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Bezeichnung der Erfindung: Mobile fluid purification system
Title of invention:
Titre de l'invention :

Klassifikation / Classification / Classement : B01D 15/04, 29/08; C02F 1/28; C02F 1/42

ENTSCHEIDUNG / DECISION

vom / of / du 3 May 1988

Anmelder / Applicant / Demandeur : ECOLOCHEM, INC.

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56 EPC

Kennwort / Keyword / Mot clé : "Inventive step (no)"

Leitsatz / Headnote / Sommaire

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Case Number : T 409/87 - 3.4.1

D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 3 May 1988

Appellant : Ecolochem Inc.
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Representative : Huber, Arnulf
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Decision under appeal : Decision of Examining Division 031 of the European Patent Office dated 17 September 1986 refusing European patent application No. 82 901 895.1 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : K. Lederer
Members : E. Turrini
C. Payraudeau

Summary of Facts and Submissions

I. European patent application No. 82 901 895.1 (International publication number WO 82/04 197) was refused by decision of the Examining Division.

II. The reason for the decision was that the subject-matter of independent Claim 1 of the effective set of claims lacked an inventive step within the meaning of Article 56 EPC.

In particular, document US-A-4 049 548 (document A) disclosed a mobile liquid purification system as defined in the preamble of Claim 1. In order to improve the flexibility of this known system whilst at the same time avoiding the need for dismantling the containers to permit regeneration of the exhausted ion exchange resin, it would have been obvious to allow for different modes of connection of the containers, and to provide each container with an appropriate treatment material outlet as disclosed in document DE-A-1 642 382 (document B).

III. The Appellant lodged an appeal against the decision requesting the cancellation of the decision in its entirety on the ground that the Appellant had requested an interview which had been denied by the Examining Division without giving reasons therefor.

The Appellant filed supplemental grounds on the merit of the case within the time limit of Article 108 EPC.

IV. Oral proceedings were held before the Board, at the end of which the Appellant requested the decision to be set aside and a patent to be granted on the basis of either Claim 1 as filed on 16 January 1987 and Claims 2 to 8 as filed on

20 May 1983 (main request) or Claim 1 as filed on 16 January 1987 after deletion of the words "exchanged or" in the last line thereof (auxiliary request).

Claim 1 of the set of claims in accordance with the main request, which is equivalent in substance to the set of claims on which the appealed decision was based, reads as follows:

"1. A mobile liquid purification system comprising:

(1) a vehicle (12);
(2) A set of three or more liquid purification treatment tanks (1-6) mounted in said vehicle (12), each of said treatment tanks (1-6) having a purification material inlet (65) and containing a liquid purification treatment material, each of said treatment tanks further having a liquid inlet (28A-28F) and a liquid outlet (30A-30F);
(3) a system inlet means (14) adapted to be connected to a source of raw liquid to be purified;
(4) a system outlet means (48) for delivering purified liquid;
(5) liquid conduit and valve means for conveying said raw liquid from said system inlet means (14) to said treatment tanks (1-6) and between said treatment tanks (1-6) and from said treatment tanks (1-6) to said system outlet means (48);
(6) measuring means (54) for monitoring the quality of the purified liquid output; wherein
said conduit and valve means are selectively connected to said treatment tanks (1-6) whereby said treatment tanks (1-6) operate: (a) in series, (b) in parallel, or (c) in series/parallel mode; and wherein

(7) each of said treatment tanks (1-6) further includes a purification treatment material outlet (64) whereby the purification treatment material in each of said treatment tanks (1-6) is capable of being exchanged or regenerated in situ."

Claims 2 to 8 are appended to independent Claim 1.

V. In support of the allowability of his requests the Appellant argues essentially as follows:

Since Appellant's prior mobile demineralizer as disclosed in document A had a fixed design, it could not afford in every of its applications the most efficient water purification process, which depends essentially on the quality and quantity of the water to be treated. In addition, when the material in the treatment tanks was exhausted, the corresponding tanks had to be removed from the mobile demineralizer and returned to a remote regeneration station, which further reduced the efficiency of the operation.

