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**Datasheet for the decision
of 18 March 2014**

Case Number: T 1728/11 - 3.2.05

Application Number: 06115392.0

Publication Number: 1733886

IPC: B41J2/14

Language of the proceedings: EN

Title of invention:

Drop generator

Headword:

Relevant legal provisions:

EPC 1973 Art. 56

Keyword:

Inventive step - no

Decisions cited:

Catchword:



**Beschwerdekammern
Boards of Appeal
Chambres de recours**

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Case Number: T 1728/11 - 3.2.05

D E C I S I O N
of Technical Board of Appeal 3.2.05
of 18 March 2014

Appellant: Xerox Corporation
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Decision under appeal: **Decision of the examining division of the
European Patent Office posted on 14 March 2011
refusing European patent application No.
06115392.0 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman: M. Poock
Members: H. Schram
M. J. Vogel

Summary of Facts and Submissions

- I. The appellant (applicant) filed a notice of appeal on 12 May 2011 against the decision of the examining division, posted on 14 March 2011, by which European patent application No. 06 115 392.0 was refused on the grounds that the subject-matter of claim 1 of the main request and of the auxiliary request filed on 14 December 2010 did not involve an inventive step with respect to document EP-A 1 533 122 (D1), Article 56 EPC 1973. The statement of grounds was filed on 15 July 2011.

- II. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of any one of the sets of claims filed as main request and auxiliary request on 14 December 2010, or filed as auxiliary request 2 with the statement setting out the grounds of appeal.

- III. In a communication dated 3 December 2013 annexed to the summons to attend oral proceedings scheduled for 18 March 2014 the board expressed its provisional opinion that it appeared that the subject-matter of claim 1 of the main request, the auxiliary request and of auxiliary request 2 of the appellant did not involve an inventive step, Article 56 EPC 1973 (see point 6) and that it would therefore seem that the appeal was likely to be dismissed (see point 7).

- IV. With letter of 27 December 2013 the appellant revoked the authorization to deduct any fees for the European patent application No. 06 115 392.0 from its deposit account.

V. The appellant informed the board on 28 February 2014 that the appellant will not attend the oral proceedings. Subsequently, the scheduled oral proceedings were cancelled by the board.

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

1. A drop generator comprising: a pressure chamber; an inlet channel connected to the pressure chamber; an outlet channel connected to the pressure chamber; the outlet channel including a first circular outlet channel section connected to the pressure chamber, a second circular outlet channel section connected to the first circular outlet channel section, a third circular outlet channel section connected to the second circular outlet channel section, and a non-circular outlet channel section connected to the third circular outlet section; and a drop emitting nozzle disposed at an end of the non-circular outlet channel; wherein at least the first circular outlet channel section and the third circular outlet channel section includes a first circular sub-section, second circular sub-section and a third circular sub-section of different cross-sectional areas."

Claim 1 of the auxiliary request differs from claim of the main request in that the expression "and the second circular outlet channel section comprises co-axial circular sub-sections" has been added at the end of the claim.

Claim 1 of the auxiliary request 2 differs from claim of claim 1 of the auxiliary request in that the wording "of different diameter" has been added at the end of the claim.

VII. In support of his request, the appellant submitted the following:

The claimed drop generator differed from the one taught in document D1 by the provision of a second circular outlet channel section connecting the first and third circular outlet channel sections. In contrast, the corresponding outlet channel section 452 shown in Figure 3 of document D1 was non-circular.

In view of document D1 as the closest prior art the objective technical problem was to provide a drop generator that allowed for an accurate control of the drop velocity and mass, see paragraph [0003] of the application as filed. A drop generator was a rather complicated mechanical-pneumactical device, wherein even small modifications of the involved elements, in particular the geometric shape of the individual subsections, influenced the quality of the prints.

