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Datasheet for the decision of 3 November 2009

Case Number: T 0159/08 - 3.2.05

Application Number: 00306094.4

Publication Number: 1085126

IPC: D21F 7/08

Language of the proceedings: EN

Title of invention:
Wet web transfer belt

Patentee:
ICHIKAWA CO., LTD.

Opponent:
EMS-CHEMIE AG

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56

Relevant legal provisions (EPC 1973):
-

Keyword:
"Novelty (main request, yes)"
"Inventive step (main request, yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0159/08 - 3.2.05

D E C I S I O N
of the Technical Board of Appeal 3.2.05
of 3 November 2009

Appellant: (Opponent)
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Respondent: (Patent Proprietor)
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Decision under appeal:
Decision of the Opposition Division of the European Patent Office posted 23 November 2007 rejecting the opposition filed against European patent No. 1085126 pursuant to Article 102(2) EPC 1973.

Composition of the Board:

Chairman: W. Zellhuber
Members: P. Michel
E. Lachacinski

Summary of Facts and Submissions

I. The appellant (opponent) lodged an appeal against the decision of the Opposition Division rejecting the opposition filed against European Patent No. 1 085 126.

II. Oral proceedings were held before the Board of Appeal on 3 November 2009.

III. The appellant requested that the decision under appeal be set aside and that the European Patent No. 1 085 126 be revoked.

The respondent (patent proprietor) requested as main request that the appeal be dismissed and, as an auxiliary measure, that the decision under appeal be set aside and that the patent in suit be maintained on the basis of either of the sets of claims filed as first and second auxiliary requests on 30 September 2009.

IV. The following documents are referred to in the present decision:

E1: DE-U-297 06 427
E3: DE-C-198 03 493
E6: US-A-4,976,821
E7: EP-A-0 576 115

V. Claim 1 as granted (main request) reads as follows:

"1. A wet web transfer belt (1) for a papermaking machine wherein a wet web (P) is transferred in a closed draw, which belt (1) comprises a base layer (2)

and a batt layer (3), the batt layer (3) having a side (3a) on which a wet web (P) is placed, and at least a surface layer (A) of said side (3a) of the batt layer (3) being formed of fiber comprising a welded layer (4) of meltable fiber, characterized in that the welded layer (4) partly retains a fibrous configuration, forming on the surface of the welded layer (A) projections (5) and concavities (6) capable of flattening when a nip pressure is applied to the belt (1)."

VI. The appellant has argued substantially as follows:

Document E1 discloses a wet web transfer belt for a papermaking machine having a fibrous structure on the surface of a welded layer. In the embodiment of Figure 4, it is unavoidable, despite smoothing, that such a structure is present in view of the fact that the layer is formed from a mixture of meltable and non-meltable fibres. The term "smooth" as used in document E1 is a relative term and it is noted that, according to claim 6 of the patent in suit, the surface roughness may be as little as Rz 5 µm. In the embodiment of Figure 1, only one side is melted. The belt is nevertheless suitable for use as a transfer belt.

The belt disclosed in document E3 is also a transfer belt having the dual function of dewatering the paper web and supporting the web between machine sections. As described in Example 1 of document E3, the belt is formed from layers of a fleece formed of bi-component fibres. The fleece is fixed at 165°C, melting the meltable component and resulting in a surface as defined in claim 1 of the patent in suit.

The subject-matter of claim 1 as granted thus lacks novelty in view of the disclosure of each of documents E1 and E3.

Insofar as the subject-matter of claim 1 is regarded as being new, it nevertheless does not involve an inventive step.

Document E3 may be regarded as the closest prior art. Document E6 illustrates that the belt of document E3 may be used as a transfer belt.

In an alternative approach, the embodiments of either Figure 1 or Figure 4 of document E1 could be regarded as the closest prior art. If Figure 1 is the closest prior art, the object of the invention is to render the surface smoother and abrasion resistant.

VII. The respondent has argued substantially as follows:

Document E1 discloses, with reference to the embodiment of Figure 4, a belt whose surface is smoothed so as to be comparable in smoothness to a surface-treated polyurethane belt (page 13, lines 17 to 39).

Document E3 is silent as to the character of the top surface of the fleece.

There is thus no unambiguous disclosure of a belt as specified in claim 1 as granted and the subject-matter of claim 1 is new.

There is no combination of documents which would lead to the subject-matter of claim 1. In particular, there is no disclosure of a welded layer partly retaining a fibrous configuration, forming on the surface of the welded layer projections and concavities capable of flattening when a nip pressure is applied to the belt.

The embodiment of Figure 4 of document E1 may be regarded as representing the closest prior art, insofar as it has the most features in common with claim 1 of the patent in suit.

The problem to be solved is set out in the patent in suit at paragraph [0010]. The prior art does not offer the solution to this problem as specified in claim 1.

The subject-matter of claim 1 of the patent in suit as granted thus involves an inventive step.

