BESCHWERDEKAMMERN DES EUROPÄISCHEN PATENTAMTS

BOARDS OF APPEAL OF THE EUROPEAN PATENT OFFICE

CHAMBRES DE RECOURS DE L'OFFICE EUROPEEN DES BREVETS

A		B		C	X

File Number: T 16/91 - 3.2.5

Application No.: 84 308 382.5

Publication No.: 0 147 087

Title of invention: Embroidery machine

Classification: D05B 21/00

D E C I S I O N
of 8 October 1992

Proprietors of the patent: Nakanihon System Co., Ltd., et al
Ricoh Denshi Kogyo Co., Ltd
Barudan Co., Ltd.

Opponent: Pfaff Industriemaschinen GmbH

Headword:

EPC Art. 56

Keyword: "Inventive step (denied)"

Europäisches Patentamt | European Patent Office | Office européen des brevets

Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number : T 16/91 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 8 October 1992

Appellant : (Opponent)
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Decision under appeal :
Decision of the Opposition Division of the European Patent Office of 20 September 1990 with written reasons posted on 2 November 1990 rejecting the opposition filed against European patent No. 0 147 087 pursuant to Article 102(2) EPC.

Composition of the Board :

Chairman : C. Payraudeau
Members : M. Liscourt
H. Ostertag

Summary of Facts and Submissions

I. European patent No. 0 147 087 was granted on 24 August 1988 on the basis of European patent application No. 84 308 382.5 filed on 3 December 1984.

II. An opposition was filed against this patent on the ground of lack of inventive step in the light of following documents:

D1: DE-A-3 243 313
D2: DE-A-3 130 127
D3: DE-A-3 215 686
D4: US-A-4 352 334
D5: US-A-4 413 574
D6: "Computer Graphics", Volume 12, No. 3, August '78, pages 50 to 52
D7: "Computer-aided Design", Volume 14, No. 4, July '82, pages 187 to 194.

III. With its decision of 20 September 1990 with written reasons posted on 2 November 1990, the Opposition Division rejected the opposition.

IV. The Appellant (Opponent) filed an appeal against this decision with his letter received on 20 December 1992 paying the appeal fee simultaneously. The Statement of Grounds was filed on 5 March 1991, relying on the same documents and concluding that the patent should be revoked for lack of inventive step.

On 24 July 1991, the Respondent filed observations challenging the Appellant's arguments.

On 30 July 1992, the Appellant filed further observations and cited a further document:

D8: "Grafische Datenverarbeitung: eine Einführung" von Günther Schrack, Bibliographisches Institut AG, Zürich 1978, Kopien der Deckseite, Seite 1, 58-73, 94-99, 170-177, 216-223.

V. Oral proceedings were held on the 8 October 1992, during which the Respondent requested that the appeal be dismissed and the patent be maintained in unamended form.

Claim 1 of the patent as granted reads as follows:

" An embroidery machine comprising:

stitch forming means (1) for forming stitches on a fabric;

fabric holding means (2) operable to hold said fabric by means of embroidery hoops (2') and to move on a plurality of rails (3, 4) provided on a sewing table (5);

driving means (6x, 6y) for varying the position of the stitch forming means (1) relative to the fabric holding means (2), the driving means comprising first and second moving means (6x, 6y) for moving the fabric holding means (2) along respective ones of the rails (3, 4);

pattern determining and control means comprising a microprocessor (9) which includes a central processing unit CPU (10), a read-only memory ROM (11) for storing a control program defining a series of control procedures to be executed by the CPU (10), a random access memory RAM (12) for storing temporarily the results of operations performed by the CPU (10), a pattern ROM (13) for storing a plurality of patterns, a keyboard (7) for entering desired pattern data as a result of which corresponding control signals are fed from the CPU (10) to the first and second moving means (6x, 6y) and to the stitch forming means (1);

characterised in that:

the pattern determining and control means comprises a display unit (8) capable of displaying a two-dimensional pattern in response to the pattern data entered on the keyboard (7);

the pattern ROM (13) in the microprocessor (9) comprises a basic pattern ROM (13a) storing a plurality of geometric patterns and a character pattern ROM (13b) storing a plurality of characters;

the microprocessor (9) comprises a video RAM (17) for storing the pattern data entered on the keyboard (7) for display by the display unit (8);

and

the microprocessor (9) is operable to select patterns and characters from the basic and character pattern ROMs (13a, 13b) for display by the display unit (8), to selectively rotate the displayed pattern, such that the pattern formed on the fabric by the stitch forming means (1) is substantially the same as that displayed by the display unit (8)."

VI. The Appellant requested the cancellation of the appealed decision and the revocation of the patent. In support of his request, he submitted essentially the following arguments.

