

Veröffentlichung im Amtsblatt Ja/Nein
Publication in the Official Journal Yes/No
Publication au Journal Officiel Oui/Non



Aktenzeichen / Case Number / N° du recours : T 368/87
Anmeldenummer / Filing No / N° de la demande : 81 305 202.4
Veröffentlichungs-Nr. / Publication No / N° de la publication : 0 053 438
Bezeichnung der Erfindung: Variable power fuser control
Title of invention:
Titre de l'invention :
Klassifikation / Classification / Classement : G03G 13/20, G03G 15/20

ENTSCHEIDUNG / DECISION
vom / of / du 21 February 1989

Anmelder / Applicant / Demandeur :
Patentinhaber / Proprietor of the patent /
Titulaire du brevet : Xerox Corporation
Einsprechender / Opponent / Opposant : Océ-Nederland B.V.

Stichwort / Headword / Référence : Article 56 EPC
EPU / EPC / CBE "Inventive step (no)"
Schlagwort / Keyword / Mot clé :

Leitsatz / Headnote / Sommaire

Europäisches
Patentamt

European Patent
Office

Office européen
des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number : T 368/87



D E C I S I O N
of the Technical Board of Appeal 3.4.1
of 21 February 1989

Appellant :
(Opponent)

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Decision under appeal :

Decision of the Opposition Division of the European
Patent Office dated 28 July 1987 rejecting
the opposition filed against European patent
No. 0 053 438 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : K. Lederer

Members : E. Turrini

R. Schulte

Summary of Facts and Submissions

- I. European patent No. 0 053 438 was granted in response to European patent application No. 81 305 202.4.
- II. The Appellant (Opponent) filed notice of opposition against the European patent and requested revocation of the patent in its entirety on the grounds of non-patentability under Articles 52 to 57.

He mentioned for the first time prior art documents US-A-4 113 375 (A), DE-A-2 419 663 (B) and FR-A-2 433 254 (C).
- III. The Opposition Division rejected the opposition.
- IV. An appeal against the decision was lodged by the Appellant, who requested that the decision under appeal be set aside and the patent be fully revoked.

The Appellant supported his request by arguing as follows:

The main difference between the subject-matter of the patent in suit and the prior art resides in setting in a non-volatile memory an indication for the total power available to the reproduction machine, said non-volatile memory forming part of the machine control system.

The use of power supply controllers with store capability to store information concerning the total power available and thus allowing the wanted delivery of power to different power consuming devices, is known in the electro-technical field, e.g. from prior art documents B and C.

Owing to the fact that usually reproduction machines are designed by a team of experts comprising electro-technicians, the latter would obviously apply their knowledge to the reproduction machines of the prior art. In this way, the skilled man would arrive at the invention without inventive ingenuity.

- V. The Respondent's (Proprietor's) answer to the statement of grounds of appeal can be summarised as follows:

The skilled experts in the field of reproduction machines, in particular those involved in the control system design of said machines, would not consult specialists in totally different areas as the area of power distribution to heavy duty consumers to which document B is referred, or the area of domestic distribution cut-out systems to which document C is referred.

The utilisation of documents B or C to raise objections against the inventive step of the subject-matter of the patent in suit is therefore not acceptable.

- VI. Following a communication from the Board of Appeal, said communication raising objections under Article 56 of the EPC concerning all the claims of the patent specification in view of prior art documents A and B or A and C, the Appellant filed an auxiliary request for oral proceedings.
- VII. The Respondent filed a new Claim 1 including the features of Claims 1 and 2 of the patent specification, and a new Claim 2 including the features of Claims 3 and 4 of the patent specification with some additional amendment to bring it into line with new Claim 1.

He requests "the application to proceed", i.e. the patent to be maintained as amended. He persists in maintaining that the documents B and C have to be discarded and adds that even if they were to be considered together with the teaching in column 1, lines 18 to 33 of the patent in suit, the subject-matter of the new claims would still involve an inventive step because they could then be arrived at only by a combination of three pieces of prior art.

