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D E C I S I O N
of 19 September 2005

Case Number: T 0682/04 - 3.2.07

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IPC: D21F 3/02

Language of the proceedings: EN

Title of invention:
Groove Configuration For A Press Belt

Patentee:
TAMFELT OY AB

Opponent:
Voith Paper Patent GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 56

Keyword:
Disclosure of documents; closest prior art"
"Inventive step"

Decisions cited:
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Catchword:
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Case Number: T 0682/04 - 3.2.07

D E C I S I O N
of the Technical Board of Appeal 3.2.07
of 19 September 2005

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office posted 30 March 2004 revoking European patent No. 0789799 pursuant to Article 102(1) EPC.**

Composition of the Board:

Chairman: P. O'Reilly
Members: H.-P. Felgenhauer
E. Lachacinski

Summary of Facts and Submissions

I. The appellant (patent proprietor) filed an appeal against the decision of the Opposition Division revoking the European patent No. 0 789 799.

Opposition was filed against the patent as a whole based on the grounds of opposition according to Article 100a) EPC (lack of novelty and of inventive step).

The opposition division held that the subject-matter of claim 1 according to the main request and the auxiliary request did not involve an inventive step in view of combined consideration of documents D15 and D18 or of documents D15 and D11.

II. Oral proceedings before the Board of Appeal were held on 19 September 2005.

III. The appellant requested that the decision under appeal be set aside and that the patent be maintained based on claims 1 to 5 filed with letter of 17 August 2005 as main request, alternatively with the claims according to one of the auxiliary requests 1 to 5, filed during the oral proceedings.

IV. The respondent (opponent) requested that the appeal be dismissed.

V. Claim 1 according to the main request reads as follows:

"1. An elastomeric press belt (10, 26) for transporting a continuous sheet through a press nip of a shoe type-

press, as used in paper making machines, said press belt (10, 26), having inner and outer surfaces and a plurality of upwardly opening grooves (14, 30) extending lengthwise in the direction of belt to carry away water in said outer surface, each of said grooves comprising a bottom and two upwardly diverging side walls and radiused bottom corners which provide a smooth curved transition between said bottom and said upwardly diverging sidewalls."

VI. The following documents were in particular referred to in the appeal procedure:

D8: US-A-4 482 430
D10: US-A-4 880 501
D11: US-A-4 908 103
D12: US-A-4 946 731
D13: US-A-4 482 430
D15: US-A-5 302 251
D16: GB-A-2 221 702
D18: EP-A-0 241 389
D21: T. Gudehus, "Stoffentwässerung im Walzenpreßspalt", Sonderdruck aus der Zeitschrift "Das Papier", Heft 4/88, Seiten 174-184, Heft 5/88, Seiten 221-232, Heft 7/88, Seiten 361-375

VII. In the annex to the summons to attend oral proceedings the Board referred to the manner in which according to the decision under appeal the embodiments according to figures 6 and 6A of document D15 have been relied upon, referring to the necessity to properly evaluate the disclosure of these embodiments. With respect to document D18 it was indicated that it appeared to be necessary to examine whether or not one of the

embodiments according to figures 18 or 19 of this document can be considered as the closest prior art in the evaluation of inventive step. Considering the combination of document D18 with a further document such as D10, D11, D12 or D16 being considered as the closest prior art it was indicated that it needed to be examined whether or not the person skilled in the art would have selected the embodiments according to figures 18 or 19 in an attempt to improve the capacity to carry water away.

VIII. The appellant's submissions may be summarised as follows:

(i) Document D21 filed in the appeal proceedings should not be considered as being late filed and should be considered as being relevant with respect to the combination of features of claim 1.

(ii) The subject-matter of claim 1 is directed to an elastomeric press belt for transporting a continuous sheet through a press nip of a shoe type-press, as used in paper making machines. As closest prior art thus an elastomeric belt of this type needs to be considered, such as disclosed in any of the documents D10, D11, D12 or D16. Each of these documents refers to the main problem underlying the patent in suit, which results from the disadvantageous effect of the natural tendency of grooves with a substantially rectangular cross section, to close under pressure of the nip. Solutions on

how this disadvantageous effect can be reduced are proposed in these documents.

