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**Datasheet for the decision
of 19 June 2008**

Case Number: T 1390/04 - 3.3.07

Application Number: 99107560.7

Publication Number: 0950752

IPC: D06P 5/00

Language of the proceedings: EN

Title of invention:

Apparatus and method for fabric printing of nested printed images

Patent Proprietors:

Gerber Technology, Inc.

Opponents:

Lectra S.A.

Headword:

-

Relevant legal provisions:

EPC R. 80

Relevant legal provisions (EPC 1973):

EPC Art. 54, 56, 84, 123

Keyword:

"Amendments - allowable (no) - Main Request"

"Amendments - allowable (yes) - Auxiliary Request"

"Novelty (yes) - Auxiliary Request"

"Inventive step (no) - Auxiliary Request"

Decisions cited:

-

Catchword:

-



Case Number: T 1390/04 - 3.3.07

D E C I S I O N
of the Technical Board of Appeal 3.3.07
of 19 June 2008

Appellants:
(Patent Proprietors)

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Decision under appeal:

Decision of the Opposition Division of the
European Patent Office posted 7 October 2004
revoking European patent No. 0950752 pursuant
to Article 102(1) EPC.

Composition of the Board:

Chairman: S. Perryman
Members: G. Santavicca
F. Rousseau

Summary of Facts and Submissions

I. The appeal lies from a decision of the Opposition Division revoking European patent 0 950 752 granted on European patent application 99 107 560.7. The claims as granted read:

"1. A method of making fabric pattern pieces (62), with each pattern piece (62) having a print design arranged within the lines defining the boundary of the piece, the method comprising the steps of:

providing a printing apparatus (40, 122) for printing pattern pieces (62) and designs within said pattern pieces (62) onto a sheet of work material (50);

providing a controller (126) operatively coupled to said printing apparatus (40, 122) for issuing command signals to said printing apparatus (40, 122);

generating an electronic pattern piece database (10) that includes a template of each of said pattern pieces stored in said controller (126);

generating an image representative of a repeatable portion (64) of a design to be printed onto said pattern pieces (62) and storing said image in said controller (126);

combining the repeatable portion (64) individually with the respective pattern piece (62);

generating a cutting and printing marker (30) by filling each of said pattern pieces (62) with a plurality of copies of said repeatable portions (64), each positioned in a side-by-side relationship relative to the next successive repeatable portion (64);

wherein a fabric print design appears in each pattern piece (62), both as to orientation and match, in the corresponding finished pattern pieces;

operating said printing apparatus (40, 122) in accordance with commands issued from said controller (126) to print said marker (30) onto said work material (50).

2. The method of making fabric pieces as defined by claim 1, wherein said step of generating a cutting and printing marker (30) is further **characterized by** generating a perimeter (P) that encompasses the boundary defined by each of said pattern pieces (62);

filling said perimeter (P) with a plurality of said repeatable portions (64) positioned in a side-by-side relationship relative to one another;

defining areal portions (68) of said plurality of repeatable portions (64) that extend outside of said boundary defined by each of said pattern pieces (62);

changing said areal portions (68) in such a manner as to be non-printable, thereby causing said perimeter (P) to include pattern pieces (62) filled with said design and surrounded by non-printable areal portions (68); and

storing said pattern pieces (62) and said non-printable areal portions (68) in said controller (126).

3. The method of making fabric pattern pieces as defined by claim 1 or 2, further including the steps of:

providing a cutting apparatus (112, 114) for cutting said pattern pieces (62) from said work material (50); and

causing said cutting apparatus (112, 114) to cut said pattern pieces (62) from said work material (50) in accordance with said cutting and printing marker (30) in response to commands issued from said controller (126).

4. An apparatus for making fabric pattern pieces (62), with the fabric of each pattern piece (62) having a fabric print design with design features arranged in a predetermined manner with respect to lines defining the boundary of each pattern piece (62), comprising:

a numerically controlled printing apparatus (40, 122) for printing a desired fabric print design on a web of unprinted fabric (50);

a controller (40) for controlling said printing apparatus (40, 122) ;

a means for creating an electronic pattern piece database (10), including a template of each of the desired pattern pieces (62), in said controller (126);

means for generating a graphical image in said controller (126) representative of a desired fabric print design; and

means for combining said fabric design graphical image with said pattern piece database (10) to create a cutting and printing marker (30) wherein the fabric print design appears individually in each pattern piece (62), both as to orientation and match, as desired in the corresponding finished fabric pieces.

5. The apparatus of claim 4, further comprising a numerically controlled cutting device (112, 114), operatively connected to said controller (126), for cutting printed pattern pieces (62) from a fabric sheet.
6. The apparatus of claim 4 or 5, further **characterized by** said printing apparatus (40, 112) including means (124) for projecting multiple jets of pigmented colorant onto a fabric web.

II. The European patent had been opposed in its entirety on the grounds that the claimed subject-matter lacked

novelty and an inventive step (Article 100(a) EPC) having regard *inter alia* to the following documents:
D1: JP-A-03 090 607 and its English translation; and
D3: US-A-4 887 228.

III. The impugned decision was based on a set of amended claims submitted with letter dated 27 August 2004 as well as on 3 sets of amended claims submitted at the oral proceedings held on 22 September 2004.

