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D E C I S I O N
of 10 June 1999

Case Number: T 0100/96 - 3.2.5

Application Number: 88118939.3

Publication Number: 0330736

IPC: B41F 27/12

Language of the proceedings: EN

Title of invention:
Tensionless plate lock-up

Patentee:
Goss Graphic Systems, Inc.

Opponent:
MAN Roland Druckmaschinen AG

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0100/96 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 10 June 1999

Appellant: (Opponent)
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Representative:
-

Respondent: (Proprietor of the patent)
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 20 November 1995 concerning maintenance of European patent No. 0 330 736 in amended form.

Composition of the Board:

Chairman: A. Burkhart
Members: P. E. Michel
J. H. van Moer

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the interlocutory decision of the Opposition Division maintaining the patent No. 0 330 736 in amended form.

Opposition was filed against the patent as a whole and based on Article 100(a) EPC (lack of novelty and inventive step). The following documents were referred to in the opposition proceedings:

E1: CH-C-269 525

E2: DE-C-3 018 249 (EP-A-0 039 765)

E3: DE-A-2 328 985 (US-A-3 757 691)

E4: GB-A-1 556 389

The Opposition Division held that the grounds of opposition did not prejudice the maintenance of the patent as amended.

The opponent filed an appeal against the decision of the Opposition Division, introducing an allegation of prior use as well as two new documents,

E5: DE-A-2 220 245

E6: DE-C-3 116 506,

and arguing that the amended claims lack an inventive step.

II. Oral proceedings were held before the Board of Appeal on 10 June 1999.

(i) The appellant (opponent) requested that the decision under appeal be set aside and the patent be revoked.

(ii) The respondent (patentee) requested as the main request that the appeal be dismissed or as an auxiliary request that the patent be maintained on the basis of claim 1 as filed on 10 May 1999.

(iii) The main request includes a single independent claim which reads as follows:

"Lock-up mechanism for holding a flexible printing plate (11) to a printing cylinder (10) having a longitudinal slot (12, 35) formed in its surface (13) to define at least one undercut locking surface (15, 36) against which both ends (20, 22) of said flexible printing plate (11) are clamped, comprising locking means (25, 40) for clamping the ends (20, 22) of said flexible printing plate (11) against said undercut locking surface (15, 36) and spring biasing means (32, 41) disposed in operative compression between said locking means (25, 40) and the bottom of said longitudinal slot (12, 35) to urge said locking means (25, 40) outwardly against said undercut locking surface (15, 36), characterised in that
said locking means (25, 40) includes a curved outer surface (26) for directly contacting the ends (20, 22) of said flexible printing plate

(11) and clamping them against said undercut locking surface (15, 36) and in that said locking means comprises a plurality of individual locking elements (25, 40) substantially evenly spaced along the length of said longitudinal slot (12, 35)."

(iv) Claim 1 of the auxiliary request is directed to a printing cylinder rather than to a lock-up mechanism *per se*, and includes the additional feature that

"the lock-up mechanism is designed such that upon an elongation of the printing plate during operation of the printing cylinder the end (20, 22) of the printing plate which is in direct contact with the locking means (25, 40) is pushed further in between the locking means (25, 40) and the locking surface (15, 36)."

III. In respect of the main request, the appellant (opponent) argued essentially as follows:

In view of the provisional opinion of the Board of Appeal that the alleged prior use had not been sufficiently substantiated and that the late filed document E6 was no more relevant than the art previously cited, the appellant accepted that the alleged prior use and E6 should not be admitted into the proceedings.

It was also accepted that the subject-matter of claim 1 was new.

Document E1 represents the closest state of the art. The term "Matrize" used in this document refers to a flexible printing plate. The sole feature which distinguishes the subject-matter of claim 1 from the disclosure of E1 is the provision of a plurality of individual locking elements substantially evenly spaced along the length of the longitudinal slot. The reference in claim 1 to clamping the ends of the flexible printing plate against the same undercut locking surface is merely a reference to the intended use of the mechanism and it would be quite feasible to do this with the device of E1.

The reference in E1 to removal of the matrix from the cylinder by means of a pull in the radial direction and the "Klemmwirkung" of the rod (page 2, lines 8 to 13) indicates that E1 relies on friction to secure the matrix. It was also denied that the shallow angle of the locking surfaces with respect to the radial direction indicates that a frictional engagement is not relied upon.

