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D E C I S I O N
of 18 January 2006

Case Number: T 0677/03 - 3.2.06

Application Number: 96907457.4

Publication Number: 0817875

IPC: D01G 25/00

Language of the proceedings: EN

Title of invention:
Apparatus and device for the production of nonwovens

Patentee:
Spinnbau GmbH

Opponent:
Thibeau

Headword:
-

Relevant legal provisions:
EPC Art. 52(1), 54(1), 56, 83, 100(a), 100(b)

Keyword:
"Enabling disclosure - yes"
"Novelty and inventive step - yes"

Decisions cited:
T 0256/87

Catchword:
-

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Case Number: T 0677/03 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 18 January 2006

Appellant: (Opponent)
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Decision under appeal: **Interlocutory decision of the Opposition Division of the European Patent Office posted 25 April 2003 concerning maintenance of European patent No. 0817875 in amended form.**

Composition of the Board:

Chairman: P. Alting van Geusau
Members: G. Kadner
W. Sekretaruk

Summary of Facts and Submissions

I. The mention of the grant of European patent No. 0 817 875 with 17 claims in respect of European patent application No. 96907457.4 claiming a German priority from 31 March 1995 and filed on 14 March 1996 was published on 5 July 2000.

II. Notice of opposition was filed against this patent with request for revocation based on the grounds of Article 100(a), 100(b) and 100(c) EPC.

By decision posted on 25 April 2003, the Opposition Division maintained the patent in amended form.

The Opposition Division was of the opinion that the requirements of Articles 83, 100(b), 123(2) and 100(c) EPC were met and that the subject-matter of independent claims 1 and 10 as amended was novel and involved an inventive step when compared with the prior art disclosed in:

D1: EP-A-0 704 561
D2: AT-B-0 324 894
D3: FR-B-1 138 108
D4: EP-A-0 484 812
D5: FR-B-2 692 915
D6: US-A-4 865 798

Claims 1 and 10 upheld in opposition read as follows:

"1. An apparatus for the production of nonwovens (1) comprising at least one carding machine (2) and at least one conveyor belt (4) for conveying the nonwoven

(1) transferred to the conveyor belt (4) by a take-off roller (29) of said carding machine (2)
characterized in
that the conveyor belt (4) is air-permeable, and that the transition regions (6) between the take-off roller (29) and the conveyor belt (4) are subjected to suction from below, generated by a suction means (8) with at least one suction box (10) arranged at the conveyor belt (4) and being set to remove an air film generated between the nonwoven (1) and the conveyor belt (4) at transport speeds above 150 to 200 m/min, and in that the suction force of the suction means (8) acting on the conveyor belt (4) is applied in sections over the complete length of the conveyor belt (4).

10. A method for the production of nonwovens (1) at high operating speeds, using at least one carding machine (2) and at least one conveyor belt (4), the nonwoven (1) being transferred onto the conveyor belt (4) by a take-off roller (29)
characterized in
that an air-permeable conveyor belt (4) is used, and that the transition regions (6) between the take-off roller (29) and the conveyor belt (4) an underground vacuum is applied to the conveyor belt (4) to remove an air film generated between the nonwoven (1) and the conveyor belt (4) at high transport speeds above 150 to 200 m/min, wherein the suction force of the suction means (8) acting on the conveyor belt (4) is applied in sections over the complete length of the conveyor belt (4)."

III. Notice of appeal was lodged against this decision by the Appellant (Opponent) on 24 June 2003 together with payment of the appeal fee.

With the statement of grounds of appeal on 22 August 2003 document:

D7: FR-A-2 545 507

was filed, which had already been considered in examination proceedings.

IV. In a communication pursuant to Article 11(1) of the Rules of Procedure of the Boards of Appeal dated 13 October 2005 sent together with the summons to oral proceedings, the Board expressed its preliminary opinion, that the Opposition Division's conclusion in respect of Article 100(b) EPC could be followed. The newly filed document D7 did not seem to be of such relevance that it would have to be introduced into the proceedings. Furthermore the Opposition Division's finding in respect of novelty and inventive step appeared to be correct.

V. With letter dated 16 December 2005 a further prior art document was filed:

D8: US-A-5 093 962

VI. Oral proceedings were held on 18 January 2006.

The Appellant requested that the decision under appeal be set aside and that the patent No. 0 817 875 be revoked.

The Respondent (Patentee) requested that the appeal be dismissed.

VII. In support of its requests the Appellant essentially relied upon the following submissions:

The invention was not disclosed in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art. According to the description the suction was set to a value to be just sufficient to remove the air film generated between the nonwoven and the conveyor belt (par. [0006]). On the other hand, the suction precluded the formation of an air film between the nonwoven and the conveyor belt (par. [0019]) or was such that the generation of an air film was prevented particularly in the transition regions, where the nonwoven contacts the conveyor belt (par. [0023]). However, no parameters were given which would put the skilled person in a position to control the suction force in accordance with these requirements, in particular in the transition region where inevitably turbulences arose. The observation of the appearance of the nonwoven during its transport was unsuitable to serve as a basis for an indication whether the film of air was removed, or control of the air removal.

Moreover, the suction could not be carried out over the complete length of the conveyor since it was interrupted by the support rollers which caused turbulences in the surrounding area. That feature of "complete length" was not supported by the description, according to which the suction boxes extended at least

over part of the conveyor belt in the longitudinal direction (par. [0011]). Therefore, when carrying out a method belonging to the prior art, the skilled person could not identify whether he worked within the scope of the patent or not.

The apparatus according to claim 1 was not novel when compared with that disclosure in D1, where suction boxes 23, 29 were arranged in sections below the conveyor belt. These suction boxes extended over the length of the zone of turbulence, but was not limited thereto. Therefore, according to the teaching of D1, they could also be arranged over the length of the conveyor belt.

