Datasheet for the decision
of 5 May 2017

Case Number: T 2599/12 - 3.2.04
Application Number: 06779467.7
Publication Number: 1933616
IPC: A01J7/04
Language of the proceedings: EN

Title of invention:
TEAT CUP

Patent Proprietor:
An Udder IP Company Ltd

Opponent:
DeLaval International AB

Headword:

Relevant legal provisions:
EPC Art. 123(2), 54, 56
Keyword:
Amendments - extension beyond the content of the application as filed (no)
Novelty - main request (yes)
Inventive step - main request (yes)

Decisions cited:
G 0002/10, T 0331/87

Catchword:
DE C I S I O N

of Technical Board of Appeal 3.2.04

of 5 May 2017

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Decision under appeal: Interlocutory decision of the Opposition
Division of the European Patent Office posted on
31 October 2012 concerning maintenance of the
European Patent No. 1933616 in amended form.

Composition of the Board:
Chairman: A. de Vries
Members: J. Wright
          C. Schmidt
Summary of Facts and Submissions

I. The appellant-opponent lodged an appeal, received 4 December 2012, against the interlocutory decision of the opposition division posted on 31 October 2012 concerning maintenance of the European Patent No. 1933616 in amended form. The appellant paid the appeal fee at the same time. Their statement setting out the grounds of appeal was filed on 22 February 2013.

II. Opposition was filed against the patent as a whole and based inter alia on Article 100(c) with Article 123(2) EPC, added subject matter, on Article 100(a) together with Articles 52(1) and 56 EPC for lack of inventive step. In its decision the opposition division also considered the opposition ground of novelty, Article 100(a) together with Articles 52(1) and 54 EPC.

The division held, inter alia, 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, was new and involved an inventive step having regard to the following documents, amongst others:

D1 : WO 2005/043986
D2 : DE 2622794
D3 : EP 0543463 A
D4 : WO 99/66787
D13: US 5161482

III. Oral proceedings were duly held before the Board on 5 May 2017 in the absence of the appellant-opponent who, having been duly summoned, informed the Board in a letter of 3 May 2017 that they would not attend.
IV. The appellant-opponent requests that the decision be set aside and that the patent be revoked.

The respondent-proprietor requests, as a main request, that the appeal be dismissed and the patent be maintained in the form held allowable by the opposition division, alternatively, that the patent be maintained on the basis of one of the auxiliary requests I or II, both filed with letter dated 25 June 2013.

V. Claim 1 of the main request (as upheld) reads as follows:

"A flexible teat cup liner (3) engagable about a teat of an animal to be milked, said liner having a head portion (7), at one end (6), provided with a mouth (9) through which the teat is engageable with the liner, and a milk discharge passageway (12) at the opposite end (5), nozzle means (24) arranged to discharge fluid into the head portion of the liner, and a check valve (19) via which the nozzle means (24) is connectable to a fluid delivery tube (21), said check valve being arranged to allow fluid delivery to the nozzle means and being mounted in or adjacent the head portion (7) of the liner (3), characterised in that return spring means (27) of the check valve (19) is rated such that, during a milking operation, the check valve is adapted to open in response to a predetermined fluid pressure differential occurring between the vacuum present in the head portion (7) of the liner (3) and air pressure, for example, atmospheric air pressure, in the delivery tube (21) to admit air to the head portion of the liner and regulate the vacuum present within the head portion."

VI. The appellant-opponent argued as follows:
Added subject matter
By changing from the original claim directed at a "teat cup" to one directed at a "teat cup liner", certain features (check valve, delivery tube, nozzle), originally claimed but not as part of the liner are no longer within the scope of the claim or have a different relationship to the liner now claimed, so subject matter is added. A teat cup in its entirety is indispensable for carrying out the invention. Though a teat cup liner with valve and nozzle can be replaced as a set, this necessarily involves the rest of the teat cup. Applying the essentiality test laid out in T 0331/87 shows there to be no basis for claiming a teat cup liner without the rest of the teat cup.

Claim 6 no longer requires the delivery tube to be internal of the shell, for which there is no basis.

In claim 14, there is no basis for removing "mounted on" and replacing it with "disposed on".

