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D E C I S I O N
of 20 January 1999

Case Number: T 0083/95 - 3.2.5

Application Number: 87306695.5

Publication Number: 0257818

IPC: B41F 35/00

Language of the proceedings: EN

Title of invention:
Cleaning system for a printing press

Patentee:
Dai Nippon Insatsu Kabushiki Kaisha

Opponent:
MAN Roland Druckmaschinen AG

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes, after amendment)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0083/95 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 20 January 1999

Appellant: (Proprietor of the patent)
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Representative:
-

Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 25 November 1994 revoking European patent No. 0 257 818 pursuant to Article 102(1) EPC.

Composition of the Board:

Chairman: A. Burkhart
Members: H. P. Ostertag
J. C. M. De Peter

Summary of Facts and Submissions

I. The appellant (proprietor of the patent) lodged an appeal against the decision of the Opposition Division revoking the patent No. 0 257 818.

Opposition was filed against the patent as a whole and based on Article 100(a) EPC (lack of inventive step).

The Opposition Division held that the grounds for opposition mentioned in Article 100(a) EPC prejudiced the maintenance of the patent, having regard to the following documents:

E1: EP-A-4 605,

E2: DE-C-3 005 469 and

E5: US-A-4 058 059.

II. Oral proceedings before the Board of Appeal were held on 20 January 1999.

(i) The appellant requested that the decision under appeal be set aside and that the patent be maintained in amended form according to the main request submitted at the oral proceedings or on the basis of claims 1 to 3 according to the auxiliary request.

(ii) The respondent (opponent) requested that the appeal be dismissed.

(iii) Claim 1 according to the main request reads as follows:

"1. A device for cleaning a cylinder (6) of an offset printing press comprising a support frame (11), a magazine roll (2) around which a cleaning cloth (1) is wound and having a rotation shaft supported by said support frame (11), a take-up roll (3) around which a used cleaning cloth (1) is taken up and having a rotation shaft supported by said support frame (11), a pressing means (8) attached to said support frame (11) at a portion between said magazine roll (2) and said take-up roll (3) and adapted to press said cleaning cloth (1) against the cylinder (6) to be cleaned, means (4) for supplying cleaning liquid to said cleaning cloth (1) and means (30) for moving said support frame (11) away from said cylinder (6), characterised in that said cylinder is an impression cylinder (6) having sheet holding grippers (13) projecting over its peripheral surface and that a rotary encoder, proximity switch, photoelectric switch, mark sensor, photointeractor, or limit sensor is located near the impression cylinder to detect by means of a voltage or current variation a predetermined angular position of said impression cylinder (6) where said pressing means (8) is adjacent to said sheet holding grippers (13), to cause said moving means (30) to raise said support frame (11) or said pressing means (8) away from the impression cylinder (6) to prevent said grippers (13) from directly contacting said cleaning cloth (1)."

III. The appellant argued essentially as follows:

The amendments to claim 1 of the main request with respect to claim 1 as granted were disclosed at column 9, lines 7 to 29 of the granted patent (corresponding to page 16, second and third paragraphs of the originally filed description).

It was not obvious to combine the teaching of document E1, where a cleaning device is supported by arcuate bridging pieces in the region of the gripper elements on an impression cylinder, with the teaching of documents E2 or E5 showing a cloth cleaning system for smooth surfaced rollers. Even if these teachings were combined, the combination did not make obvious the system now claimed in the main request in which a cloth cleaning device was used on an impression cylinder with gripper elements and the position of the cleaning device relative to the grippers was detected by an electrical detector and the signal generated by the detector giving relevant angular information was used to initiate lifting of the cleaning device away from the impression cylinder to avoid contact with the grippers.

IV. The respondent argued essentially as follows:

The feature of claim 1 of the main request according to which the electrical detecting means were provided "to cause said moving means (30) to raise said support frame or said pressing means away from the impression cylinder" was not disclosed in the patent in suit or in the originally filed application documents.

