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D E C I S I O N
of 25 January 1994

Case Number: T 0545/92 - 3.4.2

Application Number: 85301145.0

Publication Number: 0162536

IPC: B01D 53/34

Language of the proceedings: EN

Title of invention:

Apparatus for wet type flue gas desulfurization

Applicant:

Babcock-Hitachi Kabushiki Kaisha

Opponent:

-

Headword:

Gas desulfurization/BABCOCK-HITACHI

Relevant legal norms:

EPC Art. 111(1), 123(2)

Keyword:

"New claims (three requests), whose subject-matter is restricted to only a part of the originally claimed subject-matter, extending beyond the content of the application as filed (no)"

Decisions cited:

T 0066/85, T 0194/84, T 0331/87

Catchword:

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Boards of Appeal

Chambres de recours

Case Number: T 0545/92 - 3.4.2

D E C I S I O N
of the Technical Board of Appeal 3.4.2
of 25 January 1994

Appellant:

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Decision under appeal:

Decision of the Examining Division of the European
Patent Office dated 12 December 1991, posted on
4 February 1992 refusing European patent
application No. 85 301 145.0 pursuant to
Article 97(1) EPC.

Composition of the Board:

Chairman: E. Turrini
Members: R. Zottmann
L.C. Mancini

Summary of Facts and Submissions

- I. European patent application No. 85 301 145.0 with publication No. 0 162 536 was refused by decision of the Examining Division at the end of oral proceedings.

The reason given for the refusal was that the independent claims of the claim sets according to four requests did not fulfil the requirement of Article 123(2) EPC.

As to the independent claims of all requests which refers to a circulation tank according to Figures 9 and 10, the Division argued in substance that it could not be concluded from the original disclosure that said tank, being only a part of the (whole) desulphurisation apparatus, would constitute a separate invention. As to the independent claims referring to said apparatus, the Division held that these claims did not contain all the features as originally contained in Claim 1 which are essential features of the subject-matter of the application and which thus cannot be deleted without the introduction of fresh subject-matter.

- II. The Appellant (Applicant) lodged an appeal against said decision maintaining the four claim sets refused by the Examining Division.

- III. In a communication pursuant to Article 110(2) EPC, the Board expressed its preliminary opinion that on the one hand there seems to be sufficient support in the original application that the circulation tank of Figures 9 and 10 is a separate individual aspect of the invention, but that on the other hand the independent claims referring to a (complete) desulphurisation apparatus including the circulation tank and the

independent claims referring to a method for desulphurisation exhaust gas were not allowable under Article 123(2) EPC since essential features of the claimed subject-matters - said features being the features common to all embodiments of said apparatus and to all originally filed independent claims - are missing. The Board informed the Appellant by which amendments the existing deficiencies could be removed.

IV. To meet these objections, the Appellant filed amended claims.

V. The Appellant requested that the decision under appeal be set aside and that the case be remitted to the Examining Division for further prosecution on the basis of the following documents:

Description: Pages 1 to 5, 5a, 5b and 6 to 13 filed with the letter of 10 August 1989;

Claims: Nos. 1 to 4 filed with the letter of 6 August 1993 in three respective sets, being a main request, a first subsidiary request and a second subsidiary request;

Drawings: Sheets 1/7 to 7/7 as originally filed.

The Appellant further requested that the appeal fee be reimbursed.

VI. Claim 1 of the main request reads as follows:

"A circulation tank (36) adapted to be provided in an apparatus for wet type exhaust gas desulfurization and to receive an absorbent slurry into which sulfur oxide(s) contained in the exhaust gas is (are) absorbed outside the tank whereby calcium sulfite is formed, said

tank including stirring means (32A-E) for stirring said slurry, a piping (39A) for feeding absorbing liquid to the tank (36) and means (37;13) for withdrawing the resulting slurry from the tank,

characterised in that said stirring means includes lower stirring means (32E) and upper stirring means (32A-D) disposed above said lower stirring means and mounted on the sides of the tank (36) and air-feeding means (30A-G) arranged only in the vicinity of the upper stirring means (32A-D)."

Claim 1 of the first subsidiary request reads as follows:

"A circulation tank (36) adapted to be provided in an apparatus for wet type exhaust gas desulfurization and to receive an absorbent slurry into which sulfur oxide(s) contained in the exhaust gas is (are) absorbed outside the tank whereby calcium sulfite is formed, said tank including stirring means (32A-E) for stirring said slurry, a piping (39A) for feeding absorbing liquid to the tank (36) and means (37;13) for withdrawing the resulting slurry from the tank,

characterised in that said stirring means includes lower stirring means (32E) and a plurality of upper stirring means (32A-D) disposed above said lower stirring means and mounted on the sides of the tank (36) and air-feeding means (30A-G) arranged only in the vicinity of the upper stirring means (32A-D)."

