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D E C I S I O N
of 28 November 2005

Case Number: T 0873/04 - 3.2.05

Application Number: 94101076.1

Publication Number: 0614762

IPC: B41J 2/255

Language of the proceedings: EN

Title of invention:

Ink tank

Patentee:

Seiko Epson Corporation

Opponents:

Pelikan Hardcopy (International) AG
Société Armor

Headword:

-

Relevant legal provisions:

EPC Art. 100(c), 76, 123(3)

Keyword:

"Extension beyond the content of an earlier application, main request, first to third and sixth to ninth auxiliary requests (yes) "

"Extension beyond the protection conferred, fourth and fifth auxiliary requests (yes) "

Decisions cited:

T 0555/00

Catchword:

-



Case Number: T 0873/04 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 28 November 2005

Appellant I: Pelikan Hardcopy (International) AG
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Respondent: SEIKO EPSON COPORATION
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 24 May 2004
rejecting the oppositions filed against
European patent No. 0614762 pursuant to
Article 102(2) EPC.

Composition of the Board:

Chairman: W. Moser
Members: W. Zellhuber
P. Michel

Summary of Facts and Submissions

- I. Appellants I and II (opponents 01 and 02) lodged an appeal against the decision of the Opposition Division rejecting the oppositions against the European patent No. 0 614 762.
- II. The Opposition Division held that the grounds for opposition submitted by appellants I and II under Article 100(a) EPC (lack of novelty, Article 54 EPC, and lack of inventive step, Article 56 EPC) and Article 100(c) EPC did not prejudice the maintenance of the patent in suit as granted.
- III. Oral proceedings were held before the Board of Appeal on 28 November 2005.
- IV. Appellants I and II requested that the decision under appeal be set aside and that the European patent No. 0 614 762 be revoked.

The respondent (patent proprietor) requested as a main request that the appeals be dismissed. As an auxiliary measure, the respondent requested that the decision under appeal be set aside and that the patent be maintained on the basis of the following documents:

- (i) claims 1 to 4 filed respectively as first, second, third, fourth, fifth, sixth and seventh auxiliary requests on 28 October 2005; or

(ii) claims 1 to 4 presented respectively as eighth and ninth auxiliary requests during oral proceedings.

V. Claim 1 of the patent in suit as granted (main request) reads as follows:

"An ink tank (2) for supplying a proper amount of ink needed to a dot matrix printer head without either an excess or shortage of ink, said ink tank (2) being detachable and comprising a top wall (50), a rectangular bottom wall (40a) and walls extending between them defining the interior of the tank, an ink supply port (41) for delivering ink, and an ink absorbing means (60"; 61, 62) in the tank interior and from which ink may pass to the ink supply port (41), which ink absorbing means has pores being progressively reduced in size in a direction towards the ink supply port (41), wherein
the ink supply port (41) is located in the bottom wall (40a) close to one narrow side of the bottom wall (40a),
and the ink tank comprises an air hole (42) which is provided in a wall of the tank and communicates the exterior of the tank with air in a space (50b) formed between the ink absorbing means (60"; 61, 62) and the top wall (50) of the ink tank (2) such that the ink absorbing means (60", 61, 62) is at a distance from an inner surface of the top wall (50) of the ink tank."

Claim 1 of the first, and third to ninth auxiliary requests, differ from claim 1 of the main request in

that, in the last feature of claim 1, the passage starting with "... in a space" reads as follows

(a) in the first and third auxiliary requests:

"... in a space (50b) formed between the ink absorbing means (60"; 61, 62) and an inner surface of the ink tank including at least an inner surface of the top wall (50) of the ink tank (2) such that the ink absorbing means (60", 61, 62) is at a distance from at least the inner surface of the top wall (50) of the ink tank";

(b) in the fourth and fifth auxiliary requests:

"... in a space (50b) formed between the ink absorbing means (60"; 61, 62) and an inner surface of the ink tank (2) such that the ink absorbing means (60", 61, 62) is at a distance from the inner surface of the ink tank";

(c) in the sixth and seventh auxiliary requests:

"... in a space (50b) formed between the ink absorbing means (60"; 61, 62) and an inner surface of the ink tank including an inner surface of the top wall (50) of the ink tank (2) such that the ink absorbing means (60", 61, 62) is at a distance from the inner surface of the ink tank including the inner surface of the top wall (50) of the ink tank";

