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D E C I S I O N
of 28 May 2002

Case Number: T 0076/00 - 3.2.4

Application Number: 93120526.4

Publication Number: 0604869

IPC: A44B 18/00

Language of the proceedings: EN

Title of invention:

Male engaging member of surface fastener having a high density of hooks

Patentee:

YKK CORPORATION

Opponent:

Gottlieb Binder GmbH & Co.

Headword:

-

Relevant legal provisions:

EPC Art. 52(1), 54, 56

Keyword:

"Novelty - yes"
"Inventive step - yes"

Decisions cited:

-

Catchword:

-



Case Number: T 0076/00 - 3.2.4

D E C I S I O N
of the Technical Board of Appeal 3.2.4
of 28 May 2002

Appellant: Gottlieb Binder GmbH & Co.
(Opponent) Postfach 1161
D-71084 Holzgerlingen (DE)

Representative: Patentanwälte
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Respondent: YKK Corporation
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Representative: Patentanwälte
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 14 December 1999
rejecting the opposition filed against European
patent No. 0 604 869 pursuant to Article 102(2)
EPC.

Composition of the Board:

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

Summary of Facts and Submissions

I. The opposition division's decision to reject the opposition against European patent No. 0 604 869 was posted on 14 December 1999.

On 15 January 2000 the appellant (opponent) filed an appeal and simultaneously paid the appeal fee, filing the statement of grounds on 2 March 2000.

II. Claim 1 as granted reads:

"A male engaging member for a surface fastener, comprising:

(a) a woven or knit foundation structure (1) woven or knit of warp and weft yarns (2, 3); and

(b) monofilaments (4) having hooks formed by weaving or knitting said monofilaments (4) into, said woven or knit foundation structure (1) so as to have loops (5) and by cutting said loops (5); characterized in that

(c) each of said monofilaments (4) is woven or knit into said woven or knit foundation structure in such a manner that the monofilament (4) skips every other weft yarn (3) to form said loops (5), and in that the hooks are in high density."

III. The following documents played a role in the appeal proceedings:

D1 EP-A-0 217 549

D6 JP-U-62-197913

D6(T) Translation of D6 into English

D7 JP-35-522

D8 Translation of "Decision of Rejection" and "Notice of Reasons for Rejection" of U.M. Application No. 4-089265 by Examiner Etsushi Hiragami of the Japan Patent Office, 21 April 1998 and 18 September 1997 respectively

IV. The appellant and the respondent (proprietor) attended oral proceedings on 28 May 2002.

In the appeal proceedings the appellant argued that the claimed subject-matter was novel neither over the disclosure of D6 nor over the prior art constructions shown in the patent itself. Alternatively the claimed subject-matter was obvious over various combinations of prior art teachings.

The respondent countered the appellant's arguments.

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

The respondent's main request is that the appeal be dismissed (i.e. that the patent be maintained as granted).

Alternatively the respondent requests that the decision under appeal be set aside and the patent be maintained on the basis of auxiliary request 1 or 2, filed with the letter of 29 April 2002.

Reasons for the Decision

1. The appeal is admissible.
2. *Meaning of claim 1 of the main request (i.e. as granted)*
 - 2.1 Section (c) of the claim states that "the monofilament (4) skips every other weft yarn (3) to form said loops (5)".
 - 2.2 The board will refer by way of example to a conventional plain weave fabric (in which a warp yarn passes over one weft yarn and under the next weft yarn).

In this plain weave fabric the warp yarn **passes** over every other weft yarn. However the warp yarn does not **skip** over every other weft yarn because "to skip" means "to jump" whereas in the conventional plain weave fabric the warp and weft yarns **engage** each other at the cross-over points (in order to create a stable fabric).

Viewed from the side, in the conventional plain weave fabric the warp yarn goes up and down as it passes over and under successive weft yarns but in a sinusoidal fashion without forming **loops**.

- 2.3 The "loops (5)" specified in section (c) of the claim are not just any loops but are the loops which are cut to form the hooks, as explained in section (b) of the claim.

