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DECISION of 6 March 2001

T 0190/99 - 3.2.4 Case Number:

Application Number: 91301994.9

Publication Number: 0448265

IPC: A44B 19/40

Language of the proceedings: EN

Title of invention:

Woven slide fastener stringer

Patentee:

YKK Corporation

Opponent:

Opti Patent, - Forschungs - und Fabrikations - AG

Headword:

Relevant legal provisions:

EPC Art. 56, 69(1), 123(3)

Keyword:

"Extension of scope of protection - no"

"Inventive step - yes"

Decisions cited:

T 0108/91, T 0214/91

Catchword:

The skilled person when considering a claim should rule out interpretations which are illogical or which do not make technical sense. He should try, with synthetical propensity i.e. building up rather than tearing down, to arrive at an

interpretation of the claim which is technically sensible and takes into account the whole disclosure of the patent (Article 69 EPC). The patent must be construed by a mind willing to understand not a mind desirous of misunderstanding.



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Beschwerdekammern

Boards of Appeal

Chambres de recours

Case Number: T 0190/99 - 3.2.4

DECISION of the Technical Board of Appeal 3.2.4 of 6 March 2001

Appellant: Opti Patent- Forschungs- und Fabrikations- AG

CH-8750 Riedern-Allmeind (CH) (Opponent)

Representative: Masch, Karl Gerhard, Dr.

Patentanwälte

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Respondent: YKK CORPORATION

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Representative: White, Martin David

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Interlocutory decision of the Opposition Division Decision under appeal:

of the European Patent Office posted 5 February 1999 concerning maintenance of European patent

No. 0 448 265 in amended form.

Composition of the Board:

Chairman: C. A. J. Andries Members: M. G. Hatherly

H. Preglau

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Summary of Facts and Submissions

I. The opposition division's interlocutory decision that the amended European patent No. 0 448 265 met the requirements of the EPC was posted on 5 February 1999.

On 19 February 1999 the appellant (opponent) filed an appeal and paid the appeal fee. The statement of grounds was filed on 10 March 1999.

II. Claim 1 as granted reads:

"A woven slide fastener stringer (10) comprising: a woven stringer tape (11) having a web section (11a) and a filament woven section (11b) defining a longitudinal edge portion (12) of said stringer tape and formed with foundation warp threads (15) and a weft thread (16); a row of successively interconnected elongate loops (14) formed from a plastic filament (13) and woven into said filament woven section (11b), each of said loops having a coupling head (14a) at one end, and an upper leg (14b) and a lower leg (14c) extending from said head (14a) in a common direction, and a heel portion (14d) remote from said head (14a) and connected to a next adjacent one of said successive loops (14); a plurality of binding warp threads (17, 18); and a plurality of tensioning warp threads (19) passing alternately over said weft thread (16) between each two adjacent loops (14, 14) and under said weft thread (16) disposed in contact with a lower surface of each of said lower legs (14c) of said loops (14);

said woven slide fastener stringer (10) being characterised in that the plurality of binding warp threads (17, 18) comprises a group of upper binding warp threads (17) extending in parallel longitudinally

to said stringer tape (11) and overlying said upper legs (14b) of said filament loops (14) and a group of lower binding warp threads (18) extending in parallel longitudinally to said stringer tape (11) and underlying said lower legs (14c) of said filament loops (14), said groups of binding warp threads running as a whole substantially along a straight path at said edge portion (12) of said tape (11), said plurality of tensioning warp threads (19) extending parallel with and between said upper and lower binding warp threads (17, 18);

and in that it further comprises:- a plurality of fastening warp threads (21) extending parallel with and between said upper and lower warp threads (17, 18) and each overlying an upper surface of each said upper leg (14b) and underlying said weft thread (16) disposed in contact with the lower surface of each said lower leg (14c) of said loops."

