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D E C I S I O N
of 9 December 1993

Case Number: T 0921/91 - 3.2.5

Application Number: 86117798.8

Publication Number: 0233364

IPC: D04B 1/04

Language of the proceedings: EN

Title of invention:

Bidirectionally stretchable support tape for hook-and-loop fasteners

Patentee:

Yoshida Kogyo K.K.

Opponent:

Gottlieb Binder GmbH & Co.

Headword:

Hook-and-Loop Fasteners/YOSHIDA

Relevant legal norms:

EPC Art. 54, 56, 84, 112(1)(a)

Keyword:

"Clarity (yes)"

"Referral to the Enlarged Board (no)"

"Inventive step (yes)"

Decisions cited:

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Catchword:



Case Number: T 0921/91 - 3.2.5

D E C I S I O N
of the Technical Board of Appeal 3.2.5
of 9 December 1993

Appellant: Gottlieb Binder GmbH & Co.
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Decision under appeal: Interlocutory decision of the Opposition Division
of the European Patent Office dated 23 October
1991 concerning maintenance of European patent
No. 0 233 364 in amended form.

Composition of the Board:

Chairman: C.V. Payraudeau
Members: M.H.M. Liscourt
H.J. Seidenschwarz

Summary of Facts and Submissions

- I. An appeal has been filed by the Opponent against the interlocutory decision of the Opposition Division, concerning the European patent No. 0 233 364.

Said interlocutory decision found that, account being taken of the amendments made by the patent Proprietor during the opposition proceedings, the patent and the invention to which it relates meet the requirements of the EPC.

This decision is based on the following amended Claim 1:

" A support tape (10; 30) for hook-and-loop fasteners, comprising:

(a) a bidirectionally stretchable weft-knit web (10a; 30a) having a plain stitch construction formed of an elastic foundation yarn (14; 33) and a non-elastic pile yarn (15; 32) concurrently looped together, the elastic yarn having been knitted under stretched condition, stretchability or elasticity in the longitudinal direction is obtained mainly due to the elasticity of the foundation yarn (14; 33) while the elasticity in the transverse direction is obtained by the combination of the elastic foundation yarn (14; 33) and the intrinsic elasticity of the weft-knit structure itself, and

(b) a layer (10b) of an elastic material coated on the underside of said weft-knit web (10a; 30a)."

The dependent Claims 2 to 7 belong to the same category as Claim 1 to which they refer.

II. In his grounds of appeal and at the oral proceedings to which the parties were summoned, the Opponent (Appellant) essentially submitted that:

The document DE-A-1 815 232 (hereinafter D1) discloses a support tape for hook-and-loop fasteners which comprises:

- (a) a bidirectionally stretchable weft-knit web,
- (b) having a plain stitch construction,
- (c) formed of an elastic foundation yarn and a non-elastic pile yarn concurrently looped together,
- (d) whereby the stretchability or elasticity in the longitudinal direction is obtained mainly due to the elasticity of the foundation yarn while the elasticity in the transverse direction is obtained by the combination of the elastic foundation yarn and the intrinsic elasticity of the weft-knit structure itself, and
- (e) a layer of an elastic material coated on the underside of said weft-knit web.

Claim 1 defines the product essentially by product features already known from document D1 in combination with a process feature i.e. the fact that the elastic yarn has been knitted under stretched condition. Since such process feature can not be recognised in the finished product it can not be used for supporting the novelty of the product. Moreover, as shown for example by document "Wirkerei- und Strickerei-Technik 34 (1984) 2, pages 100 to 103" (hereinafter D2), it is well known to knit elastic "Licra" yarns under tension together with non-elastic yarns. Therefore, the amended Claim 1 is not allowable because it lacks novelty or inventive step according to Article 52(1) in connection with Article 69(2) EPC.

The Appellant asked that the following question be submitted to the Enlarged Board of Appeal in case the Board would not accept this objection: "Ob ein Anspruch, der in seinen erkennbaren Mermalen nicht neu ist und sich nur durch Verfahrensmerkmale vom Stand der Technik unterscheidet, die an dem Gegenstand nicht erkennbar sind, als ein nicht zulässiger product-by-process Anspruch zu betrachten ist? (Should a claim, the recognisable features of which are not novel and which differs from the state of the art only through process features which cannot be detected in the object, not be considered as an unallowable product-by-process claim?)".

The Appellant also submitted that the invention could not be carried out by a person skilled in the art since according to the description itself the selvage portions of the tape were of a plain weave construction like the structure shown in document D2 whereas in the central part of the tape the non-elastic yarns were forming loops although nothing was indicated in the claim how these two different structures could be obtained by the same process step of knitting the elastic yarn under stretched condition. This essential feature was lacking in the claim.