It was obvious to the person skilled in the art to use the cleaning device according to E2 or E5 for cleaning of a sheet impression cylinder and to provide, in accordance with the teaching of E1, means to detect a predetermined angular position of the impression cylinder to move the pressing means away from the impression cylinder, thereby preventing the grippers from directly contacting the cleaning cloth. The replacement of the mechanical detecting means used in the device according to E1 by electrical detecting means was obvious for the person skilled in the art if he wanted to avoid the apparent disadvantage of mechanical cam means, like malfunctioning or damaging of the cleaning device due to direct contact between the cleaning cloth and the cam means. Such a replacement was so much the more obvious for the person skilled in the art, since the use of electrical angular position detecting means belonged for a long time to the general knowledge of the person skilled in the art, as could be seen from DE-C-430 367.

Reasons for the Decision

1. *Amendments*

Claim 1 according to the main request differs from the granted claim 1 substantially in that

(a) the means for detecting a predetermined angular position of the impression cylinder are now identified as "a rotary encoder, proximity switch, photoelectric switch, mark sensor, photointeractor or limit sensor located near the

impression cylinder to detect by means of a voltage or current variation a predetermined angular position of said impression cylinder" and in that

(b) the wording "to move said pressing means (8) away from the impression cylinder (6)" is replaced by the wording "to cause said moving means (30) to raise said support frame(11) or said pressing means (8) away from the impression cylinder (6)".

The features according to the above amendment (a) are disclosed on page 16, third paragraph of the originally filed description.

The features according to the above amendment (b) are based on page 16, second paragraph, and on the indication on page 16, third paragraph of the originally filed description "in one example, the cleaning device is shifted at the gripper portion while detecting the rotation of the impression cylinder (6) is detected", in connection with the indication in the originally filed claim 4" that means (18) are provided to detect a predetermined angular position of said impression cylinder (6) to move said pressing means away from the impression cylinder (6), thereby to prevent said grippers (13) from directly contacting said cleaning cloth (1)". The "shifting mechanism or method for shifting the cleaning device" addressed to on page 16, paragraph 2 of the originally filed description is identical with the "moving means (30)" of the amended claim 1.

The additional features according to the aforementioned

amendments (a) and (b) restrict the scope of protection conferred to claim 1 of the patent as granted.

Claim 2 of the main request is based on page 10, first and second paragraphs of the originally filed description. Claims 3 and 4 of the main request are based on the originally filed claims 7 and 8.

The description has been adapted to the amended claims, and Figures 5, 8 and 9 of the patent as granted have been deleted.

The amendments to the claims, the description and the drawings do not contravene Article 123(2) and (3) EPC.

2. *Novelty*

The subject-matter of claim 1 according to the main request is novel, since none of the documents cited by the respondent discloses a device comprising all the features of claim 1.

Novelty, in fact, has not been in dispute in these proceedings.

3. *Inventive step*

3.1 Closest prior art

The closest prior art is represented by documents E2 or E5, which disclose a device for cleaning a cylinder of an offset printing press comprising a support frame, a magazine roll around which a cleaning cloth is wound and having a rotation shaft supported by said support

frame, a take-up roll around which a used cleaning cloth is taken up and having a rotation shaft supported by said support frame, a pressing means attached to said support frame at a portion between said magazine roll and said take-up roll and adapted to press said cleaning cloth against the cylinder to be cleaned, means for supplying cleaning liquid to said cleaning cloth and means for moving said support frame away from said cylinder.

3.2 Problem underlying the invention

If a cleaning device according to E2 or E5 is to be used for cleaning the impression cylinder of an offset printing press provided with hook shaped grippers for gripping a paper sheet in a condition of projection outwardly from the outer peripheral surface of the impression cylinder, the location of these grippers may provide the following defects or drawbacks in the cleaning operation:

- because of the projection of the grippers, it is considerably difficult to clean the area of the impression cylinder near the projecting grippers,

- the projecting grippers may damage the cleaning cloth during the rotation thereof under the pressed condition, and

- the grippers may themselves be damaged during the rotation of the impression cylinder, which results in the damage of the offset press (see column 2, lines 2 to 19 of the patent in suit).

The problem to be solved by the invention of the patent in suit consists, therefore, in providing a device for cleaning in an offset printing press an impression cylider having sheet holding grippers projecting over its peripheral surface, which cleaning device is capable to clean effectively the area of the impression cylinder near the projecting grippers without damaging either the cleaning cloth or the grippers.