(d) in the eighth auxiliary request:

"... in a space (50b) formed between the ink absorbing means (60"; 61, 62) and an inner surface of the ink tank including an inner surface of the top wall (50) and side walls of the ink tank (2) such that the ink absorbing means (60", 61, 62) is at a distance from the inner surface of the ink tank including the inner surface of the top wall (50) and side walls of the ink tank"; and

(e) in the ninth auxiliary request:

"... in a space (50b) formed between the ink absorbing means (60"; 61, 62) and an inner surface of the ink tank including an inner surface of the top wall (50) and side walls of the ink tank (2) such that the ink absorbing means (60", 61, 62) is at a distance from the inner surface of the ink tank including the inner surface of the top wall (50) and side walls of the ink tank, the ink tank being provided with internal projections which engage the ink absorbing means (60", 61, 62) to form the space."

Claim 1 of the second, third, fifth, and seventh auxiliary requests further differ from claim 1 of the main request in that, after the term "the ink supply port (41) is located in the bottom wall (40a) close to", the term "a front wall of the ink tank which is at" is inserted.

VI. The application underlying the patent in suit was filed as a divisional application of European patent application No. 90 201 875.3 (publication number EP-A 0 398 452), which in turn had been filed as a divisional application of the European patent application No. 84 306 887.5 (publication number: 0 139 508). In the appeal procedure, the published version of European patent application No. 84 306 887.5 was cited as document

D9: EP-A 0 139 508.

VII. Furthermore, the following document was cited in the appeal procedure:

WW: opinion of Professor Dr.-Ing. Wolfgang Wehl, dated 27 October 2005, filed on 28 October 2005 by the respondent.

VIII. In the written procedure and during oral proceedings, appellants I and II argued essentially as follows:

Claim 1 of the main request concerned an ink tank wherein a space was formed between the ink absorbing means and the top wall. However, in document D9, there was no basis for such a specification.

Document D9 made mention of the problem that pockets or layers of air, which were enclosed in the ink absorbing means and did not communicate directly with the air hole, gave rise to an undesired ink outflow, causing a sheet of print paper to be smeared or a malfunctioning of the printer head, cf. page 6, lines 13 to 27. In order to solve that problem, document D9 suggested an

ink tank wherein, apart from the bottom wall, an air layer was provided surrounding the ink absorbing means which communicated by an air hole with the ambient air, cf. page 18, lines 1 to 7. Accordingly, document D9 disclosed that a space was formed between the ink absorbing means and **the** internal surface of the ink tank, cf. page 3, lines 24 to 27 and claim 9, and, in more detail, that the ink absorbing means were held in contact with only the raised surface of the bottom, the vertical ridges of the side wall, the partition and the ridges of the lid, cf. page 11, lines 25 to 31. From the latter, it was further directly and unambiguously derivable that the ink absorbing means of the ink tank disclosed in document D9 also was not in contact with the rear wall.

Document D9 did not disclose that a space might be formed only between the ink absorbing means and the top wall or an inner surface of the top wall. There was further no disclosure that such a measure would solve the problem. A skilled person would consider providing a space between the ink absorbing means and the lateral walls, since the lateral walls form the largest area and were thus particularly sensitive to environmental impacts. Furthermore, the ink absorbing means was a porous member, and capillary forces play a significant role. Thus, air pockets enclosed in the porous member do not forcibly migrate towards the top wall of the ink tank.

There was thus no basis in document D9 for selecting the top wall of the ink tank or an inner surface of the top wall for providing a space between the ink

absorbing means and the internal surface of the ink tank.

Furthermore, document D9 could not be divided into a first part disclosing the invention in general form (i.e. the passage on page 3, lines 24 to 27, and claim 9), and a second part illustrating preferred embodiments (i.e. the passages on page 11, lines 25 to 31, and page 18, lines 1 to 7). The first mentioned passage and claim 9 were linked to the embodiments in that they specified that ridges and internal projections, respectively, were provided for forming the desired space, which was a feature of the embodiments.

The subject-matter of claim 1 of the main request thus went beyond the disclosure of document D9.

The same applied to claim 1 of the first to ninth auxiliary requests.

According to claim 1 of each of the first, second, third, sixth and seventh auxiliary requests, the top wall or an inner surface of the top wall were selected for providing a space between the ink absorbing means and the internal surface of the ink tank.