According to the impugned decision:

- (a) The requirements of Articles 84 and 123(2) EPC were fulfilled by the claims of all of the requests.
- (b) The apparatus defined in Claim 4 of the main request before the opposition division, corresponding substantially to granted claim 4 with at its end the added feature "wherein in the cutting and printing marker (30) the pattern pieces (62) are arranged in nested relation", lacked novelty having regard to the disclosure of D1, which explicitly disclosed all of the features of this Claim 4;
- (c) Also the apparatus defined in Claim 4 of the first auxiliary request before the opposition division, corresponding substantially to claim 4 as granted with the addition of the features "means for generating an image representative of a repeatable portion (64) of a design to be printed onto said pattern pieces (62) and storing said image in said controller (126)" and wherein the means for

combining said fabric graphical image with said pattern piece database did so by "filling each of said pattern pieces with a plurality of said repeatable portions, each positioned in a side-by-side relationship relative to the next successive portion", lacked novelty over D1. In fact, it was implicit that each of the pattern pieces shown on Figure 8 must have been filled by positioning in a side-by-side relationship a plurality of copies of repeatable portions representing a unit of an image. This was the only technique which would be seriously contemplated by the skilled person. The proprietors had contested that conclusion by mentioning that suitable alternative techniques were available to fill an area of the pattern pieces but they failed to show any such alternative technique.

- (d) As to the second auxiliary request before the opposition division, the additional feature included in its claim 4 compared to claim 4 of the first auxiliary request, i.e. "means for combining the repeatable portion (64) individually with the respective pattern piece (62)" was apparent from Figure 8 of D1, so that the apparatus of this claim 4 was not novel either.

- (e) The third auxiliary request before the opposition division contained only method claims, with claim 1 corresponding substantially to claim 1 as granted with at its end the additional feature "wherein during the generating of the cutting and printing marker (30) the pattern pieces (62) are arranged in nested relation." This method claim

had a narrower scope than that of the apparatus claim 4 of the second auxiliary request before the opposition division, however, the arguments for lack of novelty of that claimed apparatus applied *mutatis mutandis* to this method claim which consequently lacked novelty.

- IV. In their statement setting out the grounds of appeal, the patent proprietors (appellants) enclosed a set of amended Claims 1 to 5 as the sole request.
- V. By letter dated 17 August 2005, the opponents (respondents) filed their arguments against the appeal.
- VI. In a communication dated 9 April 2008 to prepare oral proceedings, the concerns which the Board then had in relation to some of the arguments, evidence or requests presented, *inter alia* those concerning the amendments to the claims, were made known to the parties.
- VII. In reply to the communication of the Board, the respondents raised objections against the amendments (Articles 84 and 123, paragraphs 2 and 3, EPC) and maintained that the claimed subject-matter lacked novelty having regard to D1 or inventive step having regard to D1 and D3 (letter dated 19 May 2008).
- VIII. The appellants did not submit any written response, neither to the communication of the Board nor to the response thereto by the respondents.
- IX. Oral proceedings took place on 19 June 2008. In order to address the objections against Claim 1 raised by the respondents in their latest written submission, the

appellants filed a new set of amended Claims 1 to 5 as the Main Request to replace the sole request submitted with the statement of grounds of appeal. To overcome the objections raised against the apparatus claims, the appellants declared that they were prepared to abandon apparatus Claims 3 to 5 of the Main request, thus to offer a set of Claims 1 and 2 as Auxiliary Request. After a discussion on the basis for and the clarity of the amendments made in those requests, the appellants proposed further amendments to the wording of Claim 1, offered as a Second Auxiliary Request. Finally, the appellants replaced the claims of the Main and the Auxiliary Requests by two sets of amended method Claims 1 and 2, respectively identified as the Main Request and the Auxiliary Request. The new Main Request corresponding to the previously offered second Auxiliary Request, the new Auxiliary Request being made up of a combination of Claims 1 and 2 as granted. Independent Claim 1 of each of the finally submitted Main and Auxiliary Requests read as follows (additions to the claims as granted are indicated in bold, deletions in strikethrough, except for the identifications (a1), (b1) etc. which the appellants added in the claims of the main request for ease of identification of the various features):

Main request

"1. A method of making fabric pattern pieces (62), with each pattern piece (62) having a print design arranged within the lines defining the boundary of the piece, the method comprising the steps of:

- (a1) providing a printing apparatus (40, 122) for printing pattern pieces (62) and designs within said pattern pieces onto a sheet of work material (50);
- (b1) providing a controller (126) operatively coupled to said printing apparatus (40, 122) for issuing command signals to said printing apparatus (40, 122);
- (c1) generating an electronic pattern piece database (10) that includes a template of each of said pattern pieces stored in said controller (126);
- (d1) generating an image representative of a repeatable portion (64) of a design to be printed onto said pattern pieces (62) and storing said image in said controller (126);
- (e1) combining the repeatable portion (64) individually with the respective pattern piece (62);
- (f1) generating a cutting and printing marker (30) by filling each of said pattern pieces (62) with a plurality of copies of said repeatable portions (64), each positioned in a side-by-side relationship relative to the next successive repeatable portion; **wherein the pattern pieces (62) are then arranged in nested relation to create the cutting and printing marker;**
- (g1) wherein a fabric print design appears in each pattern piece (62), both as to orientation and

match, in the corresponding finished pattern pieces;

