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Aktenzeichen / Case Number / N° du recours : T 164/89 - 3.4.2

Anmeldenummer / Filing No / N° de la demande : 84 301 298.0

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Bezeichnung der Erfindung: Improvements in flooded compressor separators  
Title of invention:  
Titre de l'invention :

Klassifikation / Classification / Classement : B01D 53/26, B01D 46/24, B01D 46/00

### ENTSCHEIDUNG / DECISION

vom / of / du 3 April 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Cash Engineering Co. PTY Ltd

Einsprechender / Opponent / Opposant :

Mahle GmbH

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Articles 56, 114 EPC

Schlagwort / Keyword / Mot clé :

"Inventive step (yes, after limitation)"  
"Admissibility of document (yes)"

Leitsatz / Headnote / Sommaire

Europäisches  
Patentamt  
Beschwerdekammern

European Patent  
Office  
Boards of Appeal

Office européen  
des brevets  
Chambres de recours



Case Number : T 164/89 - 3.4.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.2  
of 3 April 1990

**Appellant :** Cash Engineering Co. PTY Ltd.  
(Proprietor of the patent) 249 Bridge Road  
Richmond, Vic. 3121 (AU)

**Representative :** Glawe, Delfs, Moll & Partner  
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**Respondent :** Mahle GmbH  
(Opponent) Pragstrasse 26-46  
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**Representative :**

**Decision under appeal :** Decision of the Opposition Division of the European Patent Office dated 29 November 1988, posted on 11 January 1989 revoking European patent No. 0 121 999 pursuant to Article 102(1) EPC.

**Composition of the Board :**

**Chairman :** J. Roscoe  
**Members :** W. Hofmann  
C. Payraudeau

## Summary of Facts and Submissions

- I. European patent No. 0 121 999 was granted on the basis of European patent application No. 84 301 298.0.
- II. The patent was revoked by a decision of the Opposition Division on opposition by the Respondent, on the ground that its subject-matter did not involve an inventive step having regard either to the document

US-A-3 291 385 (D1)

considered alone, or to document D1 taken in combination with the document

US-A-1 443 764 (D2).

- III. The Appellant (patentee) lodged an appeal against this decision.
- IV. Oral proceedings were held on 3 April 1990, during which the Respondent referred to the further document

EP-A-0 060 231 (D3)

which had been cited before neither in the opposition nor in the appeal procedure, but is summarised in the introductory portion of the patent under appeal.

The Appellant having objected to the admissibility of the introduction of document D3 at this stage of the procedure in view in particular of the findings in the decision T 124/87 - 3.3.1 (OJ EPO, 1989, 491), the Chairman after deliberation of the Board announced the decision to admit this document into the procedure, and both parties were offered a further opportunity to reconsider the question

of the patentability of the claimed subject-matter in the light of its content.

At the end of the oral proceedings, both parties requested that the decision under appeal be set aside and the patent be maintained as amended on the basis of Claim 1 as handed over at the oral proceedings and Claims 2 to 18 as granted Claim 1 reads as follows:

"1. A liquid/gas separator for use with a flooded compressor system, said separator comprising a pressure vessel (30) having an interior including a first lower region adapted to maintain a pool of liquid (17,39) therein and second upper region for receiving a mixture of liquid and compressed gas therein above the pool of said liquid (17,39), a clean compressed gas outlet (15) extending outwardly from said pressure vessel (30), a coalescent type filter element (24) located directly above the area of said pool of liquid and interposed between said clean compressed gas outlet and the remainder of the interior of said pressure vessel, said filter element (24) being arranged for receiving the mixture of liquid and compressed gas flowing to the clean gas outlet (15) and for removing droplets of said liquid therefrom, said separator being characterized by wall means (32,38) substantially impervious to the liquid forming a container member (31) mounted inside said pressure vessel (30) directly above and partly immersed in said pool of liquid and having a base (38) and side walls (32) defining a dry sump region, surrounding at least lower regions of said filter element (24) but enabling the mixture of liquid and compressed gas to flow above said wall means to said filter element (24), inlet means (23) to said pressure vessel enabling introduction of said mixture of liquid and compressed gas to said second region of the pressure vessel between the pool of said liquid (17,39) and said impervious wall means (32,38), and said separator being

further characterized by shield means comprising a shroud (37) interposed between the side walls (32) of said container member (31) and said filter element and surrounding and overlying said filter element at least in region(s) where said mixture of liquid and compressed gas is introduced into said dry sump region whereby liquid in said mixture is prevented from direct impingement on said filter element."

Claims 2 to 6 and 9 to 17 are appended to Claim 1 whilst Claims 7, 8 and 18 define a flooded compressor system including a separator according to certain preceding claims and exhibiting therefore inter alia all the features set out in Claim 1.

