cleaning fluid constituents before they enter the CIP line 62 and total (spent) cleaning fluid.

To this end, chemical flow sensors 40 and water flow meters 46 measuring flows of cleaning fluid constituents to be mixed in the cleaning fluid mixing vessel 42, and (see column 8, lines 45 to 52 with figure 3) the flow sensor 95 at the very end of the milking line 60 measures, amongst other parameters,

wash liquid volume and speed. Thus the sensor 95 measures the total flow of (spent) cleaning fluid leaving the milking line 60, which is the sum of the cleaning fluid flows from the individual milking stations.

In the absence of flow sensors at respective milking stations, D5 neither discloses to measure such flows, nor transfer them to a control unit, let alone respond to such flows to regulate the supply of cleaning liquid to the milking system. Rather, D5 (see column 5, line 43 to column 6, line 5 and column 6, lines 52 to 62 with figure 1 and column 8, lines 45 to 56 with figure 3) has a control unit 10 with a data processor 14 that adjusts the wash system to maintain wash parameters by, amongst other things, monitoring dispensing of chemicals measured by the chemical flow sensors 40 and the flow of cleaning fluid in the milk line 60 measured by the sensor 95.

3.3.3 According to the patent (see published patent specification, paragraphs [0009] and [0010]), the effect of the above differences (amongst other features, measuring flow through individual milking stations and regulating the supply of cleaning fluid in response) is that a sufficient amount of cleaning fluid can be supplied, in other words ensuring that cleaning is thorough, whilst at the same time avoiding an unnecessarily large consumption of cleaning fluid. In the Board's view, both thoroughness and saving consumption of cleaning fluid are aspects of efficient cleaning. Therefore, the objective technical problem can be formulated as how to modify the method of D5 to improve cleaning efficiency.

3.4 D5 discloses (column 7, lines 41 to 43) that "[a]ny conduit... that receives milk must be cleaned periodically and thus, must include communication with the clean-in-place line 62 to receive water and wash chemical". The appellant-opponent has argued that the skilled person knows that thoroughness of washing depends on velocity (flow) through a pipe. Furthermore, because, when being cleaned, the milking stations are arranged in parallel with each other, between the clean in place line 62 and milking line 60, the skilled person will recognise that each milking station must have its own flow meter to monitor flow and this flow data must be transferred to the control unit which should regulate the supply of cleaning liquid in response to these flows. The Board disagrees.

3.5 As already explained, the Board sees thoroughness as an aspect of efficient cleaning. However, nothing in D5 suggests improving cleaning efficiency (thoroughness amongst other things) by measuring the flow (velocity) of cleaning fluid through each milking station. It may well be that the skilled person knows from their general knowledge that fluid flow through parallel paths may vary, for example according to the flow resistance they present. However, in the Board's view, this plays no role when the skilled person considers D5 and the objective technical problem.

This is because D5's focus is on monitoring flows of the total cleaning fluids entering the system (see for example column 1, lines 38 to 40), not flowing through individual milking stations. Likewise (see column 8, lines 49 to 52 with figure 3) flow meter 95 at the end of the milk line 60 measures total (spent) cleaning fluid. It is in this context that the skilled person reads the statement (column 8, lines 45 to 56) that any

warning signal generated as a result of [washing] parameters being out of range can be used to alter wash parameters (such as wash liquid volume amongst other things) to cure the problem.

In other words, the skilled person would only be considering washing parameters of total flows as already measured being out of bounds and not considering the possibility of flow volume through individual milking stations being out of bounds. In the light of this, it would not be obvious to look for a solution to the objective technical problem based on measuring flow of cleaning fluid flowing through individual milking stations.

Indeed, D5 already suggests that efficiency of cleaning (thoroughness and rapidity in the words of D5) can be increased by adding an air injector which increases the velocity with which cleaning fluid passes through the system. In this respect, it may well be that the skilled person would use the flow sensor 95 to monitor the velocity of a slug of spent cleaning fluid as it passes out of the milk line conduit 60 (see column 2, lines 44 to 52 and column 8, lines 46 to 56 with figure 3). But they would not, as a matter of obviousness, add individual flow sensors to the milking stations and use this data to regulate the supply of cleaning fluid.

In the light of the above, the Board considers that, without having had previous knowledge of the claimed invention, when considering D5 on its own, it would not be obvious for the skilled person to modify D5 by adding individual flow sensors to measure flow values at respective milking station, let alone regulating the supply of cleaning fluid in response to these as claimed.

3.6 Inventive step starting from D5 with D12

- 3.6.1 In the Board's view, neither D5 nor D12 discloses at least the claim feature of measuring flow of cleaning liquid through the milking station by means of a respective flow sensor. As already explained (see point 3.3.2), D5 does not disclose this feature.

Contrary to the opinion of the appellant-opponent, the Board considers that D12 also does not disclose a flow sensor at a respective milking station and thus also not the step of measuring flow by means of such a sensor.

- 3.6.2 D12 (see page 1, last paragraph), as with D5, relates to a clean in place (CIP) system for a parlour milking system. The basic arrangement is shown in figure 1 (cf. D5, figure 3). In a table (see page 3, table I) titled "Milking CIP System Control Points" the 4th control point is "water flow restrictors at units [milking stations]", with the intended goal of an even distribution to all units.

This idea is elaborated further into the document (see page 6, section 5 "[w]ater flow through milking units"). The section opens with the statement that

"[t]he flow rate through milking units and milk meters can be measured using the method illustrated in Figure 4".