III. Claim 1 of the amended version of the patent held by the opposition division to meet the requirements of the EPC reads:

"A woven slide fastener stringer (10) comprising:

a woven stringer tape (11) having a web section (11a) and a filament woven section (11b) defining a longitudinal edge portion (12) of said stringer tape and formed with foundation warp threads (15) and with a weft thread (16, 16a, 16b);

a row of successively interconnected elongate loops (14) formed from a plastic filament (13) and woven into said filament woven section (11b), each of said loops having a coupling head (14a) at one end, and an upper leg (14b) and a lower leg (14c) extending from said head (14a) in a common direction, and a heel

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portion (14d) remote from said head (14a) and connected to a next adjacent one of said successive loops (14);

a plurality of binding warp threads (17,18) comprising a group of upper binding warp threads (17) extending in parallel longitudinally to said stringer tape (11) and overlying said upper legs (14b) of said filament loops (14) and a group of lower binding warp threads (18) extending in parallel longitudinally to said stringer tape (11) and underlying said lower legs (14c) of said filament loops (14), said groups of binding warp threads running as a whole substantially along a straight path at said edge portion (12) of said tape (11);

a plurality of tensioning warp threads (19) passing alternately over a first weft thread portion (16a) disposed between each two adjacent loops (14,14) and under a lower leg (14c) of a loop (14), each said tensioning warp thread (19) extending between adjacent upper binding warp threads (17,17) and between adjacent lower binding warp threads (18,18) in a plane parallel to planes in which the upper and lower binding warp threads (17,18) are disposed; and

a plurality of fastening warp threads (21), extending symmetrically in intercrossed relation to one another in the cross-section of the woven filament section (11b) of the stringer tape (11), and each fastening warp thread extending between adjacent upper binding warp threads (17,17) and between adjacent lower binding warp threads (18,18) in a plane parallel to the planes in which the upper and lower binding warp threads are disposed;

characterised in that a second portion of the weft thread (16b) underlies the lower binding warp threads (18) immediately underneath the lower surface of each of said lower legs (14c) of said loops (14);

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in that the tensioning warp threads (19) pass under the portion of the weft thread (16b) which is disposed under the lower surface of each of said lower legs (14c);

and in that each fastening warp thread (21) alternately overlies an upper surface of the upper leg (14b) of one of said loops and underlies the weft thread (16b) disposed in contact with the lower surface of the lower leg (14c) of a next adjacent loop, and does not bear on the first weft thread portions (16a) which are disposed between said loops (14)."

IV. The following prior art documents played a role in the appeal proceedings:

D2: US-A-4 623 004

D4: DE-A-1 785 363

V. The appellant and the respondent (proprietor) attended oral proceedings on 6 March 2001 during which the respondent replaced the set of claims on file for the auxiliary request by a new set of three claims.

In the appeal proceedings the appellant objected to claim 1 of the main request because it was broader in scope than claim 1 as granted and because its subject-matter was obvious.

The respondent countered the appellant's arguments.

VI. The appellant requests that the decision under appeal be set aside and that the European patent be revoked.

The respondent requests that the appeal be dismissed

(implying the maintenance of the patent in the amended version according to the opposition division's interlocutory decision) and alternatively that the decision under appeal be set aside and that the patent be maintained on the basis of the claims of the auxiliary request filed during the oral proceedings on 6 March 2001.

Reasons for the Decision

- 1. The appeal is admissible.
- 2. The version of the main request Article 123 EPC
- 2.1 The appellant's objections under Article 123 EPC concern three passages in the granted claim 1. He agrees (see e.g. the third paragraph of page 4 of the statement of grounds of appeal) that these three passages are wrong in the light of the description and drawings of the patent. However, while Article 69(1) EPC states that "the description and drawings shall be used to interpret the claims", he argues that this is not appropriate in the present case because the passages in the claim are clear and unambiguous. Therefore he maintains that these three passages should be taken as they stand and used when determining the scope of protection of the claim. To do otherwise would be to turn Article 69(1) EPC around such that the description and drawings would determine the scope of the claims. He concludes that, since the amended passages in claim 1 of the main request are less specific, the latter claim is broader in scope than that granted.

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The first two of these passages are discussed in section 2.2 below and the third passage in section 2.3.

2.2 The wording in column 6, lines 19 to 22 of the granted claim 1:

"said plurality of tensioning warp threads (19) extending parallel with and between said upper and lower binding warp threads (17, 18)",

is amended on page 1, lines 28 to 33 of claim 1 of the main request to:

"each said tensioning warp thread (19) extending between adjacent upper binding warp threads (17,17) and between adjacent lower binding warp threads (18,18) in a plane parallel to planes in which the upper and lower binding warp threads (17,18) are disposed".