(iii) Document D15 having been relied upon in the decision under appeal as closest prior art is not concerned with the function of a belt of carrying away water which is pressed out of a sheet in the nip. Instead, this document is directed to an entirely different aspect, namely the provision of downwardly opening grooves which are provided to feed lubricant in a continuous manner to the inner side of a press jacket. Due to this fundamental difference the person skilled in the art would not have considered document D15 in an attempt to enhance the capacity of upwardly opening grooves of a belt to carry away water. This applies likewise with respect to the embodiments according to figures 6 and 6A of D15 since, as can be derived from the description of this document, the upwardly opening grooves shown in these figures are intended to be transferred to the inner surface of the press belt to enhance lubrication.

(iv) Document D18 concerns exclusively the provision of grooves in an elastomeric layer of a cylinder roll of a roll press, such that a pumping effect, resulting from the volume of these grooves being reduced in the nip and expanding afterwards, is increased to carry away water. This effect, which can nearly lead to a closure of the grooves in the nip as

explicitly stated in document D18 is detrimental to the problem to be solved according to the subject-matter of claim 1 of the patent in suit. The person skilled in the art thus would not have considered document D18 as constituting the closest prior art. Also when starting from a prior art document like D10, D11, D13 or D16 document D18 would not have been considered in an attempt to solve a problem, namely the reduction of groove closure, which according to document D18 is considered as a result of the desired increase of the pumping effect or even as being advantageous in that it inhibits marking of the sheet.

IX. The respondents submissions may be summarised as follows:

(i) Document D21 filed in the appeal proceedings should be admitted since it has been filed in the appeal proceedings as early as possible and due to its relevance with respect to the feature introduced into claim 1 by which the bottom corners of the grooves are rounded.

(ii) Although claim 1 of the patent in suit is directed to an elastomeric press belt for transporting a continuous sheet through a press nip of a shoe type press it needs to be taken into consideration that besides this more recent approach of using shoe type presses another approach exists. In this other approach the nip is formed by two press rolls

being provided with an elastomer cover, as e.g. disclosed in document D18. In the latter case, as can be concluded e.g. from document D10, the cover provides the effect which according to claim 1 is provided by the elastomeric press belt. For this reason prior art which discloses press rolls with elastomeric press covers, like document D18, needs to be taken into consideration.

(iii) According to a first line of argumentation the embodiment according to figures 6 and 6A of document D15 can, as in the decision under appeal, be considered as the closest prior art. Although this document is directed primarily to the provision of downwardly opening grooves to enhance lubrication of a press jacket, it needs to be taken into account that according to this document grooves provided originally on the outer side of the belt need not necessarily be transferred to the inner side of the press belt in their entirety. In addition it needs to be taken into consideration in connection with the transfer of grooves from the outer surface to the inner surface, that the person skilled in the art considers the disclosure of the embodiments according to figures 6 and 6A as being unrealistic. Thus for the skilled person it is apparent that the grooves at least will not be transferred entirely, since they will remain at least partially under the pressure in the nip. Concerning the remainder of each groove on the outer surface it will be readily

recognised that it has a dewatering effect as known for such belts e.g. from document D8. Since it is obvious that grooves having such a dewatering effect can likewise be arranged in lengthwise direction the press belt according to claim 1 does not involve an inventive step with respect to document D15.

(iv) According to a second line of argumentation the subject-matter of claim 1 does not involve an inventive step starting from the embodiment according to figures 18 and 19 of document D18 as closest prior art. For the person skilled in the art trying to improve the dewatering capacity of a press belt having grooves of the known rectangular cross section, it will be apparent that the grooves as shown for the embodiments of figures 18 and 19 will provide a solution, irrespective of this document teaching that the pumping effect of grooves is to be used or augmented in order to enhance the dewatering capacity of the belt. The reason is, that the person skilled in the art will not be so much concerned with the physical effect stated in document D18 as the origin of the augmentation of the dewatering capacity, but rather will concentrate on the ultimate goal to be achieved, namely the improvement of the dewatering capacity.

(v) According to a third line of argumentation the subject-matter of claim 1 is obvious starting from a press belt as disclosed e.g. in document D13, according to which grooves can

be provided in a press belt for temporary storage of water in the press nip, in combination with document D18.

