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D E C I S I O N
of 16 September 2003

Case Number: T 0104/01 - 3.2.6

Application Number: 93113033.0

Publication Number: 0586924

IPC: D04H 1/54

Language of the proceedings: EN

Title of invention:
Method for making a nonwoven multicomponent polymeric fabric

Patentee:
KIMBERLY-CLARK WORLDWIDE, INC.

Opponents:
Firma Carl Freudenberg
Reifenhäuser GmbH & Co. Maschinenfabrik

Headword:
-

Relevant legal provisions:
EPC Art. 54(2), 56
EPC R. 57a

Keyword:
"Novelty - (yes)"
"Inventive step - (no) main request and auxiliary requests 1, 2A and 3A"
"Admissibility of auxiliary requests 2 and 3 - (no)"
"Inventive step - (yes) fourth auxiliary request"

Decisions cited:
-

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0104/01 - 3.2.6

D E C I S I O N
of the Technical Board of Appeal 3.2.6
of 16 September 2003

Appellant I: (Proprietor of the patent)
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Decision under appeal:
Interlocutory decision of the Opposition Division of the European Patent Office posted 30 November 2000 concerning maintenance of European patent No. 0586924 in amended form.

Composition of the Board:

Chairman: P. Alting van Gesau
Members: G. Pricolo
M. B. Tardo-Dino

Summary of Facts and Submissions

I. The appeal is from the interlocutory decision of the Opposition Division posted on 30 November 2000 concerning the maintenance in amended form of European patent No. 0 586 924, granted in respect of European patent application No. 93 113 033.0.

In the decision under appeal the Opposition Division considered that the subject-matter of claim 1 as granted and of claim 1 according to the first auxiliary request filed on 28 August 2000 did not involve an inventive step when starting from the closest prior art represented by document

D5: US-A-3 589 956.

The Opposition Division concluded that the patent could be maintained on the basis of the second auxiliary request filed on 28 August 2000. It considered that the subject-matter of claim 1 of this request involved an inventive step because none of the available documents suggested to crimp the multicomponent filaments with the same flow of air used to draw them.

II. Both appellant I (patentee) and appellant II (opponent I) lodged an appeal against this decision, received at the EPO on 6 February and 24 January 2001, respectively, and paid the appeal fee on the same respective days. The statements setting out the grounds of appeal were received at the EPO on 4 April and 19 March 2001, respectively.

With the statement setting out the grounds of appeal, appellant I filed amended documents forming the basis for a first and a second auxiliary request to maintain the patent in amended form, whilst appellant II filed further prior art documents, of which

D10: DE-A-2 322 130

played a role in the appeal proceedings.

III. In an annex to the summons for oral proceedings pursuant to Article 11(2) Rules of Procedure of the boards of appeal the Board expressed its preliminary opinion that it would appear that novelty of the subject-matter of claim 1 of the patent as granted was given but inventive step was to be discussed and that it would appear that document D10 represented the closest prior art. Moreover, the Board explained why it would appear that claims 29 and 41 of the patent as granted were to be regarded as independent claims and not as dependent claims as stated in the decision under appeal. As to the amendments put forward in the second auxiliary request of the appellant I, the Board expressed concerns as to whether the requirements of Articles 123(2) and 84 EPC were met.

IV. With letter dated 15 August 2003, appellant I filed amended claims forming the basis for new auxiliary requests 1 to 7.

V. Oral proceedings took place on 16 September 2003.

Appellant I requested that the decision under appeal be set aside and that the patent be maintained as granted,

or auxiliarily, that the patent be maintained in amended form on the basis of the claims according to the auxiliary requests 1 to 7 filed with the letter of 15 August 2003.

In response to an objection of the Board under Rule 57a EPC raised during oral proceedings in respect of claim 1 as amended in accordance with auxiliary requests 2 and 3, the appellant I filed amended claims forming the basis for new auxiliary requests 2A and 3A and requested that these be considered immediately after auxiliary request 3.

Furthermore, appellant I filed a revised description consisting of pages 2 to 17 forming the basis for the maintenance of the patent in amended form in accordance with the claims of auxiliary request 4.