Similarly, the wording in column 6, lines 23 to 26 of the granted claim 1:

"a plurality of fastening warp threads (21) extending parallel with and between said upper and lower warp threads $(17,\ 18)$ "

is amended on page 2, lines 4 to 8 of claim 1 of the main request to:

"each fastening warp thread extending between adjacent upper binding warp threads (17,17) and between adjacent lower binding warp threads (18,18) in a plane parallel to the planes in which the upper and lower binding warp threads are disposed".

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2.2.1 Thus, according to the granted claim 1, the tensioning and fastening warp threads 19 and 21 extend parallel with the upper and lower binding warp threads 17 and 18. In the light of the description and drawings of the patent, the parties, the opposition division and the board agree that these definitions as such are wrong or could be wrongly understood.

The appellant argues however that the definitions are unambiguous because "parallel" means "parallel", and "parallel" is narrower and more restricted than the amended definitions in claim 1 of the main request. Therefore the appellant concludes that claim 1 of the main request has a broader scope than claim 1 as granted.

- 2.2.2 The appellant adds that, while in the granted claim 1 the tensioning and fastening warp threads 19 and 21 had to extend parallel with the upper and lower binding warp threads 17 and 18, in claim 1 of the main request the tensioning and fastening warp threads 19 and 21 only need to be in a plane parallel to the planes in which the upper and lower binding warp threads are disposed and thus the tensioning and fastening warp threads 19 and 21 could run vertically, contrary to Article 123(3) EPC.
- 2.2.3 It is of course part of the most basic knowledge of the skilled person that, in order to weave a fabric, the warp threads are arranged parallel to each other prior to inserting the weft thread. However in the finished fabric, e.g. a conventional plain weave fabric, each warp thread goes over one weft thread and under the next weft thread and so on. While the warp threads still appear to be parallel when the fabric is seen in

plan, in cross section the warp threads can be seen to be running approximately sinusoidally in order to lock the warp and weft threads together. Thus the warp threads are not parallel in the strict sense of being equidistant straight lines.

2.2.4 Thus the skilled person, reading in claim 1 as granted that the tensioning and fastening warp threads 19 and 21 extend parallel with the upper and lower binding warp threads 17 and 18, would not unreservedly assume that "parallel" meant "parallel" in the strict geometrical sense of the word.

Indeed the statement in column 6, lines 26 to 30 of claim 1 as granted that the fastening warp threads 21 overlie the upper legs 14b of the loops 14 and underlie the lower legs 14c of the loops 14 clearly indicates even in the claim itself that the word "parallel" needs to be looked at carefully.

Moreover the skilled person would question the technical sense of a stringer in which all the threads 19, 21, 17 and 18 were parallel since then all these threads would be essentially the same with the same function and it could not be said that there were the different tensioning, fastening and binding warp threads.

2.2.5 Thus the skilled person would bear the description and drawings of the patent in mind when deciding what claim 1 as granted means.

Column 5, lines 1 to 3 of the description use the word parallel when stating that the "loop fastening warp threads 21 extend parallel with and between the upper

and lower binding warp threads 17, 18" and indeed Figs. 5 and 6 show the fastening warp threads 21 between the upper binding warp threads 17 and between the lower binding warp threads 18, and all these threads appear to be parallel with each other. However lines 3 to 8 of column 5 go on to explain that "each loop fastening thread 21 alternately overlies the upper surface of each of the upper legs 14b of the loops 14 and underlies the weft thread 16 held in abutting engagement with the lower surface of each of the lower legs 14c of the loops 14". Lines 10 to 13 add that the fastening threads extend "symmetrically in intercrossed relation to one another in the cross section of the woven filament section 11b of the stringer tape 11, as shown in Figure 4." Thus, when considering the fastening warp threads 21, the skilled person would not interpret "parallel" in claim 1 as granted in the strict geometrical sense of the word, particularly since the same, single sentence of column 5, lines 1 to 13 unequivocally refers to Figure 4 and explains the parallelism and the location of the loop fastening threads 21 with respect to the other threads. Thus those parts of the claim which can be found word for word in this sentence cannot be interpreted otherwise.

