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File Number: T 24/88 - 3.2.4

Application No.: 81 102 260.7

Publication No.: 0 036 672

Title of invention: Process for preparing lithographic printing plate bases

Classification: B41N 3/02, B41C 1/10, C25F 3/04  
G03F 7/02

D E C I S I O N  
of 30 November 1990

Proprietor of the patent: Mitsubishi Chemical Industries Limited

Opponent: Hoechst Aktiengesellschaft

Headword:

EPC Article 56

Keyword: "Inventive step (yes)"  
"superfluous amendment of the granted patent during opposition proceedings"

Headnote



Case Number : T 24/88 - 3.2.4

D E C I S I O N  
of the Technical Board of Appeal 3.2.4  
of 30 November 1990

Appellant : Hoechst Aktiengesellschaft  
(Opponent) Werk Kalle  
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Representative :

Respondent : Mitsubishi Chemical Industries Limited  
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Decision under appeal : Interlocutory decision of the Opposition Division  
of the European Patent Office dispatched on  
27 November 1987 concerning maintenance of  
European patent No. 0 036 672 in amended form.

Composition of the Board :

Chairman : C. Andries  
Members : H.P. Ostertag  
W. Moser

## Summary of Facts and Submissions

- I. European patent No. 0 036 672 was granted on 30.11.83 with nine claims in response to European patent application No. 81 102 260.7. Claim 1, which is the sole independent claim, reads as follows:

"A process for preparing lithographic printing plate bases, which comprises electrolytically etching a sheet made of aluminum or an aluminum alloy in an aqueous electrolytic solution containing hydrochloric acid and citric or malic acid at a bath temperature of 10 to 40°C."

- II. A notice of opposition was filed by the Appellant (Opponent) requesting revocation of the patent on the grounds that the subject-matter thereof lacked an inventive step.
- III. By an interlocutory decision pursuant to Article 106(3) EPC, dispatched on 27.11.87, the Opposition Division maintained the patent in an amended form on the basis of Claims 1 to 7 filed with letter dated 12.8.86.
- IV. On 22.12.87 the Appellant lodged an appeal against this decision and paid the appropriate fee. The statement of grounds was received on 11.3.88.
- V. During oral proceedings held on 30.11.90 the Board raised objections as to the formal admissibility of the amendments to the patent as carried out during the opposition proceedings.

VI. The Appellant argued essentially as follows:

Documents DE-A-2 708 669 (D1), DE-A-2 816 307 (D2) as well as US-A-3 963 594 (D3) all disclose processes for preparing lithographic printing plate bases by using an aqueous electrolytic solution containing a carboxylic acid as a co-acid to hydrochloric acid in order to improve quality of the graining obtained. There is no prejudice against using other co-acids than the specific ones mentioned in the respective documents. Therefore, a person skilled in the art would obviously recognise that these co-acids may be replaced by acids of similar chemical structure and effect like e.g. citric or malic acid. Comparative tests carried out by the Appellant had shown that the claimed process - using malic acid - does not result in improved fineness and regularity of the graining in comparison with the process disclosed by document D1. Therefore, the claimed process does not result in an unexpected improvement.

In his statement of grounds, the Appellant also referred to document GB-A-709 392 (D4) stating that the teaching thereof, when combined with the teaching of any of documents D1 to D3, would lead the skilled person to the process as claimed.

VII. Contrary to this, the Respondent (proprietor of the patent in suit) argued that the contested patent is concerned with the problem of obtaining printing plate bases of high water retention and improved resistance to printing, whereas documents D1 to D3 relate to different problems and disclose specific solutions thereto, i.e. the use of specific mixtures of acids. No hint is given to replace these specific acids by the claimed ones in order to solve the problem of the contested patent.

Document D4 is not relevant since it is not concerned with preparing lithographic printing plate bases.

VIII. 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 as granted.

#### Reasons for the Decision

1. The appeal is admissible.

2. Amendments

2.1 During opposition proceedings, the granted patent was amended as follows:

- granted Claim 1 has been recast in two-part form, however, without altering its scope;
- granted Claims 2 and 3 have been deleted, presumably because they constitute mere repetitions of features already recited in Claim 1;
- granted Claim 7 has been modified by introducing a reference to Claim 1 and by deleting all the features present in Claim 1 rather than to repeat all these features; thereby it became clear that Claim 7 had to be considered as a dependent claim (Rule 29(4) EPC);
- the introductory part of the description has been amended by including an acknowledgement of documents D1 to D3 and a statement of invention corresponding to the new wording of Claim 1.