III. On his part, the Respondent (Proprietor of the patent) essentially submitted that:

The invention as claimed in Claim 1 was novel. In particular, the feature that a layer of an elastic material was coated on the underside of the weft-knit web was neither disclosed nor suggested in document D1. For this reason already the novelty of the subject-matter of Claim 1 could not be put in doubt.

On the other hand, the "product-by-process feature", i.e. the fact that the elastic yarn should have been knitted under stretched condition, was easily recognisable in the finished article. Therefore, the objection of the Appellant in this respect was not tenable. Also document D1 did not show all the features listed under (a) to (e) above. For example, the tape according to document D1 had not a plain stitch construction in which the non-elastic yarn was looped together with the elastic yarn. For these reasons, the subject-matter of Claim 1 could not be derived from any combination of the documents D1 and D2.

The Respondent agreed that Claim 1, when taken alone, could eventually be considered as ambiguous insofar that it did not specify how the pile loops were obtained. However, the person skilled in the art would understand from the description that high sinkers were used to form these pile loops whereas low sinkers were used to form the selvages of the tape. If necessary a corresponding precision could be introduced in the claim as indicated in the auxiliary request filed by the Respondent during the oral proceedings.

IV. At the end of the oral proceedings, the Appellant requested:

As main request, that the decision under appeal be set aside and that the European Patent No. 0 233 364 be revoked.

As auxiliary request, that the question mentioned under above point II be referred to the Enlarged Board of Appeal.

The Respondent requested:

As main request, that the appeal be dismissed.

As auxiliary request, that the patent be maintained on the basis of Claim 1 filed during the oral proceedings before the Board of Appeal.

Reasons for the Decision

1. Interpretation of Claim 1 according to the main request of the Respondent.
 - 1.1 Claim 1 is directed to a "support tape for hook-and-loop fasteners", which could give the impression that the said fastening means are to be adapted to said support tape. However, the description of the patent in suit clearly deals with a support tape which is used as such for the female part and appropriately modified to form the male part of the fasteners. Claim 1 is therefore clear in this respect.
 - 1.2 In answer to the objection of the Appellant as concerns the feasibility of the tape as claimed in Claim 1, the Respondent has filed an amended Claim 1 containing the precision that the pile loops were knitted with high sinkers. The Board considers such amendment to the claim to be unnecessary in view of the fact that it would be obvious for the person skilled in the art reading the description and in particular column 2, lines 3-16, that high sinkers have to be used to produce loops on a weft-knit web having a plain stitch construction.

1.3 For the above reasons, claim 1 according to the main request of the Respondent meets the conditions of Article 84 EPC as regards clarity.

2. *Product-by-process feature*

2.1 The Appellant has objected that the feature according to which the elastic yarn had been knitted under stretched condition could not be recognised in the finished product and that therefore this feature had to be disregarded when examining the novelty or inventive step of the subject-matter of Claim 1.

2.2 In the present case, the Board shares the opinion expressed by the Respondent that a person skilled in the art, observing that the knitted web, when in a relaxed state, comprises pile loops of non-elastic yarn whose ends are bound by an elastic yarn, will notice that when this web is submitted to a tension in the weft direction, the loops disappear and the portion of non-elastic yarn which formed the loop becomes parallel to the one of the elastic yarn which was adjacent to said loop. The skilled person will immediately conclude that this web has been knitted with the elastic yarn under a relatively high tension and not merely taut as shown in document D2.

2.3 Of course, the finished product comprises a coating of elastic material which would normally prevent this test to be made. However, such coating may be if necessary eliminated from the knitted web.

2.4 The above conclusions apply to the construction of the support tape shown on Fig. 1 of the impugned patent: in this construction, all the rows are knitted with both an elastic and a non-elastic yarn. In the case of the construction according to Fig. 3 wherein each second row

is knitted with a single non-elastic yarn which would prevent from pulling the loops flat by extending it, it is also possible to recognise how they have been knitted by pulling individual yarns bridging the loops to determine whether they are elastic and long enough when extended to have been knitted together with the non-elastic loop yarn.

2.5 For the above reasons the feature that the elastic yarn has been knitted under stretched condition has to be considered as a feature of the finished product to decide on the novelty and inventiveness of the subject-matter of Claim 1 according to the main request of the Respondent.

2.6 It results from the above considerations that the situation mentioned in the question which the Appellant requested to be referred to the Enlarged Board of Appeal in application of Article 112(1)(a) EPC does not arise in the present case. For this reason, the corresponding request has to be rejected.