Reasons for the Decision

Main Request

1. *Novelty*

1.1 Document E1

Document E1 discloses with reference to Figure 1 and the related description at page 10, line 20 to page 11, line 21, a belt having an impermeable layer 11 and a compressible fibre layer 12. Both layers of the belt are formed from a fibre layer including meltable fibres which are melted to form the impermeable layer. The

surface of the impermeable layer is subsequently smoothed (page 10, lines 32 to 34). The belt is described as being suitable for use in a wet press without the necessity for a wet felt (page 11, lines 1 to 4). The belt thus does not have a welded layer on the side of the batt layer on which a wet web is placed, as required by claim 1 of the patent in suit.

The embodiment of Figure 4 of document E1, described at page 13, line 17 to page 14, line 17, has an impermeable welded layer 21 on its upper side. As stated at page 13, lines 23 and 24, the belt is suitable for use as a transfer belt. However, as disclosed at page 13, lines 34 to 36, the welded layer has a smooth surface. There is no suggestion that the fibres of the fibrous layer extend to the surface of the welded layer 21. The welded layer thus does not partly retain a fibrous configuration which forms on the surface of the welded layer projections and concavities capable of flattening when a nip pressure is applied to the belt.

1.2 Document E3

Document E3 relates to a felt for a papermaking machine which supports the paper pulp and receives water therefrom (page 1, lines 3 to 5). As described in particular in Example 1 (page 3, line 59 to page 10, line 32), a fleece is formed from bi-component fibres having a meltable component, which is heated so as to melt the meltable component and fix the felt. The surface of the felt is thus in the form of a felt in which the fibres are fixed to one another by the meltable component of the fibres. Whilst the felt

itself may be compressed, the surface of the felt does not have projections and concavities capable of flattening when a nip pressure is applied to the belt.

1.3 The subject-matter of claim 1 is thus new.

2. *Inventive step*

2.1 Closest Prior Art

The embodiment of Figure 4 of document E1 is regarded as representing the closest prior art, disclosing a belt having the features of the pre-characterising portion of claim 1. The smooth surface proposed in document E1 would, however, tend to cause the problem outlined in paragraph [0006] of the patent in suit, that is, that a film of water would form between the wet web and the transfer belt, hindering release of the web from the belt.

2.2 Problem to be solved

The problem to be solved can thus be regarded as being to provide a wet web transfer belt facilitating release of a wet web (see patent in suit, paragraph [0011]).

2.3 Solution

The characterising features of claim 1 result in a belt to which the wet web does not tend to adhere, as described in the patent in suit with reference to Figures 5(a) to 5(c). In addition, since the projections and concavities on the surface of the belt are capable of flattening when a nip pressure is

applied to the belt, there is less likelihood of markings being imparted to the web in the nip.

The problem of web releasability is recognized in the prior art, in document E7 and in the documents acknowledged in the patent in suit in paragraphs [0008] and [0009]. However, these documents do not suggest the solution to the problem claimed in the patent in suit. Rather, roughness is imparted to the surface by the presence of particles of filler or air bubbles. However, the creation of a rough surface requires grinding of the surface of the belt after curing, thus increasing production costs.

It was suggested on behalf of the appellant, that the passage at page 4, line 17 to page 5, line 2, of document E1 suggests a belt construction combining the features of the embodiments of Figures 1 and 4, which would possess a surface as specified in claim 1. This is not accepted. The cited passage refers to the possibility of melting and smoothing the fibre layer on either one side (as in Figure 1) or both sides (as in Figure 4). There is no suggestion of melting under conditions such as to result in the fibrous configuration specified in claim 1 of the patent in suit.

Whilst document E6 shows transfer belts formed of a water receiving fabric (fabric 20 in Figure 1 and fabric 130 in Figure 2), this document also does not suggest the fibrous configuration specified in claim 1.

2.4 Alternative approach

It was suggested on behalf of the appellant, that the embodiment of Figure 1 of document E1 or document E3 could also be regarded as representing the closest prior art. In this case, the fibrous surface of the belt would not, as required by claim 1 of the patent in suit, be capable of flattening when a nip pressure is applied to the belt. Thus, there exists the possibility that markings will be imparted to the web in the nip.

The cited prior art does not suggest the solution to this problem as specified in claim 1, that is, the provision of a welded layer which partly retains a fibrous configuration, forming on the surface of the welded layer projections and concavities capable of flattening when a nip pressure is applied to the belt. Rather, it is suggested that this problem could be overcome by providing a smooth surface as in the embodiment of Figure 4 of document E1.

2.5 Thus, the subject-matter of claim 1 involves an inventive step. Claims 2 to 6 relate to preferred aspects of the belt and also involve an inventive step for the same reasons.

3. Since the main request of the respondent is allowable, it is not necessary to consider the auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

D. Meyfarth W. Zellhuber