Appellant II and the respondent (opponent II) requested that the appeal be dismissed and the patent be revoked.

During the oral proceedings, appellant II further referred to page 69 of an extract of the book:

"Nonwoven textiles", by O. Jirsak et al., Carolina Academic press, 1999,

which extract was filed by the patentee during the proceedings before the Opposition Division.

VI. Claim 1 of the patent as granted (main request) and of the auxiliary request 1 reads as follows:

"1. A process for making a nonwoven fabric comprising the steps of:
a. melt spinning continuous multicomponent polymeric filaments comprising first and second polymeric components (A,B), the multicomponent filaments having a cross-section, a length, and a peripheral surface, the first and second components (A,B) being arranged in substantially distinct zones across the cross-section of the multicomponent filaments and extending continuously along the length of the multicomponent filaments, the second component (A) constituting at least a portion of the peripheral surface of the multicomponent filaments continuously along the length of the multicomponent filaments, the first and second components (A,B) being selected so that the multicomponent filaments are capable of developing latent helical crimp;
b. drawing the multicomponent filaments;
c. at least partially quenching the multicomponent filaments so that the multicomponent filaments have latent helical crimp;
d. activating said latent helical crimp; and
e. thereafter, forming the crimped continuous multicomponent filaments into a first nonwoven fabric web."

Claim 1 of the auxiliary requests 2 and 3 differs from claim 1 of the main request in that the order of steps b and c is inverted, the step of at least partially quenching the multicomponent being recited before the step of drawing the multicomponent filaments, and in that step d additionally defines that the latent helical crimp is activated "by contacting the continuous multicomponent filaments with a flow of air

having a temperature sufficiently high to activate said latent helical crimp".

Claim 1 of the auxiliary requests 2A and 3A differs from claim 1 of the main request only in that step d reads as follows:
"(d) activating said latent helical crimp by contacting the continuous multicomponent filaments with a flow of air having a temperature sufficiently high to activate said latent helical crimp; and".

Claim 1 of auxiliary request 4 differs from claim 1 of the main request in that after step a thereof it reads as follows:
"(b) at least partially quenching the multicomponent filaments so that the multicomponent filaments have latent helical crimp;
(c) drawing the multicomponent filaments with a flow of air contacting the filaments and having a temperature sufficiently high to activate said latent helical crimp and therewith activating said latent helical crimp; and
(d) thereafter, forming the crimped continuous multicomponent filaments into a first nonwoven fabric web."

VII. In support of its requests the appellant I relied essentially on the following submissions.

Document D10, which represented the closest prior art, disclosed that the latent helical crimp was activated after the formation of the web by heat treating the web in a relaxed state to develop fine and firm crimps, called secondary crimps. Any reference in D10 as to crimp prior to forming the web referred to a primary or

spontaneous crimp which was developed at the time when the spun filaments were forwarded downwardly on to a receiver by a pneumatic stream. The primary crimp developed as a consequence of the fact that the filaments were in a relaxed state. However, no action was taken to activate the latent crimp prior to formation of the web; the primary crimp simply developed as a result of the process being performed. In contrast thereto, claim 1 of the patent in suit required an active measure to activate the latent crimp prior to formation of the web. This resulted in that the shrinkage of the web after its formation was reduced. This teaching was not rendered obvious by the prior art, in particular by document D5 which related to a process for making a nonwoven web from staple-length fibres. Such a process was fundamentally different from a process for making a nonwoven webs from continuous filaments, and therefore the skilled person would not consider a combination of D10 with D5. In any case in D5, and in D10 as well, the latent crimp was activated in the filaments when they were in a relaxed state, and not whilst under tension as in the process according to claim 1 of the patent in suit. Furthermore, D5 disclosed to develop the latent crimp in continuous filaments by means of a mechanical crimping method, and this would not be feasible in the method of D10.

Claim 1 of auxiliary requests 2 and 3 precisely defined how the step of activating the latent helical crimp was carried out. The order of the steps of drawing and quenching was inverted as compared to claim 1 as granted for reflecting the embodiment shown in the figures of the patent in suit. Anyway, it was clear

that claim 1 did not require the process steps to be performed in a specific order.

