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Bezeichnung der Erfindung: Image forming apparatus

Title of invention:

Titre de l'invention :

Klassifikation / Classification / Classement : G03G 15/052

### ENTSCHEIDUNG / DECISION

vom / of / du 24 July 1990

Anmelder / Applicant / Demandeur :

Patentinhaber / Proprietor of the patent /  
Titulaire du brevet :

Kabushiki Kaisha Toshiba

Einsprechender / Opponent / Opposant : Xerox Corporation

Stichwort / Headword / Référence :

EPO / EPC / CBE Art. 56, 123(2) and (3)

Schlagwort / Keyword / Mot clé :

"Inventive step (No) (Main request)"  
"Added subject-matter, extension of protection  
conferred (yes) (Auxiliary request)"

Leitsatz / Headnote / Sommaire

Europäisches  
Patentamt  
Beschwerdekammern

European Patent  
Office  
Boards of Appeal

Office européen  
des brevets  
Chambres de recours



Case Number : T 372/89 - 3.4.2

**D E C I S I O N**  
of the Technical Board of Appeal 3.4.2  
of 24 July 1990

**Appellant :**  
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**Decision under appeal :** Decision of Opposition Division of the European Patent  
Office dated 1 March 1989, posted on 10 April 1989  
revoking European patent No. 0 127 867 pursuant to  
Article 102(1) EPC.

**Composition of the Board :**

**Chairman :** J.D. Roscoe  
**Members :** W.W.G. Hofmann  
L.C. Mancini

## Summary of Facts and Submissions

- I. European patent No. 0 127 867 was granted in response to European patent application No. 84 106 082.5.
- II. The Respondent (Opponent) filed a notice of opposition against the European patent and requested revocation of the entire patent on the grounds of lack of inventive step (Articles 52 and 56 EPC).
- III. The Opposition Division revoked the European patent by its decision dated 1 March 1989 on the grounds that the subject-matter of Claim 1 as granted did not involve an inventive step in view of the disclosure of the following documents:
  - (1) US-A-3 967 896
  - (2) US-A-4 046 467 and
  - (6) US-A-4 332 464and the common general knowledge relating to dual-speed buttons as exemplified by
  - (3) GB-A-2 070 816
  - (4) Potterton Electronic Programmer model EP 2000, publication No. 558 957/0183/A and
  - (5) DE-A-3 147 357.
- IV. An appeal against this decision was lodged by the proprietor of the patent.
- V. In a communication pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, the Board introduced the document

(7) US-A-3 542 467

into the proceedings.

VI. At the oral proceedings held on 24 July 1990, the Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of:

- (1) Claims 1 and 2 as handed over at the oral proceedings (main request), or
- (2) Claims 1 and 2 referred to in Appellant's statement of grounds of appeal filed 10 August 1989 as auxiliary petition (auxiliary request).

VII. The Respondent requests that the appeal be dismissed.

VIII. Claim 1, the sole independent claim of the main request, reads as follows:

"An image forming apparatus comprising: an optical means (14-19) for optically scanning a document and transmitting light beams from said document for forming an optical image of said document;

magnification ratio setting means for setting the magnification ratio between said optical image size and said document size;

wherein said magnification ratio setting means comprises a first magnification ratio setting unit which includes at least one magnification ratio setting key (79<sub>1</sub>-79<sub>5</sub>) for setting a specified magnification ratio, and a second magnification ratio setting unit which includes a magnification ratio increasing key (81<sub>1</sub>) and a magnification ratio decreasing key (81<sub>2</sub>), each of said keys being used for setting a desired magnification ratio; and control means for controlling said optical means (14-19) in