According to claim 1 of the fourth and fifth auxiliary requests, a space was formed between the ink absorbing means and an inner surface of the ink tank. Hence, any wall or any part of an inner surface of the ink tank might be selected for providing a space between the ink absorbing means and the internal surface of the ink tank. Such a selection also was not disclosed in

document D9. Moreover, that amendment gave rise to claim 1 of the fourth and fifth auxiliary requests having been amended in such a way as to extend the protection conferred, contrary to the requirements of Article 123(3) EPC.

The belatedly filed eighth and ninth auxiliary requests should not be admitted into the proceedings.

In addition, they also were not allowable. According to claim 1 of the eight and ninth auxiliary requests, a space was formed between the ink absorbing means and an inner surface of the ink tank including an inner surface of the top wall and side walls of the ink tank. It also was not directly and unambiguously derivable from the disclosure of document D9 that a space should be formed between these parts, whilst in other areas no space might be formed between the ink absorbing means and the internal surface of the ink tank.

Consequently, none of the respondent's requests was in conformity with the EPC, in particular with the requirements of Articles 76 EPC and 123(3) EPC, respectively.

IX. In the written procedure and during oral proceedings, the respondent argued essentially as follows:

The teaching of those parts of document D9 which describe the invention in general terms (cf. passage on page 3, lines 24 to 27, and claim 9) should not be mixed up with the description of preferred embodiments of the invention (cf. passage on page 4, lines 17 and 18, and the passages on page 11, lines 25 to 31,

and page 18, lines 1 to 6). In this connection, the last mentioned passage taught providing a layer of air, whilst the passage on page 3, lines 24 to 27, and claim 9 described the invention in more general terms, namely forming a space between the ink absorbing means and an inner surface of the ink tank.

Document D9 disclosed in claim 9 that a space was formed between the ink absorbing means and the internal surface of the ink tank. The term "the internal surface of the ink tank" used in claim 9 was equivalent to the term "an inner surface of the ink tank" used in the claims according to the main and auxiliary requests. In an ink tank as disclosed in document D9, the ink flow was towards the ink supply port, which was provided at the bottom of the ink tank, whilst air flow had to be directed away from the ink supply port. Taking into consideration the generally known laws of physics (gas rises, whilst the ink sinks due to higher density and gravity), a skilled person directly and unambiguously considered providing that space between the ink absorbing means and the top wall of the ink tank. This was also confirmed by an expert, cf. document WW, page 3, line 20 to page 4, line 4.

Furthermore, an ink tank wherein the ink absorbing means was completely free on all sides was technically impossible. Actually, document D9 taught that the ink absorbing member was in contact with the bottom surface and the partition wall of the ink tank, cf. page 11, lines 25 to 31. Moreover, as could be seen from Figure 8 of document D9, the rear wall did not comprise ridges, so that the ink absorbing member was also in contact with the rear wall.

Consequently, for a person skilled in the art, an ink tank as defined in claim 1 of the main request, namely an ink tank wherein a space was formed between the ink absorbing layer and particularly the top wall was directly and unambiguously derivable from the disclosure of document D9.

The subject-matter of claim 1 of the main request thus did not extend beyond the content of the earlier application D9.

The same applied to claim 1 of each of the first to ninth auxiliary requests. In particular, claim 1 of the sixth auxiliary request was based on the content of claim 9 of document D9, and explicitly referred to a space being formed between the ink absorbing means and an inner surface of the ink tank including an inner surface of the top wall of the ink tank, which was a clear restriction. The subject-matter of claim 1 according to the eighth and ninth auxiliary requests was the embodiment which was disclosed on page 11, lines 25 to 31 of document D9.

Reasons for the Decision

1. According to Article 100(c) EPC, an opposition may be filed on the grounds that the subject-matter of the European patent extends beyond the application as filed, or, if the patent was granted on a divisional application, beyond the content of the earlier application as filed. In the present case, the patent in suit was granted on a divisional application of an

earlier application, which in turn was a divisional application of a further application. Hence, the subject-matter of claim 1 of the patent in suit must also be disclosed in that further application as filed, i.e. document D9, cf. decision T 555/00 of 11 March 2003, point 1.5 of the reasons. Otherwise, the patent in suit has to be revoked (Article 102(1) EPC).