Claim 1 of auxiliary requests 2A and 3A corresponded to claim 1 of auxiliary requests 2 and 3, but with the steps of drawing and quenching being defined in the same order as in claim 1 as granted. There was no hint in the available prior art to provide a flow of air having a temperature sufficiently high to activate the latent crimp for contacting the drawn filaments before the latter were deposited on a support for web formation. Therefore, the subject-matter of this claim involved an inventive step.

Claim 1 of auxiliary request 4 additionally defined that the flow of air used for drawing the filaments was the same used for activating the latent helical crimp. This feature provided the further advantage that no additional step for crimping the filaments was necessary, whereby a more economical process was obtained.

VIII. The arguments of appellant II can be summarized as follows:

The subject-matter of claim 1 of the main request and of auxiliary request 1 was not novel in the light of the disclosure of D10. This document disclosed that a so-called primary crimp was developed at the time when the spun filaments were forwarded downwardly by a pneumatic stream onto a support for web formation. This clearly implied that the latent crimp was activated before web formation. Moreover, D10 contemplated the possibility of activating only the primary and not the

so-called secondary crimp and thus disclosed that the latent helical crimp could be activated in one step only.

In any case, the subject-matter of claim 1 did not involve an inventive step in view of documents D10 and D5. The skilled person would turn to document D5 when seeking to improve the process of D10, even if in D5 the web was formed from staple-length filaments obtained by cutting continuous filaments, and combine the teaching of D5 to activate the latent crimp prior to web formation with the teaching of D10 thereby directly arriving at the subject-matter of claim 1. There was nothing in the claim of the patent in suit from which it could be deduced that the latent crimp was activated in the filaments whilst they were under tension, and consequently this feature could not be used to distinguish the claimed process from that disclosed in D10 and D5, where the latent crimp was activated only when the filaments were in a relaxed state.

The modification of the sequence of the steps of quenching and drawing the filaments in claim 1 of the auxiliary requests 2 and 3 introduced a lack of clarity, contrary to Article 84 EPC: if the sequence in which the process steps were carried out was an arbitrary one, then it was not clear when the activating step was performed. Anyway, the claimed subject-matter did not involve an inventive step. In fact, if the latent crimp was to be activated before web formation in a process for making a nonwoven fabric consisting of continuous filaments, of the known kind shown at page 69 of the document "Nonwoven textiles"

where an air flow was provided, then it was obvious that for activating the latent crimp this air flow could be heated.

Claim 1 of the auxiliary requests 2A and 3A was not allowable under Article 123(2) EPC because the specific sequence of steps was not disclosed in the application as filed. In any case, its subject-matter could not be regarded as being different from the subject-matter of claim 1 of the auxiliary requests 2 and 3 and likewise lacked an inventive step

As regards claim 1 of auxiliary request 4, it lacked an inventive step because D10 also disclosed that the latent crimp was activated with the same flow of air used to draw the filaments.

IX. The respondent concurred with appellant II's submissions and made the following additional observations:

Claim 1 was silent about the degree of activation of the latent crimp, so that the activation of the primary crimp in the process of D10 corresponded to the step of claim 1 of activating the latent helical crimp, independently from the fact that in D10 a secondary crimp was activated at a later stage.

As regards inventive step of claim 1 of the patent as granted, D5 explicitly disclosed to activate the latent crimp before web formation in order to stabilize the filaments and avoid further shrinking of the web during subsequent treatments. Therefore, the skilled person starting from D10 and seeking a solution to the problem

underlying the patent in suit, to reduce the shrinkage of the web after its formation, would obviously consider to include the teaching of D5 to activate the latent crimp before web formation in the process of D10, thereby directly arriving at the subject-matter of claim 1.

The use of hot air for activating the latent crimp, referred to in claim 1 of the auxiliary requests 2, 3, 2A and 3A, was explicitly disclosed in D5.