Reasons for the Decision

1. *Late filed document*

Concerning document D21 filed with letter dated 10 November 2004 in response to the grounds of appeal, the Board is of the opinion that this document supports arguments, already brought forward by the respondent (opponent) in the opposition proceedings with respect to the feature of claim 1 according to which the grooves have radiused bottom corners. This feature is furthermore explicitly referred to in the decision under appeal. Accordingly consideration of this document does not lead to new issues being raised. Hence the Board considers it to be appropriate to use its discretionary power to admit this document into the proceedings.

2. *Subject-matter of claim 1*

Claim 1 according to the main request (in the following: claim 1) is identical to claim 1 underlying the decision under appeal. This claim differs from claim 1 as granted in two aspects. First of all a feature relating to the intended use of a press belt has been added, indicating that the press belt is "for transporting a continuous sheet through a press nip of a shoe type-press". Secondly a feature has been added according to which each of said grooves is provided

with "radiused bottom corners which provide a smooth curved transition between said bottom and said upwardly diverging sidewalls".

These amendments have not been objected to by the respondent. The Board has convinced itself that the amendments are clear and that amended claim 1 meets the requirements of Article 123(2) and (3) EPC.

According to its first feature claim 1 is clearly directed to an elastomeric press belt, this definition being enhanced by the succeeding feature referring to the intended use of the press belt.

Although it has been the subject of discussion between the parties in the view of the Board, as will be seen from the following, it is of no importance with respect to the evaluation of inventive step which type the shoe type press is, namely whether it is provided with a concave or a convex press shoe and which length the resulting press nip has in comparison to e.g. a press nip formed between two press rolls.

3. *Closest prior art*

The question of which document and further which embodiment(s) of a document have to be considered as constituting the closest prior art has been subject of intensive discussion in the written procedure as well as the oral proceedings.

3.1 According to the established case law (cf. Case Law of the Boards of Appeal of the European Patent Office, Fourth Edition, 2001, I.D.3) the closest prior art for

assessing inventive step is normally a prior art document disclosing subject-matter conceived for the same purpose or aimed at the same objective as the claimed invention and having the most relevant technical features in common, i.e. requiring the minimum of structural modifications.

Thus when evaluating which of the available documents needs to be considered as constituting the closest prior art the problem underlying the patent in suit, the subject-matter of the claims and statements in the patent in suit referring to the prior art and its disadvantages, has to be taken into consideration.

Taking the subject-matter of claim 1 as well as the description of the patent in suit (cf. column 1, lines 9 to 45; column 2, lines 4 to 9) into consideration, the appellant concludes that the closest prior art is to be considered as being one disclosing in accordance with features of claim 1 "an elastomeric press belt for transporting a continuous sheet through a press nip of a shoe type-press, as used in paper making machines, said press belt having inner and outer surfaces and a plurality of upwardly opening grooves extending lengthwise in the direction of belt to carry away water in said outer surface" and thus one as disclosed by documents D10, D11, D12 or D16 as referred to in the description.

This applies similarly concerning document D13 which in one line of argumentation of the respondent is referred to as the closest prior art. Contrary to documents D10, D11, D12 and D16 in document D13 the grooves are not shown in the figures, so that e.g. their cross

sectional shape is not known. Furthermore no indication is given with respect to the problem referred to in the patent in suit in connection with the grooves. This document will thus only be considered together with the corresponding line of argumentation of the respondent.

The Board thus essentially agrees with the conclusion drawn by the appellant, according to which any one of documents D10, D11, D12 or D16 can be considered as the closest prior art.

Although all of the cited documents refer to press belts being used in shoe type presses, the Board however is of the opinion that the intended use referred to in claim 1 - stating that the press belt is for transporting a continuous sheet through a press nip of a shoe type press, as used in paper making machines - does not add to the structure of the press belt being defined. Thus the Board does not consider a disclosure concerning "the use of the press belt in a shoe type press" as being crucial for the qualification of a document as prior art, as long as the known press belt is suited for such a use.

3.2 The respondent did not object to the above findings. It is however according to its first and second line of argumentation of the opinion that documents D15 and D18 are equally well qualified to be the closest prior art.

3.3 Document D15

3.3.1 According to the respondent the embodiments according to figures 6 and 6A of document D15 can each be considered as constituting the closest prior art. The

respondent asserts that grooves 25 provided in the elastomeric press belt for transporting a continuous sheet through a press nip of a shoe type-press, as used in paper making machines, are upwardly opening grooves of the kind defined in claim 1 of the patent in suit.