such a manner that an optical image having a magnification ratio set by using said first and/or second magnification ratio setting units is projected on a photosensitive medium (20), characterized in that when said magnification ratio increasing key (81<sub>1</sub>) or said magnification ratio decreasing key (81<sub>2</sub>) is operated continuously for a first time period, said magnification ratio is increased or decreased by a first predetermined value of magnification ratio, and when said magnification ratio increasing key (81<sub>1</sub>); or said magnification ratio decreasing key (81<sub>2</sub>) is operated continuously longer than said first period of time, said magnification ratio is increased or decreased by a second predetermined value of magnification for each preselected time unit exceeding said first period of time, and that said first magnification ratio setting unit includes a plurality of magnification ratio setting keys (79<sub>1</sub>-79<sub>5</sub>) and a plurality of pilot lamps (80<sub>1</sub>-80<sub>5</sub>) provided corresponding to said magnification ratio setting keys, the pilot lamp corresponding to a setting key by which a magnification ratio is set being energized; and said second magnification ratio setting unit includes a magnification ratio indicator (82) which indicates the magnification ratio set by said first or second magnification ratio setting units."

The sole independent claim, Claim 1, of the auxiliary request differs therefrom by the replacement of the underlined (in bold) passage (Board's underlining) by "every first period of time"; and insertion of the word "that" between "and" and "said" after the last semicolon.

Claim 2 is dependent on Claim 1.

IX. The arguments presented by the Appellant were essentially as follows:

1. Article 123(3) EPC

According to Article 69(1) EPC the description shall be used to interpret the claims. When considering the final passage of the granted Claim 1 commencing "when said magnification ratio increasing key (81<sub>1</sub>) or ...", (which also appears in Claim 1 of the main request), the term "for each preselected time unit" can only be interpreted in one way when the passages at column 8, lines 8 to 13 and 16 to 20 of the patent, which have counterparts in the original description, are read in conjunction, that is to mean "each period which is longer than said first time unit and defines the pushing time of the key 81<sub>1</sub>". Therefore the meaning, and hence the scope, of Claim 1 of the auxiliary request is identical to that of Claim 1 of the main request when correctly interpreted in the light of the description (see decision T 271/84). The true interpretation of the term in question was immediately apparent for the skilled person within the meaning of Rule 88 EPC.

2. Inventive step

2.1 Of the documents referred to in the decision only the two similar documents (1) and (2) and documents (5) and (6) relate to photocopying machines and none of them discloses or suggests an arrangement for changing the magnification ratio as claimed in Claim 1 of either request.

2.2 Document (3) discloses no more than a time display set by operation of a button which in a certain mode of setting causes adjustment of the hours to be effected

at two different speeds, a lower speed for the first hour and a faster speed for subsequent hours. It does not teach a technique for decreasing a value and a member for selecting one of various standard values.

2.3 Document (5) teaches a technique wherein momentary depression of one of two keys changes a numerical value by "1" whereas if the key is held down the value is changed by "1" after decreasing intervals of time until a certain interval is reached. Thus the count, number of copies, to be changed is not varied as in the claimed arrangement but the speed of changing the numerical count is increased when the key is held down.

2.4 Document (6) discloses no more than an apparatus having keys for different fixed magnification ratios together with two keys for respectively increasing and decreasing the magnification ratio and means indicating the actual magnification ratio to which the apparatus is adjusted as a percentage of original size. It does not teach changing the steps of magnification ratio (1% and 10%) in accordance with the interval of time during which the key is depressed.

Thus none of the documents cited discloses or suggests an apparatus having the characterising features of Claim 1 of either request.

2.5 The Appellant did not contend that the features of the respective Claims 1 derived from the granted Claim 2 could be regarded as involving an inventive step but observed that they made the machine more convenient for the user.

X. The Respondent contends that all the patentee has done is to set a variable (here the magnification ratio in a copying apparatus) using a "dual-speed" technique well-known inter alia in the display arts. It was known to set a variable magnification ratio in a copier using a single-speed setting button, and to set a variable (number of copies required) in a copier using the dual-speed technique. There could not possibly be an invention involved in applying the well-known dual-speed selection technique to a copier or to a different variable of a copier. It was simply a matter of choice and there was no problem to overcome which could be said to involve an inventive step.

