BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

Publication in the Official Journal ~~Yes~~ / No

File Number: T 611/88 - 3.2.4

Application No.: 81 109 448.1

Publication No.: 0 053 728

Title of invention: Apparatus for detecting defects of printing sheets

Classification: B65H 7/14

D E C I S I O N
of 25 September 1991

Proprietor of the patent: Komori Corporation

Opponent: 01 Heidelberger Druckmaschinen AG
02 GAO Gesellschaft für Automation und Organisation m.b.H

Headword:

EPC Articles 54 and 56

Keyword: "Novelty (yes), inventive step (yes)"

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 611/88 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 25 September 1991

Appellant 01 : (Opponent 01)
Heidelberger Druckmaschinen AG
Kurfürsten-Anlage 52-60
Postfach 10 29 40
W-6900 Heidelberg (DE)

Representative :

Appellant 02 : (Opponent 02)
GAO Gesellschaft für Automation und Organisation mbH
Euckenstrasse 12
W-8000 München 70 (DE)

Representative :
Klunker, Schmitt-Nilson, Hirsch
Winzererstrasse 106
W-8000 München 40 (DE)

Respondent : (Proprietor of the patent)
Komori Corporation
11-1, Azumabashi 3-chome
Sumida-ku
Tokyo (JP)

Representative :
Kehl, Günther, Dipl.-Phy.
Patentanwälte
Hagemann & Kehl
Ismaninger Strasse 108
Postfach 86 03 29
W-8000 München 86 (DE)

Decision under appeal :
Decision of Opposition Division of the European Patent Office dated 11 October 1988 and dispatched on 28 October 1988 rejecting the opposition filed against European patent No. 0 053 728 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : C.A.J. Andries
Members : H.P. Ostertag
F. Benussi

Summary of Facts and Submissions

I. European patent No. 0 053 728 was granted with six claims based on European patent application No. 81 109 448.1 filed on 31 October 1981, Claim 1 reading as follows:

"Apparatus for detecting defects at a side edge of printing sheet (2) comprising:

a) a detector (20; 35; 44, 45) for detecting presence or absence of said printing sheet (2);

b) a detection timing means (28, 30, 32) for producing a detection timing signal (b) and

c) means (37; 42, 46, 47, 49; 55) for producing an output signal (e; h; k)

characterized in that

d) said detector (20; 35; 44, 45) is provided at one side of a front edge of a correctly fed printing sheet (2)

e) said detection timing means (28, 30, 32) is arranged to produce said detection timing signal (b) starting at an instant at which the front end of a normal correctly fed printing sheet (2) passes by said detector (20; 35; 44, 45) and ending at an instant at which the rear end of a normal correctly fed printing sheet passes by said detector (20; 35; 44, 45)

f) said means (37; 42, 46, 47, 49; 55) for producing said output signal (e; h; k) is arranged to produce that output signal when said detector (20; 35; 44, 45) detects absence of said printing sheet (2) while said detection timing signal (b) is being produced."

II. Notices of opposition were filed by Appellants 01 and 02 (Opponents 01 and 02 respectively), both requesting revocation of the patent on the grounds of Article 100(a) EPC, in particular for lack of inventive step.

III. Considering that the subject-matter of the contested patent does involve an inventive step, the Opposition Division rejected the oppositions by a decision given orally during oral proceedings on 11 October 1988 and posted on 28 October 1988.

IV. Both Appellants lodged an appeal, the notices of appeal being received on 3 December 1988 and 21 December 1988 respectively, the appropriate fees being paid on the same respective days and the grounds of appeal being received on 24 and 21 February 1989 respectively.

V. The parties rely on the following documents:

D0: DE-A-2 850 351
D1: DE-A-2 325 717
D2: DE-A-2 202 851
D3: DE-B-2 621 250
D4: DE-A-2 824 849.

VI. The Appellants essentially argue that Claim 1 - in particular feature e) thereof - is worded in rather broad terms so as to embrace embodiments corresponding to the apparatus disclosed by document D4. Therefore, the subject-matter of Claim 1 cannot be regarded as being novel. Moreover, the subject-matter of Claim 1 is to be regarded as being rendered obvious by the combined teaching of any two of documents D0 to D4.

VII. The Respondent (Proprietor of the patent) argues that the scope of Claim 1 is clearly limited to embodiments in which the detection timing signal is produced during the theoretical presence of a printing sheet, that the apparatus according to Claim 1 differs from the one

disclosed by document D4 not only in this respect but also in others and that the teachings of documents D0 to D4 are not combinable in the sense proposed by the Appellants.

VIII. At the end of oral proceedings held on 25 September 1991 the Appellants requested that the decision under appeal be set aside and the contested patent be revoked whereas the Respondent requested that the appeals be dismissed.

