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D E C I S I O N
of 20 November 1996

Case Number: T 0364/95 - 3.2.4

Application Number: 90309433.2

Publication Number: 0416802

IPC: B65C 11/02

Language of the proceedings: EN

Title of invention:

Label separating device in label printer

Applicant:

KABUSHIKI KAISHA TEC

Headword:

-

Relevant legal provisions:

EPC Art. 87(1) EPC

Keyword:

"Entitlement to priority - yes"

"Inventive step - yes"

Decisions cited:

T 0581/89, T 0073/88, T 0016/87, G 0001/93

Catchword:

-

Case Number: T 0364/95 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 20 November 1996

Appellant: KABUSHIKI KAISHA TEC
570 Ohito, Ohito-cho, Tagata-gun
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Decision under appeal: Decision of the Examining Division of the European Patent Office posted 22 November 1994 refusing European patent application No. 90 309 433.2 pursuant to Article 97(1) EPC.

Composition of the Board:

Chairman: C. A. J. Andries

Members: M. G. Hatherly

J. P. B. Seitz

Summary of Facts and Submissions

I. On 19 January 1995 the appellants (applicants) lodged an appeal against the decision of the examining division dispatched on 22 November 1994 to refuse the European patent application No. 90 309 433.2 (publication No. 0 416 802) for lack of inventive step. The appeal fee was paid simultaneously and the statement of grounds of appeal was received on 20 March 1995.

II. The following documents were referred to in the examination proceedings:

D1 EP-A-0 361 693

D2 US-A-4 432 830

D3 US-A-4 264 396

D4 DE-A-2 816 161

D5 DE-A-3 527 632

III. The board's provisional view of the appeal was negative and so oral proceedings were appointed as requested auxiliarily by the appellants.

In their letter of 14 November 1996 the appellants answered the points raised in the annex to the summons concerning entitlement to priority and the significance of the vertical alignment of the printing nip, the conveying nip and the shaft for the pinch roller.

On 20 November 1996 the appellants attended oral proceedings during which they filed new application

documents.

IV. Claim 1 filed during the oral proceedings reads as follows:

"A label printer comprising:

a conveyor roller (12) for the conveyance of a paper backing strip with labels which is guided along a predetermined path;

a printing head (13) and a platen (12), wherein the platen (12) is formed by the conveyor roller (12) and forms a printing nip for printing;

a separating member (14) disposed on the paper backing strip conveyance path downstream with respect to the printing head (13) which holds the paper backing strip with labels between the same and the platen, the separating member (14) being in a position close to the printing head (13); and

a second roller (16) for drawing away together with said platen the paper backing strip portion which has been bent and separated from a label after printing by said separating member, whereby the predetermined path of the paper backing strip (11a) passes through the printing nip between the printing head (13) and the platen (12), over the separating member (14) and between the platen (12) and the second

roller (16),

characterised in that said second roller (16) is a pinch roller which pinches the backing strip against the platen (12) thus forming a conveying nip between the second roller and the platen, that the pinch roller (16) is mounted on a rotatable frame (20) urged by a coiled torsion spring (22) so that the second roller is kept in contact with the conveyance roller (12), and that the printing nip, the conveying nip and the shaft for the pinch roller are in vertical alignment."

V. The appellants request that the decision of the examining division be set aside and that a patent be granted on the basis of:

claims: 1 and 2 as filed during the oral proceedings

description: pages 1 to 11 as filed during the oral proceedings

drawings: Figures 1 to 4 as originally filed.

Reasons for the Decision

1. The appeal is admissible.

2. *Amendments*

2.1 All of the subject-matter of the originally filed

claim 1 is to be found in the present claim 1.

The word "pasteboard", defined as "a stiff substance made by pasting together sheets of paper", was plainly used wrongly in the originally filed claim 1. The term "paper backing strip" in the present claim 1 corrects the error without widening the scope of the claim.

2.2 All the features added to the originally filed claim 1 to arrive at the present claim can be derived from the originally filed application.

That the conveyor roller 12 and the platen are one and the same is clear from the originally filed Figures 3 and 4, as is the predetermined path of the paper backing strip being between the printing head 13 and the platen 12, over the separating member 14 and between the platen 12 and the second roller 16.

Page 7, line 16 to page 8, line 3 of the originally filed description explains, and the originally filed Figure 4 shows, that the pinch roller 16 is mounted on a rotatable frame 20 urged by a coiled torsion spring 22 so that the pinch roller 16 is kept in contact with the conveyor roller 12.