2.4 Thus the only technically sensible interpretation of section (c) of the claim is that the warp monofilament passes under one weft yarn and then jumps over the next weft yarn, the warp monofilament thereby forming a loop (destined to be cut to form a hook), then passes under the next weft yarn and then jumps over the next weft yarn to create once more a hook-forming loop. Thus the warp monofilament creates one hook-forming loop every time two weft yarns are crossed.

2.5 This interpretation was not only confirmed by the respondent during the oral proceedings but is confirmed by the patent specification taken as a whole. Figures 1 and 2 show that each monofilament 5 passes under the first, third, fifth weft yarn 3 and so on but skips over the second, fourth, sixth weft yarn 3 and so on. Thus every other weft yarn 3 is skipped to form a loop 5 as shown on Figures 1 and 2.

2.6 The wording "in that the hooks are in high density" at the end of the claim does not specify a separate feature but merely the result of the preceding constructional feature that "each of said monofilaments (4) is woven or knit into said woven or knit foundation structure in such a manner that the monofilament (4) skips every other weft yarn (3) to form said loops (5)". This was confirmed by the respondent during the oral proceedings.

3. *Novelty - claim 1 of the main request versus Figures 3 and 4 of the patent as granted*

3.1 According to column 3, lines 47 to 52 of the patent as granted, Figures 3 and 4 show conventional i.e. prior art structures.

3.2 Starting at the bottom of Figure 3, each warp monofilament 4 first passes under a weft yarn 3. Each warp monofilament 4 is here in contact with the weft yarn 3 (in the manner shown in the non-prior art Figure 2 when the monofilament 4 passes under the third warp yarn 3 from the left of the Figure).

Next, taking the warp monofilament 4 at the right hand side of Figure 3, the warp monofilament 4 passes over the next weft yarn 3. Once again the warp monofilament 4 is here in contact with the weft yarn 3 and does not form a loop, still less a loop which could be cut to form a hook (because the warp monofilament 4 does not leave the plane of the foundation cloth). This part of Figure 3 differs from Figure 2 (showing the present invention) where the monofilament 4 when passing over a weft yarn 3 does so without contact i.e. it skips the weft yarn 3 and thereby forms a loop 5 that projects above the plane of the foundation cloth 1 so that it can be cut and is of such an extent that when cut it forms a hook.

Next, again taking the warp monofilament 4 at the right hand side of Figure 3, the warp monofilament 4 again passes under a weft yarn 3 and is in contact therewith. Only thereafter does the monofilament 4 rise to form a loop, skipping the next weft yarn 3 and falling to pass under the succeeding weft yarn 3, whereupon the sequence set out in this section 3.2 repeats.

3.3 Thus Figure 3 shows that one loop is formed for every four weft yarns 3. The loop is formed by the monofilament 4 skipping one weft yarn but when the monofilament 4 passes over the next but one weft yarn, it is in contact therewith, it does not skip and it

does not form a hook-forming loop.

3.4 Accordingly the monofilaments 4 shown in Figure 3 depicting the prior art do not skip every other weft yarn 3 to form hook-forming loops and so do not satisfy section (c) of claim 1 as granted.

3.5 Figure 4 shows each monofilament having one hook-forming loop every eight weft yarns instead of every four in Figure 3. Apart from this, the comments made in sections 3.2 to 3.4 above apply also to Figure 4.

3.6 Thus this prior art arrangements shown in Figures 3 and 4 of the patent as granted do not destroy the novelty of the subject-matter of claim 1 as granted.

4. *Novelty - claim 1 of the main request versus D6*

4.1 The appellant argues essentially that

- a. Figure 4 of D6 shows a woven structure 2;
- b. the weft components of this woven structure 2 are monofilaments, each of which is shown in cross section in Figure 4 as an oval;
- c. a monofilament extending in the warp direction is woven around these weft monofilaments (which are oval for better grip perhaps);
- d. this warp monofilament skips every other weft monofilament to form loops;
- e. the hook elements 1B shown in Figure 4 result from cutting the loops; and

f. since the loops are formed at every other weft monofilament, the resultant hook elements are present in high density.

The appellant therefore concludes that the subject-matter of claim 1 as granted is not novel.

4.2 Lines 23 to 27 of page 4 of D6(T) refer to Figure 5 of D6 as having a "ground weave" but the respondent stated at the top of page 2 of the letter of 17 October 2000 that "ground weave" was an incorrect translation and that it should be "foundation cloth". The board considers that either translation would lead it to the conclusion that the substrate of Figure 5 and also the substrates 2 of Figures 1, 2 and 4 and the substrate 4 of Figure 3 are woven.