The difference between the method of adjustment used in document (5) and that claimed was not of inventive significance. The skilled person would recognise that to effect a stepwise adjustment at a variable rate he has the choice between varying the step frequency using a constant step or maintaining the step frequency constant and varying the height of the steps.

Concerning the question of infringement of Article 123(3) EPC the Respondent was of the opinion that the passages quoted by the Appellant did not furnish unambiguous support for the construction which the Appellant sought to put on the contentious part of the granted Claim 1.

The Respondent also filed a sworn statement by a Mr T.J. Frain describing the mode of operation of the processor to which document (4) relates as well as the date at which he was supplied with the programme and the corresponding document (4).



## Reasons for the Decision

1. The appeal is admissible.

2. Amendments

2.1 Main request

Claim 1 of this request corresponds to a combination of the granted Claims 1 and 2, and Claim 2 to Claim 3 of the granted patent. Therefore the amendment of the claims neither results in an extension of the protection conferred (Article 123(3) EPC) nor in the introduction of subject-matter extending beyond the content of the application as filed (Article 123(2) EPC).

2.2 Auxiliary request

2.2.1 The sole difference between Claim 1 of the main and auxiliary requests is that in the passage relating to what happens when the magnification increasing or decreasing key is operated continuously, the passage "each preselected time unit exceeding said first period of time" appearing in Claim 1 of the main request has been replaced by "every first period of time" in the auxiliary request.

2.2.2 In the Appellant's opinion the two claims are of the same scope, one being merely a clarified version of the other. This opinion is based on passages appearing in column 8 and Claim 1 of the patent as granted. The Board has thoroughly studied the granted patent and finds that the only passages which can provide assistance in correctly interpreting the passage in Claim 1 of the main request, which in this respect corresponds to that of granted Claim 1 and Claim 2 as originally filed, are column 2, lines 51 to 55 (which is

identical with the passage in Claim 1), column 6, lines 53 to 58 and column 8, lines 15 to 20 and 40 to 47 of the description read in conjunction with the flow chart Figs. 8A and 8B.

2.2.3 From these passages it seems to be perfectly clear that when the respective key is pressed for up to and including a certain period of time (first period) which in the only embodiment described in column 8 is 1 second, the magnification ratio (MR) is changed by a first predetermined value (.01 in the embodiment), and there is no dispute about this, so that "a first time period" has to be construed in the claims as meaning or at least including "less than or up to and including" since if however soon before expiry of the period the key is released the effect is the same.

2.2.4 As to what happens when the key is held down for longer than the first time period (1 second in the embodiment) column 6, lines 56 to 58 states that the MR may be changed by 0.1 every second, and column 8, lines 16 to 20 states that if the pushed state of the key continues for more than 1 second the operation advances to step S11 in which MR is increased by 0.1 every second. According to column 8, lines 43 to 47, if pressing of the MR decreasing key 81<sub>2</sub> continues over one second in step 15, step 16 is executed to decrease MR by 10%/second.

In the granted claim however the MR is said to be increased or decreased by a second predetermined value of magnification for each preselected time unit exceeding said first period of time. In the Board's view this would be understood by the skilled person to mean that after expiry of the first period, e.g. 1 second, the MR begins to increase by the second value of MR for each preselected

time unit, which need not correspond to the first time period in length, measured from the time of said expiry and thus that in the example, immediately after the expiry of 2 seconds, the total increase or decrease in MR will be .11 and not .2 as the Appellant argues. This cannot be seen to be in any way inconsistent with the passages in the granted description.

- 2.2.5 Therefore the amendment of the claim which has been made specifically for the purpose of indicating that at the end of the first time period the MR ratio immediately jumps from in the example .01 to .1 over the starting value is inadmissible since it would have the effect of introducing new matter and extending the scope of protection contrary to the requirements of Article 123(2) and (3) EPC respectively. Hence for this reason the auxiliary request has to be refused.

All the subsequent comments relate to the main request.