In contrast thereto, the claimed invention permits optimal adaptation of a standard vehicle and tank construction to the specific requirements dictated by an envisaged application in providing for selective connection of the tanks and easy loading of the most appropriate treatment material in the different tanks and its efficiency in use is further improved in that it allows direct regeneration of the exhausted material within the tanks.

Document B could not have suggested the distinguishing features of Claim 1, namely the selective connection of the tanks in such a way that they may be operated in series, in parallel or in series/parallel mode and the provision of an outlet for the purification treatment material. In

particular, document B stresses the drawbacks of regenerating the exhausted treatment material in situ, and recommends instead to have it regenerated at a central location, where it is brought either together with the whole tank or with a separate portion thereof, or alone after having been removed from the tank. Document B therefore teaches away from providing means for allowing direct regeneration of the treatment material in the tanks. In addition, document B is specifically directed to stationary regeneration systems for the treatment of noxious waste water from small or medium-size plants performing electro-plating, pickling or hardening processes, not to universally applicable mobile purification systems.

The non-obviousness of the invention is evidenced also by the Appellant's pioneer contribution in the development of a unique water treatment system and his leadership in the USA in the field of mobile water treatment services.

A further evidence of the non-obviousness of the invention is to be seen in that the Appellant has been granted patents for it in the USA and in Canada, on which he successfully relied upon to convince a competitor to stop using a similar system.

Reasons for the Decision

1. The appeal is admissible.

2. Although the Appellant has not maintained at the oral hearing his former request for cancellation of the decision under appeal on the ground that his procedural right had been violated by the Examining Division which had given the decision without having held the requested interview and

had not given in the decision any reason for justifying his denial of an interview, the Board has examined the question on its own motion (Article 114 EPC).

2.1 Article 116 EPC makes it clear that whether or not the EPO considers it to be expedient, a party is entitled to oral proceedings upon request (see Decision T 299/86 "Oral proceedings/SECHER, OJ EPO 1988, 88).

However, a request for an interview is clearly not, by itself, a request for oral proceedings and there is no obligation upon the Examining Division to grant such request for an interview when as set out in the "Guidelines for Examination in the European Patent Office" (Part C-VI, 6.1) the Examiner believes that no useful purpose would be served by such a discussion (see Decision T 19/87 dated 16 April 1987 "Oral proceedings/FUJITSU" summary published in OJ EPO 1988, 143).

2.2 As regards the criticized absence of reasons in the decision under appeal for justifying the denial of an interview, the Board observes that although the decision under appeal does not indicate specifically why the requested interview had not been granted, its point 12 by stating that "it is not clear to the Examining Division how a patentable claim could be formulated either from dependent Claims 2-8 or from the description" makes it clear that the Examining Division had considered that such an interview would not have served any useful purpose. Under such circumstances, the Examiner, according to the Guidelines Part C-VI, 6.1, need not grant the requested interview.

An interview, in contrast to oral proceedings, not being a procedural step provided by the EPC, the refusal to grant a

request for an interview is not a decision open to appeal and, therefore, does not fall under the provision of Rule 68(2), first half sentence.

3. Main request

3.1.1 Document A discloses a mobile liquid purification system comprising:

(1) a vehicle (10);
(2) a set of three or more liquid purification treatment tanks (14) mounted in said vehicle (10), each of said treatment tanks (14) containing a liquid purification treatment material, each of said treatment tanks further having a liquid inlet and a liquid outlet;
(3) a system inlet means (24) adapted to be connected to a source of raw liquid to be purified;
(4) a system outlet means (48) for delivering purified liquid;
(5) liquid conduit (26, 28, 34, 38 a,b,c, 42) and valve means (56) for conveying said raw liquid from said system inlet means (24) to said treatment tanks (14) and between said treatment tanks (14) and from said treatment tanks (14) to said system outlet means (48); and
(6) measuring means (50) for monitoring the quality of the purified liquid output (Figures 1 to 3).

