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Aktenzeichen / Case Number / N° du recours : T 309/87 - 3.2.2

Anmeldenummer / Filing No / N° de la demande : 81 109 187.5

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Bezeichnung der Erfindung: Pump comprising locking means for a flexible tube
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : F04B 43/12

ENTSCHEIDUNG / DECISION
vom / of / du 20 July 1989

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /
Titulaire du brevet : Gambro Lundia AB

Einsprechender / Opponent / Opposant : Fresenius AG

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56 EPC

Schlagwort / Keyword / Mot clé : "Inventive step (Yes)"

Leitsatz / Headnote / Sommaire



Case Number : T 309/87 - 3.2.2

D E C I S I O N
of the Technical Board of Appeal 3.2.2
of 20 July 1989

Appellant : Fresenius AG
(Opponent) Gluckensteinweg 5
D-6380 Bad Homburg v.d.H.

Representative : Luderschmidt, Wolfgang, Dr. Dipl.-Chem.
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Respondent : Gambro Lundia AB
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Representative : Boberg, Nils Gunnar Erik
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Decision under appeal : Interlocutory decision of the Opposition Division
of the European Patent Office dated 14 July 1987
concerning maintenance of European patent
No. 51 815 in amended form.

Composition of the Board :

Chairman : G. Szabo
Members : H. Seidenschwarz
O. Bossung

Summary of Facts and Submissions

- I. European patent No. 0 051 815 comprising five claims was granted to the Respondent on 8 February 1984 in response to European patent application No. 81 109 187.5 filed on 29 October 1981.
- II. The Appellant filed an opposition against the European patent requesting that it be revoked on grounds of lack of inventive step.
- III. By interlocutory decision dated 14 July 1987, the Opposition Division maintained the patent as amended on the basis of the documents specified in the communication pursuant to Rule 58(4) EPC, dated 3 December 1986. The decision relied, inter alia, on the following documents:
 - DE-A-2 535 650 (which is equivalent to FR-A-2 321 147);
 - Lueger Lexikon der Technik "Feinwerktechnik", Rowohlt Taschenbuchverlag GmbH, 1972 (page 972, headword: Spansschloß), and
 - Prospectus "Blutpumpe" of the Firma Fresenius, Bad Homburg, (reference No. BP742/BP741).
- IV. The Appellant lodged an appeal against the decision on 17 August 1987, paying the appeal fee on the same date.

In his Statement of Grounds, filed on 24 November 1987, the Appellant raised the objection that also the subject-matter of Claim 1 as amended would not involve an inventive step.
- V. During the oral proceedings held on 20 July 1989, the Respondent filed a new set of Claims 1 to 4 and a new description. He argued that the subject-matter of Claim 1 was new and inventive.

Claim 1 reads now as follows:

"Pump which comprises a flexible tube (8) arranged in a path between an inlet (10) and an outlet (11) of said pump, and means (12,13,18,19) including adjustable organs (12,13) which are movable in opposite directions to each other for locking of said tube against corresponding seats (14,15) at said inlet and outlet, respectively, characterised in that said movable organs (12,13) are controlled by means of a common control means (19) to lock said tube (8) simultaneously against said seats (14,15) at said inlet (10) and said outlet (11), respectively, which movable organs (12,13) are provided in the form of two threaded slides at the threaded ends (16,17) of a common rod (18) controlled by said common control means (19)."

- VI. The Appellant specified his arguments in that sense that it would be obvious to the person skilled in the art to replace the two screws of the locking means in the pump known from FR-A-2 321 147 or prospectus "Blutpumpe" respectively by a single screw if he wanted to provide locking means which could be easily and quickly locked to and released from a pair of tube locking seats. This principle would be generally known, e.g. by the document "Feinwerktechnik" or the document US-A-485 484. Further, the document DE-C-79 668 would teach the person skilled in the art to simplify the device according to the French document or the prospectus by using a well known element, which comprises one rod and one screw.

The Respondent contested the above arguments.

- VII. The Appellant requested that the decision under appeal be set aside and that the patent be revoked.

The Respondent requested that the appeal be dismissed and that the patent be maintained in an newly amended form on the basis of the description and claims as filed during the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.

2. Claim 1 comprises a combination of the features mentioned in the Claims 1 and 2 and in the description as granted. The dependent Claims 2 to 4 contain the features of the dependent Claims 3 to 5 as granted.
There is no formal objection to the current version of the claims, since this is also adequately supported by the description as filed and represents a restriction in scope.
The amendment in the description corresponds to the amendments in Claim 1.
The patent, therefore, complies with Article 123(2) and (3) EPC.

3. The invention relates to a pump comprising a flexible tube known from FR-A-2 321 147 or the prospectus "Blutpumpe", respectively, and from which the pre-characterising portion of Claim 1 is derived. This known pump comprises locking organs which must be moved separately by means of separate thumb screws. Consequently, a tube exchange is complicated and unreliable and, therefore, it takes a longer time, since one has to consecutively loosen or tighten the locking organs (cf. EP -B-0 051 815, col. 1, line 59 to col. 2, line 14). As explained, the danger exists that a user of the pump may forget to tighten one of the locking organs. The longer time of exchanging a

tube and the danger of not tightening a locking organ could be disadvantageous to the user of a system in critical circumstances, in which such a pump is an important part to the function of this system.