3. Main request: novelty

- 3.1 Neither of the documents (3) or (4) relates to an image forming apparatus involving forming an optical image of an optically scanned document. On the other hand none of the documents (1), (2) (5), (6) and (7) discloses the use of a key which when operated continuously for less than a predetermined period of time changes the magnification ratio by a first value and when continuously operated for a longer period changes it by a second value for one more preselected time unit.
- 3.2 Hence, the subject-matter of Claim 1, as both parties are agreed, is novel within the meaning of Article 54 EPC.

4. Nearest prior art

4.1 The Board takes the view that document (6) discloses the prior art apparatus which comes closest to the subject-matter of Claim 1. This apparatus has all the features of the preamble of Claim 1 in combination, apart from the fact that the optical image is formed not by optically scanning but by simple projection, using a fixed optical system, onto a momentarily stationary photoconductive belt. However, when this difference was drawn to the Appellant's attention at the oral proceedings he stated that the preamble of the claim was intended to be based on the type of machine disclosed in this document and that it was not being argued that the feature of optical scanning represented or contributed to an inventive step. The Respondent on the other hand considered that the expression "optical scanning" might be construed to cover also the method of forming an image disclosed in document (6).

In view of this and of the fact that the features relating to setting of the magnification ratio disclosed in the claims have nothing to do with the specific positional changes of parts of the optical system or alteration of the scanning speed to produce an image of different magnification the Board feels justified in considering the "scanning" feature merely as indicating a self-evident alternative (cf. the documents (5) and (7)) lacking any logical connection with the claimed invention so that further on, for the purpose of determining the objective problem and whether the subject-matter of Claim 1 represents an obvious solution to it, this feature can be left aside.

- 4.2 A first relevant difference between the known apparatus and that claimed in Claim 1 therefore resides in how the keys for increasing and decreasing the magnification ratio bring about the change. In fact document (6) is completely silent on the details of this operation though it seems reasonable to assume that change continues as long as a key is depressed subject to limits set by the highest and lowest magnification ratios available.

Although in document (6) it is stated at column 17, lines 17 to 20 that the operator by touching "the higher or lower indicator button can input to the system a command for increasing or decreasing the copy size (MR), the form which this command takes and whether it differs if the button is held down for longer than a predetermined period of time is not stated. All that emerges from the relevant part of the description is that the motor driving the magnifying lens is driven by the output of a comparator fed with a reference and actual lens position representing voltages.

- 4.3 Additional differences are that according to Claim 1 (a) the first magnification ratio setting unit includes a plurality of magnification ratio setting keys and a plurality of pilot lamps corresponding to these magnification ratio setting keys, the pilot lamp corresponding to a setting key by which a magnification ratio is set being energised; and (b) that the second magnification ratio setting unit includes a magnification ratio indicator which indicates the magnification ratio set by the first or second magnification ratio setting units.

4.4 In these circumstances the objective problem to be solved is considered to be twofold, namely (i) that of finding a suitable method of using the buttons to produce a rapid and accurate way of setting the magnification ratio to any value within a desired range, and (ii) the provision of features facilitating the task of the operator.

4.5 The Board is satisfied that the first part of this twofold problem is solved by said first difference and the second by the additional differences (features) (a) and (b). After full consideration the Board shares the view expressed in the appealed decision (item 6) and not seriously challenged by the Appellant that the difference (a) are features common in the copier art as illustrated by the keys 131-134 shown in document (1) (Figs. 5 and 6), the three corresponding keys in Fig. 51 of document (6), and the passage at column 6, lines 49 to 56 of the document (7).

In addition the Board finds that the feature (b) of providing a magnification ratio (MR) indicator indicative of a set magnification ratio irrespective of the manner in which it is selected would be a routine measure for a skilled person to take in any machine where the same MR can be selected by operation of two different controls.

4.6 Therefore it remains to be decided whether the claimed method by which the keys bring about the change in the magnification ratio is obvious to the skilled person having regard to the cited art.

With regard to this the following is to be observed.