Reasons for the Decision

1. The appeal is admissible.

2. Interpretation of Claim 1

The broad interpretation of Claim 1 as adopted by the Appellants cannot be accepted by the Board. This interpretation is based on an undue isolated consideration of the individual features a) to f) taken out of the context of Claim 1 as a whole.

Feature b) relates to the emission of a timed signal, i.e. a signal emitted during predetermined time intervals and not to a signal emitted during the actual presence of a printing sheet. This becomes even more clear when considering - in combination - feature e), which is to be understood as specifying that predetermined time interval, and feature d) which not only defines the lateral position of the detector with respect to the moving direction of a printing sheet ("... at one side") but also the position of that detector in the moving direction of said printing sheet ("... of a front edge"). This latter statement is only meaningful, however, if this longitudinal position is correlated with a theoretical position of the front edge of a moving correctly fed printing sheet, this theoretical

position being defined by feature e) ("...at which the front end passes by said detector"). That means that the detector (20;35; 44,45) has to be located in such a manner that the front end of a normal correctly fed printing sheet confronts said detector when the detection timing means starts to produce the detection timing signal.

Thus, the Board cannot accept the Appellants' allegation that Claim 1 is worded in such vague terms as to embrace embodiments in which the detection signal is produced during an actual presence of a printing sheet.

The Board therefore agrees with the Respondent in that said detection timing signal is a signal produced during the theoretical presence of a printing sheet.

Also when considering the description and the drawings for interpretation of Claim 1, no other conclusion is possible.

3. Amendments

3.1 Having regard to the above interpretation of Claim 1, it becomes apparent that the amendments to Claim 1 carried out during examination proceedings are allowable. These amendments substantially relate to the introduction of feature e), which is fully supported by the application as filed, see page 7, lines 9 to 19; Fig. 7, signal (b); (corresponding to column 4, lines 40 to 53; Fig. 7, signal (b) and Claim 3 of the patent).

3.2 The other amendments carried out during examination proceedings relate to redrafting Claim 1 in the two-part form and to a corresponding adaptation of the description.

3.3 Thus, Art. 123(2) EPC is not contravened.

4. Novelty

4.1 Novelty has been contested by the Appellants in view of the teaching of document D4.

This document discloses a rather complex apparatus for establishing the state of sheets of paper, in particular the genuineness of banknotes. The apparatus includes a testing station consisting of a light source producing a light curtain and a plurality of photodiodes arranged on a line perpendicular to the moving direction of a sheet of paper passing therebetween. The apparatus fulfils two testing functions, namely

i) determining the size of the sheet. The sheet is fed to the station at constant speed. To determine the entry of the sheet, a number of selected photodiodes are connected by means of an OR-gate (page 17, paragraph 1) which, upon arrival of the leading end of the sheet, start the testing operation so as to permit the passage of X-clock signals for determining the length and Y-clock signals for repeatedly determining the width of the sheet. In this way a shadow image is formed which is compared with a nominal image. If the shadow image differs from the nominal image by more than a pre-selected number of points, the size of the sheet is considered to be incorrect and a fault signal is produced. In other words, a sheet of the correct size but having a limited number of holes, tears, folds etc. will not produce a fault signal (page 19, paragraph 2);

ii) scanning predetermined preferred rectangular areas of the sheet wherein the signal pattern obtained is

compared with a corresponding nominal pattern (page 20, paragraph 1). Again, if the scanned pattern obtained differs from the nominal pattern by more than a pre-selected number of points, a fault signal is produced.

4.2 The apparatus disclosed by document D4 thus differs from the subject-matter of Claim 1 in the sense that

i) the detection signal is produced during the actual presence of the sheet, which means that there is no detection timing means within the meaning of features b) and e) of Claim 1 of the patent in suit and the detector, i.e. the photodiodes, arranged at the side of the sheet is not arranged at the front end of a normal correctly fed sheet in the meaning of the present invention (see above section 2);

ii) the output signal (fault signal) is produced after completion of the test and not when a defect is detected.

4.3 The Board is satisfied that the remaining documents do not prejudice the novelty of the subject-matter of Claim 1.

4.4 Therefore the subject-matter of Claim 1 is considered as being novel within the meaning of Art. 54 EPC.

5. Problem and solution

5.1 Claim 1 has obviously been delimited against the teaching of document D0, which discloses a detecting device having all the features of the preamble of the patent. However, this detecting device is neither designed nor suitable for detecting defects of a side edge of a printing sheet, but intended for detecting the presence or absence of printing

sheets passing through a printing press in accordance with a given machine cycle. Thus, this known apparatus may be regarded as a starting point only insofar as it relates to feeding printing sheets to a printing press in accordance with a given machine cycle.