Finally, considering that it was obvious to activate the latent crimp by a flow of hot air, and that a flow of air was already used in D10 for drawing the filaments, the additional feature of claim 1 of auxiliary request 4, to activate the latent crimp by means of the same flow of air used to draw the filaments, was a trivial measure.

Reasons for the Decision

1. The appeals are admissible.

2. *Main request; auxiliary request 1*

2.1 Novelty

2.1.1 Document D10 discloses a process for making a nonwoven fabric comprising the steps of:

a. melt spinning continuous multicomponent polymeric filaments comprising first and second polymeric components, the multicomponent filaments having a

cross-section, a length, and a peripheral surface, the first and second components being arranged in substantially distinct zones across the cross-section of the multicomponent filaments and extending continuously along the length of the multicomponent filaments, the second component constituting at least a portion of the peripheral surface of the multicomponent filaments continuously along the length of the multicomponent filaments, the first and second components being selected so that the multicomponent filaments are capable of developing latent helical crimp (see page 3, second paragraph to page 4, first paragraph; page 5, last paragraph; page 9, second paragraph);

b. drawing the multicomponent filaments (see page 9, second paragraph);

c. at least partially quenching the multicomponent filaments (page 9, second paragraph);

d. activating said latent helical crimp (page 10, last paragraph; page 16, second paragraph).

According to D10 (see Figure 1), the spun filaments develop crimps at the time when they are forwarded downwardly by a pneumatic stream ejected by a pneumatic ejector (3) for being deposited on a receiver, due to the fact that they are in a relaxed state as they are unsupported in space. At this stage, the crimps are not completely developed but are confined to loose, slight crimps, defined as primary crimps (see page 10, last paragraph). When the web is formed by the filaments which are laid down on the receiver, the filaments are

substantially completely released from tension, and further crimps grow in the web by the effect of retarded elastic shrinkage. At this time, the web is either allowed to stand or to be heat-treated under such conditions that the web is relaxed within as short a period as possible after laydown and allowed to shrink freely whereby crimping of the filaments in the web proceeds further, and stable crimps which are fine and firm, called secondary crimps, are obtained (see page 16).

Thus, in D10 the latent helical crimp develops in two steps: in a first step primary crimps develop when the spun filaments are forwarded to the receiver, and in a second step secondary crimps develop when the filaments are already on the receiver and web formation occurs. Therefore, since claim 1 of the patent in suit requires that the latent crimp is activated before the step of forming the web, the crimp referred to in claim 1 can only be compared with the primary crimp of D10.

However, in D10 there is no teaching to provide a process step of activating the primary crimp. In fact in D10 the primary crimp is a direct consequence of the steps proper to the web fabrication process. There is no particular activity specifically carried out with the aim of developing the primary crimp. In contrast thereto, claim 1 of the patent in suit requires that the process comprises a step of activating the latent helical crimp: this clearly implies that an activity is performed in addition to the other process steps of melt spinning, drawing and quenching, which function is to activate the latent helical crimp.

Therefore, the subject-matter of claim 1 is found to be novel over the disclosure of document D10.

2.1.2 The Board cannot share appellant II's view that D10 discloses an embodiment in which only the primary crimp is developed, because secondary crimps develop even in the alternative embodiment of claim 9 in which the web is simply allowed to stand and is not heat treated (see in particular page 16, central paragraph: even if the web is simply allowed to stand the secondary crimp develops because the filaments are under no tension). However, even if such a process in which only the primary crimp is developed were known from D10, it would not be prejudicial to the novelty of the subject-matter of claim 1 of the patent in suit because there is no disclosure in D10 of a process step for activating the latent crimp.

Similarly, the argument of the respondent that claim 1 does not define the degree of activation of the latent crimp so that also a partial activation of the latent crimp, corresponding to the activation of the primary crimp in D10, is within the scope of claim 1, is irrelevant for the question of novelty because a step for activating the primary crimp is not disclosed in D10.

2.1.3 Since none of the other documents cited discloses a process having all the features of claim 1 of the patent as granted, its subject-matter is considered to be novel.