Document D1 represents the nearest state of the art which has been taken into account to draft the pre-characterising part of Claim 1.

The embroidery machine which is subject-matter of Claim 1 differs from this state of the art by the following features already pointed out by the Opposition Division:

(a) It comprises in the microprocessor a pattern ROM for storing a plurality of patterns,

(b) the pattern ROM comprises a basic pattern ROM storing a plurality of geometric patterns and a character pattern ROM storing a plurality of characters,

(c) the microprocessor comprises a video RAM for storing the pattern data entered on the keyboard for display by the display unit, and

(d) the microprocessor is operable to selectively rotate the displayed pattern.

As regards feature (a) the sewing machine disclosed in document D1 comprises a floppy disc storing a plurality of patterns. Although it is recognised that a floppy disc is not a ROM and is not permanently installed in the disc drive of the machine, these differences are purely constructional. As the skilled person knows, these two devices are functionally similar and the use of a ROM or of a floppy disk for a given application depends on practical considerations and is a matter of choice which cannot contribute to the inventive step.

Features (b) is a trivial measure relating to the organisation of the memory based on an purely arbitrary distinction between letters and patterns and is therefore without significance for the patentability of the invention.

As concerns feature (c), the display unit of the machine disclosed in document D1 contains necessarily, as any skilled person will immediately recognise, a video RAM for storing the data entered on the keyboard or coming from the memory of the microprocessor. Therefore this feature is not novel.

It is admitted that feature (d) is not directly disclosed in document D1. However, such feature is well known per se in the technique of data processing and is also disclosed in document D3 which indicates that the microprocessor can modify the basic pattern and produce a reverse image of the pattern. A reverse image corresponds to a rotation of 180° of the pattern. Document D4 also shows a rotation of the pattern since it allows the user to position the pattern on a curve.

The subject-matter of Claim 1 as granted was therefore not patentable for lack of inventive step.

VII. The Respondents submitted essentially that:

The machine disclosed in document D1 was conceived to allow a designer to prepare a program which could then be used by unskilled operators without any modification in a sewing machine. The embroidery machine according to the invention is conceived to allow relatively unskilled operators to create themselves new patterns by combination of letters and geometric patterns. Therefore, the machine of document D1 must use a floppy disc which has to be withdrawn from the machine to be used in a separate sewing machine whereas, according to the present invention, a ROM storing the various geometric patterns and letters which have to be combined to produce the embroidery has to be permanently installed in the machine.

It is also necessary for this purpose that the ROM may be organised in a basic pattern ROM and a characters pattern ROM.

As concerns the use of a Video RAM this feature can only be considered as obvious with hindsight. This is in

particular this use of a Video RAM which gives the possibility to rotate the created patterns.

As relates to this latter possibility of rotating the patterns, this feature is not disclosed in either document D3 which only concerns the production of a mirror image of a pattern initially displayed nor in document D4 which only provides a technique for stitching selected characters along a desired arc. None of these documents discloses as the present invention the possibility of freely rotating the whole pattern.

The subject-matter of Claim 1 of the patent in suit is therefore inventive.

Reasons for the Decision

1. The appeal is admissible.

2. Novelty

It is undisputed that document D1 constitutes the nearest prior art and that it describes all the features of the preamble of Claim 1 (see point V above).

The Respondents themselves have admitted that the machine which is subject-matter of Claim 1 differs from this state of the art by the following features (see point VI above):

(a) It comprises a pattern ROM for storing a plurality of patterns which is installed in the microprocessor,

(b) the pattern ROM comprises a basic pattern ROM storing a plurality of geometric patterns and a character pattern ROM storing a plurality of characters,

(c) the microprocessor comprises a video RAM for storing the pattern data entered on the keyboard for display by the display unit, and

(d) the microprocessor is operable to selectively rotate the displayed pattern.

The Board of appeal agrees with this analysis and since the other documents relied upon by the Appellant during the appeal procedure relate only to particular aspects of the characterising part of Claim 1, the subject-matter of Claim 1 is novel in view of the cited prior art.

3. Inventive step

3.1 Definition of the relevant skilled person.

Although the invention concerns an embroidering machine, one important part of it deals with the computer means which are used for creating, displaying and then controlling the machine for stitching the desired pattern.

The Respondents have not contested that computer graphics was a well known technique long before the priority date of the patent in suit. Under these circumstances, it was normal for the person skilled in the field of embroidery machines to ask a person skilled in the field of computer graphics to assist him with the necessary means and information to solve his particular problems in so far as

they were connected with the processing of the computer data.

3.2 It is therefore considered, for the present case, that the skilled person is the design engineer of embroidery machines for the mechanical part, but that it is the person skilled in the art of computers who is the skilled person as concerns the processing of the desired data.

