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File Number: T 197/91 - 3.2.4

Application No.: 85 303 616.8

Publication No.: 0 163 483

Title of invention: Automatic milking apparatus

Classification: A01J 5/04

D E C I S I O N
of 18 January 1993

Applicant: British Technology Group Ltd.

Headword:

EPC Articles 54, 56 and 113(1), Rule 67

Keyword: "Novelty (yes)" - "Inventive step (yes)" - "Substantial procedural violation (yes)" - "Reimbursement of appeal fees (yes)"

Catchwords



Europäisches
Patentamt

European
Patent Office

Office européen
des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number : T 197/91 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 18 January 1993

Appellant : British Technology Group Ltd
101 Newington Causeway
London SE1 (GB)

Representative : Trevor-Briscoe, David William
Patent Department
British Technology Group Ltd
101 Newington Causeway
London SE1 (GB)

Decision under appeal : Decision of the Examining Division 2.3.13.126 of
the European Patent Office dated 10 July 1990
and issued in written form on 5 October 1990,
refusing European patent application
No. 85 303 616.8 pursuant to Article 97(1) EPC.

Composition of the Board :

Chairman : C. Andries
Members : S. Crane
J-P. Seitz

Summary of Facts and Submissions

- I. The appeal is against the decision of the Examining Division to refuse European application No. 85 303 616.8.
- II. In a first communication of the Examining Division dated 14 August 1989 the objection was raised that the subject-matter of originally filed independent Claims 1 and 2 lacked novelty with respect to GB-A-394 983 (D1), a document mentioned in the originally filed description.
- III. In a reply dated 9 February 1990 the Appellants (Applicants) explained why in their opinion document D1, on a fair reading, could not be said to anticipate the claimed invention. They also drew the attention of the Examining Division to a further document, NZ-A-152 498 (D2), which had been cited against corresponding applications, and gave reasons why this document could not be considered as disclosing the invention claimed.
- IV. With a further letter dated 29 June 1990 the Appellants filed a complete set of revised application documents comprising nine pages of description, independent Claims 1 and 2, and two sheets of drawings, and requested the grant of a patent on the basis of these documents.

Claims 1 and 2 are worded as follows:

1. "A method of automatic milking comprising the step of drawing the milk from the teat past one or more non-return valves (127) characterised in that this is done without the introduction of air into the milk flow upstream of the valve or valves."

2. "An automatic milking apparatus having one or more one-way clawpieces (110) characterised in that the teat liners are substantially sealed during milking from any supply of air to the milk-carrying core regions of the teat liners."

The Appellants explained that they thought document D2 was a better starting point for the claims because, unlike document D1, it discloses the one-way valve as being in the clawpiece, which is a feature of Claim 2.

The Appellants furthermore submitted a statutory declaration of an independent expert, Mr F.H. Dodd, in which he explained the reasons why in his view neither document D1 nor document D2 disclosed method and apparatus according to the claims.

- V. At oral proceedings held on 10 July 1990, which were attended by the professional representative of the Appellants and one of the inventors, Mr R.J. Grindal, the Examining Division announced the decision that the application was refused.
- VI. The minutes of the oral proceedings were communicated to the Appellants with a letter dated 7 September 1990.

With a letter dated 18 September 1990 the Appellants challenged the accuracy of the minutes and requested that they be corrected. In particular, the Appellants vigorously denied the implication in section 6 of the minutes that document D2, especially the passage on page 6, lines 12 to 21 thereof, had been presented by the Examining Division as being of importance with respect to the question of patentability.

In a telephone consultation with the representative of the Appellants on 2 October 1990 the second examiner of the Examining Division, who had been responsible for taking the minutes, explained that in his view the minutes correctly stated the essentials of the oral proceedings and that no procedure for amending the minutes at this stage was available.

- VII. The written decision to refuse the application was issued on 5 October 1990. The reason given for the decision was that the subject-matter of Claims 1 and 2 lacked novelty with respect to document D2.
- VIII. The appeal against this decision was filed on 28 November 1990 and the appeal fee paid on 10 December 1990.