Novelty

Claim 1 lacks novelty vis-à-vis D13, inter alia, because the valve disclosed therein implicitly has a valve with a spring return means.

Inventive step

Starting from D13

Check valves with spring return means are generally known to the skilled person. This is the only possible differing feature for the claim.
The closing means (ball) of D13 is biased closed by
gravity, so valve closure depends on orientation. The
problem is how to keep the valve closed in any
orientation, or how to stop ingress of dirt. The
skilled person would realise that there would be no
need or advantage in having a gravity biased valve leak
cleaning fluid, since one closed in any orientation
would not get contaminated in the first place. To solve
both problems, the skilled person would add a return
spring means as a matter of obviousness.

Starting from D1

Claim 1 differs from D1 in the position of the valve
being near the inner head portion of the liner and the
valve not having a spring. In order to prevent
contamination of the fluid tube between the nozzle and
the valve in D1 the skilled person would relocate the
valve as claimed and use the well known valve with a
spring return means.

As such, locating a valve at the nozzle is known from
D2, D3 or D4. To improve hygiene, the skilled person
would combine D1 with any of D2 to D4 and so arrive at
the claimed subject matter.

VII. The respondent-proprietor argued as follows:

*Added subject matter*

there is a direct and unambiguous disclosure of a
flexible teat cup liner, check valve and nozzle as
claimed, since these items can be replaced as a set.
Nozzle means and check valve need not be formed as a
unit. It is implicit that the check valve is mounted in
the liner.
Concerning claim 6, the arrangement of the delivery tube has no bearing on having a sealing means for connecting it to the valve, so no subject matter is added by not claiming the delivery tube to be internal of the shell.

Regarding claim 14, "mounted on" and "disposed on" mean the same, anyway mounted on is claimed by way of back-reference, so no subject matter is added.

Novelty vis-à-vis D13

D13 does not explicitly disclose a valve with a spring as claimed. Its valve is said to be biased closed, but not all such valves have a spring, so there is also no implicit disclosure of a spring return means in D13.

Inventive step

It is true that, as such, check valves with spring return means are generally known to the skilled person.

Starting from D13

D13 uses a ball biased closed by gravity, in the orientation adopted when milking. The skilled person would not replace this valve with one having a return spring because the gravity biased valve opens when inverted for jetter cleaning which D13 teaches to be advantageous.

Starting from D1

The claim 1 differs from D1 in the position of the valve being at the head portion of the liner and the
valve not having a spring. Both features work synergically to improve hygiene: the valve being at the head portion means it protects all the delivery tube leading up to the head portion and whereas a duckbill valve will open when inverted on a jetter, a spring valve remains tightly shut. The problem is to prevent ingress of dirt and cleaning fluid when cleaned on a jetter.

D1 teaches to avoid jetter cleaning altogether, so offers no solution to the problem. The valves of D2, D3 or D4 would not be suitable for balancing a vacuum in the head of a teat cup liner, they are all arranged at the bottom of the teat cup or in the milk line below it so must be tightly shut during milking. Therefore a combination of D1 and any of D2 to D4 would not lead the skilled person to the claimed subject matter as a matter of obviousness.

Reasons for the Decision

1. The appeal is admissible.

2. Background

The patent involves teat cups for milking animals (see patent specification, paragraph [0001] and figures 1 and 3). Such teat cups have a shell 2 and a flexible liner 3 which contacts the animal's teat. To milk the animal, vacuum is applied, inter alia, to the main milk line 13, sucking away the milk (specification, paragraphs [0002] and [0003]).
It is known to provide a teat cup with a nozzle for injecting cleaning fluid via a delivery tube into a space in the head portion of the liner [0004].

A problem associated with this arrangement is contamination of, inter alia, the delivery tube with dirt or disinfectant, when the teat cups undergo intensive cleaning on an external cleaning jet, called a jetter (specification, paragraphs [0005] and [0006]).

Another problem associated with such a teat cup is that excessive vacuum from the milk line 12 may "leak" between the liner and the teat, into the space 11 in the head portion of the liner, which may damage the animal's teat (specification, paragraph [0013]).