Thus, although Figure 2 is schematic, it apparently depicts weft components shown by circles, with a warp monofilament (cut to form loops 1B) and also other warp components passing alternately above and below the weft components. There is a hook element 1B for every four weft components whereas to satisfy claim 1 of the main request there would need to be a hook element for every second weft component.

4.3 Figure 4 of D6 is again a cross section showing hook elements 1B and a first substrate 2 shown as a row of ovals. According to the appellant, each of these ovals is a weft monofilament.

However the board considers that, if this were so, the other warp components (i.e. the warp components other than the hook-forming warp monofilament) should be visible, at least where not hidden by the hook-forming

warp monofilament.

Moreover one would expect Figure 4 to be consistent with Figure 5. The latter however shows a lozenge shape between three ovals on the left and three ovals on the right. This lozenge shape cannot represent a weft monofilament and so casts doubt on what the ovals of Figure 5 represent, and thus on what the ovals of Figure 4 represent.

The board cannot agree with the appellant that there is a similarity between the ovals of Figure 4 of D6 and the depiction of the weft yarns 3 in Figure 2 of the patent. The sides of the ovals of D6 are pointed in an unreal and therefore schematic manner and warp components are not shown. On the other hand, the sides of the weft yarns 3 in Figure 2 of the patent are rounded in a realistic manner and the warp yarns 2 are shown passing over and under the weft yarns 3.

- 4.4 According to page 2, lines 8 to 12 of D6(T), there is "a first substrate (male member) 2 having a number of swollen head elements 1A shown in Fig. 1 or hook elements 1B shown in Fig. 2 and a second substrate (female member) 4 having a number of loop piles 3".

The board considers that "a first substrate (male member) 2" means a first substrate 2 carrying male members 1A or 1B (see Figures 1 and 2) and "a second substrate (female member) 4" means a second substrate 4 carrying female members 3 (see Figure 3).

- 4.5 The invention set out in D6 is concerned neither with the first and second substrates 2 and 4 as such, nor with the male and female members 1A, 1B and 3 as such

but with applying laminated layers to one or both substrates 2 and 4.

According to page 4, lines 8 to 12 of D6(T), a first kind of laminated layer (a polyurethane resin layer 5 and a mixture coating layer 6) is applied to the first fastener member 2. This first fastener member 2 is apparently the first substrate 2 shown in Figure 2, i.e. the real difference between Figure 4 and Figure 2 is not the substrate (even though it is depicted differently), it is the addition of the laminated layer.

Figure 5 of D6 shows a second kind of laminated layer (a polyurethane resin layer 5 and a mixture coating layer 6 and an additional layer of a polyacrylic resin 9, see page 4, lines 23 to 27 of D6(T)).

Lines 21 to 25 of page 8 of D6(T) explain that either kind of laminated layer can be applied to any of the substrates, e.g. that the first kind of laminated layer (shown in Figure 4) may be applied to the first substrate 2 shown in Figure 1.

- 4.6 Following the analysis in section 4.5 above, the board concludes that the substrates and the male and female members in D6 are conventional. It is the application of laminated layers with which D6 is concerned and therefore the drafter of D6 paid no real attention to the depiction of the substrates and their interaction with the male and female members. Thus lines 8 to 15 of page 2 of D6(T) imply that the substrates are as shown in D7. However Figures 1 and 2 of D7 differ considerably from Figures 2 to 4 of D6 because the loops are formed **between** two weft components instead of

by skipping a weft component.

- 4.7 The board considers that the ovals of Figure 4 of D6 together represent a schematic cross section of the woven substrate 2 comprising warp components and weft components, each oval consisting not simply of one weft monofilament but a plurality of weft and warp components. The hook-forming warp monofilament penetrates this woven substrate periodically but, while - schematically - there is one hook-forming loop for every other oval, this does not mean that there is one hook-forming loop for every other weft monofilament.
- 4.8 Thus the board cannot agree with the appellant's arguments regarding D6 and cannot see that D6 discloses the subject-matter of claim 1 of the main request as a whole, directly and unambiguously.
- 4.9 The board thus finds the subject-matter of claim 1 of the main request novel (Articles 52(1) and 54 EPC).
- 4.10 The appellant maintains that, if there should be any difficulty in understanding the translation D6(T) of D6, then it is decisive that the Japan Patent Office examiner rejected the application using D6 and that the proprietor did not appeal the rejection.