- (h1) operating said printing apparatus (40, 122) in accordance with commands issued from said controller (126) to print said marker (30) onto said work material (50);
- (i1) ~~wherein during the generating of the cutting and printing marker (30) the pattern pieces (62) are arranged in nested relation;~~
- (j1) wherein said step of generating a cutting and printing marker (30) further comprises generating a perimeter (P) that encompasses the boundary defined by each of said pattern pieces (62);
- (k1) filling said perimeter (P) with a plurality of said repeatable portions (64) positioned in a side-by-side relationship relative to one another;
- (l1) defining areal portions (68) of said plurality of repeatable portions (64) that extend outside of said boundary defined by each of said pattern pieces (62);
- (m1) changing said areal portions (68) in such a manner as to be non-printable, thereby causing said perimeter (P) to include pattern pieces (62) filled with said design and surrounded by non-printable areal portions (68); and

(n1) storing said pattern pieces (62) and said non-printable areal portions (68) in said controller (126).

Auxiliary Request

"1. A method of making fabric pattern pieces (62), with each pattern piece (62) having a print design arranged within the lines defining the boundary of the piece, the method comprising the steps of:

providing a printing apparatus (40, 122) for printing pattern pieces (62) and designs within said pattern pieces (62) onto a sheet of work material (50);

providing a controller (126) operatively coupled to said printing apparatus (40, 122) for issuing command signals to said printing apparatus (40, 122);

generating an electronic pattern piece database (10) that includes a template of each of said pattern pieces (62) stored in said controller (126);

generating an image representative of a repeatable portion (64) of a design to be printed onto said pattern pieces (62) and storing said image in said controller (126);

combining the repeatable portion (64) individually with the respective pattern piece (62);

generating a cutting and printing marker (30) by filling each of said pattern pieces (62) with a plurality of copies of said repeatable portions (64), each positioned in a side-by-side relationship relative to the next successive repeatable portion (64);

wherein a fabric print design appears in each pattern piece (62), both as to orientation and match, in the corresponding finished pattern pieces;

operating said printing apparatus (40, 122) in accordance with commands issued from said controller (126) to print said marker (30) onto said work material (50), **wherein said step of generating a cutting and printing marker (30) is further characterized by generating a perimeter (P) that encompasses the boundary defined by each of said pattern pieces (62);**

filling said perimeter (P) with a plurality of said repeatable portions (64) positioned in a side-by-side relationship relative to one another;

defining areal portions (68) of said plurality of repeatable portions (64) that extend outside of said boundary defined by each of said pattern pieces (62);

changing said areal portions (68) in such a manner as to be non-printable, thereby causing said perimeter (P) to include pattern pieces (62)

filled with said design and surrounded by non-printable areal portions (68);

and storing said pattern pieces (62) and said non printable areal portions (68) in said controller (126)."

- X. The arguments of the appellants for the final Main and Auxiliary Requests can be summarised as follows:

Procedural questions

The last written submission of the respondents, which had been received on 26 May 2008, dealt with new objections under Article 123(2)(3) EPC, in particular against feature (i1), more particularly against the term "during the generating of", and had to be sent to the patent proprietors in the USA, who responded only one week before the date of the oral proceedings. Furthermore, during the oral proceedings, it became apparent that the introduction into Claim 1 of the feature relating to the "nested relation" might be such that Claim 1 would not be in compliance with Article 84 EPC. Therefore, further amendments were necessary. The submission of the final Main and Auxiliary Requests during the oral proceedings was nevertheless admissible: no final decision had then been announced, so that the appellants might defend the subject-matter of Claim 2 as granted containing the features of Claim 1 as granted, the Main and Auxiliary Requests were each made up of two claims and posed no further problems.

Main request

Independent method Claim 1 of the Main request included the features of Claim 2 as granted. Further, in Claim 1, the term "fabric", which deletion was a printing error, had been reintroduced. Also, feature (i1) had been deleted and feature (f1) had been limited by inclusion of a nesting step. For the skilled person reading the claim, it was clear that there was only one cutting and printing marker, in line with the description, so that the Main Request was clearly allowable.

Auxiliary Request

- (a) The request consisted of a combination of Claims 1 and 2 as granted. Claim 2 as granted was a dependent claim introducing a feature directed to the details of the partial aspect of generating the cutting and printing marker, such as the provision of means for generating a perimeter P encompassing the boundary of the pattern piece, the filling out of that perimeter with individual repeatable portions of an image, the analysis and marking as printable or not printable of the portions falling inside or outside the boundaries, as well as the storage of those items of information for further use in printing the pattern. Due to the use of the area defined by perimeter P, the area and the number of repeatable portions were both reduced, thus saving time required for generating the cutting and printing marker.

(b) As to the alleged lack of novelty:

D1 had not been interpreted correctly, *inter alia* because its methods were illustrated by two examples but only the second had been used by the respondents. The main aim of D1 was to design a three dimensional garment, wherein the method included the step of projecting the pattern pieces thereof into two-dimensional patterns for carrying out their design. In Example 1, as shown in Figures 4 to 7, a three dimensional design for the dress patterns (flowers, not made of repeated portions of its image), once projected onto a plane, had to be retouched. Also in the embodiment shown in Figure 8 the dress patterns did not contain a design made up of repeatable portions of its image. Hence, the step shown in Figure 2 of the patent in suit and the repetition of the portions of the image for filling the patterns, as defined in features (e1) to (g1) of Claim 1 were not disclosed in D1, nor were the additional features of Claim 2 as granted mentioned in D1.