4.7 Document (5) relates to a preset counter for setting and displaying the number of copies required in a copying machine in which the original is scanned, and which

provides copying at different magnifications and therefore relates to the same technical field as the claimed subject-matter whether the latter is considered to be that of copiers, the position adopted by the Appellant or that of visual displays as asserted by the Respondent. One aim of this disclosure (page 5, lines 7 to 9) is to provide a preset counter which is easy to use for setting numerical values efficiently.

The numerical count to be displayed is changed by an increment of "1" upon completion of each period of time set on a timer means, the period set being shortened stepwise when a continuous ON input is supplied by the key input means to thereby change the numerical value on display at an increased speed and thereby set the desired value rapidly. In particular, momentary depression of either key changes the numerical value by "1" whereas if the key is held down the value is changed by "1" after decreasing intervals of time differing by 50 milliseconds, starting from 500 milliseconds, until the interval is down to 200 milliseconds after which it remains constant.

- 4.8 In document (3) a time display is set by operation of a button (key) which, in one mode of setting, causes adjustment of the hours to be effected at a lower speed for the first hour and at a higher speed for subsequent hours. A prolonged (>1 to 2 seconds) depression is required to enter this mode and causes a minimum change of one complete hour effected at a first speed. If the button remains depressed, thereafter change takes place at a second faster speed until the key is released whereupon setting terminates on completion of the next hour.
- 4.9 In the Electronic Programmer of document (4) prolonged pressing of either of two separate buttons for forward and reverse setting of a timer cause the timer to change

rapidly. In the sworn statement of Mr Frain it is confirmed that document (4) was published before the priority date of the present patent. Moreover, it is stated that the time display changes slowly during a brief pressing, but no detail is available to the Board as to the precise manner in which the change from slow to fast is brought about. The document and declaration are therefore considered to provide no relevant information which is not also to be found in document (3).

- 4.10 After due consideration the Board has decided that although the apparatus claimed is a copying machine the second problem to be solved reduces essentially to that of swiftly and accurately setting and displaying numerical values, though in the present case applied to setting up the magnification ratio within a particular type of machine, and that the skilled person must therefore be expected to seek solutions in areas where setting of values is a common problem.

Were he to do this he would encounter the documents (3), (4) and (5) in the first two of which the numerical value set represents time and in the third of which it is the number of copies required in a copying machine. As indicated earlier, document (4) is too vague to have given any help to the skilled person. Both documents (3) and (5) on the other hand illustrate what the Board is satisfied is a general principle using a single button, in which the button is connected to circuitry enabling adjustment of a value at a rate which varies according to the time which it is held down starting at a slow rate to allow fine adjustments and increasing to a fast rate(s) where large adjustments have to be made. This is essentially what the button does in the claimed arrangement.



In both documents (3) and (5) variation in rate of change is effected in two or in the case of (5) in a greater number of steps of equal magnitude at decreasing intervals of time. In this respect it is noted that the claim is not committed to any particular method since it does not exclude the possibility of the first and second predetermined values being essentially the same nor that of the "each preselected time units" being of different, e.g. shorter lengths as compared with the "first time period". However, even apart from this fact it is considered that the skilled person would recognise without difficulty the alternative possibility of using steps of different magnitudes separated by uniform intervals. The Appellant did not argue that either the one or the other method produced any unexpected effects. The number of steps has also not been shown or claimed to have any functional significance and the Board considers that the skilled person would first investigate the simplest arrangement namely one using only two speeds.

For these reasons the Board holds that the subject-matter of Claim 1 does not involve an invention as required by Article 56 EPC. Claim 1 and hence the main request as a whole cannot be allowed.

Order

For these reasons, it is decided that:

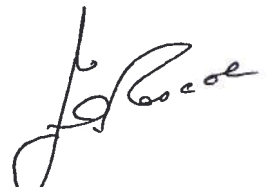
The appeal is dismissed.

The Registrar:



P. Martorana

The Chairman:



J.D. Roscoe



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