The claimed subject-matter was obvious to the skilled person in view of the prior art according to D6 because the distinguishing features would not prevent him from applying the arrangement of suction boxes over the whole length of the conveyor belt shown in D6 in an apparatus having a take-off roller and working at transport speeds above 150 to 200 m/min.

VIII. The arguments of the Respondent can be summarised as follows:

The disclosure of the patent in suit was sufficient to be carried out by a skilled person, who was assumed to be a textile engineer in this case. Particular parameters for controlling the suction force could not be defined because they depended on various parameters like weight per area of the nonwoven, width and area of the conveyor, type of fibers etc. However, the patent taught clearly which parameters were of importance for

adjusting the suction force, and by visual control of the moving nonwoven the skilled person was able to carry out the invention. The influence of the support rollers was negligible since they were relatively small in diameter, and at both sides of their extended contact the suction force was present.

The subject-matter claimed was novel because none of the prior art documents disclosed suction means arranged in sections over the complete length of the conveyor belt.

The invention was not obvious to the skilled person since both D6 and D8 related to a different type of web forming without a take-off roller, but with an air stream transporting the fibers onto the conveyor belt. No indication was present to the combination of the web forming apparatus and method according to claim 1 and 10 using a take-off roller and suction means over the complete length of the conveyor belt.

Reasons for the Decision

1. The appeal is admissible.

2. *Sufficiency of disclosure (Article 83, 100(b) EPC)*

2.1 In accordance with the Opposition Division the Board considers the patent in suit to meet the requirement of sufficiency of disclosure as a whole. When reading the description the skilled person recognises immediately that, if the air film between the nonwoven and the conveyor belt is removed (par. 0006), the formation of

such a film is precluded (par. 0019) or prevented (par. 0023). The necessary suction force depends on a number of parameters such as the type of fibers, the weight of the nonwoven and speed of the conveyor belt, and because of their interdependence therefore detailed control parameters cannot be defined. However, the skilled person having general knowledge in this technical field is in a position to set suitable parameters without undue burden by simple trial and error method. As was convincingly argued by the Respondent, by observing the appearance of the nonwoven it should be possible to determine whether the sucking force is too weak such that it lifts from the conveyor belt or whether the sucking force is too strong such that it is damaged.

2.2 The skilled person is also in a position to establish whether he is working within the ambit of the claim. When regarding the prior art according to D1, it is clearly stated there that an air film must be present between the nonwoven and the conveyor belt. Even if that feature is not absolutely determinable, the additional feature that the suction force is applied in sections over the complete length of the conveyor belt is a clear fact which allows determination of whether the scope of the patent claims is fulfilled or not. The question raised in decision T 256/87 relied upon by the Appellant was whether the skilled person was able to carry out the invention in the sense of his being able to establish whether a composition containing a specific component falling in the claimed range, and being able reliably to prepare such a composition. Since in the present case a comparison of essential features between the prior art and the invention is

possible without undue burden, that decision cannot lead to a different conclusion in respect of the requirements of Article 100(b) EPC.

3. *Admissibility of new documents (D7 and D8)*

3.1 During the oral proceedings, the Appellant based its argumentation in particular on the late filed D8. Although that document describes a licker-in cylinder taking the fibers from a fiber stock, the principle of forming the web is pneumatically since the individual fibers are transported by an induced air stream, as it is also done in the arrangement shown in D4. In contrast to that method the patent in suit works in the same manner as D1, transferring the fibers as a mat from the carding machine onto the conveyor belt. The disclosure of D8 does not exceed that of the documents on file, and therefore that document is not admitted to the proceedings.

3.2 In the apparatus disclosed in D7 the web is also formed by pneumatically transporting the fibers to the conveyor, and at each landing area of each fiber stream a separated sucking box is arranged. This prior art document does not go beyond the disclosure of D1 to D6 and is consequently also not taken into consideration.

4. *Novelty*

As correctly stated by the Opposition Division in its decision, none of the documents D1 to D6 discloses the combination of features of claim 1 and 10. The Board agrees with its conclusion in that the subject-matter

of the independent claims meets the requirement of novelty (Article 54(1) EPC).

5. *Inventive step*

5.1 The closest prior art is represented by D1 which discloses an apparatus and a method for the production of nonwovens at high operating speeds, using one carding machine and a conveyor belt, the nonwoven being transferred onto the conveyor belt by a take-off roller, wherein the conveyor belt is air-permeable, and wherein in the transition region between the take-off roller and the conveyor belt a vacuum is applied to the conveyor belt to remove an air film generated between the nonwoven and the conveyor belt (4) at high transport speeds which reach up to 300 m/min.

5.2 Starting from this state of the art the object of the invention is to provide an apparatus and a method for the production of nonwovens which allow for a considerable increase of the production speed. This technical problem is solved by an apparatus having the features of claim 1 and by a method comprising the features of claim 10, in particular, that the suction force of the suction means (8) acting on the conveyor belt (4) is applied in sections over the complete length of the conveyor belt (4).

5.3 The Board considers the reasons given by the Opposition Division in respect of inventive step convincing. Since in documents D2 to D6 no indication towards the claimed invention is present, the subject-matter of claim 1 and claim 10 could not be arrived at by the skilled person without the involvement of inventive activity. As

regards the Appellant's arguments based on D6, the Board endorses the view expressed by the Opposition Division in that, because this document essentially concerns the manufacture of wood board production, it is remote from the production of nonwoven. Thus the subject-matter of the independent claims meet the requirement of Article 56 EPC.

5.4 Dependent claims 2 to 9 and 11 to 16 contain further embodiments of the apparatus and the method according to claim 1 and 10 and can be maintained together with these claims.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

C. Eickhoff P. Alting van Geusau