D3 did not concern ink jet printing on fabrics. Also, in the embodiment shown in Figure 3 the surface was not filled in with repeated portions of an image in the way defined in Claim 1.

Hence, neither D1 nor D3 destroyed novelty.

(c) As to inventive step, D1 described the closest state of the art. However, essential features (e1) and (g1) of Claim 1 were missing in D1. The problem to be solved was to provide a further

method for producing dress pattern pieces. D1 described a complete solution for designing pattern pieces. Although D1 mentioned a "pattern matching", without explaining what was meant thereby, it gave no indications at using repeated unit portions of an image to fill in the patterns. Thus, there was no reason for combining D1 with D3. In any case, in D3 portions of images were used but were not combined with the pattern pieces in the manner as claimed. Thus, it was not obvious to arrive at the missing features and the relevant advantages thereof which were not described in the art cited. The claimed subject-matter thus involved an inventive step.

- XI. The arguments of the respondents against the final requests can be summarised as follows:

Procedural questions

The requests submitted by the appellants during the oral proceedings were late filed. Despite the many possibilities of amendment conceded to the appellants, the claims of the Main Request were still not clearly allowable. By leaving out the feature that the pattern pieces were arranged in nested relation (i1), Claim 1 of the Auxiliary Request neither fell under the frame set out in the statement of grounds of the appeal nor within the scope of the claims considered by the Opposition Division. The requests should thus be rejected. If, however, the Board decided to admit the requests, in particular the Auxiliary Request which had never been considered before, attention should be given to the fact that the patent had been filed in 1999 and

revoked in 2004, so that a reopening of the proceedings such as a remittal would unduly delay the final decision and create legal uncertainty for the public.

Main Request

The combination in Claim 1 of further limited feature (f1), concerning the arrangement of the pattern pieces in nested relation, with feature (j1), defining the perimeter P, was not based on Figure 3 as filed, and amounted to an attempt to cover the possibilities that perimeter P encompassed not only each of the pattern pieces before nesting but also their arrangement after the nesting step. Hence, Claim 1 did not fulfil the requirements of Article 123(2) EPC. In addition, since Claim 1 did not mention all of the steps given in the description for combining print design and templates to make the finished pattern pieces which were then arranged in nested relation to create the cutting and printing marker, it was not clear when and how many cutting and printing markers were generated or created. Thus, the definition of Claim 1 was confusing, i.e. unclear (Article 84 EPC) and the Main Request was not allowable.

Auxiliary Request

- (a) The subject-matter of Claim 1 was not novel having regard to the disclosure of D1, nor perhaps over D3. As regards D1, the claimed filling method was the sole technically viable way of carrying out the striped design in the pattern pieces of the embodiment shown in Figure 8. No other method of filling the stripes within the pieces could be

seriously envisaged. Hence, the claimed filling method was implicitly disclosed by D1.

- (b) As to inventive step, D1 described the closest prior art. That document disclosed a full process for making a garment, including pre- and a post-processes. The pre-process was a design process for three- and two-dimensional patterns. The "dress pattern forms" and the "figure patterns" mentioned on page 11 of D1 corresponded to, respectively, the "pattern templates" and the "image design" as defined in Claim 1. Page 7 of D1 mentioned the matching combination of figure patterns with forms. The pattern pieces shown in Figure 8 must have been made by repeating portions of the stripes taken from the "arbitrary ones from a figure database". The retouching of alterations in the design (steps S8, S9) was an option, which was not excluded by the wording of Claim 1 either. Thus, features (e1), (f1) and (g1) of Claim 1 were disclosed in D1, in particular in Figure 8. The additional features (j1) to (n1) of Claim 1 were however not explicitly disclosed in D1. The problem to be solved was how to implement the teaching of D1 for filling in the pattern pieces. The skilled person would look at the computer design techniques available, such as that of D3. This document disclosed a method for filling surface parts of an image with a surface pattern, i.e. with a plurality of copies of repeatable portions of a design, and for suppressing the parts lying outside the surface to be filled in. Hence, D3 taught features (j1) to (m1) of Claim 1. The skilled person would have not been deterred from implementing the teaching of D1 by

filling in the pattern pieces according to the general teaching of D3. The method defined in Claim 1 was thus not inventive.

- XII. The appellants (patent proprietors) have requested that the decision under appeal be set aside and that the patent be maintained on the basis of the Main Request or the Auxiliary Request, submitted at the oral proceedings held on 19 June 2008.
- XIII. The respondents (opponents) have requested that the appeal be dismissed.