- 2.2 Since none of these amendments is necessitated by proper grounds of opposition pursuant to Article 100 EPC, the Board held that they should not be admitted (Article 102(2) EPC), following established jurisdiction of Boards of Appeal that in opposition proceedings amendments should not be allowed which merely serve the purpose of tidying up and improving the disclosure (Decisions T 127/85, OJ EPO, 1989, 271 and T 406/86, OJ EPO, 1989, 302).
- 2.3 At the end of the oral proceedings, however, the Respondent requested the maintenance of the patent as granted (cf. above point VIII).
- 2.4 Claims 1 to 9 as granted are identical to Claims 1 to 9 as filed and thus meet the requirements of Article 123 EPC.

### 3. Novelty

The Board is satisfied that none of the documents referred to by the Appellant destroys novelty of the process defined in Claim 1. Hence, the subject-matter of Claim 1 is to be considered novel within the meaning of Article 54 EPC.

### 4. Prior art

- 4.1 The prior art referred to in the specification of the patent relates to methods for preparing lithographic printing plate bases by electrolytic etching whereby hydrochloric acid alone is used as electrolyte. It is stated that this method makes it difficult to produce deep grains which are uniform in microscopic topography so that the printing plate bases obtained "are not always satisfactory in adhesion properties of the coating layer

in the image area and in resistance to printing, although they are superior in water retention properties and in removability of the coating layer in the non-image area during developing process." (page 2, lines 32-36).

- 4.2 Documents D1 to D3 equally relate to methods for preparing lithographic printing plate bases by electrolytically etching, whereby a mixture of hydrochloric acid and a further acid is used as electrolyte. The purpose of adding the additional acid is to improve regularity and/or fineness of the graining. Since this purpose is different from the one envisaged by the present invention, the relevant teaching of any of documents D1 to D3 is not closer than the prior art acknowledged in the specification of the patent.

5. Problem and solution

In view of this prior art, the problem underlying the invention as summarised in the specification of the contested patent (page 2, lines 37 and 38), namely to provide a lithographic printing base which is superior in water retention and printing resistance, is to be regarded as the objective problem. However, when reading this problem in the context with the preceding passage of the description (as referred to above), it becomes apparent that it is to be understood in the sense that an improved resistance to printing should be obtained while still maintaining the hitherto possible superiority in water retention.

According to the teaching of independent Claim 1 this problem is solved by using an electrolyte containing hydrochloric acid and citric or malic acid at a bath temperature of 10 to 40°C.

As stated in the description (page 3, lines 18/19) "citric acid and malic acid have the effect of controlling pit growth and provide a base having deep grains with relatively small pit diameters" whereas hydrochloric acid effects uniformity of the grains (page 3, lines 12 to 17). Thus, a specific surface topography is obtained.

The Board is convinced that the envisaged problem in fact is solved by the process as defined in Claim 1, particularly in view of the comparative examples shown in the description of the patent in suit, which show a substantial increase in life time of the plate bases, although the comparison has been made with respect to plate bases obtained by using an electrolyte comprising hydrochloric acid as the only acid.

Comparative tests submitted by the Appellant during the appeal proceedings and comparing the claimed method with the method according to document D1 are not convincing since they allow only a comparison with respect to fineness and regularity of the graining but not with respect to depth of the grains. Thus, the Appellant's allegation that the claimed process does not result in an improvement over the prior art is not substantiated by these tests.

## 6. Inventive step

- 6.1 Document D1 is concerned with preparing printing plate bases of very fine and regular graining (page 4, lines 10 to 15) and proposes to use an electrolyte containing hydrochloric acid and tartaric acid at a bath temperature higher than 45°C. The disclosure of document D1 is very specific with respect to the co-acid to be used: It is stated that it has surprisingly been found that this specific mixture of tartaric acid and hydrochloric acid



effects the envisaged improvement with respect to fineness and regularity provided that specific conditions with respect to power density and bath temperature are observed (page 4, lines 15 to 21). No hint is given that tartaric acid may be replaced by any other co-acid nor the temperature range be changed in order to obtain the same effect, let alone to obtain the specific effect envisaged by the invention.

The Board cannot, therefore, accept the Appellant's contention that the skilled person would obviously replace tartaric acid by malic acid just because both acids are somewhat similar in their chemical structure. Such considerations, by the way, might likewise result in proposing an extensive number of other acids.