The only feature distinguishing the press belt according to claim 1 from the one according to figure 6 or 6A thus being that the grooves according to claim 1 extend in lengthwise direction of the belt, whereas the known grooves extend transversally.

3.3.2 Concerning the disclosure of document D15 it remains undisputed that this document is directed to the provision of a belt having a plurality of grooves on its **inner surface** which extend generally parallel to threads 23 within the belt, i.e. in transverse direction (cf. e.g. claim 1). It remains further undisputed that it is the object of document D15 to improve the press belt so that it can convey more lubricant through the press nip (cf. column 2, lines 18 to 27) and that this is achieved by the provision of the grooves on the inner surface (column 2, lines 28 to 36) such that "at least during operation of the press device or the shoe press, fine flat longitudinal grooves which extend transverse to the direction of travel, i.e. generally along the axis of the press jacket, are present on the inner side or surface of the press jacket." (column 2, lines 29 to 36).

3.3.3 With respect to the manner in which these grooves are provided on the inner surface, document D15 discloses two different groups of embodiments. According to the first group "the finely corrugated structure of the

inner side of the press jacket is present and recognisable from the start, and is present even before installation of the press jacket or press belt into the shoe press" (column 3, lines 12 to 19).

According to the second group "the finely corrugated structure on the inner side of the press jacket is produced some time after its manufacture, and in some cases only upon the operation of the shoe press" (column 3, lines 19 to 38).

3.3.4 The embodiments according to figures 6 and 6A evidently fall into the second group, since grooves on the inner surface which are "recognisable from the start" are not provided.

Considering the various methods disclosed for the provision of grooves for the second group of embodiments it is furthermore apparent that, due to "corrugations originally present on the outer side" (cf. column 3, lines 67, 68; figures 6, 6A), method d) applies, according to which these grooves originally present on the outer side are transferred to the inner side (column 3, lines 31 to 33).

3.3.5 The respondent did not object to this evaluation of the disclosure of document D15 as referred to above.

The respondent is however of the opinion that the person skilled in the art could hardly comprehend how grooves 25 within the outer surface of the belt as shown in figures 6 and 6A could be transferred to the inner surface of the press belt and would thus consider this approach as being an unrealistic one.

Furthermore even if such a transfer would be considered as being a realistic one, it would be considered as only being a partial transfer thus leaving a remainder of the grooves on the outer surface, as acknowledged in D15 in that it is recognised that "the corrugated surface of the press jacket 10 is concentrated completely or predominantly on the side facing the press shoe 16 and not on the other side facing the web of paper 20" (column 6, lines 23 to 21). Thus, according to the respondent, it has to be concluded with respect to the disclosure of document D15, that the person skilled in the art immediately recognises that for the embodiments according to figures 6 and 6A grooves remain at least in part on the outer surface. Due to their upwardly diverging side walls, this leads to the same effect as is the case for the grooves according to claim 1 of the patent in suit.

3.3.6 The Board cannot follow this line of argumentation concerning the disclosure of document D15, since this document is solely directed to the provision of belts with grooves on its inner surface, serving the purpose of lubrication. Upwardly opening grooves on the outer surface of the belt are disclosed solely in connection with these grooves being transferred under operating conditions to the inner surface of the belt (cf. e.g. column 3, lines 19 to 38). In the opinion of the Board therefore reference to the possibility of such a transfer not being complete (column 6, lines 18 to 21) cannot be understood as a disclosure of the provision - or the remaining - of grooves on the upper surface of the press belt, which serve the purpose of enhancing dewatering.

3.3.7 For completeness sake the Board notes that even if the person skilled in the art concludes from the disclosure of document D15 that, for the embodiments according to figures 6 and 6A, a portion of the grooves might not be transferred under pressure and thus remains on the outer surface, it would be likely that the skilled person would consider this method in the context of the disclosure of document D15 as not being a perfect one for the provision of grooves on the inner side of the press belt. The skilled person would not however consider the remaining portions of grooves on the outer surface as being grooves provided there intentionally to serve a different purpose to the one disclosed in D15, namely to be transferred to provide a corrugated inner surface of the belt. In this respect it also needs to be considered that D15 is totally devoid of a disclosure relating to grooves remaining on the outer surface for dewatering. Furthermore no disclosure is given in D15 from which the extent and the cross sectional shape of portions of grooves remaining on the outer surface of the belt could be concluded.