2.2 Inventive step

2.2.1 The problem underlying the patent in suit is to provide improved nonwoven fabrics and methods for making the same, the fabric having desirable combinations of physical properties such as softness, strength, bulk or fullness, absorbency and including highly crimped filaments, the process being economical and allowing to control the properties of the resulting nonwoven fabric (see page 3, lines 17 to 24 of the patent in suit).

2.2.2 Document D10 aims at the same object of providing a fabric which is soft, strong, full (see page 6, second paragraph), and, in view of the similarities with the claimed process, represents a prior art which comes closer to the invention than that cited in the granted patent.

The process according to claim 1 is distinguished from the process of D10 only in that the step of activating the latent helical crimp is carried out before the step of forming the crimped continuous multicomponent filaments into a first nonwoven fabric web.

2.2.3 According to D10, the secondary crimps which are fine and firm are activated after web formation; before web formation only the primary crimps which are loose and slight develop (see above section 2.1.1). Thus, considering that most web shrinkage occurs due to fabric crimping and that most crimps are developed during the activating step, the distinguishing feature has the effect that shrinkage of the web after formation is substantially reduced, whereby the resulting fabric is substantially stable and uniform (see page 3, lines 27 to 29, of the patent in suit).

Hence, the objective technical problem formulated when starting from the closest prior art D10 can be regarded as to provide a fabric which is substantially stable and uniform.

2.2.4 The skilled person is explicitly taught by D10 that shrinkage of the web takes place after the filaments have been deposited on the receiver (see page 16 of D10). Since the shrinkage is an irregular process, the skilled person would obviously come to the conclusion that the stability and uniformity of the web obtained with the process of D10 are aspects that would need an improvement and would consequently consider posing the above mentioned technical problem.

2.2.5 In order to solve the technical problem, the skilled person would turn to document D5 because it relates to the fabrication of nonwoven webs composed of crimped bi-component spun fibres and because it deals with the problem of providing a web which is stable and uniform. Indeed, D5 specifically aims at ensuring that an unbonded filamentary product does not undergo pronounced dimensional and other changes upon heating to a bonding temperature by ensuring dimensional stabilization of the fibres prior to the thermal bonding treatment (see column 1, lines 51 to 66; see column 6, lines 14 to 17 and 29 to 39).

In order to ensure dimensional stabilization of the fibres, D5 teaches to anneal the bicomponent filaments to remove the latent crimpability and shrinkage forces by means of hot air, hot water or steam (see column 6, lines 39 to 42 and 64 to 69). Still according to D5, crimping and annealing can be effected in a single

operation when the bicomponent fibers are of the latently crimpable variety (column 5, lines 53 to 56).

Therefore, the skilled person is taught by D5 that the provision of a crimping and annealing step before web formation results in a dimensional stabilization of the fibres, which can consequently be used for the formation of a nonwoven web which is stable and uniform. Therefore, the skilled person would consider to include this teaching in the method of D10 in order to solve the technical problem. This implies that the skilled person would consider the provision of a process step of crimping and annealing of the filaments, i.e. a process step of activating (by hot air, hot water or steam) the latent crimp in the process of D10 before web formation takes place, thereby directly arriving at the subject-matter of claim 1.

2.2.6 The appellant I submitted that the skilled person would not combine the teachings of D10 and D5 because they related to substantially different process.

It is true that D5 relates to a process of manufacturing a web which consists of staple-length fibers, rather than of continuous filaments as in the process of D10, and that substantial differences exist between the two processes. However, the process of D5 involves the fabrication and treatment (including crimping and annealing) of continuous filaments (see e.g. column 7, lines 4 to 7), which are cut only immediately prior to web formation. Furthermore, the skilled person would recognise that the dimensional stabilization of the fibres as taught by D5 contributes to the formation of a stable and uniform web

independently from the structure of the nonwoven web being constituted of continuous or staple-length fibres. Thus, the skilled person would be inclined to take document D5 into consideration when seeking a solution to the above-mentioned technical problem.

Appellant I further submitted that in D5 and D10 the latent crimp was activated when the filaments were in a relaxed state an not whilst under tension.