2.2.6 Similar comments apply to the tensioning warp threads
19. While lines 44 to 46 of column 4 state that they
extend parallel with the upper and lower binding warp
threads 17 and 18, lines 46 to 52 go on to say that
they pass "alternately over the weft thread 16 disposed
in the inter-loop spaces 20 between each two adjacent
loops 14, 14 and under the weft thread 16 disposed
under and held in contact with the lower surface of
each of the lower legs 14c of the successive loops 14
as better shown in Figure 3". Figure 3 indeed shows

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tensioning warp threads 19 that do not run in straight lines.

2.2.7 Moreover the board cannot agree with the appellant's reasoning in the above section 2.2.2.

Even if portions of the tensioning warp threads 19 were to run vertically there would still be horizontal components for "passing alternately over a first weft thread portion (16a) disposed between each two adjacent loops (14,14) and under a lower leg (14c) of a loop (14)" as required by claim 1 of the main request. Figure 3 shows that the tensioning warp thread 19 between the lower leg 14c and the weft thread portions 16a is very nearly vertical and the board cannot see that to make it truly vertical would be to fall outside what was claimed at grant.

The appellant's view that the fastening warp threads 21 could run vertically is plainly incorrect since claim 1 of the main request requires them not only to pass over one upper leg 14b and under "the weft thread (16b) disposed in contact with the lower surface of the lower leg (14c) of a next adjacent loop" but also to extend "symmetrically in intercrossed relation to one another". This configuration is shown in Figure 4 of the patent and confirmed during the oral proceedings by the respondent to be what is meant in this respect by claim 1 of the main request.

2.2.8 The board therefore considers that the passages in claim 1 of the main request quoted in the above section 2.2 are not only in line with but also clarify the corresponding quoted passages of claim 1 as granted. The above indicated amendments therefore do

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not contravene Article 123 EPC.

2.3 The wording in column 6, lines 26 to 30 of the granted claim 1:

"each [fastening warp thread (21)] overlying an upper surface of each said upper leg (14b) and underlying said weft thread (16) disposed in contact with the lower surface of each said lower leg (14c) of said loops"

is amended on page 2, lines 16 to 20 of claim 1 of the main request to:

"each fastening warp thread (21) alternately overlies an upper surface of the upper leg (14b) of one of said loops and underlies the weft thread (16b) disposed in contact with the lower surface of the lower leg (14c) of a next adjacent loop".

2.3.1 One must always be careful when considering statements concerning interactions of a plurality of items of a plurality of types. "The soldiers picked up their rifles", while grammatically correct, does not mean that each soldier had more than one rifle. Taken literally, the wording quoted above from claim 1 as granted would involve the fastening warp thread passing over the upper leg 14b, going down to pass under the lower leg 14c of the pair of legs and then up and presumably over the same upper leg 14b once more before progressing to the next upper leg 14b. The skilled person would question whether this could be meant because it would entail a reversal in the warp direction of the thread 21 whereas what is claimed is a woven stringer comprising a woven stringer tape.

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2.3.2 The quoted wording would therefore be examined carefully by the skilled person, using the description and drawings, i.e. column 5, lines 1 to 13 and Figure 4, which make it clear that one thread 21 goes over one upper leg 14b and then under the lower leg 14c of the next pair of legs and so on.

The wording quoted from claim 1 as granted is clarified accordingly in claim 1 of the main request and it is also restricted by stating that the fastening warp threads 21 extend symmetrically in intercrossed relation to one another in the cross-section of the woven filament section 11b of the stringer tape 11. During the oral proceedings the respondent confirmed that this symmetrical intercrossing was what was shown in Figure 4.

The added passage concerning the intercrossing is derived from Figure 4 and the granted claim 2 (or column 5, lines 10 to 13 of the granted description). The corresponding places in the application as filed are Figure 4, claim 2 and page 8, lines 21 to 23.