Flow through individual milking stations is assessed using a test bucket (see figure 4). Firstly a milk line at the milking station is kinked (to block it) then placed in a test bucket. The hose from the milking unit is unkinked (to unblock it) for 2 to 5 minutes and the amount of water collected in the bucket measured.

In the Board's view this is not a *flow sensor* measuring flow of cleaning liquid within the usual meaning of the term (see above). At most the bucket can be used to measure the accumulation of water that has passed through the milking station over a period of time, but could not be used to differentiate, for example, a certain accumulation of fluid that had resulted from constant flow over the period or one that varied. Thus, the test bucket is not a device measuring the physical property of *flow* through a milking station. It is merely a receptacle in which cleaning fluid that has flowed through a milking station can be allowed to accumulate over time.

Nor is the test bucket able to produce an output which is transferable to a control unit as claimed, let alone an output of flow. The contents of the test bucket must be measured by an operator. Whilst it is true that the operator could then calculate what the average flow rate must have been from the volume of liquid that has accumulated in the bucket, this does not turn the bucket into a flow sensor in the usual sense of the word.

3.6.3 Therefore, the combined teachings of D5 and D12 (whether or not it would be obvious to make such a combination) would not lead the skilled person to the subject matter of claim 1. In particular the feature of measuring flow of cleaning fluid through a milking station by means of a respective flow sensor would be missing.

3.6.4 Moreover, this missing feature would not be arrived at by the skilled person, in an obvious manner, by combining D5 and D12 and additionally automating the arrangement of D12, as the appellant-opponent has argued.

This is because, as has been explained, a bucket is not a manually operated flow sensor, but merely a receptacle. It is conceivable that some parts of the test procedure described in D12 could be automated, for example blocking and unblocking the milk hose for a certain time could perhaps be performed by some automated arrangement instead of by manually kinking and then unkinking it. However, such measures would not lead to a method using a flow sensor in the usual sense of the word, let alone to using a flow sensor capable of transferring values of flow to a control unit. To arrive at this feature would require further steps, going well beyond the routine automation of the method associated with the test bucket of D12.

3.6.5 Nor does the fact that claim 28 with claim 33 of D5 discloses an automated monitoring system - and implicitly a monitoring method - using a plurality of flow sensors for measuring cleaning fluid in the dairy pipeline, lead to a different conclusion. As also already explained, D5 focuses on measuring total flows of cleaning fluid entering the CIP line and spent

cleaning fluid leaving the milking line. Wheresoever in the dairy pipeline the skilled person might consider installing the plurality of cleaning fluid flow (wash liquid velocity) sensors of claim 28 with 33, with D5's focus in mind (measuring total flows), to install them in the milking stations would go beyond the routine for the skilled person.

3.6.6 Lastly, as already explained, the combination of D5 and D12 would not lead the skilled person to a method step using a flow sensor in the milking station as claimed. Therefore, the appellant-opponent's argument that the result of the calibration disclosed in D12 (see section 5 again), installing flow restrictors in each milking station, is as foreseen in the patent (cf. the limiting inserts defined in claim 7 of the main request), is moot.

3.7 Inventive step in the light of D5 with D10 or D11

In a communication of 12 September 2018 in preparation for oral proceedings, the Board considered documents D10 and D11, amongst others. The Board's considerations were as follows:

"3.5.1 Admission of D10, D11 [...]

Admission of these documents may need to be discussed.

The Board notes that the impugned decision (see bottom of page 15) noted the absence of documentary evidence supporting the opponent's assertion that measuring the value of the flow of cleaning liquid through each respective milking station [as claimed] belongs to the skilled person's general knowledge.

Prima facie, D10 appears to make no mention of providing sensors in milking stations, it only gives a suggested velocity range in pipelines.

D11 is a handbook for cleaning in the food industry, and does not mention milking stations, let alone suggest providing any sensors at a milking station. It merely suggests a flow velocity for cleaning fluid in pipes (see page 194, section 11.2.2)

[.....]

3.6 The Board concludes that none of the documents D10... [and D11] appear, prima facie, to support the assertion that measuring the value of the flow of cleaning liquid through each respective milking station as claimed belongs to the skilled person's general knowledge. Nor would they appear to be otherwise more relevant than those documents already on file in the sense that, if admitted, their consideration would be likely to change the Board's preliminary conclusion on inventive step vis-à-vis the outcome based on the remaining cited documents already on file. Thus the Board is of the preliminary opinion that these documents should not be admitted.

3.8 The parties have made no substantive comments to this preliminary opinion of the Board in respect of D10 and D11. Nor does the Board see any reason to deviate from this opinion and the reasoning given therein.

The Board concludes (cf. above communication, point 3.6) that D10 and D11 are not more relevant than other documents on file, in the sense that they would not lead the Board to conclude that the subject matter of claim 1 involves an inventive step.

4. Inventive step of claim 8

Claim 8 is directed to an arrangement which has features corresponding to those of claim 1, expressed in terms of device features. The Board's conclusions on inventive step for claim 1 therefore equally apply to claim 8.

5. Other inventive step arguments

At oral proceedings before the Board, the appellant-opponent withdrew arguments in respect of inventive step involving certain other documents (D3 and D13).

6. In the light of the above, the Board concludes that, without prejudice to the question of admissibility of D10 to D12, the subject matter of claims 1 and 8 of the main request involves an inventive step. Therefore, the appeal of the appellant-opponent must fail.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



G. Magouliotis

J. Wright

Decision electronically authenticated