Reasons for the Decision

1. The appeal is admissible.
2. *Procedural matters*

The Main Request and the Auxiliary Request have been submitted during the oral proceedings before the Board. The late submission of those requests was due, on the one hand, to the objections raised in the latest written submission by the respondents, allegedly received only on 26 May 2008 by the appellants, and, on the other hand, to the objections raised during the oral proceedings as a consequence of the insertion of the nesting step into the combination of the steps defined in Claims 1 and 2 as granted. Hence, the requests may be seen as serious attempts to overcome new objections. Furthermore, the Auxiliary Request corresponds to a combination of Claim 1 as granted with dependent Claim 2 as granted and cannot constitute any

surprise, nor would it significantly delay the proceedings. In fact, the respondents were prepared to present their arguments. Since the appeal nevertheless fails on other grounds (Points 3 and 6, *infra*), it is no longer necessary to further detail why the requests were held to be admissible.

Main request

3. *Amendments*

3.1 Compared to Claim 1 as granted, Claim 1 according to the Main Request has been amended by:

- (a) limiting feature (f1) by specifying that "wherein the pattern pieces (62) are then arranged in nested relation to create the cutting and printing marker"; and,
- (b) adding features (j1) to (n1) (which correspond to the features of Claim 2 as granted).

3.2 Since Claim 1 of the Main Request arises from the combination of Claims 1 and 2 as granted with the further limitation in feature (f1), it still has to be assessed whether further limited feature (f1) can be combined with Claims 1 and 2 as granted without contravening the requirements of *inter alia* Articles 84 and 123(2) EPC.

3.3 As regards Article 84 EPC, it follows from the amendments that the definition of feature (f1) now requires a cutting and printing marker that is generated by the filling and the positioning of the repeatable portions (64) within the pattern pieces (62) as well as a cutting and printing marker which is

created by "then (i.e. at any time thereafter, before or after complete filling, before or after clipping, etc.) arranging in nested relation the pattern pieces". That definition however creates confusion between the generated cutting and printing marker and the created cutting and printing marker and raises the question of how many cutting and printing markers are implied by the terms of Claim 1. Also, the description of the patent in suit concerns a cutting and printing marker.

3.4 As regards Article 123(2) EPC, feature (f1) as defined in Claim 1 of the Main request was neither made the subject of any claim in the application as filed, nor was its combination of the two steps "generating a cutting and printing marker" and "creating a cutting and printing marker" ever described in the application as filed.

3.5 Since the first part of feature (f1) [*"generating a cutting and printing marker (30) by filling each of said pattern pieces with a plurality of copies of said repeatable portions, each positioned in a side-by-side relationship relative to the next successive repeatable portion"*] can only be found in the definition of Claim 1 of the application as filed, it can be seen as a generalization of the following passages of the description which dealt with the second part of feature (f1) [*"the pattern pieces (62) are then arranged in nested relation to create the cutting and printing marker"*]:

(a) On page 2, lines 25 and 26: "The templates are then arranged in nested relation to create a cutting and printing marker ...";

- (b) On page 3, lines 13 and 14: "Finally the records are arranged in nested relation to create the cutting and printing marker.";
- (c) on page 4, lines 24 to 26: "Still referring to Fig.1, one or more of the fabric print design templates can be combined with one or more of the pattern piece templates, by means hereinafter described, to create a cutting and printing marker 30, ...";
- (d) on page 6, lines 24 and 25: "This allows for pattern pieces to be arranged in a nested sequence creating the printing and cutting marker".

3.6 Thus, the application as filed does not disclose a further cutting and printing marker other than the one which is created by nesting arrangement of patterns filled in with designs. In other words, the specific combination of amended feature (f1) with all of the features of Claims 1 and 2 as granted was not directly and unambiguously disclosed in the application as filed.

3.7 In summary, the combination of features defined in Claim 1, if it were clearly defining two successive cutting and printing markers (Article 84 EPC), would in any case not be in compliance with Article 123(2) EPC.

3.8 Consequently, the Main Request is not allowable.

3.9 In view of the above, the Board need not decide whether or not the further objection raised by the respondents under Article 123(2) EPC, i.e. that perimeter P might now encompass each of the patterns after the nesting step, arises from the amendments made (Article 102(3) EPC).

Auxiliary Request

4. *Amendments*

Claim 1 according to the Auxiliary Request is a combination of Claim 1 as granted with dependent Claim 2 as granted. Claim 2 of this request corresponds to Claim 3 as granted. Since the patent was not opposed under Article 100(c) EPC, the claims of the Auxiliary Request are not open to objection under Article 123(2) EPC nor under Article 84 EPC (case law of the Boards of Appeal of the EPO, 5th edition, 2006, VII.C.6.2).

5. *Novelty*

The respondents have objected that the subject-matter defined in Claim 1 was not novel having regard to D1 or even D3.

- 5.1 D1 discloses a method of presenting a three dimensional figure pattern of a dress material which, in the words of the translation provided, is characterized in that the method comprises so as to convert a figure pattern drawn on three dimensional form of a dress into a plain figure pattern in a form of a dress pattern; compute an arrangement of cut dress patterns on a raw fabric of the material so that a necessary length of the raw fabric of the material becomes minimum; provide an ink-jet printing output of a colorant on the raw fabric of the material; and, along with this, make the colorant present a colour pattern fringed (sic) to a form of the cut dress pattern and sewn products manufacturing process control information (Claim).