The problem mentioned above was solved by the subject-matter of claim 1 of the main request, in particular by the above distinguishing feature. When faced with the problem and starting with document D1 as the closest prior art the person skilled in the art would not be prompted by any other of the documents cited in the search report to modify the teaching of document D1 in a manner to arrive at the subject-matter of claim 1 of the main request, since none of these documents described the claimed combination of outlet channel (sub-)sections. Moreover, document D1 explicitly taught the provision of a second non-circular outlet channel section connecting the first and third circular outlet channel sections and thus pointed away from the invention. Consequently, the subject-matter of claim 1 of the main request was not obvious to the person

skilled in the art and therefore involved an inventive step.

Reasons for the Decision

1. The appeal is admissible.

Main request

2. Inventive step, Article 56 EPC 1973
 - 2.1 The sole difference between the subject-matter of claim 1 of the main request and the drop generator known from document D1 is that the second outlet channel section connecting the first and third circular outlet channel sections of the invention has a circular cross-section, whereas the cross-section of the corresponding outlet channel section 452 is non-circular (said outlet channel section 452 is referred to in document D1 as the first non-circular outlet channel section). The circular outlet channel sections 451 and 453 of document D1 can have a plurality of co-axial circular sub-sections (column 3, lines 34 to 37, 46 and 47), for example three circular sub-sections (451A, 451B, 451C and 453A, 453B 453C, respectively) as shown in figure 3, cf paragraph [0011].
 - 2.2 The examining division was of the opinion that the distinguishing feature was "a slight constructional change which comes within the customary practice followed by persons skilled in the art, especially as the advantages thus achieved can be readily contemplated in advance". Since there was no information provided by the appellant or in the application what the technical effect was of this

modification, or which technical problem was solved, the distinguishing feature was to be considered as being the result of an arbitrary non-functional modification of the drop generator known from document D1, which the person skilled in the art would select, depending on the circumstances, without exercising inventive skill, cf Guidelines C-IV, 11.10.1.

- 2.3 In response to the summons to attend oral proceedings, the appellant did not file a substantive reply to the communication of the board annexed to the summons, wherein both formal and substantial deficiencies were pointed out (see point III above).

Point 6.3, first paragraph, of said communication reads as follows: "In its statement of grounds the appellant did not give any information what the technical effect is of modifying the cross-section of the outlet channel 452 ("first non-circular outlet channel 452") of the drop generator of document D1, namely from non-circular, or oval, to a circular cross-section, although this was the main reason for rejecting the application. Instead, the appellant merely alleged in its statement of grounds that the modification improved the control of the drop velocity and drop mass, without providing comparative tests results to support these allegations."

In particular, the appellant did not contest the provisional opinion of the board that the modification proposed in the present application is a non-functional modification.

- 2.4 In the absence of any information or evidence what the technical effect is of making the oval cross-section of the outlet channel 452 circular, the board has come to

the conclusion that the person skilled in the art, starting from the drop generator known from document D1 (cf figure 3), and seeking to simplify the design of the outlet channel sections 451A, 451B, 451C, 452, 453A, 453B and 453C, one of which having a non-circular, ie oval cross-section, namely section 452, whereas the other six have a circular cross-section, would readily contemplate to make the oval cross-section of section 452 circular as well.

- 2.5 The subject-matter of claim 1 of the main request is hence obvious to the person skilled in the art and therefore does not involve an inventive step, Article 56 EPC 1973.

Auxiliary request and auxiliary request 2

3. The closest prior art for these requests is the drop generator shown in figure 3 of document D1, whereby the circular outlet channel section 451 has an additional (fourth) circular sub-section not shown in said figure (see point 2.1). Since the grouping of sub-sections into outlet channel sections 451, 452, 453 is arbitrary, the fourth circular sub-section may be considered as belonging to outlet channel section 452, ie the outlet channel section 452 now having *two* subsections, a circular and an oval one.

The argument presented in point 2.4 above applies *mutatis mutandis* to this case. The person skilled in art who makes the oval sub-section 452 of document D1 circular arrives at the subject-matter of claims 1 of the auxiliary requests, namely a drop generator wherein "the second circular outlet channel section comprises co-axial circular sub-sections of different diameter".

The subject-matter of claim 1 of the auxiliary requests therefore does not involve an inventive step, Article 56 EPC 1973.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



D. Meyfarth

M. Poock

Decision electronically authenticated