- 6.2 Document D2 is concerned with improving process control especially when preparing bases of fine and regular graining (roughness lower than  $0.8 \mu$ ). It is proposed to use a monocarboxylic acid containing 1 to 4 carbon atoms as a co-acid to hydrochloric acid. Suitable examples are formic acid, propionic acid, butyric acid and acetic acid, the latter being preferred because it allows to control the process by simply controlling the voltage applied rather than to control the concentration of the electrolytic solution (page 6, last paragraph).

Again, the disclosure is very specific: specific mixtures are proposed for solving a specific problem which, moreover, is different from the problem envisaged by the invention of the contested patent.

The Board can likewise not accept the Appellant's reasoning that a person skilled in the art would obviously recognise that monocarboxylic acids with 1-4 carbon atoms include glycolic acid (which is not mentioned in

document D2) as a suitable candidate which in turn may be replaced by malic acid due to its similarity in chemical structure, malic acid, however, being a dicarboxylic acid, which is different from the required monocarboxylic acid. The Board considers that a teaching specifically requiring a monocarboxylic acid cannot be interpreted in such a manner that it should also give a hint towards either a tricarboxylic acid (citric acid) or a dicarboxylic acid (malic acid).

- 6.3 Also document D3 relates to a very specific disclosure: It is concerned with obtaining uniform graining on bases of impure aluminium alloys (paragraph bridging columns 1 and 2) and teaches to use an electrolyte comprising hydrochloric acid and gluconic acid, whereby the latter avoids preferential etching of areas containing impurities as is the case when hydrochloric acid alone is used (column 1, lines 34 to 48).

Again, no teaching or suggestion is given for using any other mixture than the specific one disclosed nor to the specific problem of the contested patent.

The Board is not convinced, therefore, by the Appellant's contention that a skilled person would obviously consider that gluconic acid would provide similar effects as tartaric acid which in turn may be replaced by malic acid.

- 6.4 To summarise, documents D1 to D3 relate to specific problems encountered in the art of preparing lithographic printing plate bases and offer specific solutions to such problems. These documents do not provide any teaching or suggestion as to the further problem envisaged by the contested patent nor to the process as defined in Claim 1

thereof. Hence, this process is not rendered obvious by the teaching of any of these documents.

- 6.5 During oral proceedings the Appellant no longer relied on document D4.

Document D4 relates to methods for treating a metal surface consisting of aluminium or aluminium alloy to remove the surface film of oxide so as to bring the surface into a condition in which other metals may be plated on it (page 1, lines 9 to 15). The surface is chemically (not electrolytically) treated with an aqueous etchant of high total acidity containing both free chlorine-ions and unionized but ionizable chlorine and a substance providing hydroxy groups (page 1, lines 69 to 77). The chlorine ions are active in penetrating the surface film whereas the hydroxy groups promote its dissolution and prolong the service life of the etchant (page 2, lines 8 to 11). Suitable substances for providing hydroxy groups are - inter alia - hydroxy-organic acids such as citric, tartaric and lactic acids (page 2, lines 42, 43).

Thus, document D4 is not concerned with preparing lithographic printing plate bases nor with graining of aluminium surfaces in general. The Appellant might be correct in saying that whether or not a graining effect occurs in the process disclosed in document D4 will depend merely on the process parameters selected and that chemical and electrolytical etching are very similar in effect. However, document D4 is completely silent about what influence (if any) citric, tartaric or any other hydroxy-organic acid would have on the surface properties if the process of document D4 were used for graining purposes. Therefore, the skilled person would not regard citric acid and tartaric acid as being equivalents for the

purposes of a graining process as disclosed in document D1 and thus be likely to exchange them nor get any suggestion to use citric acid as a replacement for the co-acids mentioned in documents D2 and D3.

- 6.6 The Board also considered the other available documents and found that the teaching thereof is more remote from the subject-matter of Claim 1 than the teachings of the documents cited above. Therefore, these other documents are not prejudicial to Claim 1, either when taken alone or in combination with the documents cited above.
- 6.7 The subject-matter of Claim 1, therefore, involves an inventive step within the meaning of Article 56 EPC, so that this claim must be held allowable.
- 6.8 The dependent Claims 2 to 9 define further embodiments of the invention, they are not open to objections.
7. Based upon the patentable Claim 1 and dependent Claims 2 to 9, the patent can be maintained unamended.

#### Order

For these reasons, it is decided that:

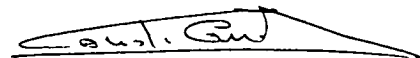
- The decision under appeal is set aside.
- The patent is maintained as granted.

The Registrar:



N. Maslin

The Chairman:



C. Andries