Claim 1 of the second subsidiary request reads as follows:

"A circulation tank (36) adapted to be provided in an apparatus for wet type exhaust gas desulfurization and to receive an absorbent slurry into which sulfur oxide(s) contained in the exhaust gas is (are) absorbed

outside the tank whereby calcium sulfite is formed, said tank including stirring means (32A-E) for stirring said slurry, a piping (39A) for feeding absorbing liquid to the tank (36) and means (37;13) for withdrawing the resulting slurry from the tank,

characterised in that said stirring means includes one lower stirring means (32E), a plurality of upper stirring means (32A-D) disposed above said lower stirring means and mounted on the sides of the tank (36) and air-feeding means (30A-G) arranged only in the vicinity of the upper stirring means (32A-D)."

In all requests, Claims 2 to 4 are dependent on Claim 1.

VII. The essential arguments presented by the Appellant with respect to Claim 1 of the three requests were as follows:

It is nowhere stated in the original specification that the circulation tank structure of Figures 9 and 10 was preferred in a wet type exhaust desulphurisation apparatus. On the contrary, it is clear to the skilled person from the whole disclosure of the original specification - above all from the brief description of said Figures on pages 9 and 10 where even the technical problem underlying said tank is addressed - that said tank could be used in a variety of different desulphurisation apparatus and thus constitutes an entirely separate structure.

Claim 1 of main request has no limitation as to the number of both upper and lower stirring means and Claim 1 of the first subsidiary request has no limitation as to the number of lower stirring means since it is not an essential requirement of the invention to use only one lower or a plurality of upper

stirring means and there is no express recitation in the description of such a requirement.

No particular argument has been put forward with regard to Claim 1 of the second subsidiary request.

Reasons for the Decision

1. The appeal is admissible.

2. *Extent of examination*

Since the only ground given for refusal was infringement of Article 123(2) EPC, the question to be decided in this appeal procedure is whether or not the present claims comply with the provisions of said article, that is whether said claims extend or do not extend beyond the content of the application as originally filed.

3. *Article 123(2) requirements of the claims*

3.1 Claim 1 of the second subsidiary request

Claim 1 is now restricted to a circulation tank according to the embodiment of Figures 9 and 10 whereas all originally filed claims refer to the - whole - apparatus for wet flue gas desulphurisation comprising a circulation tank (Claims 1 to 18) or a corresponding reservoir (Claim 19).

The decisions T 0331/87, T 0194/84 and T 0066/85 cited by the Appellant deal with amendments where only one feature of a contested claim is omitted or generalised. In view of the considerable differences of the original and amended claims, application of the particular

principles of these decisions, above all of the novelty tests and thus comparison of the original claims with the amended claims, to the present case seems to be inappropriate.

Firstly, the question has to be answered whether said tank is disclosed in the original application as being independent of specific features of the whole apparatus for desulphurisation. Secondly, the question remains as to whether all features of Claim 1 can be identified in the original disclosure.

As to the first question, reference is made particularly to page 10, lines 7 to 10 where it is stated that, when the air feeding "means" (of the embodiment of the circulation tank according to Figures 9 and 10) "is employed, slurry agitation and the breaking up and dispersal of fed air are achieved at the same time to make it possible to effect oxidation of calcium sulfite uniformly and with high efficiency". In the Board's view, the skilled person unambiguously comprehends from this sentence that a technical problem resides in the oxidation of said sulphite in the slurry contained in the tank and that this problem is solved by utilising the circulation tank of Figures 9 and 10. It is obvious to him that it is the structure of said tank *per se* with which the oxidation of a slurry by an oxygen containing gas can be improved and that such an effect is not necessarily dependent on a particular composition of the slurry, let alone a particular structure of the remaining parts of the desulphurisation apparatus. Moreover, there is nothing in the disclosure of the application as originally filed which makes clear that said tank cannot work in the absence of a particular structure of said remaining parts of said apparatus.

As to the second question, reference is made to the description of said tank on page 9, line 31 to page 10, line 22 and to Figures 9 and 10 where all details of the stirring and air-feeding means are disclosed. The features at the beginning of Claim 1 of the three requests characterising the suitability of said tank for its use in said apparatus and the means to feed liquid to and withdrawing slurry from said tank are shown e.g. in Figure 1 and the corresponding description.

Page 9, last paragraph ("In the present invention, as the air-feeding means provided in the circulating tank 36 besides the pipe 30 having a number of perforations as shown in Figure 1, those as shown in Figure 9 or Figure 10 may be also employed ... ") is not quite clear as to whether it means that only both the perforated pipe (30) and the air-feeding means as shown in Figures 9 and 10 are provided in said tank or that these two air-feeding means can be used alternatively, too. However, e.g. original Claim 3 (being dependent on Claim 1) shows that the latter alternative is provided for since in the apparatus defined by Claim 3 pipe means as shown only in Figures 9 and 10 are employed as air-feeding means. A pipe with perforations or the like is not mentioned there.