2. Document D9 is directed to a wire dot matrix printer and discloses an ink tank to be used with such a printer, cf. page 1, lines 1 to 8, page 2, lines 23 to 26, and claim 1.

Figures 9 and 10 depict an ink tank construction previously known to the respondent. Problems arising from such an ink tank are described on page 5, line 16 to page 6, line 27 and illustrated in Figure 10. A particular problem, cf. page 6, lines 13 to 27, consists in that "... the ink tank 140 frequently has pockets or layers of air trapped therein. When the ambient temperature rises or the atmospheric pressure is lowered in such circumstances, an air layer 143 communicating directly with the air hole 142 is expanded and is discharged out of the air hole 142 as indicated by arrows A without applying any pressure to the impregnated ink, whereas a pocket 144 of completely trapped air is expanded as indicated by the arrows B and thus moves the surrounding ink. Upon arrival of such an air pocket 144 at the ink supply port 142, the resulting undesired ink outflow can cause a sheet of print paper to be smeared by an ink spot or can allow ink to find its way into the printer head mechanism, with a resulting malfunction of the latter."

The ink tank suggested in document D9 for solving these problems is described, in particular, on page 3, lines 10 to 30 and, in more detail, on page 10, line 23 to page 12, line 7.

According to the passage on page 3, lines 24 to 27, and claim 9 of document D9, the ink tank may be provided with internal projections which engage the ink absorbing means so that there is a space between the latter and the internal surface of the ink tank. These citations neither teach which parts of the ink tank may be provided with internal projections nor what is meant by "the internal surface of the ink tank".

According to the embodiments of an ink tank depicted in Figures 4 and 8 and described in the corresponding parts of the description, which, by way of example, illustrate the invention, cf. page 4, lines 17 and 18, "The space or hollow interior defined by the bottom 40a, the side wall 40c, the partition 48, and the lid 50 of the tank body [40] accommodates therein the two porous members 61, 62 as double layers which are held in contact with only the raised surface 44 of the bottom 40a, the vertical ridges 47 of the side wall 40c, the partition 48, and the ridges 51 of the lid 50", cf. page 11, lines 25 to 31.

In an ink tank as disclosed in the embodiment shown in Figure 4, a space is thus formed between, on the one hand, the ink absorbing means (here the two porous members 61 and 62), and, on the other, the side wall 40c, the lid 50 and, as can be seen from Figures 4 and 8, the front wall 40, 40'', which is at distance from the front partition 48. Moreover, since the above

mentioned passage on page 11, lines 25 to 31, contains a complete list of those parts of the inner surface of the ink tank which are in contact with the ink absorbing means, the ink absorbing means are also not in contact with the rear wall of the ink tank.

The same applies to the ink tank shown in Figure 8, since the "parts of the ink tank of Figure 8 other than a porous member 60" are the same as those in the embodiment shown in Figure 4", cf. page 19, lines 16 to 18.

The passage on page 18, lines 1 to 6, further confirms that, in the "ink tank construction described above, the ink-impregnated members 61, 62 are supported on the ridges 47, 51 in the ink tank body 40. The ink-impregnated members 61, 62 are therefore surrounded by a layer of air which communicates by way of the air hole 42 with the ambient air."

3. Consequently, document D9 does not disclose an ink tank wherein a space is formed between the ink absorbing means and the top wall or lid, whilst a space need not be formed between the ink absorbing means and other parts of the internal surface of the ink tank (side walls, front and rear walls).

In the Board's judgement, there is also no indication in document D9 that the problems mentioned above may be solved by providing a space solely between the ink absorbing means and the top wall. On the contrary, as shown above, document D9 teaches providing a layer of air, and thus forming a space, surrounding the ink absorbing means. It is self-evident that the bottom

surface of the ink tank is excluded from these considerations, since the bottom surface and, in particular, the slots 45a,b,c provided therein, form part of the ink flow path from the ink absorbing means towards the ink supply port, cf. page 12, lines 8 to 20. Furthermore, the ink absorbing means are porous members, and the ink flow is established by capillary forces, cf. page 12, lines 8 to 34 and page 16, lines 5 to 10 of document D9. It is generally known that a liquid can be held in the pores of such members against the force of gravity, thus hindering enclosed air pockets, or layers of air, from migrating towards the top of the member. It is thus not directly and unambiguously derivable that a space between the ink absorbing means and the top wall or an inner surface of the top wall may be sufficient to solve the problems.