- 2.3.3 Also the presence in the patent as granted of this claim 2 clearly shows that claim 1 as granted can only be interpreted as modified and clarified in claim 1 of the main request. This is because claim 2 as granted refers to the intercrossing of the fastening warp threads 21 using wording corresponding to that of lines 10 to 13 of column 5 which refer to Figure 4 and are part of the same sentence as lines 1 to 10 of column 5 which have similar wording to that of column 6, lines 26 to 30 of the granted claim 1.
- 2.3.4 If however claim 1 were to be interpreted literally as

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set out in the first paragraph of the above section 2.3.1, then it would not be consistent with the patent taken as a whole, particularly claim 2 as granted and Figure 4.

The case law of the boards of appeal states that the amendment of a granted claim to replace an inaccurate technical statement, which is evidently inconsistent with the totality of the disclosure of the patent, by an accurate statement of the technical features involved, does not infringe Article 123(3) EPC, decisions T 108/91 (OJ EPO, 1994, 228) and T 214/91 (not published in OJ EPO). As this is the case here, the board finds that also this amendment does not contravene Article 123 EPC.

2.4 The board adds that the skilled person when considering a claim should rule out interpretations which are illogical or which do not make technical sense. He should try, with synthetical propensity i.e. building up rather than tearing down, to arrive at an interpretation of the claim which is technically sensible and takes into account the whole disclosure of the patent (Article 69 EPC). The patent must be construed by a mind willing to understand not a mind desirous of misunderstanding.

Thus the board finds that the appellant's objections to these three amendments under Article 123(3) EPC are unfounded.

- 2.5 The other differences between claim 1 as granted and claim 1 of the main request will now be outlined.
- 2.6 The wording "said weft thread (16)" in column 5,

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line 58 and column 6, line 1 of the granted claim 1 is amended to "a first weft thread portion (16a)" in line 26 of page 1 of claim 1 of the main request. Instead of referring to the weft thread in its entirety, the amended claim now distinguishes the portion 16a from the portion 16b below the lower legs 14c of the loops 14 (as already shown in Figs. 1 to 4 as originally filed).

2.7 That the tensioning warp threads 19 pass "under said weft thread (16) disposed in contact with a lower surface of each of said lower legs (14c) of said loops (14)" (see column 6, lines 2 to 5 of the granted claim 1) is found in the main request claim 1:

partly on page 1, lines 25 to 28: "a plurality of tensioning warp threads (19) passing ... under a lower leg (14c) of a loop (14)",

partly on page 2, lines 12 to 15: "the tensioning warp threads (19) pass under the portion of the weft thread (16b) which is disposed under the lower surface of each of said lower legs (14c)",

while the contact between weft thread and the lower surface of the lower leg is found on page 2, lines 18 to 20: "the weft thread (16b) disposed in contact with the lower surface of the lower leg (14c)".

This is also disclosed by the originally filed Figure 2.

2.8 Lines 9 to 11 of page 2 of claim 1 of the main request are derived from Figure 2 and column 4, lines 35 and 39 to 43 of the description as granted (Figure 2 and page

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- 7, lines 18 and 22 to 25 of the original description).
- 2.9 Lines 20 to 22 of page 2 of claim 1 of the main request add that the fastening warp threads 21 do not bear on the first weft thread portions 16a which are disposed between said loops 14, this being derived from Figure 4 and column 5, lines 13 to 17 of the granted description (Figure 4 and page 8, lines 23 to 26 of the original description).
- 2.10 Thus the board finds that claim 1 of the main request is not objectionable under either Article 123(2) EPC or Article 123(3) EPC.
- 2.11 The dependent claims 2 and 3 of the main request correspond to the granted claims 3 and 4.
- 2.12 The amendments made to the granted description merely bring it into line with claim 1 of the main request and acknowledge the prior art. The drawings are as granted.
- 2.13 Thus the present version of the patent does not contravene Article 123 EPC.
- 3. Novelty claim 1 of the main request

The board is satisfied and the parties agree that no prior art document on file discloses all the features of claim 1 of the main request and that its subjectmatter is therefore novel within the meaning of Article 54 EPC.

- 4. Closest prior art
- 4.1 The board and the parties agree that the closest prior

art for the invention is D2.

4.2 The appellant argues that D2 discloses not only the features of the pre-characterising portion of claim 1 of the main request but in practice all but one of the features of the characterising portion and that it would be obvious to provide the remaining feature which is known from D4.