5.2 The problem as stated in the contested patent (column 3, lines 2 to 5) is to provide a simply constructed apparatus for determining defects on the side edge of travelling printing sheets.

The solution as set out in Claim 1 prevents defective printing sheets from being fed into the printing press thus avoiding formation of defective printed matter and/or damage of the printing press (column 6, lines 50 to 63).

5.3 The only document on file which deals with this problem is document D3. This document, however, discloses an apparatus which is so entirely different in design and function (see also section 6.2 below) that it cannot be regarded as a starting point for the present invention.

6. Inventive step

6.1 The apparatus disclosed by document D0 comprises a detection timing means for producing a detection timing signal during a short time interval within the theoretical time interval during which a correctly fed printing sheet should pass by a detector for detecting the presence or absence of said printing sheet and means for producing an output (stopping) signal when the detector detects absence of the printing sheet (see paragraph bridging pages 9 and 10).

In the view of the Appellants, a person skilled in the art, seeking a solution to the problem already known from

document D3, might arrive at the invention as claimed by simply providing the detector at one side of a front edge of a correctly fed printing sheet and by extending the detection timing signal so as to cover the total theoretical time of presence of the sheet. However, in the Board's view, this reasoning represents a typical ex-post-facto analysis, since this would mean modifying the known apparatus such that it no longer fulfils its known function but an entirely different one.

6.2 Indeed, the apparatus disclosed by document D3 is - as already mentioned - of an entirely different type. It comprises a conveying drum on which a printing sheet is held at its trailing edge by a plurality of suction nozzles. If the nozzles are not completely covered by the printing sheet (e.g. due to a folded back rear corner), this results in a reduction of the vacuum which is sensed by appropriate sensing means producing a stopping signal. This means firstly that the apparatus is only able to detect defects at the trailing end of a sheet, particularly the trailing side edge of the printing sheet and not anywhere along the side edge and secondly that there is no relative movement between the printing sheet and the detector. Thus, this document cannot provide any hint for designing an apparatus for detecting defects along the whole side edge of a printing sheet travelling relatively to the apparatus, not even when considering this document in combination with document D0 as put forward by the Appellants.

6.3 Both documents D1 and D2 have been cited by the Appellants primarily to demonstrate that it is known per se to provide devices for monitoring travelling paper sheets with detection timing means for activating detectors during predetermined time intervals in accordance with a machine cycle (which is, however, already known from

document D0). In fact, the devices disclosed in documents D1 and D2 respectively are not suitable for detecting defects at a side edge of a printing sheet: document D1 shows in Figure 2 a device for detecting overlength printing sheets, whereas the device of document D2 detects printing sheets which are incorrectly fed to a printing press (too early, too late, or obliquely). Thus, the teaching of either of these two documents is not more relevant than that of document D0.

6.4 The Appellants also have referred to document D4 with respect to obviousness.

It is true that document D4 explicitly teaches that the apparatus disclosed therein may not only be used for testing genuineness of banknotes but also for establishing the state of printed sheets or sheets to be printed in general, e.g. areas of printing sheets which remain unprinted and in which defects of the paper would be particularly striking (page 12, first paragraph). However, there is no explicit disclosure to use this apparatus for detecting defects of a side edge of a printing sheet.
It is also true that it is technically possible to use the apparatus as disclosed in document D4 for this purpose. This could be done either by reducing the number of acceptable incorrect width measurements to a minimum or by selecting the preferred rectangular area to be scanned so as to include a complete side edge of the sheet. However, when using this apparatus in this new way, it would remain a very complex apparatus and the differences set out in paragraph 4.2 above would still exist. Therefore, the Board cannot accept the Appellants' view that a skilled person, confronted with the problem of providing a simply constructed apparatus, would obviously regard the complex apparatus of document D4 as a starting point, would

eliminate all those elements therefrom which are not necessary to fulfil the specific function of detecting defects at a side edge of a travelling printing sheet (e.g. all the diodes but the ones at the side edge) and finally would exchange some of the remaining elements by other ones (e.g. the OR-gate-linked diodes by detection timing means as known from any of documents D0, D1 or D2) in order to meet his object. This, again, represents a typical ex-post-facto analysis.

6.5 For the reasons stated above, in the Board's judgment, the subject-matter of Claim 1 involves an inventive step within the meaning of Article 56 EPC.

7. Hence, it follows that Claim 1 as granted can be maintained.

Dependent Claims 2 to 6 relate to particular embodiments of the apparatus according to Claim 1 and can likewise be maintained.

Order

For these reasons, it is decided that:

The appeals are dismissed.

The Registrar: The Chairman:

~~N. Maslin~~
M Beer

C. Andries

02841