

Veröffentlichung im Amtsblatt	<input checked="" type="checkbox"/> Ja / <input type="checkbox"/> Nein
Publication in the Official Journal	<input checked="" type="checkbox"/> Yes / <input type="checkbox"/> No
Publication au Journal Officiel	<input checked="" type="checkbox"/> Oui / <input type="checkbox"/> Non



Aktenzeichen / Case Number / N° du recours : T 47/87 - 3.4.1

Anmeldenummer / Filing No / N° de la demande : 83 307 425.5

Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 113 205

Bezeichnung der Erfindung: Method of, and apparatus for, filtering a slurry

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : B01D 25/12

ENTSCHEIDUNG / DECISION

vom / of / du 11 November 1988

Anmelder / Applicant / Demandeur : Steetley Refractories Limited

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPO / EPC / CBE Articles 123(2); 54(2); 56

Schlagwort / Keyword / Mot clé : Subject-matter beyond the content of the original application (No); novelty and inventive step (Yes).

Leitsatz / Headnote / Sommaire

Europäisches
Patentamt

Beschwerdekammern

European Patent
Office

Boards of Appeal

Office européen
des brevets

Chambres de recours



Case Number : T 47 /87 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 11 November 1988

Appellant : Steetley Refractories Limited
P.O. Box 6 Gateford Hill
Worksop, Nottinghamshire S81 8AF
(GB)

Representative : Hardisty, David Robert et al.
Boult, Wade & Tennant
27 Furnival Street
London EC4A 1PQ
(GB)

Decision under appeal : Decision of Examining Division 031 of the
European Patent Office dated 12 September 1986
refusing European patent application
No. 83 307 425.5 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : J. Roscoe
Members : H. Reich
G.D. Paterson

Summary of Facts and Submissions

- I. European patent application No. 83 307 425.5 (publication number 0 113 205) was refused by decision of the Examining Division.
- II. The reason given for the refusal was that the subject-matter of independent Claims 1 and 6 received 05.12.84 in particular did not satisfy the requirements of:
 - (a) Article 123(2) EPC having regard to the amendment in these claims of the original feature "to bow to either side" into "to bow to at least one side", a bowing to only one side not being disclosed in the original application documents; and
 - (b) Articles 52 and 54(2) EPC having regard to document:

FR-A-1 363 465 (D1)
- III. The Appellant lodged an appeal against this decision.
- IV. In the Grounds of Appeal the Appellant requested that the contested decision be set aside and that a patent be granted on the basis of either a first set of claims as main request, wherein the amended wording "to bow to at least one side" was maintained, or on the basis of a second set of claims as auxiliary request, comprising the originally disclosed wording "to bow to either side". In supporting the independent claims of his main request, the Appellant argued, that a skilled person would be able to see in the bending to "either" side only a preferred method, the introduction of which into an independent claim would be appreciated as an unnecessary limitation. With regard to the alleged lack of novelty, document D1 did not

teach the deforming of a "compressed" filter cake, i.e. while still under initial compression.

- V. In response to a communication of the Board of Appeal, expressing the provisional view that the Appellant's main request could not be allowed, because the original documents disclosed no technical means which allow to bow the filter cake to one side only, and that the Appellant's auxiliary request needed further amendments in order to be clearly distinguishable from the prior art known from document D1, the Appellant filed, on 16 August 1988, a single request for the grant of a patent on the basis of the following documents:

Description: Pages 1, and 4-8 as originally filed;
Pages 2, 3, 3a received 16.08.88; and
Pages 9 and 10; received 08.01.87.

Claims: 1 to 11, received 16.08.88.

Drawings: Page 1/1 as originally filed.

- VI. Independent Claims 1 and 5 read as follows:

"1. A method of filtering a slurry, comprising confining filter cake produced from the slurry in a stationary chamber having a pair of opposed flexible walls at least one of which is constituted by a filter medium, and deforming the filter cake in the chamber to cause the filter cake to bow to either side of an initial central plane alternately, characterised in that before said deforming the filter cake is initially compressed between said walls and that said deforming is carried out cyclically by acting on at least one of said walls of the chamber while maintaining the filter cake under the initial compression.

5. Apparatus for filtering a slurry, comprising a chamber (6) having a pair of opposed flexible walls (5) at least one of which is constituted by a filter medium, which confines filter cake in the chamber (6) produced from the slurry and deformation means (18, 19) to cause the filter cake to bow to either side of an initial central plane alternately, characterised by means (24, 25) to compress the filter cake in the chamber, means (13, 15, 16, 17) to restrain the filter cake for initial compression by the compressing means (24, 25) and by said deformation means (18, 19) being able to cyclically deform the filter cake after release of the restraining means (13, 15, 16, 17) while maintaining the filter cake under the initial compression."

Claims 2-4 are referred back to Claim 1, and Claims 6-11 are referred back to Claim 5.

Reasons for the Decision

1. The appeal is admissible.
2. The subject-matter of the current set of claims does not extend beyond the content of the application as originally filed. In particular, the subject-matter of Claim 1 comprises that of original Claim 1 and the feature, that "compressing" and "bowing" are subsequent method steps, as disclosed in the original description, page 6, line 23 to page 7, line 13. Independent Claim 5 contains the subject-matter of original Claim 5 and the characteristic, that means (13, 15, 16, 17) are provided to restrain the filter cake for initial compression by the compressing means, which means are releasable for the subsequent deformation of the filter cake by the deformation means (see the figure

and the original description page 5, lines 4-11). The description has been adapted to the present wording of Claims 1 and 5 and to the prior art known in combination from document D1 in order to satisfy Rules 27(1)(c)(d) EPC.