One aspect of the patent is to provide a check valve (one-way valve) between delivery tube and nozzle (claim 1 as maintained). This is said to prevent contamination of the delivery tube when cleaning on a jetter (specification paragraph [0023], last sentence).

The delivery tube may also be used to conduct air, where the check valve has a suitable pressure-differential rating, by choice of suitable return spring means, to appropriately regulate the vacuum within the head portion (specification, paragraph [0014] and claim 1 as maintained).

3. Article 123(2) EPC, main request (as upheld)

3.1 In deciding the question of allowability of amendments under Article 123(2) EPC, the Board, following well established practice (see Case Law of the Boards of Appeal, 8th edition, 2016 (CLBA), II.E.1.2.1 and the decisions cited therein), must consider whether the
amendments in question are directly and unambiguously derivable by the skilled person from the application as filed, using normal reading skills and, where necessary, taking account of their general knowledge. This is the "gold" standard according to which amendments are assessed (see G2/10, reasons 4.3).

Furthermore (see CLBA, II.E. 1.7 and the decisions cited therein), it will normally not be admissible under Article 123(2) EPC to extract isolated features from a set of features originally disclosed only in combination in a particular embodiment unless the skilled person recognises without any doubt that the isolated feature is structurally and functionally unrelated to those other features and may therefore be applied in a more general context.

3.2 Claim 1

Claim 1 is directed at a teat cup liner, a nozzle means and a check valve 19, thus an arrangement comprising these features. The Board considers that there is a direct and unambiguous disclosure of such a group of features, isolated from the rest of the teat cup, in the original application (see application as published, page 3, lines 6 to 10). There, precisely this group of elements (liner, nozzle, check-valve) is disclosed, isolated from the remainder of the teat cup, allowing their easy replacement together. That the action of replacing liner, nozzle and check-valve of the teat cup involves the rest of the teat cup (for receiving the replaced elements), does not change the fact that the replaced elements are disclosed as a separate group. If this were not so, they could never be replaced in the first place.
Furthermore, that certain features were claimed in original claim 1 as being part of a teat cup, but which are now not defined as part of the liner (check valve, delivery tube, nozzle) is merely a semantic consequence of the claimed elements being without the rest of the teat cup (which the Board considers justified), rather than defining those elements in new, previously undisclosed relationships.

Furthermore, in the Board's view, the elements (liner, nozzle and check-valve) are not claimed in a way which extracts them from their original context in which they are structurally and functionally linked to features that have not been claimed (see again published application, page 3, lines 6 to 10, with nozzle and check valve formed as a unit mounted internally of the liner).

As claimed, the nozzle is connected via the check valve to the fluid delivery tube. Thus there is no delivery tube between nozzle and check valve, in other words these two parts are implicitly a unit. The skilled person would immediately see that whether these were formed as a unit, or for example formed separately then joined together as a unit, changes neither how they function nor their structure. Therefore, applying the above approach, the Board sees no subject matter added by not defining the nozzle and check valve as being formed as a unit.

Furthermore, since the claimed nozzle means is arranged to discharge fluid into the head portion of the liner, it can but be mounted, with its associated valve, internally of the liner. In other words this is implicit.
Therefore the Board considers that there is a direct and unambiguous disclosure of the subject matter of claim 1 in the application as filed, so no subject matter is added.

In the light of this direct and unambiguous disclosure, the Board sees no reason for any further investigation, for example by applying the test laid out in T 331/87 (see reasons 6). Ultimately, the essentiality test is meant to provide an indication of whether an amendment complies with Article 123(2) EPC as interpreted according to the "gold standard", see above. It does not take the place of the "gold standard" and should not lead to another result than when applying the "gold standard" directly. Having considered compliance of the amendment with the "gold standard" directly and confirmed compliance, the discussion, for example, as to whether or not a teat cup in its entirety is indispensable for carrying out the invention is therefore moot.

3.3 Claim 6 as maintained

Claim 6 (worded as granted claim 6) corresponds to original claim 8, except that it is directed at a teat cup liner, consistent with claim 1, which the Board has found to have a basis in the application as filed for the reasons explained above. The claim defines that the check valve has sealing means for sealing the delivery tube to the valve inlet.