The Statement of Grounds of Appeal was filed on 6 February 1991.

The Appellants request that the decision under appeal be set aside and a patent granted on the basis of the documents filed with letter dated 29 June 1990 (main request), or in the alternative with Claim 2 amended corresponding to the first to seventh subsidiary requests submitted with the Statement of Grounds of Appeal. They also request reimbursement of the appeal fee and, as an auxiliary measure, oral proceedings.

With the Statement of Grounds of Appeal the Appellants filed, inter alia, the following evidence:

- (a) A statutory declaration of the professional representative concerning his recollection of what had been said at the oral proceedings.

- (b) A statutory declaration of the co-inventor (Mr R.J. Grindal) who had attended the oral proceedings concerning firstly his recollection of what had been said thereat, and secondly experiments performed with a conventional milking clawpiece, a non-return clawpiece using an air-bleed, and a non-return clawpiece without air bleed.
- (c) A second statutory declaration of the independent expert Mr F.H. Dodd concerning the general state of the art at the date of filing of document D2 and the way this document should be interpreted.

IX. The arguments put forward by the Appellants in support of their requests can be summarized as follows:

Up until the giving of the contested decision at the oral proceedings the Examining Division had given no indication that it considered the disclosure of document D2, which had been introduced into the proceedings by the Appellants themselves, as prejudicial to the novelty of the claimed invention. Both prior to and at the oral proceedings the Appellants had advanced explanations as to why the claimed invention was distinguished from the teaching of document D2, the reasons why the Examining Division did not accept these explanations were however first given in the written grounds of the contested decision. Accordingly, the Appellants had been deprived of their right to be heard in conformity with Article 113(1) EPC.

In any case, the technical appraisal of document D2 made by the Examining Division was incorrect. The particular passage of document D2 relied upon to show that there was no air-bleed was the reference on page 6, lines 17 to 21, of a rise in vacuum in the teat cup inner chamber normally prevented by a back flow of milk from the claw. The experimental evidence attached to the Grindal declaration

showed however that, in comparison with a conventional clawpiece, such a rise in vacuum was indeed achieved when using a non-return clawpiece with an air-bleed.

Furthermore, as was clear from the second Dodd declaration, the presence of an appropriate air-bleed was considered as an essential prerequisite at the relevant date of filing of document D2. It was inconceivable in these circumstances that the elimination of the air-bleed, being such a radical departure from standard, if not mandatory, practice would not have been specifically mentioned in the document.

Moreover, even if the clawpiece shown in document D2 were used without an air-bleed then its design was not such as would lead to "hydraulic milking" as proposed by the claimed invention. This was because a pocket of air would be trapped in the clawpiece and the valve means could not act quickly enough to prevent this air being drawn back past it as milk flow stopped.

At the time of making the invention the person skilled in the art would have dismissed the elimination of an air-bleed as being unworkable and even now it was not wholly clear how the invention functioned. Nevertheless, it was associated with significant advantages, including shorter milking times and higher yields, and had been the subject of numerous major and prestigious merit awards.

Reasons for the Decision

1. The appeal complies with the requirements of Article 106 to 108 and Rule 64 EPC. It is therefore admissible.

2. Formal allowability of the amended documents (main request)

Claims 1 and 2 have essentially the same technical content as the corresponding originally filed claims.

Figures 2 and 3 of the original application documents together with the corresponding description and claims directed to this subject-matter have been deleted (this subject-matter now forms the basis of a divisional application) and been replaced by new Figures 2 and 3 and corresponding description derived from GB-B-2 057 845. This document was referred to in the original disclosure with the statement that the clawpiece (as shown in new Figures 2 and 3) would be eminently suitable for use in the present invention. In view of this the Board shares the opinion of the Examining Division that no objection can be seen to the incorporation of these Figures and description into the present application.

There are therefore no objections to the present application documents under Article 123(2) EPC.

3. Technological background to the invention

The basic components of automatic milking apparatus, at least as far as the present invention is concerned, are a cluster of four teat cups including a clawpiece, a suction pump and a pulsator.