However, the definition of claim 1 does not exclude that the step of activating the latent crimp is carried out when the filaments are in a relaxed state, such as in the zone of the process line of D10 (see Figure 1) between the ejector 3 and the receiver where the filaments are relaxed (see page 12, the four lines at the beginning of the second paragraph).

Appellant I also argued that D10 only disclosed the use of a mechanical crimping method if the latent crimp was to be activated in the continuous filaments (before being cut to staple-length fibres), the other crimping methods being used for staple-length fibres.

However, claim 1 does not exclude the use of a mechanical crimping method. Nor are there any reasons why such a method could not be included in the process line of D10. Furthermore, D10 discloses that the annealing and crimping steps generally take place before the staple cutting step (see Figure 5) when the filaments are still of the continuous type, and that the crimping step can be carried out in different manners, not only by means of a mechanical crimping method (see column 5, lines 61 to 73; column 6, lines

64, 65). The passage referred to by appellant I, that it is feasible (column 7, lines 1 to 3) to develop latent crimpability in fibres which have already been reduced to staple length, unless a mechanical crimping method is used (column 6, lines 74, 75), only implies that the mechanical crimping method cannot be used in case it is chosen to develop the latent crimp after the staple cutting step.

2.2.7 Therefore, the subject-matter of claim 1 of the main request, and of claim 1 of auxiliary request 1 which is identical, lacks an inventive step.

3. *Auxiliary requests 2 and 3*

3.1 In claim 1 of auxiliary request 2 the order of steps of drawing and quenching is inverted as compared to the order in which these steps are defined in claim 1 as granted.

In the Board's view, this amendment is not occasioned by any of the grounds for opposition specified in Article 100. In particular it does not introduce any limitation aimed at further distinguishing the claimed process from the prior art for supporting the presence of an inventive step.

3.2 Appellant I essentially submitted that this amendment was carried out in order to reflect the order of the steps proper to the embodiment shown in the figures of the patent in suit, and that claim 1 did not require the steps to be performed in a specific order.

From this submission of the appellant I it can only be concluded that the amendment is not intended to change the substance of the claim, but only its form. However, mere formal modifications cannot influence the decision on issues under Article 100 EPC.

3.3 Therefore, the amendment of claim 1 of auxiliary request 2, and of claim 1 of auxiliary request 3 which is identical, does not meet the requirements of Rule 57a. These auxiliary requests are consequently not admissible.

4. *Auxiliary requests 2A and 3A*

4.1 Amendments

Claim 1 of auxiliary request 2A includes all the features of claim 1 of the patent application as filed and of claim 1 of the patent as granted, with the process steps being recited in the same order. It additionally defines, in step (d), the feature defined in claim 3 of the application as filed, that the latent helical crimp is activated by contacting the continuous multicomponent filaments with a flow of air having a temperature sufficiently high to activate said latent helical crimp.

Therefore, the amendments made to claim 1 meet the requirements of Article 123(2) and (3) EPC.

4.2 Inventive step

4.2.1 The above-mentioned additional feature constitutes a further feature distinguishing the subject-matter of

claim 1 from the process of D10. This feature defines a specific manner of activating the latent helical crimp.

After arriving at the obvious solution suggested by D5 (see above section 2.2), that in the process of D10 the step of activating the latent helical crimp should be carried out before the step of forming the crimped continuous multicomponent filaments into a first nonwoven fabric web, the skilled person would necessarily provide some specific means for carrying out the activating step in order to practise the thus modified process. In order to find such specific means the skilled person would look in D5 where he would find that the use of hot air is one possibility for performing the crimping and annealing step (column 5, lines 53 to 56 and 61 to 66; and column 6, lines 64, 65). Therefore, the skilled person would consider as obvious the provision of a flow of air having a temperature sufficiently high to activate the latent helical crimp when contacting the filaments, thereby arriving at the subject-matter of claim 1 without the exercise of inventive activity.

4.2.2 Hence the subject-matter of claim 1 of the auxiliary request 2A, and of claim 1 of auxiliary request 3A which is identical, lacks an inventive step.