The printing nip, the conveying nip and the shaft for the pinch (second) roller being in vertical alignment can be inferred from the original page 8, lines 4 to 8 and from the originally filed Figure 4.

3. *Priority*

3.1 Until the appellants sent their letter of 14 November 1996 it had seemed that the features which were important for the invention included the pinch roller being mounted on a rotatable frame urged by a coiled torsion spring to keep the pinch roller in contact with the conveyance roller. On the other hand the vertical alignment of the printing nip, the conveying nip and the shaft for the pinch roller seemed to have no technical significance.

While the rotatable frame 20 and coiled torsion spring 22 were derivable from page 7, line 16 to page 8, line 3 and Figures 4 and 5 of the originally filed description, these features were nowhere to be found in the claim, description or drawings of the Japanese patent document JP 228593/89 from which the priority date of 4 September 1989 was claimed for the present application.

Accordingly the board provisionally considered that the claim to priority could not be allowed with the result that document D1 would be part of the prior art under Article 54(2) EPC.

3.2 However, in the letter of 14 November 1996 (page 1, paragraphs 2 and 3) the appellants explained, for the first time in the examination and appeal proceedings, that the rotatable frame and coiled torsion spring were natural workshop ways of carrying out the invention once the key inventive feature of the vertical alignment had been appreciated.

3.3 The board accepts the appellants' explanation, summarised in section 5.4 below, of the inventive significance of the vertical alignment of the printing nip, the conveying nip and the shaft for the pinch roller and considers that this vertical alignment was disclosed in the priority document, see Figure 4 and page 1, lines 12 to 16 of the certified translation.

Furthermore the board agrees with the appellants that the rotatable frame and coiled torsion spring have no inventive significance and represent merely one workshop way of carrying out the general indication in the priority document that the pinch roller is in pressure contact with the platen (see page 1, lines 12 and 13 of the certified translation).

3.4 In accordance with Article 87(1) EPC a European patent application is entitled to priority in respect of the same invention as was disclosed in the previous application.

For analogous reasons to those used in decision T 0581/89 (unpublished), the board considers those specific technical features of the claims which were not contained explicitly in the present priority document (i.e. the rotatable frame and coiled torsion spring) are nothing more than routine choices for the skilled person, essentially trivial, well known to him and make no contribution to the invention as such. As was the case in said decision, the requirement of Article 87(1) EPC concerning the same invention is thus satisfied.

Moreover along the same lines as decision T 0073/88 (OJ EPO 1992, 557), the board sees the rotatable frame and coiled torsion spring as being unrelated to the essential function and effect of the invention, so that their absence from the disclosure in the priority document does not result in a loss of priority, particularly because the rotatable frame and coiled torsion spring in the present claim merely go toward describing a more specific embodiment of what was already disclosed in general terms in the priority document. The priority application was in respect of the same invention as the application in its present form and so the present application is entitled to its priority.

As decided in decision T 0016/87 (OJ EPO 1992, 212), the addition in the present case to the independent claim of two features (i.e. the rotatable frame and coiled torsion spring), which do not constitute an essential element of the invention but are merely a voluntary limitation of its scope, does not invalidate a claim to priority. The effect of the introduction of these features into the claim is merely to limit the extent of protection, compared with the extent of protection which could have been attained based on the disclosure of the priority document, and does not change the character and nature of the invention.

3.5 The reasoning in the above section 3.4 is similar to that followed in the fifth sentence of section 16 of decision G 0001/93 (OJ EPO 1994, 541) concerning the addition of a feature to a claim by amendment and

possible breach of Article 123(2) EPC. The Enlarged Board found that if the added feature merely excludes part of the former subject-matter from the scope of protection, then adding it does not give any unwarranted advantage to the applicant and its introduction is therefore allowable.

3.6 Thus the board finds that the claim to priority is allowable and that it is the priority date of 4 September 1989 from the Japanese patent document JP 228593/89 which counts when considering the prior art.

3.7 Accordingly, since the publication date of document D1 is 4 April 1990, this document is not part of the prior art under Article 54(2) EPC and is inapplicable when examining the present claim 1's subject-matter for inventive step.

4. *Novelty*

4.1 The present claim 1 specifies that the pinch roller pinches the backing strip against the platen thus forming a conveying nip, and that the printing nip, the conveying nip and the pinch roller shaft are in vertical alignment.