- 5.1.1 The objects of D1 are: to remove limitations in determining a pattern and a colour arrangement of a dress material; to make an unrestrained design possible which makes the pattern and colour arrangement in harmony with the dress silhouette; to provide a method of presenting a three dimensional figure pattern of a dress material, which method directly combines with a material manufacturing process, for manufacturing a dress material presenting a colour pattern to a form of a cut dress pattern; to thereby make it possible to produce a dress product in a short time without spoiling a design image (paragraph bridging pages 4 and 5).
- 5.1.2 The invention described in D1 thus comprises a pre-process and a post-process.
- 5.1.3 The pre-process is a dress design process comprising means for developing a figure pattern drawn on a three dimensional form of a dress into a plain figure pattern in a form of a dress pattern.
- 5.1.4 The post-process is a material manufacturing process comprising a procedure of computing an arrangement of the cut dress patterns on a raw fabric of the material so that a necessary length of the raw fabric of the material becomes minimum on the basis of a dress-making specification laid down in the pre-process, and means for providing an ink-jet printing output of colorants on the raw fabric of the material, and by being made up so that the colorants present colour patterns fringed (sic) to a form of the cut dress pattern and sewn products manufacturing process control information

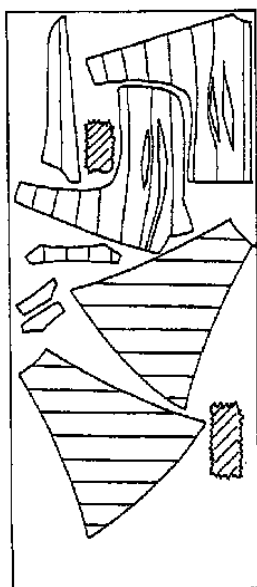
(page 5, penultimate paragraph). Thus, the post process disclosed by D1 comprises steps of the method defined in Claim 1 according to the Auxiliary Request.

5.1.5 According to D1, the "figure patterns" may be retrieved from a data base, may be created by using a drawing function in computer graphics or "may be synthesized from the figure patterns obtained in both of the above" (paragraph bridging pages 6 and 7). The colour arrangement of the figure pattern may be performed by using registered colours (page 7, third full paragraph). If necessary, the plane figure patterns may be varied, corrected, transformed, synthesized (page 7, last paragraph). In particular, also the image of the material being developed in a plain is stored in an optical disk as a part of the information of the dress-making specification for carrying-out the material manufacturing process (post-process) (last paragraph of page 8).

5.1.6 In the material manufacturing process the "cut dress patterns" are firstly arranged on the raw fabric of the material on the basis of the said dress-making specification. In carrying out the arrangement, on the basis of also the information from the visual inspection of the raw fabric material, the cut dress pattern can be arranged so that the necessary length of the material becomes minimum while escaping faulty portions if their use must be avoided. That arrangement is carried out by a so-called computerized marking technique including interactive system (page 9, last three paragraphs).

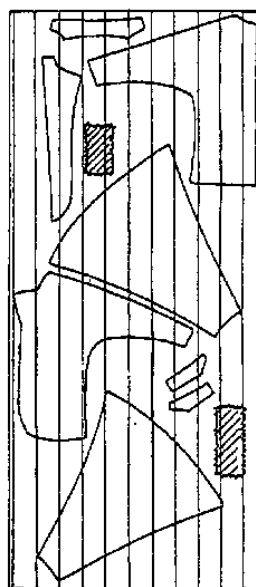
- 5.1.7 On the basis of the information of the cut dress patterns arrangement, specified positions on the raw material can be ink jet printed (second to third paragraphs on page 10).
- 5.1.8 In the examples illustrated in D1, the following devices are used:
- A central processing unit 1, for controlling inputs, outputs and operations;
 - A digitizer 2, for inputting a three-dimensional form of a dress as well as data of dress patterns;
 - An image scanner 3 for inputting data of figure patterns;
 - A magnetic disk 4 for storing information, *inter alia* on the dress making techniques used in the manufacturing, such as dress patterns arrangement, cutting, sewn and finishing;
 - An optical disk 5 for storing image information of *inter alia* dress pattern forms and figure patterns;
 - A graphic workstation 6 having a highly fine display suitable as an interface for work with an interactive system;
 - An ink jet colour printer 7 for printing dress design images on paper sheets;
 - A magnetic tape 8 as a medium for passing ink jet printing information;
 - A computer for controlling ink jet printing device 10 which uses the information from magnetic tape 8 to print on the raw fabric material (paragraph bridging pages 11 and 12).
- 5.1.9 Example 2 shows the function of transforming the figure pattern as well as that of arranging the cut dress patterns so that the necessary length of the material

becomes minimum while escaping faulty portions found on the raw fabric material. The cut dress patterns to be made on the raw material correspond to a combination of an upper part with dolman sleeves and narrowed waist portion, as well as a bias cut flared skirt. A vertical striped pattern was taken as the figure pattern for the purpose of facilitating evaluation, for the reason that such figure pattern generally provides an undesirable result because the beautifully arranged striped pattern on the material plane becomes discontinuous on seamed lines of darts in the three dimensional form and is made inclined at each edge of the sleeves. To correct that drawback and to make the striped pattern well-matched to the silhouette line, the figure patterns (i.e. the print design) are transformed for aligning the patterns on the seamed lines and arranging the stripes from the shoulder to the edge of the sleeve naturally in parallel at the edge of the sleeve. The corrected figure patterns presented on plane dress patterns are shown on Figure 8, herein below.