It is true that original claim 8 depended on original claim 6, which had, inter alia, the delivery tube mounted internally of the teat cup shell. However, in the Board's opinion, the claimed idea of a sealing means (for example O-rings) between valve and delivery
tube has no functional or structural relationship with any particular (internal or external) arrangement of the delivery tube vis-à-vis the teat cup shell (not claimed). Sealing concerns only the interconnection between the valve and delivery tube, and is structurally and functionally unrelated to how the delivery tube might be arranged with respect to the teat cup shell. Therefore, applying the approach outlined above, claiming this sealing means without claiming the teat cup shell or how the delivery tube is mounted with respect thereto is justified. Therefore claim 6 does not add subject matter extending beyond the application as filed.

3.4 Claim 14 as maintained

Claim 14 (claim 15 as granted) is directed at a teat cup. It is based on original claim 26. Whereas in original claim 26 an annular weight was said to be "mounted on the shell", present claim 14 has it "disposed on the shell". This claim is back-referenced to claim 13 (corresponding to granted claim 14), where the annular weight is already defined as mounted on and or sealed (in the Board's view a particular kind of mounting) to the outside of the shell. Both these result in the annular weight being mounted, and indeed disposed, on the shell. Therefore claim 14, with its back-reference to claim 13, includes the feature of mounting the weight to the shell. The Board concludes that using the word "disposed on" rather than literally reciting "mounted on" in present claim 14 does not add subject matter beyond the application as filed.

4. Novelty of claim 1 with respect to D13
D13 discloses a flexible teat cup liner having a head portion (mouthpiece region 46) and a milk discharge passageway 61 at the opposite end. As shown in figure 2, the liner has a mouth through which the teat 60 is engageable with the liner. The arrangement also has a nozzle means 43 arranged to discharge fluid into the head portion of the liner (figure 2 again).

D13 (see column 5, lines 14 to 16 and figures 2 and 3) also discloses a check valve (one-way valve assembly) 42 and a fluid delivery tube 48. The check valve is arranged to allow fluid delivery to the nozzle and is mounted in the head portion. The check valve 42 is rated so that, during a milking operation, it opens in response to a certain pressure differential between a vacuum in the head portion and air pressure in the delivery tube 48, for regulating the vacuum in the head portion (column 2, lines 36 to 43).

D13 makes no mention of a return spring means, nor is this implicit. However common check valves with springs might be, not all work like this, as will now be explained. The valve 42 (figure 3, col. 5, lines 21 to 30), has a ball 52 which can move between a seat 56 (valve closed) and a restraining bar 54 (valve open). From figure 3, the ball appears not to be otherwise constrained. Although the valve 42 is said to be biased closed (column 2, lines 36), when the clusters of teat cups are inverted and cleaned on wash jetters, cleaning fluid leaks via the valve (column 6, lines 16 to 20). Such leakage would only be possible if the valve were no longer biased closed. In other words inverting the teat cup causes the valve to open. Thus, in the Board's opinion, the only biasing means must be the ball's weight. Gravity pulls the ball 52 onto the valve seat 56 when the teat cup points upwards (figure 3), and
towards the bar 54 when inverted. Thus D13 does not disclose a valve with a return spring means, rather the weight of the ball is its return means.

It follows that, the subject matter of claim 1 differs from D1 only in that the claimed valve has a return spring means, namely one rated for regulating vacuum in the head portion of the teat cup liner.

Therefore the subject matter of claim 1 is new with respect to D13.

5. Inventive step of claim 1

5.1 Starting from D13

5.1.1 Following on from the above discussion of novelty, the Board holds that the effect of the only differing claim feature (return spring means) is, inter alia, that the valve as claimed prevents entry of dirt and cleaning fluid when the teat cup is being cleaned on a jetter (see specification paragraph [0006] and column 6, lines 46 to 50), in other words the valve improves the hygienic condition of the delivery tube. Since the claimed valve is a check valve, allowing fluid out of but not into the delivery tube, when the valve is exposed to a jet (from a jetter), if anything the jet will act on the valve in the same direction as the spring, thus closing it even tighter. In contrast to this and as explained above, in D13 gravity tends to bias the valve towards its open position when the teat cup, with its lining, is inverted for jetter cleaning.