It is emphasised that the vertical alignment in the meaning of the present invention (see section 5.4 below) implies not only that the printing nip, the conveying nip and the pinch roller shaft are located in the same vertical plane but also that the conveyor roller axis is located in this vertical plane.

4.2 In document D1 (falling in the Article 54(3) EPC field) the printing nip (between the printing head 51 and the platen roller 34 - see Figure 5), the conveying nip (between the platen roller 34 and the feed roller 35) and the shaft of the feed roller 35 are not in alignment, let alone vertical alignment.

In document D2 the pinch roller 48 (see Figure 4) does not pinch the backing strip against the platen roller 38.

In document D3 the platen below the print head 6 is a stationary print support 11 instead of a conveyor roller as required by the present claim 1.

In the most relevant embodiment of document D4, shown in Figure 3, the friction roller 11' is at a distance from the platen roller 14, see the last paragraph of the page with the printed number 13: "Rolle 14 ... in geringem Abstand angeordneten Friktionsrolle 11'". Thus the rollers 14 and 11' are spaced in the manner of the rollers 11 shown in Figure 2, only closer. Accordingly the friction roller 11' of Figure 3 is not a pinch roller and it does not form a conveying nip with the platen.

In document D5, see Figure 1, there is no pinch roller coacting with the turnback member 4 underlying the print element 8.

4.3 Thus the subject-matter of claim 1 is new in the meaning of Article 54 EPC.

5. *Closest prior art, problem and solution*

5.1 In agreement with the appellants and the examining division, the board considers that the prior art label printer closest to that of the present invention is that shown in Figure 3 of document D4.

5.2 Starting with this prior art label printer the board sees the problem as being the improvement of print quality while keeping the label printer construction simple.

5.3 In part, poor print quality in the label printer of Figure 3 of document D4 might be caused by slippage of the backing strip due to inadequate driving by the advance mechanism made up of the platen roller 14 and the friction roller 11'. The present invention overcomes this problem by changing the roller arrangement from one in which the rollers have a gap therebetween into one in which the drive roller is a pinch roller pressing against the platen roller to better drive the backing strip.

5.4 In the letter of 14 November 1996 the appellants explained with the aid of diagrams that, in label printers of the type with which the application is concerned, the platen roller bearings, being of a normal commercial quality, have a slight looseness which increases with wear over time. As stated in the previous paragraph, the pinch roller must press against the platen roller to prevent the backing strip slipping (which would affect print quality) but this pressure slightly moves the platen roller. If

this movement is in one or other direction **laterally** relative to the print head then the print quality is affected by being respectively compressed or elongated. By locating the printing nip, the conveying nip and the shaft for the pinch roller not only in alignment but in vertical alignment, the platen roller movement (due to bearing slackness and pressure from the pinch roller) occurs in a vertical direction and the line of contact between the platen roller surface and the print head does not move laterally, thus preventing a deterioration of print quality.

- 5.5 Accordingly the board is satisfied that the features of claim 1 as at present worded, and in particular the features of its characterising portion, provide a solution to the problem of improving print quality while keeping the label printer construction simple, by eliminating both backing strip slippage and lateral movement between the platen roller and the print head.

6. *Inventive step*

- 6.1 Starting from the label printer shown in Figure 3 of document D4 (see also sections 4.2 and 5.3 above) and trying to solve the slippage part of the problem of improving the print quality, the person skilled in the art would realise that, since the friction roller 11' is spaced from the platen roller 14, the location of both rollers must be fixed and so the friction roller 11' is not mounted in such a way that it could be biased towards the platen roller 14.

6.2 The examining division argues in section 5.2 of its decision that the skilled person would realise that, to solve this problem of slippage, he would have to increase the friction between the platen roller 14 and the backing strip.

6.3 While it would not be difficult for the skilled person to bias the friction roller 11' in Figure 3 of document D4 towards the platen roller 14 because a combination of fixed roller and biased roller is common in drives for strip elements (belts, strips, tapes), it must be realised that there are other solutions to the slippage problem so that the skilled person is not in a one-way street situation.

There are ways of solving the problem of slippage in the embodiment of Figure 3 of document D4 which do not involve increasing the increase the friction between the platen roller and the backing strip.

- One way (solution 1) is to follow Figures 1 and 2 where two spaced rollers 11 drive the backing strip, both of these rollers being friction rollers, see the first paragraph of the page with the printed number 12.

- Another way (solution 2) is to provide rollers which sandwich the backing strip therebetween, see friction rollers 11 in Figure 6 of document D4 and driven rollers 5 and 6 in Figure 1 of document D5.