4. Hence, the problem to be solved by the invention resides in the provision of a simple but reliable tube locking means, which means may be quickly locked to or released from a pair of tube locking seats.
5. According to the teaching of Claim 1, this problem is solved by an element linking the locking means in such a way that the locking means are moved simultaneously in opposite directions to each other, which movement is controlled by one control means.
6. After examination of the documents cited in the search report and during the proceedings, the Board is satisfied that none of them discloses a pump having all the features as defined in Claim 1.

Since this has never been disputed, there is no need for further detailed substantiation of this matter.

Therefore, the subject-matter as set forth in Claim 1 is to be considered novel within the meaning of Article 54 EPC.

7. On the question of whether or not the state of the art could suggest a pump according to Claim 1 the following should be observed:
 - 7.1 The pump according to FR-A-2 321 147 or to the prospectus "Blutpumpe" comprises two separate adjustable organs as means for locking the tube against the corresponding seats at the inlet and the outlet in the pump casing. On each of

these adjustable organs is mounted a knurled screw for moving the corresponding organ.

According to the prospectus (cf. the instruction for placing the tube in the pump) the tube is locked, firstly, by means of the left knurled screw at the inlet of the pump and, secondly, as soon as the tube is then readily placed in the pump casing by means of the right knurled screw at the outlet of the pump. Presumably, the locking on each side is assessed by feeling the tension in the screw and/or the tube carried by the other hand. From the clear instructions, namely to lock carefully and consecutively the adjustable organs, the person skilled in the art would not readily derive the teaching to move both screws by one thumb for controlling simultaneously the movement of both adjustable organs, even if the directionality of the screws, which was undisclosed in these documents, would allow this.

- 7.2 Even with the knowledge of the documents "Feinwerktechnik", US-A-485 484 or DE-C-79 668, which relate to technical fields remote from pumps comprising flexible tubes, the person skilled in the art would not be led inevitably to the contested invention, in order to provide quick but reliable fastening and release of both sections of the tube simultaneously.
- 7.2.1 The document "Feinwerktechnik" discloses a mechanism for moving simultaneously two organs in opposite directions due to rotation of one member therebetween. The movable organs consist of right and left hand screw bolts and are joined by a nut. The purpose of this screw shackle is to provide tensile force. It is used for tensioning cables, bands and the like: cf. US-A-485 484, which shows an embodiment of such a screw shackle as a band tightener. Nowhere in these documents is the use of the movable

organs in the form of two threaded slides at the threaded ends of one common rod mentioned.

7.2.2 DE-C-79 668 concerns a desk compass, which consists of two equal legs and an adjusting means. This adjusting means comprises a screw and a small disk mounted on the screw, which has a double thread and passes through both legs. By means of the screw and the disk the legs are moved in such a way, that they are always kept parallel to each other. Having regard to the purpose of the compasses, viz: for taking measurements, setting off very small intervals or describing circles, one of the legs is fixed on the surface, on which the corresponding operations are performed, whereas the other leg is kept free to be moved by the adjusting means. From this it is evident, that the legs are not moved simultaneously when the compass is used accordingly. In the context of the pump, the effect of movement is, in any case, not merely a change in position but also the satisfactory interaction between the moveable means and the tube at different points.

7.3 From the teachings of the documents mentioned in the above paragraph 7.2, the person skilled in the art, therefore, does not get any hint to replace in the pump known from FR-A-2 321 147 or the prospectus "Blutpumpe" the two separate adjustable organs by slides, which are threaded to the ends of one common rod in such a way, that they can be moved simultaneously by the control of one common control means, thus allowing a quick and reliable exchange of tubes. It is somewhat surprising that the replacement of two individual adjustable organs with one provides a satisfactory performance, since the actual pressures on the tubes could be unequal in such circumstances. The replacement of the two adjustment organs with a single one in the circumstances of the pump, in particular of a blood pump, which has been successfully marked unmodified for a

considerable time, cannot be obvious in view of the unpredictable risk of losing the reliability of the existing system.

- 7.4 The other documents cited in the proceedings give likewise no hint of the subject-matter of Claim 1. Their teachings could, therefore neither per se nor in combination with the teachings of the documents discussed in the foregoing paragraphs lead the skilled person to a pump according to that claim.
- 7.5 Hence, the subject-matter of Claim 1 involves an inventive step within the meaning of Article 56 EPC.
8. Consequently, the patent can be maintained with Claim 1 as amended with the dependent Claims 2 to 4, which concern particular embodiments of the invention, and with the modified description as well as the drawing as granted.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to first instance with the order to maintain the patent in an amended form on the basis of the description and claims filed during the oral proceedings and the drawing as granted.

The Registrar:

S. Fabiani

S. Fabiani

The Chairman:

G. Szabo
G. Szabo

HS 10.09.89
TSR