VIII. Current Claim 1, the only method claim, reads as follows:

"A method of operating a reproduction machine having a fuser for fixing images produced on copies and having other operating components, comprising

determining the total power available to the reproduction machine from a power source,

setting a power availability indication in a non-volatile memory forming part of the machine control system,

providing a first power level to operate said other operating components,

providing a residual power level to operate the fuser during operation of the other operating components, the residual power level being the difference in power between the available total power monitored from the memory and the power to operate the other operating components,

operating the other operating components and the fuser at the first and residual power levels until the fuser temperature drops below a predetermined level,

inhibiting operation of the other operating components upon detecting the fuser below the predetermined temperature level,

making the total power available to the fuser to raise the fuser temperature to an operating level, and

resuming operation of the other operating components and the fuser at the first and residual power levels to produce copies."

Current Claim 2, the only apparatus claim, reads as follows:

"A reproduction machine for producing copies of an original (34) comprising a photosensitive member (12), a fuser (82, 84) and a plurality of other operating components (A, B, C, D, E) cooperable with one another and the photosensitive member to electrostatically produce the copy upon support material (66), and a controller (100) including a non-volatile memory (102), the machine being characterised by means for operating the machine at a variety of distinct power outlets, the operating means including means for setting the memory (102) to manifest a given total power availability, means (100) for scanning the memory to determine the total power available for the machine, means (100) responsive to the manifestation of the total power available to provide a first power level to operate said other operating components,

means to provide a residual power level to operate the fuser during operation of the other operating components, the residual power level being the difference in power between the available total power monitored from the memory and the power to operate the other operating components,

means for operating the other operating components and the fuser at the first and residual power levels until the fuser temperature drops below a predetermined level,

means for inhibiting operation of the other operating components upon detecting the fuser below the predetermined temperature level,

means for making the total power available to the fuser to raise the fuser temperature to an operating level, and means for resuming operation of the other operating components and the fuser at the first and residual power levels to produce copies."

Reasons for the Decision

1. The appeal is admissible.
2. There is no objection concerning Article 123(2) and (3) EPC, nor did the Appellant raise any doubt about this point.
3. Novelty.
 - 3.1 Prior art document A (Figures 1 and 2; description: column 1, line 1 to column 5, line 8) discloses a method of operating a reproduction machine (description: column 1, lines 7 and 8 "electrophotographic copying apparatus") having a fuser (Figure 1, "fixing device 4") for fixing images produced on copies and having other operating components (Figure 1, "exposing device 6"), comprising the following steps:

- providing a first power level to operate said other operating components (Figure 2; description: column 4, lines 48 to 59);
- providing a residual power level to operate the fuser during operation of the other operating components, the residual power level being the difference in power between the available total power and the power to operate the other operating components (Figure 2; description: column 4, lines 59 to 63 and column 5, lines 6 to 8);
- operating the other operating components and the fuser at the first and residual power levels (Figure 2).
- detecting the fuser temperature decreasing below a predetermined level (column 4, lines 64 to 68).

Contrary to the subject-matter of Claim 1, the method according to document A does not mention the steps of determining the total power available to the reproduction machine from a power source and of setting a power availability indication in a non-volatile memory forming part of the machine control system. Furthermore, document A does not disclose the sequence of the following steps: inhibiting the operation of the other operating components upon detecting the fuser below the predetermined temperature level, making the total power available to the fuser to raise the fuser temperature to an operating level and resuming operation of the other operating components and the fuser at the first and residual power levels to produce copies.