3.3.8 Summarising the Board thus considers that the embodiments of figures 6 and 6A of document D15 disclose with respect to the subject-matter of claim 1 press belts which are corrugated on their inner surface in operation under pressure (column 5, line 67 to column 6, line 2), wherein the corrugations originally present on the outer surface of a belt may not be transferred completely, but at least predominantly, to its inner surface (column 3, lines 31 to 33; column 6, lines 18 to 21). Concerning a possible remainder of the corrugations originally present on the outer surface of

a belt a disclosure is neither given with respect to its extent nor with respect to its cross sectional shape. Other than being a remainder, due to the transfer of these corrugations from the outer surface to the inner surface of the belt being incomplete, no meaning or effect is disclosed.

3.3.9 The same applies in the case that the unproven assertion of the respondent, that for the person skilled in the art it is incomprehensible how in the embodiments according to figures 6 and 6A the grooves are transferred from the outer to the inner surface of the press belt, holds true. In this case also, due to lack of any corresponding disclosure, the person skilled in the art would regard remaining portions of the grooves on the outer surface as being detrimental to the teaching of document D15, and would not associate a further totally undisclosed function, like a dewatering effect, to those remainders for which neither the size nor the cross sectional shape is known.

3.3.10 The embodiments according to figures 6 and 6A of document D15 thus cannot be considered as constituting the prior art with respect to the elastomeric press belt according to claim 1, since the known press belts do not comprise a plurality of upwardly opening grooves.

3.4 Document D18

3.4.1 Document D18 discloses elastomeric covers for press rolls which are provided with holes and/or grooves which are inclined in order to obtain a pumping effect enhancing the dewatering capacity of these covers (claim 1; column 2, line 54 to column 3, line 2;

column 4, lines 24 to 37). Concerning the pumping effect it is indicated that an inclined groove will practically be eliminated and almost closed under the effect of the pressure in the nip leading to the additional advantageous effect that the openings of the grooves are greatly reduced and, due to this effect, likewise markings transferred to a paper sheet (column 6, lines 32 to 37) are greatly reduced.

3.4.2 It remained undisputed that this disclosure, directly encompassing the embodiments according to figures 1 to 17 of document D18 cannot qualify as the closest prior art with respect to the subject-matter of claim 1 since contrary to the pumping effect to be obtained by document D18, the patent in suit not only concerns elastomeric press belts being provided with a groove configuration which effectively reduces groove closure (patent in suit, column 2, lines 16 to 18) but furthermore considers the natural tendency of grooves to close under pressure of the nip as resulting in a problem (column 1, lines 12 to 19).

3.4.3 The respondent however expressed the opinion that nevertheless the embodiments according to figures 18 and 19 of document D18 qualify as the closest prior art with respect to the press belt according to claim 1.

3.4.4 These embodiments concern press belt covers having grooves which are not inclined as are the grooves and holes of the remaining embodiments of D18. The Board agrees with the argument of the respondent, that the different arrangement of the grooves, i.e. having inclined sidewalls or portions thereof that are not inclined as such, results in the effect produced by the

remaining embodiments showing inclined grooves, namely that the grooves are nearly closed under the pressure of the nip, not taking place to this extent.

Concerning the disclosure of the embodiments according to figures 18 and 19 it needs to be taken into consideration that according to D18 an increased pumping effect occurs likewise with the grooves according to these embodiments (column 6, lines 57 to 61). Within the context of document D18 it is disclosed for all embodiments, including the ones according to figures 18 and 19, that the pumping effect is increased by the groove configurations provided.

3.4.5 Consequently the reasoning of the respondent that the person skilled in the art would, due to the cross sectional shape of the grooves according to figures 18 and 19, consider the disclosure of these embodiments as not relating to a pumping effect but rather, as in the patent in suit, relating to groove closure being effectively reduced (patent in suit, column 2, lines 16 to 18) cannot be followed.

First of all no indication with respect to such an effect, which would be detrimental to the pumping effect to be obtained according to D18, is given and secondly whether or not a pumping effect is achieved not only depends on the cross sectional shape of the grooves but generally on the extent the volume of a groove decreases under the pressure of the nip. For a pumping effect to be achieved or to be increased as indicated with respect to the embodiments of figures 18 and 19 it thus suffices, that the volume decrease of the groove is of an appropriate magnitude, which for a

given general cross sectional shape can be influenced e.g. by the elasticity of the cover and the width/length relationship of the cross sections of the grooves. Thus it is not apparent that the grooves according to figures 18 and 19 cannot lead to an increase of the pumping effect as indicated in D18 (column 6, lines 57 to 61).