3.3 Solution

The aforementioned problem is solved in accordance with the characterising portion of claim 1 of the main request in that the cleaning device known from documents E2 or E5 is modified in the sense that a rotary encoder, proximity switch, photoelectric switch, mark sensor, photointeractor or limit sensor is located near the impression cylinder to detect by means of a voltage or current variation a predetermined angular position of said impression cylinder where said pressing means is adjacent to the sheet holding grippers to cause the moving means to raise the support frame or the pressing means away from the impression cylinder to prevent the grippers from directly contacting the cleaning cloth.

3.4 The aforementioned solution is not rendered obvious by the prior art documents under consideration, for the following reasons.

Document E1 (cf. Figures 1 and 2, claim 3, page 5, paragraphs 3 and 4) discloses a cleaning device comprising a support means (5) and a cleaning roller (13) which are pressed against the surface of an

impression cylinder (1). A curve means (24) is provided on the impression cylinder in the region of the grippers (23) for raising the cleaning roller (13) - and its support frame (5) - over the grippers (23) and away from the impression cylinder to prevent the grippers from directly contacting the cleaning roller.

The person skilled in the art looking for a solution for the problem underlying the invention of the patent in suit could be guided by the disclosure of E1 to provide on the impression cylinder in the region of the grippers a curve means for raising the cleaning device known from documents E5 or E2 over the grippers and away from the cylinder surface to prevent the grippers from directly contacting the cleaning cloth.

However, such an eventual combination of the disclosures of E2 or E5 with that of E1 would not result in the solution according to the invention of the patent in suit. There is no indication in E1 that the curve means (24) which directly comes into contact with a cleaning roller (13), could be replaced by any other raising means avoiding direct contact between the cleaning roller and the raising means.

The respondent submits that the person skilled in the art would immediately be aware that the device according to E1 has the drawback of direct contact between the cleaning member and the curve means resulting in possible damage of the cleaning member, and, therefore, the person skilled in the art being familiar with the use of electrical means for detecting the angular positions of printing cylinders, as could be seen from DE-C-430 367, would consider a contact-

free raising means including electrical means for detecting an angular position of the impression cylinder as a suitable substitute for the curve means (24) of E1.

The board does not agree with this contention.

Firstly, it should be noted that in the device according to E1 the cleaning member is a cleaning roll which is in free-rolling contact with the impression cylinder and the curve means, and therefore, the danger of possible damage of the cleaning roll does not exist. This danger would, however, indeed exist if the cleaning member consisted of a cleaning cloth which was pressed onto the impression cylinder and which was in sliding frictional contact with the impression cylinder and the curve means.

Therefore, the person skilled in the art would be rather inclined not to use a cloth cleaning member in combination with a curve means of E1 but to consider the use of a cleaning roll more suitable which would not cause problems in combination with the curve means. However, such a consideration would not lead the person skilled in the art to replace in the device of E1 the curve means by any other contact-free raising means.

Secondly, even if the person skilled in the art were to consider the use of a contact-free raising means instead of the curve means of E1, he would not find any hint or guidance in the prior art to the specific solution according to claim 1 using electrical detecting means for contact-free raising of the cleaning device over the grippers. The use of

electrical detecting means is not the only choice of the person skilled in the art for solving the problem of avoiding direct contact between the raising means and the cleaning member. For instance, also a mechanical cam raising means, as disclosed in the now cancelled Figure 9 of the patent in suit, could have been envisaged by the person skilled in the art for avoiding direct contact between the raising means and the cleaning member.

Document DE-C-430 367, which only demonstrates that the use of electrical means for detecting the angular position of an impression cylinder was known, does not address the problem underlying the invention, and therefore, would not guide the person skilled in the art towards the solution according to the invention of the patent in suit.

3.5 For the reasons set out above, the cleaning device of claim 1 according to the main request involves an inventive step within the meaning of Article 56 EPC.

4. Therefore, the subject-matter of claim 1 according to the main request constitutes a patentable invention within the meaning of Article 52(1) EPC.

The same applies to the subject-matter of the dependent claims 2 to 4 which refer to further embodiments of the subject-matter of claim 1.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent in amended form in the following version:

   Claims 1 to 4, description: columns 1 to 10 and Figures 1 to 7, as filed at the oral proceedings of 20 January 1999 according to the main request.

The Registrar: The Chairman:

A. Townend A. Burkhart