In view of the disclosure of E5, the skilled person would readily arrange a plurality of rod and spring units as disclosed in E1 next to one another in the longitudinal slot.

IV. The respondent (patentee) argued essentially as follows:

The late filed document E5 should not be admitted.

Document E2 represents the closest state of the art.

The structure of E1 is not suitable for clamping both ends of the flexible printing plate against the same undercut locking surface. If both ends of the flexible printing plate are clamped against the same undercut locking surface, it will not be possible to depress the rod (4) in the groove (2) by means of a suitable tool in order to free the matrix, as described in E1 at page 2, lines 8 to 13. In addition, the shallow angle of the undercut surfaces renders it more likely that the leading end and the trailing end of the flexible printing plate are clamped against different undercut locking surfaces. The arrangement of E1 relies on the shape of the ends of the printing plate, rather than friction, in order to retain the ends in place. Although E1 refers at page 2, line 12 to a "Klemmwirkung", this does not imply that the device relies on friction to secure the matrix in place. Rather, the engagement of the rod with the matrix ensures that the locking engagement of the folded end of the matrix with the cylinder is not disturbed.

Frictional engagement would only become important in E1 if both ends of the flexible printing plate were clamped against the same locking surface. It would then be necessary to select a spring which is capable of creating sufficient force to retain the ends of the printing plate by friction. There is, however, no suggestion in E1 that the spring force is such as to achieve this.

For these reasons, E2 is regarded as the most relevant prior art. A problem with this known arrangement is that insertion of the printing plate is difficult. This problem is solved by means of the structure defined in

claim 1. It is noted that, in E2, the leaf spring clamping elements (11, 12) are fixed with respect to the locking surfaces. The fact that the clamping element according to the invention can be depressed during insertion of the printing plate facilitates the insertion, since the forces required to insert the printing plate are less than those required to remove it.

E5 discloses an arrangement for holding a printing plate under tension. A plurality of tension elements are provided in order to achieve an equal tension across the width of the plate. Since there is no possibility of maintaining the printing plate under tension in E1, there is no motivation to apply the teaching of E5 to the disclosure of E1.

In E5, both the leading end (8) and the trailing end (9) of the flexible printing plate are folded (column 4, lines 34 to 38). It is thus not possible for the trailing end to be pushed downwardly between the clamping element and the wall of the groove in operation. In contrast, the arrangement according to the invention does not use a fold at the trailing end, thus enabling this effect to be achieved.

Whilst claim 1 of the patent in suit does not explicitly specify the angular orientation of the undercut locking surfaces, it is implicit in the claim that the angle is such that the mechanism functions in the intended manner, that is, the ends of the flexible printing plate can be inserted into the longitudinal slot and there clamped in place.

Reasons for the Decision

1. *Late filing of allegation of prior use*

The opponent has failed to show that disclosure of the illustrated machine had taken place, for example by showing that the illustrated machine was actually delivered to the customer or that the drawing itself were shown to the customer. No witness was offered and, at the oral proceedings, the opponent accepted that the allegation had not been established. The allegation is accordingly not admitted into the proceedings.

2. *Late filing of documents E5 and E6*

2.1 E5 discloses a locking means comprising a plurality of individual locking elements arranged along the length of the longitudinal slot and which does not require the presence of apertures in the ends of the printing plate (cf. E3). This document is thus considered as being relevant to the arguments concerning inventive step and is admitted into the proceedings.

2.2 E6 discloses a locking means which does not have a curved outer surface for directly contacting the ends of the printing plate and does not comprise a plurality of individual locking elements substantially evenly spaced along the length of the longitudinal slot. This document is accordingly no more relevant than the art previously cited and is not admitted into the procedure.

Main Request

3. *Amendments*

The amended claim 1 represents a combination of claims 1 and 2 as granted, so that the amendment has the effect of restricting the claim to locking means comprising a plurality of individual locking elements substantially evenly spaced along the length of the longitudinal slot. This feature was present in claim 2 as filed. Claim 1 as amended thus meets the requirements of Article 123(2) and (3) EPC.

4. *Novelty*

4.1 Of the cited documents, only E3 and E5 suggest the provision of a plurality of individual locking elements arranged along the length of the longitudinal slot.