The appellant reasons as follows: The drawings of the patent and of D2 are idealised depictions and in practice tensioning causes shifting of the threads so that the foundation weft threads 16a, shown under the lower legs 14c in Figs. 2 to 4 of the patent, will easily slip to a stable position next to the lower legs 14c. Figure 1 of D2 shows that the foundation weft threads 16 are close to the lower legs, are pressed only by the warp threads 20 and 21, and indeed are pressed in the direction of the neighbouring lower leg. Thus the claimed feature that "a second portion of the weft thread (16b) underlies the lower binding warp threads (18) immediately underneath the lower surface of each of said lower legs (14c) of said loops (14)" is arrived at in the same way in the patent and in D2. The same applies to the claimed features that "the tensioning warp threads (19) pass under the portion of the weft thread (16b) which is disposed under the lower surface of each of said lower legs (14c)" and that "each fastening warp thread (21) alternately overlies an upper surface of the upper leg (14b) of one of said loops and underlies the weft thread (16b) disposed in contact with the lower surface of the lower leg (14c) of a next adjacent loop". D4 discusses the problem of the loops shifting on page 2, lines 11 to 13) and shows in Figure 2 warp threads Wa that do not bear on the

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weft threads between the loops 11. It would be obvious to modify the arrangement in D2 such that the fastening warp threads 21 do not bear on the weft thread portions disposed between said loops.

4.3 The board cannot accept this reasoning. Claim 1 of the main request states that the weft thread is disposed under the lower surface of the lower leg 14c and this is what the drawings of the patent show. The board considers that this configuration is what the skilled person wishes to achieve, that the configuration is achievable and that he would not accept the unstable structure postulated by the appellant.

Figure 2 of D2 on the other hand clearly shows the weft threads 16 between the legs of the loops. Even if it were accepted that parts of the D2 structure shift in practice, then it must be seen that a particular weft thread portion might move not towards the leg nearest it but away from this leg and towards the other weft thread portion (the portion which runs to the top of the stringer).

4.4 Thus the appellant's argument that the weft thread portion 16b underlies the lower binding warp threads 18 immediately underneath the lower legs 14c is arrived at in the same way in the patent and in D2 is not accepted. Thus, contrary to claim 1 of the main request, D2 does not disclose that each tensioning warp thread 19 passes under the weft thread portion 16b disposed under the lower leg 14c and that each fastening warp thread 21 overlies an upper leg 14b and underlies the weft thread 16b disposed in contact with the next lower leg 14.

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- 4.5 Even if these points were accepted there would remain the claimed feature of the fastening warp threads 21 not bearing on the weft thread portions disposed between the loops. Clearly in Figure 1 of D2 the fastening warp thread 21 passes over a pair of foundation weft thread portions 16 and then bends sharply downwards indicating that bearing occurs. It seems from Figure 2 of D4 that the warp threads Wa contact the weft threads between the loops 11 whereas even contact is apparently excluded by claim 1 of the main request. Moreover the board sees no reason why the skilled person would take the warp threads Wa of the simple construction shown in Figure 2 of D4 and apply it to the more complicated and newer structure of D2 in the precise way supposed by the appellant.
- 4.6 The board adds that, as neither D2 nor D4 discloses a weft thread portion in contact with the lower surface of the lower leg of a loop, there is no combination of the constructions of D2 and D4 that could fall within the scope of the claim.
- 4.7 Moreover claim 1 of the main request requires that the fastening warp threads 21 extend symmetrically in intercrossed relation to one another. The proprietor explained in the oral proceedings that this meant a simple symmetry as shown in Figure 4 of the patent. Careful consideration of Figure 1 of D2 however leads to the conclusion that its fastening threads 21 while intercrossing do not do so symmetrically.
- 4.8 Accordingly the board cannot see that the combination of the teachings of the documents D2 and D4 could (let alone would) lead the skilled person in an obvious manner to the claimed subject-matter.

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4.9 Thus, as required by Article 56 EPC, the subject-matter of claim 1 of the main request involves an inventive step.

- 5. The patent may therefore be maintained amended according to the main request, based on independent claim 1, claims 2 and 3 dependent thereon, the amended description and the granted drawings.
- 6. It is therefore unnecessary to consider the respondent's auxiliary request.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chairman:

G. Magouliotis C. Andries