There is, therefore, no objection under Article 123(2) EPC to the current set of application documents.

Moreover, the present claims satisfy Rules 29(1), (7) EPC, and the present description pages 9 and 10 Rule 35(12) EPC, see also the appealed decision, page 8, last paragraph.

3. Novelty

- 3.1 From document D1 there is known "a method of filtering a slurry, comprising confining filter cake produced from the slurry in a stationary chamber (2,4) having a pair of opposed flexible walls at least one of which is constituted by a filter medium (14 in Fig. 2), and deforming (via 28, 30) the filter cake in the chamber to cause the filter cake to bow to either side of an initial central plane alternatively (page 2, right column, lines 20-28)" and an "apparatus for filtering a slurry, comprising a chamber (2,4) having a pair of opposed flexible walls at least one of which is constituted by a filter medium (14 in Fig. 2), which confines filter cake in the chamber (2,4) produced from the slurry and deformation means (28, 30; page 2 left column, last 4 lines, and right column lines 1 and 2) to cause the filter cake to bow to either side of an initial central plane alternately (page 2, right column, lines 23-28)".

The above mentioned features of the method and apparatus known from document D1 correspond to the features of the pre-characterising parts of Claims 1 and 5 respectively.

None of the features in the characterising parts of Claims 1 and 5 are derivable from document D1.

In the method known from document D1 the filter cake is either squeezed by a simultaneous pressure on both flexible walls 12 (compression) or alternately first by a pressure on the left wall 12 and then by a pressure on the right wall 12 (deformation with bowing to either side). From document D1 there is known no separate compression step which precedes the deformation step, and during the known deformation step the filter is not kept under compression, i.e. in addition to the forces which alternate in their direction and deform the filter cake no permanent force couples directed towards the interior of the filter cake are simultaneously exercised on the flexible walls 12.

The apparatus known from document D1 has no separate compressing and deformation means. Such, a functional independence of the compressing and deformation means, however, is indispensable for the claimed maintaining of the initial compression during the cyclical deformation of the filter cake.

- 3.2 In the method and apparatus known from document GB-A-2 077 131 (D2) cited in the description, a hydraulically driven flexible membrane (45) presses the filter cake against a grid (37) supported by a plane wall, so that no filter cake deformation with a bowing alternately to either side of a central plane can be achieved. In the prior art derivable from ESR-document US-A-2 724 508 (D3) a pulsating hydraulic pressure is exercised from all sides on a filter-lined sack (13 in Fig. 1) to avoid caking of the solid mass being separated. Only a compressing of the filter cake can be realised by the rigid walls (17 and 18 in fig. 1) of the apparatus known from ESR-document EP-A-0 027 910.

3.3 Thus, the subject-matter of Claims 1 and 5 is considered novel in the sense of Article 54 EPC.

4. Inventive Step

4.1 Starting from the nearest prior art as disclosed in document D1, the objective problem underlying the present invention as claimed in Claims 1 and 5 is to improve the filtering of a slurry.

4.2 This problem is solved by the features in the characterising parts of Claims 1 and 5 respectively.

4.3 In the method known from document D1 the filter cake is either compressed or deformed, but not both. In the Board's opinion, it was not obvious to a skilled person to combine these measures, present in document D1 as alternatives, to a sequence of method steps wherein during the second step both measures are applied at the same time, and to arrive thus at the initial compression followed by deformation plus initial compression as claimed in Claim 1.

None of the further documents cited in the description or in the Search Report would incite a skilled person in particular to maintain a compression of a filter cake during its deformation in order to improve the quality of the filtering.

For these reasons the Board takes the view that the method according to Claim 1 was not obvious over the prior art.

4.4 In the apparatus known from document D1 the identical pressure producing means are used both for the compression and for the alternate deformation of the filter cake.

None of the cited documents would incite a skilled person to provide separate means for compressing a filter cake, which are able to act together with additionally provided technically independent deformation means which cause the filter cake to bow, so that the simultaneous activation of both said separate means allows to cyclically deform the filter cake while maintaining it under a given compression. Furthermore in view of this the skilled person is provided with no inducement, still less an instruction, to provide in the apparatus known from document D1 releasable restraining means, which only act on the flexible walls during the compression step of the filter cake, and thus to arrive at the subject-matter of Claim 5.

- 4.5 Thus, the subject-matter of Claims 1 and 5 is considered to involve an inventive step in the sense of Article 56 EPC and Claims 1 and 5 are allowable under Article 52(1) EPC.
- 4.6 Therefore, Claims 2-4 depending on Claim 1 and Claims 6-11 depending on Claim 5 are also allowable.

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 European patent on the basis of the following documents:

Description: Pages 1 and 4-8 as originally filed;
Pages 2, 3, 3a received 16.08.88; and
Pages 9 and 10, received 08.01.87.

Claims: 1 to 11, received 16.08.88.

Drawings: Page 1/1 as originally filed.

The Registrar:

The Chairman:

F.Klein

J.Roscoe