4.2 Neither E3 nor E5 suggests locking means which includes a curved outer surface for directly contacting the ends of the flexible printing plate and clamping them against said undercut locking surface. In the case of E5, the locking means is in the form of a leaf spring having a planar surface for contacting the ends of the flexible printing plate. In the case of E3, a leaf spring is provided with a tongue which enters a slot in the edge of the printing plate.

4.3 The subject-matter of claim 1 is thus novel.

5. *Inventive step*

5.1 Closest Prior Art

5.1.1 It was argued on behalf of the opponent that the closest prior art is represented by document E1. This document discloses a device for retaining matrices, paper sheets and the like on printing cylinders. It is thus not clear that this document is concerned with printing plates in the sense of the patent in suit. In addition, there is no teaching in this document of a method of securing the trailing end of the matrix. The Board, however, concurs with the opinion of the patentee that, if the trailing edge of the matrix is to be secured in the longitudinal slot, it would be against the opposite wall of the slot to the leading edge. In particular, the argument that, if the trailing edge were to be inserted between the rod and the wall of the groove at the same side as the leading edge, it would then be impossible to introduce a suitable tool to depress the rod in order to release the matrix as described at page 2, lines 10 to 13, is seen as convincing.

5.1.2 In accordance with the submissions of the patentee, the closest prior art is seen as being document E2. The disclosure of this document corresponds to the features of the preamble of claim 1 of the patent in suit. E2 is seen as being more relevant than E1, since E2 is clearly concerned with a lock-up mechanism for holding a flexible printing plate to a printing cylinder, whereas it is not clear that the term "Matrize" as used in E1 can be regarded as a printing plate within the meaning of the patent in suit. In addition, in E2, both ends of the flexible printing plate are clamped against one and the same undercut locking surface of the longitudinal groove, whereas, as stated above, it is not clear how the trailing end is intended to be

clamped in E1.

5.2 Problem underlying the invention

A problem associated with the mechanism of E2 is that insertion of the ends of the printing plate into the lock-up mechanism is difficult. In the arrangement of E2, it is necessary to push the ends of the printing plate between a planar surface of a leaf spring and the undercut locking surface. The object of the invention is thus to provide a lock-up mechanism which facilitates insertion of the leading and trailing edges of the printing plate whilst maintaining the edges securely in position during operation.

5.3 Solution

5.3.1 According to claim 1, the above problem is solved in that the locking means includes a curved outer surface for directly contacting the ends of the flexible printing plate and clamping them against an undercut locking surface of the longitudinal slot and in that the locking means comprises a plurality of individual locking elements substantially evenly spaced along the length of the longitudinal slot.

The curved outer surface of the locking means results in line contact rather than area contact between the locking means and the printing plate, which allows the printing plate to be more easily inserted.

5.3.2 This solution is not suggested by the cited prior art. Whilst E1 discloses a locking means which includes a curved outer surface for directly contacting the

leading end of a flexible sheet and clamping it against an undercut locking surface of the longitudinal slot, there is no suggestion that the disclosed arrangement is such as to be capable of also clamping the trailing edge against the same locking surface. It is noted that, in order to achieve this, it is necessary to select a leaf spring (6) having a suitable spring force and a suitable orientation for the clamping surface. E1 does not disclose such a selection. Indeed, as stated above, in paragraph 5.1.2, if the trailing edge is to be clamped, such clamping will take place against the opposite surface of the slot, so as to allow the rod (4) to be contacted by a suitable tool. It will be appreciated that, if the trailing edge were to be clamped against the same surface as the leading edge, the trailing edge would overlie the rod and thus prevent contact with the rod. Thus, E1 does not offer a teaching which can be combined with that of E2. Rather, the two documents offer alternative lock-up mechanisms which function in different ways.

5.3.3 E4 also discloses a locking means in the form of a rod having a circular cross-section. The rod is, however, rotated in order to clamp the printing plate, so that the structure taught by E4 cannot be combined with that of E2 or, indeed, E1.

5.3.4 E5 discloses a lock-up mechanism for holding a flexible printing plate to a printing cylinder comprising a plurality of individual locking elements arranged along the length of a longitudinal slot in the printing cylinder. The locking elements do not, however, have a curved outer surface. There is thus no suggestion to adopt this feature, even when the disclosure of D5 is

combined with that of E2.

5.4 The subject-matter of claim 1 of the main request thus involves an inventive step within the meaning of Article 56 EPC. Claims 2 to 10 are directly or indirectly appendant to claim 1 and similarly involve an inventive step.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

A. Townend A. Burkhart