In this known device, the conduit and valve means are connected to the treatment tanks in such a way that a first bank (16) of 20 tanks connected in parallel is mounted in series with a second bank (20) of 14 tanks also connected in parallel (Figures 1 and 2; Claim 1; column 2, lines 33 to 41); no other way of operating the tanks in addition to this series/parallel mode is provided for. The document further teaches that the exhausted treatment tanks have to

be replaced and returned to a plant for regeneration (column 4, lines 43 to 48), but it lacks any indication as to how the purification material can be introduced in or extracted from the tanks.

Thus, the subject-matter of Claim 1 is distinguished from the device known from document A in that the conduit and valve means are selectively connected to the treatment tanks whereby the latter also operate in series or in parallel mode, and in that each of the treatment tanks has a purification material inlet and a purification material outlet, whereby the purification material in each of the treatment tanks is capable of being exchanged or regenerated in situ.

3.1.2 Document B discloses a liquid purification system comprising a number of treatment tanks, each containing a liquid purification treatment material and having a liquid inlet and a liquid outlet. The tanks are provided with quick detachable closures (S) allowing selective connection of the tanks in series or parallel to the respective conduit means, and purification treatment material inlets (E') and outlets (E) through which the treatment material in each of the treatment tanks is capable of being exchanged or flushed out with pressurized air or water (see page 2, lines 6 to 16 in connection with Figure 1).

In contrast to the subject-matter of Claim 1, this known liquid purification system is not specified to be mobile and does not therefore comprise a vehicle. The number of treatment tanks in the system is not specified to be three or more, and the document neither discloses measuring means for monitoring the quality of the purified liquid output, nor valve means.

3.1.3 The remaining cited documents are less relevant to the subject-matter of Claim 1.

3.1.4 For these reasons, the subject-matter of Claim 1 is considered to be novel in the meaning of Article 54 EPC.

3.2 Inventive Step

3.2.1 Starting from the nearest prior art as disclosed in document A, the technical problem to which the invention defined in Claim 1 affords a solution is to improve the flexibility of the known mobile purification system (i.e. to provide for better adaptation of the treatment process performed by the system to each contemplated application) while simultaneously avoiding the need of dismantling the tanks when the treatment material contained therein is exhausted.

3.2.2 No contribution to a positive assessment of an inventive step being involved in the subject-matter of Claim 1 can be seen in the recognition of the above defined technical problem.

The drawbacks of the known device with respect to its insufficient adaptability to the various requirements dictated by different applications and to the necessity of dismantling the tanks and having them regenerated at a remote regeneration plant are readily recognizable in operation. In addition, the interest of having a flexible connection between the treatment tanks and of being able to exchange the treatment material within treatment tanks without dismantling same has already been stressed in the prior art (document B, page 2, lines 6 to 16).

3.2.3 In order to solve this composite technical problem, document B recommends to provide the treatment tanks with means allowing interchangeable and easily detachable connections between the tanks operating either in parallel or in series and the respective conduits (page 2, lines 6 to 12), and to design the tanks in such a way as to allow easy exchange of the treatment material through corresponding openings (page 2, lines 12 to 16), which comprise a treatment material inlet and a treatment material outlet (Figure 1).

When applying this teaching to the system known from document A in order to solve the same technical problem, the skilled person would thus modify the known fixed connection of the conduit and valve means to the treatment tanks, which only allow a series/parallel operation of the tanks, in such a way as to allow selective connection of the tanks and operation thereof also in series or in parallel mode, and further provide each tank with a purification treatment material outlet whereby the purification treatment material could be exchanged. Such modifications, however, directly lead to a system as defined in present Claim 1.

3.2.4 Appellant's arguments in support of the patentability of the subject-matter of Claim 1 are not convincing.

It is not denied that document B is directed to liquid purification systems which are so designed as to avoid the need for in situ regeneration of the exhausted treatment

material, which is too expensive for most small and medium size waste water producers, and to permit instead regeneration at a central location. Such remote regeneration capability is however encompassed also in the scope of present Claim 1, since the statement therein that the treatment tanks of the system include purification treatment inlets and outlets whereby the latter material is capable of being exchanged or regenerated in situ does not exclude that the exhausted treatment material be extracted from the tanks and sent to a different location for regeneration. In addition, from the reasons given in document B for recommending remote, centralized treatment material regeneration, namely that the cost and complexity of individual regeneration facilities are excessive for smaller industrial plants, the skilled person would have no reason to conclude that the recommendation should apply to all kinds of liquid purification treatment systems in general, and thus be diverted from contemplating in situ regeneration in case for instance, of a larger purification facility, or in case a user already has some on site regeneration capability at its disposal. No general technical prejudice against in situ regeneration can therefore be derived from document B.