- V. Appellant's arguments, as far as they are relevant to the patentability of the subject-matter of the present claims, can be summarised as follows:

The liquid/gas separator defined in Claim 1 is novel in the sense of Article 54 EPC since it is distinguished from the separators described in any of the cited prior art documents in that a container member having a base and side walls defining a dry sump region is partly immersed in a pool of liquid formed in the lower region of a pressure vessel, and surrounds at least lower regions of the filter element to prevent this element being contacted and saturated by foaming oil while simultaneously enabling the mixture of oil and compressed gas to flow above said wall means to said filter element.

The partial immersion of the wall means in the pool of liquid allows the volume available for oil in the separator to be increased, whilst its circumferential arrangement results in a substantial increase of the length of the passage above the wall means, which reduces

the velocity of the fluid entering the filter region and thus its adverse tendency to draw oil droplets therein.

The subject-matter of Claim 1 also involves an inventive step in the sense of Article 56 EPC since the above-mentioned distinguishing features are not suggested by any of the cited prior art documents. In particular, documents D1 and D3 both hint at spatially separating the filter element from the liquid pool, either horizontally as in document D1 or vertically as in document D3, and thus lead away from the idea of locating the filter element partly below the liquid pool level. Document D2 is not relevant to the present invention since the separator system which it discloses lacks both a filter and a dry sump, and is not subject to foaming since it is intended for use in closed refrigerating circuits of household refrigerators, which are not subjected to cyclical pressure drops.

- VI. The Respondent did not object to the allowability of his and Appellant's common request.

#### Reasons for the Decision

1. The appeal is admissible.
2. Admissibility of the introduction of document D3 into the procedure.

The question of whether document D3 should be considered as automatically included in the opposition or appeal procedure because of the reference to it in the patent in suit, as was submitted by the Respondent, or whether it should be considered as late filed under Article 114(2) EPC since it was not explicitly relied upon by either of the parties before the oral proceedings of 3 April 1990, as was put forward by the Appellant did not

need to be answered by the Board in coming to its decision, announced at the oral proceedings, to admit the document into the procedure.

For the reasons set out by the technical Board of Appeal 3.4.1 in its decision T 156/84 (OJ EPO, 1988, 372, point 3 of the Reasons) it follows from a proper interpretation of Article 114(2) EPC, considered in particular in conjunction with Article 114(1) EPC, that documents which are not submitted in due time should at first be examined by the European Patent Office of its own motion and that they can be disregarded only if such examination has shown that they are not relevant to the decision to be made. Consequently, under no circumstances can documents which may change the decision be disregarded by the European Patent Office.

This finding is in full agreement with the decision T 124/87 - 3.3.1 referred to by the Appellant, by which another Board has disregarded a late submitted argument based on a document which had already been cited in the opposition proceedings, but for different reasons. This Board indeed explicitly indicated in its decision that it would refuse to consider the new argument in the exercise of its discretion under Article 114(2) EPC "unless the new argument is more relevant than that supporting any other grounds of opposition" (point 4 of the Reasons).

In the present case, the Board having examined document D3 of its own motion in accordance with Article 114(1) EPC when it was cited by the Respondent at the oral proceedings, considered it to be highly relevant against the patentability of Claim 1 in its then valid version, so that this document could not have been disregarded even if it had been regarded as late submitted, and accordingly, the Board decided to admit it into the procedure. The relevance of document D3 was implicitly

admitted also by the Appellant who eventually further limited the scope of the main claim.

3. There is no objection under Article 123(2) or (3) EPC to the current version of the claims.

In particular, present Claim 1 comprises all the features of Claim 1 as granted, together with additional features specifying essentially that the filter element is of the coalescent type, that the wall means form a container member mounted inside the pressure vessel directly above and partly immersed in the pool of liquid and having a base and side walls defining a dry sump region, and that it comprises a shroud interposed between the side walls of the container member and the filter element which it surrounds. These additional features restrict the scope of protection conferred by the claim and they are all clearly disclosed in the application as filed (see in particular page 7, lines 14 and 15 and 17 to 20, and page 8, lines 8 to 12 of the description as originally filed and Figures 2 and 3 of the drawings).

4. The Board is also satisfied that the subject-matter of Claim 1 is novel and involves an inventive step, for the reasons submitted by the Appellant and summarised in point V above, which have not been contested by the Respondent.

Accordingly, Claim 1 as amended defines patentable subject-matter (Article 52 EPC). So do Claims 2 to 6 and 9 to 17 by virtue of their dependency on Claim 1 and Claims 7, 8 and 18 because their subject-matter also comprises all the features of Claim 1.

5. Since the patent as amended and the invention to which it relates meet the requirements of the Convention, the patent can be maintained as amended (Article 102(3) EPC).



Order

For these reasons, it is decided that:

The decision under appeal is set aside.

The case is remitted to the first instance with the order to maintain the patent as amended on the basis of the following documents:

Claim 1 as handed over at the oral proceedings of 3 April 1990 and Claims 2 to 18 as granted;

Description columns 1, 2 and 4 as handed over at the oral proceedings of 3 April 1990 and columns 3, 5 to 7, and 8, lines 1 to 22 of the description as granted;

Figures 1 to 3 of the drawings as granted.

The Registrar:

The Chairman:

M. Beer

J. Roscoe