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Bezeichnung der Erfindung:
Title of invention:
Titre de l'invention : Sheet feeding apparatus

Klassifikation / Classification / Classement : B 65 H 3/00, B 65 H 9/00

ENTSCHEIDUNG / DECISION

vom / of / du 1 October 1987

Anmelder / Applicant / Demandeur : Xerox Corporation

Patentinhaber / Proprietor of the patent /
Titulaire du brevet :

Einsprechender / Opponent / Opposant :

Stichwort / Headword / Référence :

EPÜ / EPC / CBE Article 56 EPC

Kennwort / Keyword / Mot clé : "Inventive step (Yes)"

Leitsatz / Headnote / Sommaire

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Case Number : T 102/86

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 1 October 1987

Appellant : Xerox Corporation
Xerox Square-020
Rochester
New York 14 644 (US)

Representative : Frain, T.J.,
c/o Rank Xerox Limited
Patent Department
Rank Xerox House
338 Euston Road
London NW1 3BH (GB)

Decision under appeal : Decision of Examining Division 084 of the European Patent Office dated 17 October 1985 refusing European patent application No. 80 303 011.3 pursuant to Article 97(1) EPC

Composition of the Board :

Chairman : P. Delbecque
Member : C. Wilson
Member : G. D. Paterson

Summary of Facts and Submissions

I. European patent application No. 80 303 011.3, filed on 29 August 1980 and published under publication No. 0 026 977, was refused by a decision of the Examining Division dated 17 October 1985.

That decision was based on Claim 1 filed on 14 January 1985 and Claims 2 to 11 filed on 4 February 1983.

II. The impugned decision cites the following documents:

EP-A-0 002 229
US-A-3 647 207 and
US-A-4 098 501

and comes to the conclusion that the claimed subject-matter lacks an inventive step.

III. A notice of appeal was filed on 14 December 1985 and the appeal fee was paid on the same date. The Statement of Grounds was filed on 18 February 1986. On 27 August 1987, in reply to a communication from the Board, the Appellant filed new Claims 1 to 9, and a new page 4 of the description. Claim 1 is worded as follows:

"Sheet feeding apparatus comprising a rotatable driven feed roll shaft (75) with a first feed roll (76) fixedly mounted on said shaft, a second feed roll (82) axially movably mounted on said feed roll shaft (75), means (85, 86, 87) to axially move said second feed roll (82) on said shaft (75), a sheet cassette (61 or 62), guide means (64) for receiving and guiding said sheet cassette (61 or 62) into feeding position with said feed roll shaft (75), said first fixed feed roll (76) being mounted on said shaft (75) a fixed

distance from a first side of said cassette (61 or 62), wherein said means (85, 86, 87) for moving said second feed roll (82) on said feed roll shaft (75) includes means (88) automatically responsive to the insertion and movement of a sheet cassette (61 or 62) onto said guide means (64) and into the feeding position on said guide means (64) to axially move said second feed roll (82) on said feed roll shaft (75) to a position such that said second axially movable feed roll (82) is positioned the same fixed distance from a second side of said cassette (61 or 62) opposite said first side thereof that the first feed roll (76) is positioned from said first side, characterised in that the second feed roll (82) is axially spring biased (92) towards the side of the apparatus from which the cassette (61 or 62) is inserted, and in that the apparatus is arranged for the cassette (61 or 62) to be inserted with the second side as the leading side whereby the cassette insertion responsive means (88) engages said leading side as said cassette (61 or 62) is moved to the feeding position thereby urging the second feed roll (82) to move axially against the spring bias."

The Appellant requests that the impugned decision be set aside and that a patent be granted based on the above referred-to Claims 1 to 9.

Reasons for the Decision

1. The appeal complies with Articles 106 to 108 and Rule 64 EPC and is, therefore, admissible.

2. Concerning the formal admissibility of the new Claim 1, it is observed that a comparison of the new Claim 1 with the Claim 1 on which the impugned decision was based, shows that in addition to minor clarifying amendments it has been further amended to specify that it is the leading side of

the cassette which engages the cassette insertion responsive means. This feature is clearly supported by the drawings and description (see also original Claim 2). Further, the new Claims 2 to 9 correspond to Claims 2 to 5, 7 to 9, and 11 on which the impugned decision was based. No objection under Article 123(2) EPC therefore arises in respect of the new claims.