5. *Auxiliary request 4*

5.1 Amendments

5.1.1 Claim 1 includes all the features of claims 1, 3 and 4 of the patent application as filed and of the patent as granted. Claims 2 to 39 correspond to claims 5 to 42 as

granted, which are essentially based upon the disclosure of claims 5 to 28, 45, 58 to 62, 67 to 77 of the application as filed.

The description of the patent in suit is adapted to be consistent with the claims as amended and to acknowledge document D10 as prior art.

Hence, the amendments neither introduce subject-matter which extends beyond the content of the application as filed nor result in an extension of the protection conferred.

5.1.2 It follows that none of the amendments gives rise to objections under Article 123(2) and (3) EPC.

5.2 Inventive step

5.2.1 The process according to claim 1 is distinguished from the process of D10 in that the multicomponent filaments are drawn with a flow of air contacting the filaments which has a temperature sufficiently high to activate the latent helical crimp and therewith activates said latent helical crimp.

5.2.2 Since the latent helical crimp is activated before web formation, the resulting fabric is substantially stable and uniform (see above section 2.2.3). By crimping the filaments with the same flow of air used to draw the filaments, the filaments are crimped without an additional process step and without interrupting the process (see page 3 of the patent in suit, lines 51 to 54).

Therefore, the objective technical problem solved by means of the distinguishing features can be regarded as to provide, in a fast, efficient and economical manner, a fabric which is substantially stable and uniform.

5.2.3 Although D5 suggests the provision of a process step of activating the latent crimp before web formation takes place, there is no hint in this document to carry out this process step simultaneously with the process step of drawing the filaments, by heating the flow of air used for drawing the filaments.

Nor is this disclosed or suggested by any of the other available documents.

5.2.4 Appellant II submitted that the subject-matter of claim 1 lacked an inventive step because D10 also disclosed that the latent crimp was activated with the same flow of air used to draw the filaments.

However, as explained above (section 2.1), in D10 the latent crimp is not activated before web formation. The primary crimp simply develops because the fibres are in a relaxed state, and D10 does not suggest that any actions be taken at that stage to actively influence the crimp development, such as by heating the air used for drawing the fibres.

The respondent argued that it was obvious to activate the latent crimp by a flow of hot air, and that since a flow of air was already used in D10 for drawing the filaments, it was obvious to activate the latent crimp by means of the same flow of air used to draw the filaments.

In the Board's judgment, this argument is based on an ex-post facto analysis. It is true that in D10 a flow of air is used for drawing the filaments, and that it is known, for instance from D5, to activate the latent crimp by a flow of hot air. However, there is no indication in the prior art from which it can be inferred that the skilled person would, rather than could, combine these two features in the expectation of any advantages.

5.2.5 Therefore, the subject-matter of claim 1 of auxiliary request 4 is found to involve an inventive step.

5.3 Independent claims 26 and 38

5.3.1 In the annex to the summons for oral proceedings the Board expressed its preliminary opinion that claims 29 and 41 of the patent as granted were to be regarded as independent claims. Claims 26 and 38 of auxiliary request 4 correspond to claims 29 and 41 of the patent as granted and are likewise to be regarded as independent claims.

5.3.2 The patentability of the subject-matter of independent claims 26 and 38 has not been contested during the appeal proceedings. Nor does the Board see any reason to question the validity of these claims, in particular because both claims require the use of a web having been produced according to the process of the invention, and therefore comes to the conclusion that the subject-matter of these claims is novel and also involves an inventive step.

5.4 Therefore, independent claims 1, 26 and 38 according to auxiliary request 4, together with the dependent claims 2 to 25, 27 to 37 and 39, the description as filed during oral proceedings of 16 September 2003, and the drawings of the patent as granted, form a suitable basis for maintenance of the patent in amended form.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The main request and auxiliary requests 1, 2, 2A, 3, 3A are rejected.

3. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

claims: 1 to 39 of auxiliary request 4 filed with letter dated 15 August 2003;

description: pages 2 to 17 filed during the oral proceedings of 16 September 2003;

drawings: figures 1 to 6 of the patent as granted.

The Registrar: The Chairman:

M. Patin P. Alting van Geusau