3.2 Claims 1 of the first subsidiary request and the main request

Claims 1 of the first two requests differ from Claim 1 of the second subsidiary request only in that Claim 1 of the first subsidiary request has no limitation as to the number of lower stirring means and in that Claim 1 of the main request has no limitation as to the number of lower and upper stirring means.

On the one hand, according to page 4, paragraph 8, Figure 10 shows "a cross-sectional view of the arrangement shown in Figure 9". However, none of the air feeding nozzles of Figure 9 (30E, 30F, 30G) is shown in Figure 10 and, vice versa, none of the air-feeding nozzles of Figure 10 (32A-D) is shown in Figure 9. At least one of said nozzles should, however, be drawn in, e.g., nozzle 30D in Figure 9 and nozzle 30G in Figure 10. Moreover, stirrer 32D of Figure 10 is missing in Figure 9. On the other hand the sentence bridging pages 9 and 10 indicates that Figure 9 and 10 show different possible embodiments of stirrer/air nozzle arrangements: " ... as the air-feeding means provided in the circulation tank ... those as shown in Figure 9 or 10 may also be employed ... ". It is the opinion of the Board that the skilled person would unambiguously recognise from the original disclosure that different numbers of upper stirring means and different numbers and arrangements of nozzles in the vicinity of each upper stirring means can be used and that it is up to him to find out an arrangement suitable for the chosen application.

The number of upper stirring means can be also restricted to only one: Though in Figures 9 and 10 two and four stirrers, respectively, are shown and in the description of said Figures on page 9, last paragraph and page 10, paragraphs 1 and 2 four stirrers are mentioned, according to Claims 3, 10 and 14, however, at least one stirrer with at least one air-feeding pipe is provided in said tank. It should be noted in this connection that stirrers with air-feeding pipes are provided for only in the embodiment of the circulation tank shown in Figures 9 and 10. Moreover, there is no express recitation in the description of the requirement of a plurality of upper stirring means.

Though Figure 10 shows only one lower stirring means (32E) and on page 10, lines 10 to 12, only one lower stirrer is mentioned, there is, however, no express statement in the specification that in said tank only one lower stirring means is present. On page 10, lines 10 to 12 it is stated that the lower stirrer provided below an air-feeding nozzle (30G) of an upper stirrer (32A) prevents the latter from causing an air cavitation. It is clear that when other upper stirrers have a similar nozzle arrangement as said upper stirrer (32A) they could also have a corresponding lower stirrer to prevent also those upper stirrers from causing an air cavitation. Therefore, a restriction of the number of lower stirring means to only one is not justified.

3.3 Dependent claims

The locations of the stirring means of Claims 2 of all requests and the number of upper stirring means of Claim 2 of the main request are shown in Figures 9 and 10.

The features of dependent Claims 3 and 4 (all requests) are disclosed on page 10, lines 17 to 22 of the originally filed description.

3.4 Thus, it is the opinion of the Board that all claims of the three requests meet the requirements of Article 123(2) of the EPC.

4. Thus, the only ground given for refusal (infringement of Article 123(2) EPC) has been overcome by filing new claims.

However, the substantive examination with respect to all the other requirements of the EPC still has to be carried out in respect of the substantially amended

claims now on file. Furthermore, due to the significant differences between the wording of the original claims and that of the present amended claims, the Board is unsure whether the search already made (but for example apparently not in International Patent Classification B01F) is still valid for the new claims. Therefore and to avoid loss of an instance with respect to the matters not (fully) dealt with by the first instance, the Board makes use of its power under Article 111(1) EPC to remit the case to the first instance for further prosecution comprising consideration of whether an additional search has to be made and whether the subject-matters of the claims are novel and involve an inventive step.

5. *Reimbursement of the appeal fee*

In the Grounds of appeal, the Appellant requested reimbursement of the appeal fee, but did not give any grounds for his request.

Apart from the appeal being allowable, a second requirement for reimbursement is that it is equitable by reason of a **substantial procedural violation** (Rule 67 of the EPC). This latter requirement - e.g. a violation of the provisions of Article 113(1) or (2) or of Article 116(1), first sentence, EPC - is, however, not met.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the Examining Division with the order to continue the examination on the basis of the claims of the main request, the first subsidiary request and the second subsidiary request filed with the letter dated 6 August 1993.
3. The request for reimbursement of the appeal fee is refused.

The Registrar:

The Chairman:

P. Martorana

E. Turrini