Even if one wishes to increase the friction between

the platen roller and the backing strip, there are various ways of doing so.

- The most obvious solution (solution 3) is to increase the coefficient of friction of the surface of the platen roller 14 which is presumably too smooth.
- Solution 4 is to move the friction roller 11' in the direction of the longitudinal axis of the page (roughly in the direction of roller 5) and so increase the wrap of the backing strip around platen roller 14 and friction roller 11'.
- Solution 5 is to move the friction roller 11' towards the platen roller 14 so that they just sandwich the backing strip therebetween (in the manner of the friction rollers 11 in Figure 6 of document D4) but with both rollers having a fixed location i.e. with no biasing of friction roller 11' towards the platen roller 14. (Moving the platen roller 14 instead of the friction roller 11' would not be obvious since then also the printers 9 and 9' would need to be moved.)

6.4 Thus the solution to the slippage part of the problem of improving the print quality chosen in the present application is not the only solution open to the skilled person; it is one the skilled person **could** take but which anyway does not lead directly to the claimed solution.

6.5 The second part of the solution to the problem of

improving print quality concerns the elimination of lateral movement between the platen roller and the print head by arranging the printing nip, the conveying nip and the shaft for the pinch roller in vertical alignment.

- 6.6 No prior art document on file hints either at this part of the problem or at its solution, so that the skilled person cannot be led by this prior art to the claimed solution.

While of course it is possible to draw a straight line through any two points, e.g. in Figure 3 of document D4 between the printing nip and the closest point between the friction roller 11' and the platen roller 14, this straight line is neither vertical nor does it pass through the axis of friction roller 11' and the axis of the platen roller 14. It will be seen firstly that there is no conveying nip in this embodiment to cause the friction roller 14 to be pushed by the friction roller 11', and secondly that the platen roller 14 and print head 9 are so located that, if the platen roller bearings were worn, then the line of contact between the platen roller and the print head would move laterally. Moreover Figure 3 shows a stationary machine so that it cannot be argued that a vertical alignment would be achieved in some positions of use (unlike the hand held machine of Figure 6 of document D4).

Even if it were considered that Figure 4 of document D2 shows a **horizontal** alignment of the print element 30, drive roller 38 and pinch roller 48, then

it must be noted that the pinch roller 48 does not pinch the backing strip against the platen roller 38. Figure 1 of document D5 shows a similar arrangement.

In document D3, see Figure 1, the print support 11 is stationary and so has no bearings to wear.

In document D5, see Figure 1, there is no pinch roller coacting with the turnback member 4 underlying the print element 8.

6.7 The originally filed claim 7 states that the pinch roller is disposed in a position substantially opposed to the printing head through the platen. This is similar in effect to stating that the printing nip, conveying nip and pinch roller shaft are aligned. The statement in the present claim 1 that they are in vertical alignment is merely a further restriction. The search examiner looking for the subject-matter of the originally filed claim 7 (against which four relevant documents were cited in the search report) should therefore have found any documents relating to the **vertical** alignment if there had been any. Accordingly a new search for this feature is unnecessary.

6.8 In the application as filed Figures 1 and 2 were described as being a prior art example and Figure 2 shows the print head 3, platen roller 2, separating roller 5 and pinch roller 6 in vertical alignment. However no document has been cited to prove that what is shown is prior art and, in line with the statement made at the oral proceedings by the representative of

the appellants, the board must conclude that at the priority date the example was known only to the appellants. Moreover the arrangement of components in Figure 2 is somewhat different to that in the present invention since in Figure 2 there is no pressure on the platen roller from either the separating roller 5 or the pinch roller 6 so that the platen roller is not **pushed** relative to the print head.

- 6.9 The board therefore cannot see that any combination of the documents available to it would lead to the subject-matter of the present claim 1.

7. The subject-matter of claim 1 is thus patentable as required by Article 52 EPC. A patent may therefore be granted based on this allowable independent claim and on claim 2 which is dependent on claim 1. Since claim 2 defines a more specific embodiment of what was is claimed in claim 1 is also entitled to priority.

8. In view of section 5.4 above, the examining division should arrange that the patent specification indicates that "the file contains technical information submitted after the application was filed and not included in the specification".

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 grant a patent in the following version:

claims: 1 and 2 as filed during the oral proceedings

description: pages 1 to 11 as filed during the oral proceedings

drawings: Figures 1 to 4 as originally filed.

The Registrar:

The Chairman:

N. Maslin

C. Andries