UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte WILLIAM O. BOYD, JR. and
JOHN L. TUCKER, JR.

Appeal 2008-3551
Application 10/319,097
Technology Center 1700

Decided: September 22, 2008

Before EDWARD C. KIMLIN, TERRY J. OWENS, and
MICHAEL P. COLAIANNI, *Administrative Patent Judges*.

OWENS*, Administrative Patent Judge*.

DECISION ON APPEAL

The Appellants appeal from a rejection of claims 1-34, which are all of the pending claims.

THE INVENTION

The Appellants claim a woven fabric comprising first and second sets of yarns that are interlaced and have connections between them. Claim 6 is illustrative:

6. A woven fabric comprising:

a set of first yarns disposed in a first direction, each of the first yarns comprising a first yarn main body of a plurality of first yarn filaments;

a set of second yarns disposed in a second direction, each of the second yarns comprising a second yarn main body of a plurality of second yarn fibers;

wherein the set of first yarns are interlaced with the set of second yarns; and

wherein a plurality of the first yarns floats over from three to twenty of the second yarns and wherein the first yarns floating over the second yarns have from about 0.01 connections per filament-inch to about 0.5 connections per filament-inch, the connections being first yarn filaments extending from the first yarn into the second yarn main body of an adjacent second yarn and second yarn fibers extending into the first yarn main body of the first yarn floating over the second yarns.

THE REFERENCE

Zehle	US 5,277,967	Jan. 11, 1994

THE REJECTION

Claims 1-34 stand rejected under 35 U.S.C. § 103 over Zehle.

OPINION

We affirm the Examiner's rejection.

Zehle discloses a papermaking felt for the press section of a papermaking machine (col. 1, ll. 8-10). The felt comprises a batt layer positioned on three or more woven fabric layers having floats (col. 2, ll. 36-51; col. 5, ll. 60-68). A needling process attaches the batt layer to the fabric layers and joins the fabric layers (col. 3, ll. 39-41; col. 4, l. 67 – col. 5, l. 2;

col. 6, ll. 17-20). The yarns in the fabric layers can be multifilament yarns, monofilament yarns or spun yarns (col. 3, ll. 59-68).

The Appellants argue that Zehle "fails to disclose or suggest that, within a fabric layer, filaments from a yarn disposed in one direction of the fabric layer extend into the main body of a yarn disposed in another direction of the fabric layer, as recited in the pending claims" (Br. 6-7), and that "the evidence of record does not support the conclusion that the yarn connections would have *necessarily* been produced by the needling process described in the Zehle '967 patent" (Br. 8).

Zehle's needling, when moving a yarn filament from a first fabric layer into a second fabric layer, necessarily moves that filament through any yarn in the first fabric layer between that filament and the second fabric layer. Hence, the filament necessarily connects the filament's yarn not only to the second fabric layer, but also to the other yarn in the first fabric layer. That interpretation of the reference is supported by the Appellants' copending application no. 10/298,475 wherein the Appellants disclose that the Appellants' needling of multiple layers produces "a positive movement of a portion of the fibers and/or filaments of the yarn directly into the main body of the adjacent yarns and/or fabric layers where those fibers and/or filaments create an anchor directly within the main body of the adjacent yarns and/or fabric layers" (p. 15, ll. 3-8). Thus, according to that disclosure, needling provides a connection not only to adjacent fabric layers, but also to adjacent yarns within the same fabric layer.

The Appellants argue that the only portion of Zehle that appears to provide details regarding joining the fabric layers is column 6, line 53 to

column 7, line 13, which specifically states that yarns do not pass from one fabric layer to another fabric layer (Br. 7).

That portion of Zehle is claim 1 which states that the yarns of each fabric layer are interwoven such that no yarn goes to another layer. The claim language relied upon by the Appellants pertains to weaving, not needling, and is consistent with the rest of Zehle which indicates that it is the needling, not the weaving, that joins the fabric layers (col. 3, ll. 39-41).

The Appellants argue that if Zehle's needling were intended to form yarn connections between a first set of yarns and a second set of yarns within the same fabric layer, then Zehle's monofilaments would not be suitable because the breaking of the filaments to produce the connections would completely sever the yarns and destroy the fabric (Br. 8).

The Appellants' claims do not require broken filaments. Moreover, as indicated by the Appellants' Specification, needling need not break the portion of the fiber that follows the needle but, rather, can stretch or pull that portion of the fiber until the needle reaches the end of its travel, without that portion of the fiber being broken (Spec. 5:30 – 6:13). Regardless, Zehle discloses that the yarns need not be monofilament yarns but, rather, can be multifilament yarns (col. 3, ll. 59-65).

The Appellants argue that one of ordinary skill in the art would not have been motivated to optimize the number of yarn connections between a first set of yarns and a second set of yarns within the same fabric layer because Zehle is silent about such connections (Br. 9).

Zehle also is silent as to the number of connections the needling forms between fabric layers. Hence, one of ordinary skill in the art would have

used routine experimentation to determine the number of connections required to obtain the desired degree of connection between the fabric layers. The Appellants' claims very broadly recite ranges of the numbers of connections within a fabric layer, beginning with about 0.01 connections per filament inch or about 0.1 connections per yarn millimeter, and increasing from those values by a factor of 50. Those ranges appear to be sufficiently broad that they cover the desirable numbers of connections of yarns within fabric layers. Those ranges also appear, prima facie, to be sufficiently broad that they include numbers of connections within fabric layers that would result from using a needling process such as that of Zehle to obtain the desired degree of connection between fabric layers.

For the above reasons we are not persuaded of reversible error in the Examiner's rejection.

DECISION

The rejection of claims 1-34 under 35 U.S.C. § 103 over Zehle is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended with this appeal under 37 C.F.R. § 1.136 (a).

AFFIRMED

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