5.1.2 In accordance with established jurisprudence, the objective technical problem should normally be the one explained in the patent itself, which is not the case
for the problem of keeping a valve closed in any orientation suggested by the appellant-opponent. Rather, from the above (specification, paragraphs [0006] and [0023] again), the objective technical problem can be formulated as how to modify the teat cup liner, delivery tube and valve arrangement of D13, to improve hygiene when a teat cup fitted with these elements is cleaned on a jetter.

Faced with this problem, in the Board's opinion, it would not be obvious for the skilled person to replacing the gravity biased valve of D13 with a spring biased valve, that is one firmly locked shut when cleaned on a jetter.

This is because D13 teaches that a leakage of cleaning fluid past the valve when cleaning (inverted) teat cups on a jetter is beneficial (see column 6, lines 16 to 20 again). In other words the teaching of D13 is to actively seek leakage of fluid past the valve when on a jetter. Replacing the gravity biased valve with one having a spring return means would thus go against the core aspect of D13's teaching in respect of hygiene during jetter cleaning, namely to actively clean the supply tube by having the valve leak. In the light of this, however well known check valves with a spring might be, the antithetical concept of a valve that prevented entry to the supply tube in the first place would not be evident for the skilled person.

Consequently, the subject matter of claim 1 is not obvious in the light of D13 and the skilled person's general knowledge.

5.2 Inventive step starting from D1
5.2.1 D1 discloses a flexible teat cup liner 3 (page 5, lines 30 to 34), that engages with the teat T of an animal to be milked via a mouth at a head portion at one end of the liner (see figure 1). Milk is discharged via a passageway at the opposite end 4a. D1 also discloses (see page 9, lines 4 to 11) a nozzle means 13 arranged to discharge fluid into the head portion of the liner, and a check valve 35 via which the nozzle means is connectable to [a lower part 34 of] a fluid delivery tube. The check valve is thus arranged to allow fluid delivery to the nozzle means.

5.2.2 During a milking operation, the check valve is adapted to open in response to a predetermined fluid pressure differential occurring between the vacuum present in the head portion of the liner and air pressure in the delivery tube to admit air to the head portion of the liner and regulate the vacuum present therein (page 9, lines 4 to 11 again).

5.2.3 The subject matter of claim 1 therefore differs from D1 in that the check valve has no return spring means, and in that the check valve is not located in or adjacent the head portion of the liner. In D1 the valve is a duckbill valve (page 7, lines 32 to page 8, line 4), thus the valve uses a different way of keeping a correct pressure in the head portion of the liner, namely (implicitly) the resilient characteristics and shape of the duckbill valve itself, rather than a return spring means. Furthermore, the duckbill valve is located adjacent the teat cup end 4a that is furthest from the head portion (see page 7, lines 27 to 28 and figure 1).

5.2.4 In the Board's view, these two differences (return spring and location in/adjacent liner head portion)
work together to prevent dirt or disinfectant contaminating the [upper part 14 of the] delivery tube supplying the nozzle, in other words they improve hygiene, when the teat cup is being cleaned on a jetter (cf. specification paragraphs [0006] and column 6, lines 38 to 40).

In this regard the Board considers that simply moving the duckbill valve of D1 to the head portion of the liner alone would not necessarily prevent the ingress of dirt or cleaning fluid when the liner, in its teat cup, is inverted on a jetter (cf. patent specification, paragraph [0005]).

As the name "jetter" implies, in use, a jet of cleaning fluid enters the teat cups. As the respondent-proprietor has argued, a duckbill valve, with its flattened beak-shaped slit opening, risks being prized open by such a jet, leaving it prone to admitting, dirt or cleaning fluid for example. In this respect, a valve with a spring return means is quite different. As explained above (see point 5.1.1), any jet of liquid will, if anything, tend to close the valve.