- 3.2 The prior art reported in the patent specification (column 1, lines 18 to 33) does not mention the features of Claim 1 concerning the subdivision of the total power available in first and residual power levels.
- 3.3 Documents B and C do not lie in the field of the reproduction machines.
- 3.4 The other cited prior art documents are more remote from the subject-matter of Claim 1 and, therefore, do not warrant detailed consideration.
- 3.5 For the above reasons, the subject-matter of Claim 1 is deemed to be novel within the meaning of Article 54 EPC.
- 3.6 The same reasoning applies, mutatis mutandis, to the apparatus Claim 2, which relates to a reproduction machine comprising means suitable for carrying on the method according to Claim 1. Thus, the subject-matter of Claim 2 is also considered novel within the meaning of Article 54 EPC.
4. Inventive step.
- 4.1 Starting from the disclosure of document A, which is in the Board's opinion the nearest prior art, the objective problem underlying the present invention is to easily adapt the machine to different power outlets, while keeping the fuser at suitable operation temperature.
- 4.2 The identification of the problem does not contribute to the inventive step, since the skilled man would, as matter of course, try to render the machine more flexible, i.e. easy to adapt to different power outlets, while keeping

the machine at the requested operative conditions, this being a self-evident common aim in different technical fields.

4.3 As far as the solution of this problem is concerned, the skilled person would first seek said solution in the field of reproduction machine control systems and he would indeed be taught by the prior art referred to in the patent in suit, column 1, lines 18 to 33, to add to the method known from document A the following steps:

- inhibiting operation of the other operating components upon detecting the fuser below a predetermined temperature level,
- making the total power available to the fuser to raise the fuser temperature to an operating level, and
- resuming operation of the other operating components and the fuser at the first and residual power levels to produce copies.

In this way, a suitable operation temperature of the fuser would have been assured. Furthermore, the skilled man should still find a solution to the adaptability of the machine for different power outlets. To attain this, there is no reason why the skilled person should restrict his search to the field of reproduction machine electrical power control and feeding systems. In the absence of a satisfactory solution in that technical field, he would as matter of course consult specialists in electrical power control and feeding systems of other technical fields. Indeed, the problem is of general interest and therefore prompts the skilled man to look for a solution in any technical field of electric power control systems, e.g.

those for sharing electric power among devices of different priority in the field of heavy duty electricity consumers as indicated in document B, or in the field of domestic electric networks for providing power to individual loads as referred to in document C.

In this case, the skilled man qualified to solve the problem is the specialist in the technical field of document B. In the light of the problem to be solved it was obvious to ask the person skilled in that field because it could be assumed to find a solution for the problem there (cf. Decision of the Technical Board of Appeal, T 32/81, OJ 1982, 225).

Document B discloses (Figure 1; page 2, paragraph 4 to page 4, paragraph 2) a controller for allocating on a priority basis the electric power (8 "RST") to be supplied to different power consuming devices (7a to 7n) according to the power levels of said devices. A programming device ("Programmier- und Fernsteuereinheit 3") stores information concerning the total power available from the power source (page 3, first paragraph: "zur Festlegung des Maximalwertes der Netzbelastung"), i.e. a power availability indication is stored in the memory of the programming device (3).

Following the teaching of document B, the man skilled in the art would therefore easily introduce in the method of document A, modified according to the teaching of prior art set out in the patent in suit, column 1, lines 18 to 33, the steps of determining the total power available to the reproduction machine from a power source and of setting a power availability indication in a memory forming part of the machine control system, so as to allow for different power outlets an easy subdivision of the

total power available in the first and residual power levels above mentioned. Indeed, such solution renders the machine suitable for different power outlets by merely modifying the content of the memory.

Among the different types of memories, the choice of a non-volatile memory would be a working option for the skilled man, this kind of memory being well known in the art and being particularly suited for this application insofar as such a memory is able to keep its content even for long periods of time without the need of refreshing it.

The skilled man would therefore, without inventive ingenuity, obtain the method of Claim 1.

Document C, instead of B, would lead the skilled man to the same result. Indeed, document C is also concerned with the allocation on a priority basis of the electric power to be supplied to different devices (page 2, lines 18 to 39), whereby the control system includes a memory ("bloc de consigne" 6) in which the value of the total power available, i.e. a power availability indication, is stored (page 3, lines 27 to 31) and can be varied (page 4, lines 13 and 14).