However, since the board cannot understand the Japanese text of D6, it must rely on the translation D6(T) because it is this which should be the closest in meaning to the Japanese text. The board's view as to what D6 discloses cannot be changed by citing the view of the Japanese patent examiner working under a different law to the EPC. That the proprietor did not appeal the Japan Patent Office rejection is merely

circumstantial evidence and does not replace the need for the board to be satisfied that D6's disclosure is unambiguously novelty destroying.

5. *Inventive step - claim 1 of the main request*

- 5.1 The appellant's inventive step argument starting from D6 is built on his view of the disclosure of D6. However in section 4 above the board explains why it considers this view to be wrong. Accordingly this inventive step argument of the appellant must fail.

Moreover, on the basis of the board's view of the disclosure of D6, this prior art document is an unsuitable starting point for the assessment of inventive step. The board can see no hint in the document or in any other cited document that could lead the skilled person to the claimed subject-matter.

- 5.2 The appellant also argues that, even if the board cannot accept the prior art structures shown in Figures 3 and 4 of the present patent as being novelty destroying, then in any case they would lead the skilled person in an obvious way to the subject-matter of claim 1 of the main request.

The appellant considers that the skilled person when comparing Figures 3 and 4 of the present patent (or patent application) would realise that, starting from Figure 4 and proceeding to Figure 3, the number of loops and thus the loop density has been increased. Accordingly, so the appellant continues, the skilled person wishing to increase the holding power of the fastener would continue along this line of development by increasing the number of loops and the loop density

still further, and so arrive at the claimed subject-matter.

The board notes that it was not possible for the skilled person to directly compare these Figures 3 and 4 before the present priority date since of course the patent application was not publicly available before this date. The skilled person would need first to extract the prior art structures shown in Figures 3 and 4 from the much larger number of structures in the prior art and to realise that precisely these two structures were worthy of consideration. Even then, after comparison, he might well decide that the two structures indicated a development in the other direction, i.e. from Figure 3 to Figure 4, and thus be led to decrease the number of hooks of Figure 4.

- 5.3 This said, it remains true that **one** of the prior art structures shown in Figures 3 and 4 would be a realistic starting point for the assessment of inventive step.
- 5.4 According to column 2, lines 43 to 46 of the patent as granted, the problem starting from such a structure is to optimise the flexibility and the engaging force of the fastener.
- 5.5 While the second part of this problem is solved by providing a greater number of hooks for a given number of weft components, there are no features in claim 1 of the main request to improve the flexibility so the board will consider only whether the skilled person would be led to increase the hook density.
- 5.6 The board sees no document in the cited prior art that

teaches that the engaging force of a fastener is increased by increasing the number of hook-forming loops for a given number of weft components, and especially no document that provides the requisite number of hook-forming loops in the manner specified in claim 1 of the main request.

5.7 Thus, for example, D1 proposes overcoming the problem of insufficient holding power (see column 2, lines 20 to 23) by "simultaneously constructing the loop section to have greater density than the hook section" (see column 7, lines 12 to 17). Indeed a comparison of the left hand (loop) side of Figure 5 with the right hand hook-forming loop side would lead the skilled person away from increasing the number of hooks if he wished to increase the holding power.

5.8 The board thus cannot see that any of the prior art documents or constructions relied upon in the appeal proceedings (taken singly or in combination) would lead the skilled person in an obvious manner to the subject-matter of claim 1 of the main request i.e. as granted.

5.9 The board thus finds that the subject-matter of claim 1 of the main request is not obvious (Articles 52(1) and 56 EPC).

6. Thus claim 1 of the main request is patentable as are claims 2 and 3 which are dependent thereon. Accordingly the main request is allowable and the patent can be maintained unamended i.e. as granted.

There is therefore no need to examine the respondent's auxiliary requests.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

G. Magouliotis

C. Andries