5.2.5 From the above, it follows that simply moving the duckbill valve in the arrangement of D1 into or adjacent to the head portion of the liner will not alleviate the risk of contamination of the delivery tube with dirt or cleaning fluid (cf. specification, paragraph [0006]). Rather it is the combination of employing a valve with a spring return means and placing it in or adjacent the head portion of the liner which work together to improve the hygiene of the arrangement vis-à-vis D1. Therefore, when applying the problem solution approach, the Board considers the two differing features, not as solving separate, unrelated
technical problems, which could be considered separately for the purpose of assessing inventive step (cf. Case Law of the Boards of Appeal, 8th edition, 2016 (CLBA), I.D.9.2.2, and the decisions cited therein), but rather as working synergically to solve a common technical problem.

5.2.6 As explained above the combined technical effect of both differences is to prevent contamination of the delivery tube. The objective technical problem associated with this effect can be formulated as how to modify the teat cup liner, delivery tube and valve arrangement of D1 to improve hygiene when a teat cup fitted with these elements is being cleaned on a jetter.

5.2.7 In the Board's opinion, D1 with general knowledge would not lead the skilled person to the subject matter of claim 1 as a matter of obviousness.

Although the skilled person knows of spring biased non-return valves as such, nothing in D1 suggests that the skilled person should use such a valve. D1 only specifies a duckbill valve (see page 7, last three lines). Furthermore, although D1 (see page 4, lines 8 to 15) appears to mention jetter cleaning, referring to it as "back flushing", this passage gives no hint to the skilled person as to how to solve the above problem. Rather, the practice is referred to as being used "hitherto", thus as being a forerunner to the internal rinsing via flush valves subsequently described in D1.

In other words, D1 suggests to abandon jetter cleaning (back-flushing) altogether and instead rely entirely on cleaning by flushing the teat cups, via the supply
lines 14 (page 4, lines 20 to 25). So, rather than offering any solution to the above problem, let alone one involving using a spring biased valve at a location different from the site of the duckbill valve, D1 teaches to work around the problem by not cleaning on a jetter. Thus the subject matter of claim 1 appears not to be obvious from D1 alone, even when considering the skilled person's general knowledge.

5.2.8 Nor in the Board's opinion would the combination of D1 with any of D2, D3 or D4 lead, as a matter of obviousness, to the claimed subject matter. All (see D2, figure 1, supply line 17, valve 22; D3, figures 3 and 5, supply line 11, valve 10; and D4, figure 2 supply line 9, valve 19) show delivery tubes for supplying cleaning fluid ending with check valves designed to tightly seal a fluid delivery tube against ingress of milk during milking whilst opening when cleaning fluid is delivered under high pressure (see D2, page 13, middle paragraph with figure 1, D3, column 3, lines 8 to 14, 32 to 35 with figures 3 and 5, D4, paragraph bridging pages 6 and 7, page 13, lines 5 to 9 e.g. with figure 2a). Thus the valve is rated to remain closed during milking, whereas in claim 1 as upheld rating (of the return spring) is so as to admit air during milking to equalize pressure, i.e. to open the valve.

Therefore, however hygienic their delivery tubes might be, D2, D3 and D4 can shed no light on how to make improvements to a delivery tube and valve arrangement that should open during milking to regulate a vacuum in the head of a teat cup liner, an important function of the arrangement claimed (cf. patent specification, paragraphs 13 and 14 and claim 1 as maintained). Thus, in the Board's opinion (and leaving aside the fact that
only D3 appears to disclose a return spring column 3, lines 34 to 35, figure 5), none of these documents would prompt the skilled person, as a matter of obviousness, to modify the arrangement of D1 to arrive at the subject matter of claim 1 with a spring means rated to open during milking as claimed.

5.2.9 Therefore D1, considered with the skilled person's general knowledge or with D2, D3 or D4 does not take away inventive step of claim 1.

6. In summary, the arguments presented by the appellant-opponent fail to demonstrate that the patent as held allowable by the opposition division (present main request) adds subject matter extending beyond the patent as filed, or that the subject matter of claim 1 lacks novelty or inventive step. The Board therefore confirms the decision's positive findings with respect to added subject matter (Articles 100(c) with 123(2) EPC), novelty and inventive step, Articles 100(a) with Articles 52(1), 54 and 56 EPC in respect of the present main request. In view of this, the Board need not consider the respondent-proprietor's 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