3.4.6 Furthermore even if the embodiments according to figures 18 and 19 are considered as disclosing grooves having openings which are not closed under pressure in the nip and having a pumping effect which is not as high as with the inclined grooves according to the remaining embodiments, these embodiments cannot be considered as disclosing grooves having a detrimental effect for the pumping effect, in that groove closure is effectively reduced (patent in suit, column 2, lines 16 to 18).

3.4.7 Thus the embodiments according to figures 18 and 19 of document D18 do not qualify as the closest prior art with respect to the patent in suit.

4. *Problem and solution*

4.1 With respect to the subject-matter of claim 1 the closest prior art as e.g. given by document D10, D11, D12 or D16, discloses an elastomeric press belt for transporting a continuous sheet through a press nip of a shoe type press, as used in paper making machines, said press belt, having inner and outer surfaces and a plurality of upwardly opening grooves extending lengthwise in the direction of belt to carry away water

in said outer surface, each of said grooves comprising a bottom and two side walls.

4.2 The press belt according to claim 1 is thus distinguished from the one according to the closest prior art in that the grooves comprise upwardly diverging side walls, and in that the radiused bottom corners which provide a smooth curved transition between said bottom and said upwardly diverging sidewalls are provided.

4.3 The effect obtained by the upwardly diverging side walls is according to the patent in suit the "provision of a groove configuration for a press belt which effectively reduces groove closure" (column 2, lines 16 to 18; column 3, lines 41 to 46) and which leads to the problem resulting from the natural tendency of grooves having rectangular cross section to close under pressure of the nip (column 1, lines 21 to 23).

4.4 The problem to be solved starting from the prior art according to either one of documents D10, D11, D12 and D16 thus lies in the provision of a press belt for which groove closure is reduced effectively and which is simple and inexpensive to machine (column 2, lines 16 to 21).

5. *Obviousness*

5.1 Each one of the prior art documents D10, D11 or D16 discloses a specific way to reduce groove closure as can be derived from the acknowledgements of these documents given in the patent in suit (column 1, line 26 to line 45). According to D12 a press belt is

provided which is not susceptible to groove delamination (patent in suit, column 1, line 58 to column 2, line 9).

Thus, due to the different ways disclosed to avoid groove closure, none of these documents gives an indication concerning the elastomeric press belt according to claim 1, which comprises a plurality of upwardly opening grooves, each of said grooves comprising two upwardly diverging side walls to avoid groove closure in a way which is simple and easy to manufacture.

This finding has not been objected to by the respondent.

5.2 With respect to the first line of argumentation of the respondent it has been indicated in section 3.3 above that the embodiment of figure 6 or 6A of document D15 cannot be considered as the closest prior art, since grooves 25 shown for each of these press belts are to be transferred, at least predominantly, from the outer surface to the inner one.

5.2.1 Furthermore since D15 exclusively concerns grooves provided - at least during operation - on the inner surface to enhance lubrication, the person skilled in the art would not have considered document D15 and its embodiments according to figures 6 and 6A in an attempt to find, starting from the closest prior art according to any of documents D10, D11, D12 or D16, a solution for the problem underlying the patent in suit.

Even if document D15 is considered in combination with one of the documents disclosing the closest prior art,

such combined consideration cannot be considered as leading to the subject-matter of claim 1.

As indicated in section 3.3 even if, with respect to the embodiments according to figures 6 and 6A, it is considered that a portion of the grooves 25, originally provided on the outer surface, will remain despite transference of these grooves to the inner surface of the belt, no conclusion can be drawn with respect to the size and the form of these remaining portions other than these being minute (column 6, lines 18 to 21). Thus, although provision of transversal grooves in press belts for dewatering is known, as can be concluded from document D8 referred to in this connection by the respondent (cf. figure 2), such a dewatering effect cannot be attributed to portions of grooves remaining after the transfer of grooves to the inner surface according to the embodiments disclosed in connection with figures 6 and 6A. Such remaining portions would readily be recognised as being the result of an undesired non-optimal transference of grooves. The presence of such remaining portions of grooves on the outer surface is thus not a planned one. An important effect like dewatering, which furthermore is not referred to in document D15 with respect to the grooves, would not therefore be considered in connection with remaining groove portions, whose presence is purely arbitrary.