3. Novelty of Claim 1 of the main request of the Respondent.

3.1 The nearest state of the art is document D1 which discloses a support tape for hook and loop fasteners comprising a bidirectionally stretchable weft-knit web formed of a foundation yarn and a non-elastic pile yarn which are knitted together according to a certain pattern in order to produce loops which have been stretched in the longitudinal direction, then thermoset and, after destruction of the first row, erected by being again stretched in the longitudinal direction.

3.2 The tape for hook-and-loop fasteners according to Claim 1 of the patent in suit differs from the nearest state of the art *inter alia* through the following features:

- the foundation yarn and the non-elastic pile yarn are concurrently looped together; this is not the case in the tape obtained with the process disclosed in document D1 (see for example Fig. 1 which shows that the non-elastic yarn 206" is not concurrently looped with the elastic yarn 203). When considering the Fig. 1a filed by the Appellant with his Statement of Grounds as showing the tape of D1 after destruction of the first row of stitches and stretching of the fabric in the longitudinal direction to erect the loops, it is clear to the person skilled in the art examining the said tape that the thermoset loops could not have been formed by having the pile yarn "concurrently looped" together with the foundation yarn. Therefore, this feature is a distinguishing feature of the subject-matter of Claim 1 with respect to the prior art represented by the document D1;
- the elastic yarn has been knitted under stretched condition. As indicated above, this feature is a process feature which is however recognisable in the knitted web of the product and therefore can be used to distinguish said product. Therefore, this feature is also to be considered as a distinguishing feature of the subject-matter of Claim 1 with respect of document D1;
- a layer of an elastic material is coated on the underside of the weft-knit web. The Appellant has submitted that this feature was an usual measure presented by most of the hook-and-loop fasteners. Even if this would be the case, such feature is

neither shown nor suggested in document D1 and it is therefore also a distinguishing feature of the subject-matter of Claim 1 with respect to this document. In fact, since, according to the process described in the document D1, the loops are thermoset, which results in the effect that the web has more stiffness, the use of a backing layer does not appear to be necessary in the disclosed construction and cannot therefore be considered as implicitly disclosed.

3.3 The document D2 shows a Jersey type fabric obtained by knitting an elastic yarn together with a non-elastic yarn. As observed by the Respondent, this fabric is similar to the selvage portions of the tape according to the claimed invention but does not show any of the claimed features. In particular, this fabric does not show the presence of any "loops".

3.4 Therefore, as none of the available documents discloses a tape comprising all the features as specified in Claim 1 of the patent as granted, the subject-matter of this claim satisfies the requirements for novelty defined in Article 54 EPC.

4. *Inventive step*

4.1 In the weft-knit web according to the present invention, the elastic yarn is knitted and looped concurrently with the non-elastic yarn, on the same high sinkers. This measure leads to the production of a looped knitted web after the elastic yarn has been allowed to relax by releasing the tension.

4.2 Such a measure is a substantial simplification in the way of making a hook-and loop fastener with respect to the known processes such as the process shown in

document D1. The knitting of a web having a plain stitch construction formed of an elastic foundation yarn and a non-elastic pile yarn concurrently looped together, the elastic yarn having been knitted under stretched condition, leads to the production of a fabric having loops which will disappear if the fabric is submitted to tension in the weft direction. This partial problem, however, is solved according to claim 1 of the patent in suit by using a coating of an elastic material on the underside of the fabric.

4.3 Nothing in the prior art suggests this combination of features. As indicated above, the process disclosed in the document D1 produces a fabric in which the pile yarn must be stretched, thermoset, and after destruction of a row of stitches, again stretched. The document D2 does not concern a hook-and-loop fastener and cannot suggest to the person skilled in the art any modification of the Jersey type fabric which could lead to the subject-matter of Claim 1 of the patent in suit.

4.4 The support tape according to Claim 1 is therefore not obvious for a skilled person and the subject-matter of Claim 1 involves an inventive step (Article 56 EPC).

5. In view of the above, the patent can be maintained with the granted Claim 1 together with the granted dependent Claims 2 to 7 which relate to particular embodiments of the support-tape according to Claim 1.

6. The set of claims filed in support of the auxiliary request does not need therefore to be considered any more.

Order

For these reasons, it is decided that:

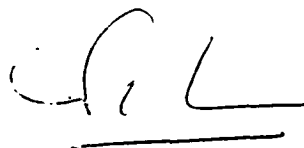
The appeal is dismissed

The Registrar:



A. Townend

The Chairman:



C. Payraudeau