The Respondent's submissions that the skilled man would not consider documents B or C because in the present case it is not obvious to consult specialists in electric power control systems of other technical fields, cannot be followed by the Board. It is admitted that the Board's decision T 32/81, OJ EPO 1982, 225 does not say that it is always obvious for the skilled man in one field to consult experts in other fields. Said decision however emphasises that if the problem prompts the person skilled in the art

to seek its solution in another technical field, the specialist in that field is the person qualified to solve the problem. This applies at the present case in as much as the problem of rendering the reproduction machine suitable for different power outlets is not specific of this kind of machine and would therefore suggest the skilled person to seek a solution in any field concerning electric power control and feeding systems.

The Respondent alleged furthermore that to arrive at the invention the combination of three pieces of prior art, namely document A, documents B or C and prior art D0 has to be considered and that this would imply the exercise of an inventive ingenuity.

However, the Board is of the opinion that the presence or absence of an inventive step cannot depend from the number of prior art documents utilised in the reasoning, i.e. the mere number of documents cannot invalidate an objective reasoning based on said documents and leading to the conclusion that the proposed solution to the stated problem must be regarded as obvious.

4.4 For the above reasons, the subject-matter of Claim 1 lacks inventive step (Article 56 EPC) and the grounds for opposition mentioned in Article 100(a) EPC prejudice therefore the maintenance of Claim 1.

4.5 The objections of lack of inventive step raised for the method Claim 1 apply, mutatis mutandis, for the apparatus Claim 2.

Indeed, from document A it is known a reproduction machine for producing copies of an original (description: column 1, lines 7 and 8) comprising a photosensitive

member (description: column 1, lines 16 and 17 "photoreceptor surface"), a fuser (Figure 1 "fixing device 4") and a plurality of other operating components cooperable with one another and the photosensitive member to electrostatically produce the copy upon support material (description: column 1, lines 13 to 25), and a controller (Figure 1, reference 2), the machine including:

- means (Figure 1: references 18, 20, 22 and 24) responsive to the manifestation of the total power available to provide a first power level to operate said other operating components (Figure 1, "exposing device" 6; description: column 4, lines 48 to 59);
- means (Figure 1, references 12, 14, 18, 22) to provide a residual power level to operate the fuser during operation of the other operating components, the residual power level being the difference in power between the available total power monitored from the memory and the power to operate the other operating components (description: column 4, lines 59 to column 5, line 13);
- means for operating the other operating components and the fuser at the first and residual power levels (Figures 1 and 2).

Starting from document A, the prior art acknowledged in column 1, lines 18 to 33 of the patent in suit would suggest to the skilled man, wishing a suitable operation temperature of the fuser, to introduce in the reproduction machine the following means working in sequence:

- means for inhibiting operation of the other operating components upon detecting the fuser below the predetermined temperature level;
- means for making the total power available to the fuser to raise the fuser temperature to an operating level, and
- means resuming operation of the other operating components and the fuser at the first and residual power levels to produce copies.

Finally, the skilled man would find a suggestion of rendering the reproduction machine suitable for different power outlets, e.g. in document B. Indeed, the latter document would suggest him to include a memory in the controller (page 3, first paragraph: "eine Programmier- und Fernsteuereinheit, die zur Festlegung des Maximalwertes der Netzbelastung bestimmt ist") and to complete the reproduction machine with means for operating the machine at a variety of distinct power outlets ("Maximalwert der Netzbelastung"), the operating means including means for setting the memory to manifest a given total power availability and with means for scanning the memory to determine the total power available for the machine (page 3, first paragraph).

The utilisation of a special kind of memory, i.e. a non-volatile memory, is considered, as already emphasised, a working option.

The skilled man would therefore, without inventive ingenuity, obtain the subject-matter of Claim 2.

4.6 Thus, the subject-matter of Claim 2 is not considered to involve an inventive step within the meaning of Article 56 EPC and the grounds for opposition mentioned in Article 100(a) EPC prejudice therefore the maintenance of Claim 2.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chairman:

F. Klein

K. Lederer