第8图

Figure 8



第9图

Figure 9

5.1.10 It is apparent from Figure 8 that the faulty regions (as taken from the quality inspection of the raw fabric and transformed into orthogonal coordinates and fault codes) present on the material web have been escaped.

5.1.11 Hence, according to Example 2 of D1, the limitation in arranging every dress pattern is only to make the weave of the fabric material match the direction of the dress pattern in usable regions on the raw fabric web "without any necessity for being conscious of patterns and colour arrangements", i.e. no pattern matching is required (paragraph bridging pages 15 and 16). Thus, Figure 8 shows a material on which colour patterns are combined to the form of the dress patterns independently from the others, i.e. without pattern matching on the web, for being ink jet printed on the fabric. Thus, design of different combinations of dress patterns and pattern figures is possible on a web of fabric material without pattern matching. With respect to a conventional dress pattern arrangement carried out under a limitation due to pattern matching, as shown in Figure 9, in which the dress patterns were arranged by assuming similar faulty regions that must be escaped, a reduction of material (minus 6.3% in length of the web) and time (the cumbersome pattern matching is avoided) can be achieved).

5.1.12 By translating the wording of D1 into that of Claim 1 (i.e., dress pattern = pattern piece; colour pattern and figure pattern = print design; ink-jet printing device 10 = printing apparatus; raw fabric of the material = sheet of work material; computer 9 = controller; optical disk 5 = electronic pattern piece

database; form of the dress pattern = template of pattern piece; figure and colour patterns = image representative of a repeatable portion of a design; Example 2 and Figure 8 describe and show a combination of figure patterns (stripes) individually with the respective dress patterns as well as a generation of a dress patterns arrangement = combination of a repeatable portion individually with the respective pattern piece and generation of arrangement of dress patterns; dress pattern arrangement = cutting and printing marker), it follows that D1 discloses

"A method of making dress patterns, with each dress pattern having a colour or figure pattern arranged within the lines defining the boundary of the dress pattern, the method comprising the steps of:

- providing a printing apparatus (10) for printing dress patterns and figure or colour patterns designs within said dress patterns onto the raw fabric of the material;
- providing a controller (9) operatively coupled to said printing apparatus (10) for issuing command signals to said printing apparatus (10);
- generating an electronic database in form of optical disk (5) storing dress pattern database including pattern forms and figure patterns (images representative of a repeatable portion of a design) to be printed onto said dress patterns and storing them in said controller (9);
- combining the repeatable figure patterns individually with the respective dress pattern and generating a dress pattern arrangement by filling each of said dress pattern with a plurality of copies of said figure patterns (e.g. lines of a stripe) each positioned in a

side-by-side relationship relative to the next successive figure pattern (described in Example 2 and shown in Figure 8);

- wherein a fabric print design appears in each dress pattern both as orientation and match, in the corresponding finished dress patterns;
- operating said printing apparatus (10) in accordance with commands issued from said controller (9) to print said dress pattern arrangement (30) onto said raw fabric of material."

5.1.13 The Board shares the view taken by the Opposition Division that the passage constituting the first full paragraph of page 16 of D1 mentioning Figure 8 directly discloses dress patterns (pattern pieces) comprising a striped design image individually matched and oriented with each dress pattern, hence the feature "combining the repeatable portion individually with the respective pattern piece".

5.1.14 However, the further features which might be derived by deduction from D1, such as that the disclosure of a "figure (image) pattern database" which is independent from a "dress pattern forms database" implies that the figure or image can only be a repeatable portion thereof to be filled in any of the forms of the dress patterns, are not necessarily implicit nor do they amount to a direct and non ambiguous disclosure.

5.1.15 In particular, D1 does not explicitly disclose the following steps of Claim 1:

- "- generating a perimeter (P) that encompasses the boundary defined by each of said dress pattern;

- filling said perimeter (P) with a plurality of repeatable figure or colour patterns positioned in a side-by-side relationship relative to one another;
- defining areal portions of said plurality of repeatable patterns that extend outside of said boundary defined by each of said dress patterns;
- changing said areal portions in such a manner as to be non-printable, thereby causing said perimeter (P) to include dress patterns filled with said figure or colours and surrounded by non-printable areal portions;
- and storing said dress patterns and said non printable areal portions in said controller (9)."

5.1.16 Thus, D1 does not disclose all of the claimed features.

5.2 D3 discloses a method of filling with a surface pattern surface parts (24, 26) of an image stored in the form of a bit-representation in a raster-image-memory (16), characterised by

- the generation of a bit-representation of a surface pattern (28) defined uniformly over the entire image surface,
- the generation of a mask function (mask1, mask2, mask), which gives a first logic value to those raster points which are situated within the boundaries of the surface parts (24, 26) and a second logic value to those raster points which are situated outside said boundaries,
- the generation of a filling pattern (F) by performing a logic operation on the bit-representation of the surface pattern and the mask function and
- the transfer of the filling pattern (F) to the raster-image-memory (16) (Claim 1).

Hence, D3 has not to do with ink jet printing on fabrics, as defined in Claim 1 of the Auxiliary Request.

5.3 Consequently, the claimed subject-matter is novel over that described in D1 or D3.

6. *Inventive step*

6.1 *Closest state of the art*

D1 has been considered to describe the closest state of the art by the parties. The Board has no reason to take a different position.