It is observed that the impugned patent does not claim the manner in which the data processing itself is to be performed but only the general principles as regards the nature of the hardware which is used (ROM, Video RAM), and of the programs to be implemented (division of the ROM in a storage for patterns and a storage for characters, program for rotating the patterns or characters). Both parties have admitted that the implementation of these principles would be obvious for the person skilled in the art of computer.

3.3 Problem to be solved by the invention

According to the description of the patent in suit, the known embroidery machines present the drawback of necessitating the conversion of the created pattern control unit of the machine.

With respect to the machine described in document D1, the Respondents have submitted that it presents the drawback of being a machine conceived for use by an experienced operator in order to prepare embroidery programs which are stored in a floppy disc to be executed later on by relatively unskilled operators. Such a machine is therefore not appropriate to permit the creation and execution of original embroidery directly by relatively unskilled operators.

However, such drawbacks are easily recognisable and no inventive merit can therefore be attributed to the mere fact of defining the problem.

The invention which is the subject-matter of the patent in suit avoids the above drawbacks by providing a machine capable of providing a large degree of freedom for pattern forming, thanks to the use of a memory storing various elementary patterns which may be easily combined by the operator, and of accurately showing the resultant pattern on a display unit with the possibility for the operator of modifying and rotating the displayed pattern before the pattern has been actually formed on the fabric.

The fact that the embroidery machine according to claim 1 of the patent in suit is capable of bringing about the above mentioned advantages with respect to the cited prior art has not been challenged by the Appellant.

This result is obtained by the combinations of the features (a) to (d) recited in point 2 above which are considered in the following.

3.4 As regards feature (a) consisting in storing in a ROM a plurality of patterns, it is obvious for a skilled man in the field of computer technology that a non erasable floppy disc as used in the machine disclosed in document D1 is functionally equivalent to a ROM except that it can be taken out of the machine to be used in another machine.

It has however been submitted by the Respondents that an important inventive contribution of the patent in suit was the idea of replacing the usual procedure consisting in having the unskilled operators of embroidery machines stitching only patterns designed by specialists and stored

in a floppy disc by a new procedure consisting in giving to the relatively unskilled operator the means necessary to create himself the desired patterns, starting from standard elementary patterns or letters stored permanently in a data recording means.

The Board agrees with the Respondents that it may have been novel to have such an idea. However, the mentioned change only consists in putting at the disposal of the operator of embroidery machines the means which were already at the disposal of the specialist for creating patterns and models to be used on embroidering machines, as disclosed in D1. Such a measure therefore only consists in transferring a precise activity from one place to the other, inside the same technical field, with the same means, for the same purpose, and does not provide any other result.

The Board can only see in this measure a simple matter of choice which has no influence on the final result obtained by the device according to the invention.

3.5 As regards the second feature (b) consisting in storing geometric patterns separately from the characters, this organisation measure is also a question of choice which does not provide any effect which would not have been expected by the skilled person. As correctly observed by the Appellant, the distinction between "geometric patterns" and "characters" is purely arbitrary. Therefore, this feature cannot contribute to the inventiveness of the subject-matter of Claim 1.

3.6 The feature (c), consisting in using a video RAM for storing the pattern data, is a standard measure in every data processing unit comprising a display unit (CRT) and a keyboard which is used to choose and define directly or

through the intermediary of a CPU the patterns or characters which are displayed on the display unit (see for example document D6).

3.7 The last feature (d) consists in having the microprocessor operable to selectively rotate the displayed pattern.

Such a measure is not disclosed in document D1 but document D4 discloses the possibility of rotation of a embroidery pattern according to a relatively small angle.

Since Claim 1 is not limited to any particular angle of rotation, the combination of document D1 and D4 would anticipate the feature (d) on the condition that the skilled person not only could but also would make this combination. The person skilled in the art of embroidery machines would certainly be aware of the interest of having as much flexibility as possible for the creation of patterns by the combination of stored elementary pattern and he would certainly consider the possibility of rotating the patterns as a noted improvement. Therefore, the skilled person aware of the existence of document D4 would certainly consider combining it with the teaching of document D1.

3.8 All the features according to points (a) to (d) are covering known or obvious details and none of them can alone let appear an inventive step in the subject matter of Claim 1 which could then only be considered as inventive if a common effect would be obtained by applying all these measures together which would go beyond what the skilled person could have expected from the plain sum of the individual measures.

The Board cannot see any such common effect which could come to the benefit of inventive step.

4. The Board has not been able to find in the appended claims features which could be combined with those of the main claim in order to draft a new main claim which could have been considered as inventive.

5. For the above reasons, the impugned patent does not satisfy the requirements of Articles 52 and 56 EPC for lack of inventive step and it cannot therefore be maintained.

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

A. Townend C. Payraudeau

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