4. In claim 1 of each of the main request and the first, second, third, sixth, and seventh auxiliary requests it is specified that there is a space formed between the ink absorbing means and the top wall or an inner surface of the top wall. As shown above, such a specification (indicating a particular location of the space) is not disclosed in document D9. Consequently, the opposition ground according to Article 100(c) EPC prejudices the maintenance of the patent in suit according to any of these requests. Therefore, the main request as well as the first, second, third, sixth, and seventh auxiliary requests are not allowable.

5. Claim 1 of the fourth and claim 1 of fifth auxiliary requests do not specify that a space is formed between the ink absorbing member and the top wall. However, since that feature was specified in claim 1 of the

patent in suit as granted, the omission of that feature from claim 1 gives rise to claim 1 of the fourth and fifth auxiliary requests having been amended in such a way as to extend the protection conferred, contrary to the requirements of Article 123(3) EPC. Consequently, these requests are not allowable either.

6. The Board exceptionally admitted the belatedly filed eighth and ninth auxiliary requests for reasons of fairness. The Board could not rule out that the arguments brought forward by the appellants during oral proceedings had an impact on the position of the respondent which he could not expect to that extent in advance, and which, in order to react to that new situation, from his point of view, required filing amended documents.
7. In claim 1 of the eighth and ninth auxiliary requests, it is specified that a space is "... formed between the ink absorbing means and an inner surface of the ink tank including an inner surface of the top wall and side walls of the ink tank".

Claim 1 of the eighth and ninth auxiliary requests refers in a part which is identical to claim 1 of the main request to "a top wall (50), a rectangular bottom wall (40a) and walls extending between them defining the interior of the tank". However, it is not defined in the claim what is meant by the term "side walls". Since, according to the description of the patent in suit, the term "side wall" denotes the wall extending between the longer edge of rectangular bottom wall and the top wall, cf. page 4, lines 22 and 23 in connection with Figure 2 of the patent in suit, the Board assumes

that the term "side walls" introduced in claim 1 of the eighth and ninth auxiliary requests has that meaning.

However, claim 1 of the eighth and ninth auxiliary requests also indicates a specific location for the space to be formed between the ink absorbing member and the internal surface of the ink tank. In the Board's judgement, document D9 does not disclose that a space is formed between the ink absorbing means and an inner surface of the top wall and side walls, whilst a space need not be formed between the ink absorbing means and the inner surface of the front wall or rear wall or parts of the inner surface of the top wall and side walls. Claim 9 and the passage on page 3, lines 24 to 27 of document D9 teach how a space may be formed, namely by providing internal projections. However, they neither teach which parts of the ink tank may be provided with internal projections nor what is actually meant by the term "the internal surface of the ink tank". Furthermore, the embodiments of an ink tank disclosed in document D9 neither show, nor hint at, an ink tank wherein a space is solely formed between the ink absorbing means and an inner surface of the ink tank including an inner surface of the top wall and side walls of the ink tank.

Moreover, the embodiment disclosed on page 11, lines 25 to 31 of document D9 differs from the ink tank claimed in claim 1 of the eighth and ninth auxiliary requests, in that, according to the embodiment, the ink absorbing means is in contact with neither the rear wall nor the front wall nor any inner surfaces of the top and side walls apart from the ridges.

Consequently, the opposition ground according to Article 100(c) EPC also prejudices the maintenance of the patent in suit as amended according to eighth and ninth auxiliary requests.

8. As regards the opinion of the expert (document WW), the Board does not agree to the statement on page 3, lines 23 to 27, that Figure 8 of document D9 disclosed an ink tank wherein large surface areas, in particular the complete rear wall, front wall and bottom wall and at least an area of top wall, were not at a distance from the ink absorbing means. The reasons are given above under point 2. Moreover, Figure 8 shows the ink tank and the ink absorbing means separately from each other.

Furthermore, the fact that billions of ink tanks had been produced and sold which proved that an air space at the top wall was sufficient, cf. page 4, point 3 of document WW, does not indicate that this feature is adequately disclosed in document D9. It has to be assumed that these ink tanks had been sold after the filing date of the patent in suit and that that experience had thus been made thereafter. The relevant question, however, is whether or not it was derivable from the disclosure of document D9 that an air space at the top wall was sufficient.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

M. Dainese

W. Moser