6.2 *Problem and Solution*

6.2.1 According to the patent in suit (paragraph [0002]), "fabrics which have a regularly repeating design such as stripes are troublesome in that the clothing designer may require a specific alignment of the fabric design in several pattern pieces which lie adjacent to or on top of one another in the finished garment. Consequently, the highest density of pattern pieces in the marker placed over the fabric, or otherwise used for cutting the fabric is not necessarily the one which provides the specified fabric design alignment. In other words, markers which provide the specified fabric design alignment are generally of lower pattern piece density than comparable markers taking no account of the fabric design. This in turn results in a higher proportion of fabric wastage."

6.2.2 Always according to the patent in suit (paragraph [0003]), "many of the fabric of concern, in particular

those bearing a regularly repeated design other than stripes or plaids are produced by a printing process wherein the design is printed on a suitable plain, unprinted fabric. ... It is now possible to print on fabric using multiple, minute jets of appropriate inks, dyes or pigments. ... Like ink-jet printing on paper, jet printing on fabric is performed under the control of a computer."

6.2.3 Thus, according to the patent in suit (paragraph [0004]), the problem to be solved by the invention underlying the patent in suit was to provide a method for producing fabric pattern pieces, with the fabric of each pattern piece having a matched print design with the design features arranged in a predetermined manner with respect to the lines defining the boundary of the piece, while minimizing fabric wastage.

6.2.4 As a solution thereto, the patent in suit (paragraph [0008]) discloses that an individual adjustment of the print design in each of the pattern pieces obviates the previous concerns related to the design repeat of the fabric. This individual adjustment also enables to nest the pattern pieces on the fabric sheet as closely as if no design were involved. This closer nesting of the pattern pieces minimizes fabric wastage.

6.2.5 However, also D1 addresses the problem of minimizing fabric wastage in a ink-jet printing process. In particular, the method disclosed in D1 (Example 2 and Figure 8) enables the individual adjustment of the stripes inside the dress patterns, without pattern matching work, so that the dress patterns can be more densely nested on the fabric web, thus reducing wastage.

6.2.6 Hence, having regard to D1, the problem to be solved by the invention underlying the patent in suit should be reformulated less ambitiously, i.e. as to how to implement the process disclosed by D1.

6.3 *Obviousness*

6.3.1 It is not apparent from the disclosure of D1 (in particular from the mention of "figure pattern database" and "dress pattern form database") that it excludes that the images to be filled in the dress pattern are not predetermined unit images. If not, in view of the number of the possible forms, *a fortiori* if of different sizes, the size of the databases would be too large and very cumbersome to use. Further, according to Figure 3(2) of D1 (described on page 19), in particular Option "Y", it is apparent for instance that each of the skirts (trapezoidal dress patterns) shown in Figure 8 is individually filled with stripes, i.e. with predetermined images, without rearrangements.

6.3.2 Although the use of the interactive system disclosed in D1 appears to be suitable for individually filling in the images in each dress pattern, i.e. for rendering obvious the method defined in Claim 1, explicit information is omitted in the disclosure of D1 about the actual way of filling in images in the dress patterns.

6.3.3 However, the skilled person wishing to implement the teaching of D1, would consider the art of computer aided design which is part of the method of D1.

6.3.4 D3 is a relevant document of that art and discloses a method for filling surface parts of an image with a surface pattern when the image is stored in the form of bit-representation in a raster image memory (column 1, lines 6-9).

Figure 3 of D3 (and the corresponding description on column 4, lines 53-62; column 5, lines 9-13 and 24-36; column 6, lines 29-43; column 8, lines 29-44; and column 9, lines 59-65 (perimeter P)) show how to fill single surface patterns with predetermined basic patterns while using masks to suppress any surface pattern lying outside the surface to be filled.

Thus, D3 discloses the combination of features (j1) to (n1) as defined in Claim 1 of the Auxiliary Request, for use in the art of computer aided design.

6.3.5 It has not been shown that the skilled person aiming at implementing the method disclosed in D1 would have been deterred from using the filling method described in D3 to draw up the patterns.

6.3.6 The arguments of the appellants that D1 provided a complete system and that the flowery patterns on Figures 4 to 7 were not made by unit images and also needed rearrangements are not convincing, for the following reasons: the pre-process of D1 has little to do with the subject-matter of Claim 1 of the Auxiliary Request and so do Example 1 and Figures 4 to 7 of D1; Example 2 of D1, thus the embodiment shown in Figure 8, has the function of arranging the cut dress patterns so that the necessary length of the material becomes minimum while escaping faulty portions" (D1, page 14,

first paragraph of Example 2), i.e. it has to do with a method as claimed and with the problem mentioned in the patent in suit.

6.3.7 Therefore, the subject-matter defined in Claim 1 according to the Auxiliary request was obvious having regard to D1 and D3 (Article 56 EPC), so that it lacks an inventive step (Article 52 EPC).

7. It is also apparent from the above conclusion and from the fact that D1 discloses more densely nested dress patterns, that the subject-matter of Claim 1 according to the Main Request, if it meant a cutting and printing marker only, would nevertheless lack an inventive step.

8. *Conclusion*

None of the Main and Auxiliary Requests fulfils the requirements of the EPC.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

C. Eickhoff

S. Perryman