Each teat cup comprises a rigid outer casing containing a flexible liner which fits over one of the cow's teats. A pressure of approximately 50 kPa below atmosphere is continuously applied to the core space enclosed by the liner. Apart from encouraging a flow of milk into the core space, this negative pressure is also effective to clamp the flexible liner onto the teat.

The pressure applied to the annular space (pulsation chamber) between the liner and the rigid casing alternates, however, between 50 kPa below atmosphere and atmosphere thanks to the action of the pulsator. At the first of these values, there is zero pressure differential across the liner and milk is sucked from the teat into the core space. This milk passes down a flexible tube into one of the four tubular inlets projecting from the interior volume of a special junction unit called a "clawpiece". From there the milk is drawn down through an outlet to an appropriate receptacle or pipeline. With atmospheric pressure in the pulsation chamber the liner collapses completely onto the teat and closes beneath it. The other three inlets of the clawpiece are connected to similar teat cups and thence to the other teats of the cow's udder.

In operation of the cluster, the passage of milk from the teats is intermittent. Thus in a complete pulsation cycle, as the pulsation chamber is re-evacuated from the completely collapsed condition the liner in contact with the teat widens and the size of the teat sinus increases. Simultaneously the liner begins to open beneath the teat and, when sufficiently open, milk starts to flow through the teat. Continued opening of the liner follows until the liner is fully open. Milk begins flowing from the teat when the liner is about half open and continues until the liner is about half closed. As the liner closes, milk flow ceases before complete collapse beneath the teat, cessation of milk flow being caused not by the liner cutting off the vacuum to the end of the teat but by the force exerted by the closing liner on the teat. The cycle then repeats, the next flow of milk beginning when the liner is again about half open.

At the start of re-evacuation of the pulsation chamber milk will tend to flow back from the clawpiece to the core space. As can be seen from the evidence submitted with the second Dodd declaration it had been recognised in the late 1940's that this reverse milk flow favoured the spread of mastitis and that the provision of an air-bleed into the core space could help to prevent this. By the early 1960's the provision and regular inspection of such an air-bleed was standard recommended practice. A further advance in the combating of mastitis was the development of a one-way clawpiece, that is a clawpiece with suitable non-return valve means, such as disclosed in document D2.

According to the present application the use of a one-way clawpiece without the provision of the conventional air-bleed into the core space of the teat cup was considered essential in order partially to release the vacuum within the fully collapsed liner. The Appellants had surprisingly found that not only was the air-bleed not necessary, but that several significant benefits were associated with the so-called "hydraulic milking" that resulted.

4. Novelty (main request)

- 4.1 Document D2, which dates from 1968, relates to a clawpiece having means to prevent milk being drawn back into the teat cups and thereby prevent the possibility of cross-infection of the teats by mastitis organisms.

In the preferred embodiment of clawpiece disclosed an annular plate valve of a transparent plastics material is provided for oscillation between a transparent cover and the upper ends of four vertical holes in the clawpiece body, each hole being connected to a respective inlet nipple. As the valve member strikes the cover and the body an audible indication of milk flow will be produced. The milk flow can also be observed through the transparent

cover and plate valve. In a further embodiment, not further illustrated, the annular plate valve can be replaced by four individual disc-like valves.

At page 6, lines 12 to 22, document D2 includes the following statement:

"... when the milk flow has ceased, the plate valve falls back over the upper ends of the holes and so that, when the vacuum stroke takes place in the pulsation chamber of the teat cup, back flow of milk to the teat cups is prevented by the presence of the plate valve. At the same time, the closure of the holes by the plate valve allows the inflation to act like a pump on the teat cup inner chamber and cause a rise in vacuum which is normally prevented by a backflow of milk from the claw. This gives rise to faster milking ..."

It is to be noted first of all that document D2 discloses only the modified clawpiece and no other components of the automatic milking apparatus. The person skilled in the art reading the document would therefore assume that these other components were conventional. According to the second Dodd declaration, which is backed up by extracts from several authoritative manuals of the relevant period, the provision of an air-bleed into the core space of the teat cups was a standard feature of automatic milking apparatus at that time. The immediate assumption of the skilled addressee of document D2 would be therefore that such an air-bleed is present. The Examining Division has however relied on the passage quoted above as teaching that no air-bleed is provided, since in its view the rise in vacuum mentioned is only possible if there is no introduction of air into the milk upstream of the valve.