The teaching of document B cannot be disregarded either on the ground that it relates to a specific type of water treatment process only, namely the treatment of waste waters from small or medium size industrial plants, since, in the absence of any limitation with regard to the water processing capacity and treatment material used, Claim 1 also covers such specific applications.

It is further acknowledged that document B does not disclose a mobile purification system, which may be used at successive locations for different applications. This feature, however, is known already from the disclosure of

document A. In addition, the problem of improving the flexibility of the system and avoiding the need of dismantling the tanks for regenerating the exhausted treatment material arises for stationary water treatment facilities as well, so that the skilled person had no reasonable ground not to contemplate combining the teachings of documents A and B. In particular, a well-known approach in any industry whatsoever for reducing the cost of a device or equipment is to increase its flexibility in such a way that, even if comprising a great number of standard elements, it may be readily adapted to the specific requirements of every individual customer. Also, as long as the mobile purification system operates at a given location, the problems involved in the regeneration of the exhausted treatment material are essentially the same as those arising in connection with a stationary system.

The Appellant's success in his operations in the USA and Canada in the field of mobile water treatment systems cannot by itself convince the Board of an inventive step being involved in the subject-matter of Claim 1. For the Appellant failed to establish that his success results from the technical elements of the claimed features, rather than from other influences, such as his marketing techniques, the organization of his technical support services, or the benefit from a former monopoly, based for example on his prior invention described in patent document A, nor has he even sought to do so.

Also, the fact that the present invention has matured already in patents granted in the US and Canada cannot be construed as necessarily implying that it involves an inventive step within the meaning of Article 56 EPC. Not only are the examining proceedings before the US, Canadian and European Patent Offices independent from each other,

and often based on different prior art documents, but the patent laws are not harmonized either. Decisions taken under the European Patent Convention therefore cannot take into consideration decisions taken under US or Canadian laws, nor any implicit or explicit recognition by a third party of the validity of a US patent, as further submitted by the Appellant.

For these reasons, the subject-matter of Claim 1 is considered lacking an inventive step within the meaning of Article 56 EPC and Claim 1, accordingly, is not allowable (Article 52 EPC).

3.3 The remaining Claims 2 to 8 are referred back to non-acceptable Claim 1 and are therefore not allowable either.

3.4 For these reasons, Appellant's main request cannot be allowed.

4. Auxiliary request.

4.1 Claim 1 in accordance with Appellant's auxiliary request distinguishes over Claim 1 in accordance with his main request only by the deletion at the end of the claim of the first alternative according to which the purification treatment material is capable of being exchanged. As a consequence of this deletion, the purification treatment material in the system defined in Claim 1 in accordance with the auxiliary request is specified to be capable of being regenerated in situ.

4.2 The above amendment of Claim 1 fails to introduce any real limitation in it's scope, since it does not introduce any additional structural feature enabling specifically such in situ regeneration.

4.3 In addition, in situ regeneration of the exhausted treatment material within the treatment tanks is known per se, as disclosed for example in the document DE-A-1 932 205 (page 6, lines 8 to 12) and admitted by the Appellant during the oral proceedings. Therefore adapting the treatment material inlets and outlets as known from document B in such a way as to permit such in situ regeneration cannot be considered as involving an inventive step in the sense of Article 56 EPC.

4.4 For these reasons, Claim 1 in accordance with Appellant's auxiliary request is not allowable under Article 52 EPC.

4.5 Appellant's auxiliary request cannot be allowed, accordingly.

Order

For these reasons, it is decided that

the appeal is dismissed

The Registrar The Chairman

F. Klein K. Lederer