For completeness sake attention is drawn to the fact that deformation of grooves under the pressure of the nip is different for the grooves extending transversely, as it is the case according to figures 6 and 6A, compared to grooves extending lengthwise in the

direction of the belt, as defined in claim 1 of the patent in suit.

Thus contrary to the opinion expressed by the respondent, a change of the direction of the grooves in the press belt according to figure 6 or 6A from the transverse to the lengthwise direction cannot be considered as being obvious. In particular grooves extending in lengthwise direction would lead to lubrication, which according to document D15 is to be enhanced, being reduced, since lubricant provided by lengthwise grooves is limited to distribution over the length of a nip as compared to grooves extending transversally.

5.3 Concerning the second line of argumentation of the respondent document D18 likewise does not qualify as closest prior art as indicated above in section 3.4.

5.4 Concerning the third line of argumentation the person skilled in the art, in an attempt to solve the problem underlying the patent in suit starting from the closest prior art according to documents D10, D11, D12 or D16, would not consider document D18 for corresponding reasons. This is because according to this document closure of the grooves in order to enhance the pumping effect would be detrimental to the problem to be solved according to the patent in suit, namely to effectively reduce groove closure, whereby a natural tendency of the grooves to close under pressure is to be avoided (patent in suit, column 1, lines 21 to 23).

Furthermore no indication can be derived from D18 that, even if this document were considered, the person

skilled in the art would merely consider the embodiments according to figures 18 and 19 for which likewise an increase of the pumping effect is referred to (cf. section 3.2.2 above) and disregard the remaining ones.

According to the respondent the person skilled in the art would, starting from the closest prior art according to documents D10, D11, D12 or D16 which disclose press belts of rectangular cross section, focus on the embodiments according to figures 18 and 19 having grooves of generally the same cross section.

This argument cannot be followed since first of all the grooves according to figures 18 and 19 are not of generally rectangular cross section due to the inclined sidewalls and secondly, since grooves of substantially rectangular cross section are maintained in the remaining embodiments, these grooves being inclined according to the teaching of D18 (cf. e.g. claim 1; figures 15 to 17).

Summarising, there is no reason for the person skilled in the art to consider document D18 in an attempt to solve the problem underlying the patent in suit starting from documents D10, D11, D12 or D16 as closest prior art since the disadvantage to be avoided according to the patent in suit, namely closure of the grooves under pressure in the nip, is referred to as an advantageous effect with respect to the pumping effect of the grooves, which according to D18 is to be enhanced. This applies likewise with respect to the embodiments according to figures 18 and 19, which according to D18 (column 6, lines 57 to 61) likewise

lead to the pumping effect being enhanced. If, in the context of the disclosure of document D18 it should be considered that the grooves according to figures 18 and 19 do not close under pressure to the extent the inclined grooves according to the remaining embodiments of D18 do, it could be concluded that the embodiments according to figures 18 and 19 do not incorporate the teaching of this document so well as the other embodiments. Other than that no further conclusion can be derived and in particular none that is detrimental to the teaching of this document.

5.5 This applies likewise if document D18 is considered in combination with document D13 as the closest prior art as suggested by the opponent. Although according to D13 lengthwise grooves within a press belt can be provided if necessary as a temporary storage of press water in the press nip (column 6, lines 46 to 55) this document lacks further information concerning the structure, i.e. with regard to the cross sectional shape, of the grooves. As indicated above D18, considered in combination with such prior art, does not lead to grooves being provided with diverging side walls such that under the pressure of the nip groove closure is effectively reduced.

6. The subject-matter of claim 1 thus involves an inventive step (Article 56 EPC) since starting from the closest prior art according to documents D10, D11, D12, D13 or D16 no indication is given with respect to the solution according to claim 1. This applies likewise when considering documents D15 or D18 by themselves or in combination with the closest prior art.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent as amended in the following version:

   Claims: 1 to 5 filed with letter of 17 August 2005;

   Description: columns 1 to 4 filed with letter of 17 August 2005;

   Figures: 1 to 4 as granted.

The Registrar: The Chairman:

G. Nachtigall P. O'Reilly