However, the experimental evidence referred to in the Grindal declaration shows convincingly that, in comparison with a conventional clawpiece, a rise in vacuum is still achieved when using a one-way clawpiece, even though the air-bleed is still present. The central argument on which the Examining Division based its decision does not therefore hold good.

Accordingly, the Board comes to the conclusion that on a fair reading of document D2 in the light of the relevant common general knowledge of the person skilled in the art this does not disclose the method and apparatus defined in present Claims 1 and 2.

4.2 Document D1, which dates from the early 1930's, relates in particular to a modified form of teat cup designed to simulate hand milking or the effect of a sucking calf. The teat cup is stated to be for use with a conventional milking machine in which the vacuum in the teat cup liner is intermittently created and destroyed. To prevent back flow of milk a one-way valve is provided in the pipe below the teat cup.

According to the first Dodd declaration (cf. last paragraph of section IV above) the only type of milking machine available at the relevant date which would have produced such an intermittent vacuum was one with a pulsator which introduced air into the core space of the teat liner. Thus although the form of pulsator is not shown in document D1 the person skilled in the art would have understood it to be of that type. In view of these explanations it is clear to the Board that document D1 does not teach a method and apparatus as specified in Claims 1 and 2. These explanations had also evidently satisfied the Examining Division since it made no further reference to document D1 in the reasons for its decision.

5. Inventive step (main request)

It is evident from the analysis made above of the teachings of documents D1 and D2 that there is nothing therein which could have encouraged the person skilled in the art to eliminate the air-bleed into the milk flow path upstream of the one-way valve, this air-bleed having been considered at the date of the present application as essential to the proper operation of the milking apparatus. The same is true of the other documents cited in the proceedings. The Appellants found wholly surprising that not only was this conventional wisdom untrue but that the elimination of the air-bleed led to completely unexpected significant advantages.

The subject-matter of Claims 1 and 2 therefore involves an inventive step.

6. Procedural matters

It is apparent from the file that at least up until the oral proceedings the Examining Division had not informed the Appellants that it considered the teachings of document D2 to be of particular significance. At the oral proceedings the Appellants were invited to comment on document D2 (section 6 of the minutes). The terms of this invitation given in the minutes, in particular whether patentability was at issue and the potential significance of a quoted passage of document D2, have however been vigorously disputed by the Appellants. Be that as it may, it is clear from section 6.1 of the minutes that the Appellants took the opportunity to advance inter alia the argument that document D2 did not specifically disclose the absence of an air-bleed, and that the presence of an

air-bleed would not preclude the rise in vacuum mentioned in the quoted passage of document D2 but that this rise would be smaller than with the claimed invention. (See also section 4.1 above).

No comments by the Examining Division on this line of argument of the Appellants can be found in the minutes. The reasons why the Examining Division were of the opinion that document D2 implicitly taught the absence of an air-bleed appear first in the grounds for the decision issued in writing on 5 October 1990. The Board is therefore satisfied that up to the announcement of the decision to refuse the application at the end of the oral proceedings the Appellants had not been made aware of the fact that the Examining Division intended to interpret document D2 in such a way that it destroyed the novelty of the subject-matter of their application.

Accordingly, the Appellants were not given proper opportunity to present their comments on the grounds on which the contested decision is based (Article 113(1) EPC). This constitutes a substantial procedural violation in view of which the reimbursement of the appeal fee is equitable (Rule 67 EPC).

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to grant a patent on the basis of the application documents filed with letter dated 29 June 1990 (cf. first paragraph of section IV above).

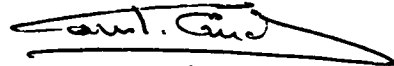
3. The appeal fee is reimbursed.

The Registrar:



N. Maslin

The Chairman:



C. Andries

*Clare
TAS*