3. An examination of the citations revealed in the Examination process shows that none of them disclose sheet feeding apparatus having all the features set out in Claim 1. Since this has never been alleged, no detailed substantiation of this matter is required. The subject-matter of Claim 1 is therefore novel.

4. It remains to be examined therefore whether the subject-matter of the claim involves an inventive step. This examination results in the following observations:

4.1 The preamble of Claim 1 is based on the sheet feeding apparatus disclosed in EP-A-0 002 229, which forms the nearest prior art.

4.2 The problem to be solved with respect to this prior art, as pointed out by the Appellant in his Statement of Grounds, is to provide a sheet feeder which is not only self-aligning, but also caters automatically for different sizes of cassette, i.e. without manual adjustment. That is to say, the problem to be solved involves automatically positioning the adjustable feed roll in response not merely to the insertion of a sheet cassette, but in response to the insertion of sheet cassettes of different sizes.

4.3 This problem is solved in the present invention by axially biassing the second feed roll towards the side of the apparatus from which the cassette is inserted and arranging the apparatus so that the cassette is inserted with the second side as the leading side whereby the cassette insertion responsive means engages the leading side as the cassette is moved to the feeding position thereby urging the second feed roll to move axially against the spring bias.

4.4 As opposed to this, in the main embodiments of the apparatus according to EP-A-0 002 229, a stack of paper is positioned on a tray between two partitions, the leading one of which is fixed and the trailing one of which is selectively manually positioned in one of a number of predetermined positions corresponding to the size of paper used. The leading partition is provided with notches to allow it to pass beyond the feed rolls and the insertion responsive means, viz. a pin, so that the means may be engaged by the trailing partition to be positioned along the drive shaft, in which position it is then held by a ball-and-recess click-stop mechanism.

In an alternative embodiment, according to Fig. 14 of the EP-A-0 002 299, the paper is mounted in a cassette which is placed on the tray. However, the description of this embodiment is completely silent with respect to whether the cassette is provided in addition to the partitions or whether the cassette sides are to be used to function as the partitions in the other embodiments. The Figure shows no partitions, but equally shows a standard cassette which could not function as the partitions do with the second feed roll. The reference in Claim 1 of that document to means for moving the second sheet roller, which reference is followed by the reference numerals corresponding to the movable partition, the pin, and the cassette, do not help

further to clarify how the cassette embodiment is to work. There is certainly no indication here, without the benefit of hindsight, to use the leading edge of the cassette rather than the trailing partition and to bias the second feed roll axially with a spring.

4.5 The other two cited documents, both of which are already fully acknowledged in the patent application, do not help further in this respect. In the apparatus according to US-A-3 647 207 a pair of feed rolls are manually positioned above the centre line of a stack of sheets to ensure their correct feed from a cassette. In the apparatus according to US-A-4 098 501, one feed roll is axially fixed on the drive shaft a fixed predetermined distance from the side wall and the second feed roll must be manually moved against a spring force to allow the insertion of a rigid spacer between the roll carrier and the other side wall, the size of spacer depending on the size of paper to be used. Neither of these documents alone, nor in combination with each other nor with EP-A-0 002 229 provide an indication allowing the man skilled in the art to arrive at the construction as provided for in the characterising part of Claim 1.

4.6 The subject-matter of Claim 1 therefore involves an inventive step and the claim is therefore allowable.

5. The dependent Claims 2 to 11 have as subject-matter special embodiments of the invention of Claim 1, and are also therefore allowable.

Order

For these reasons it is decided that:

1. The decision of the Examining Division of 17 October 1985 is set aside.

2. The case is remitted to the first instance with the order to grant a European patent on the basis of the following documents:

Claims 1 to 9 filed on 27 August 1987,
Description, page 4 filed on 27 August 1987,
Description, original pages 1 to 3 and 5 to 12, and
Drawings, original sheets 1/6 to 6/6.

The Registrar: The Chairman:

F.Klein P. Delbecque