

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

Paper No. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RAYMOND P. JOHNSTON,
LEIGH E. WOOD and ALLEN L. NOREEN

Appeal No. 1999-0124
Application 08/467,438

ON BRIEF

Before MCCANDLISH, Senior Administrative Patent Judge, and
FRANKFORT and STAAB, Administrative Patent Judges.

STAAB, Administrative Patent Judge.

Appeal No. 1999-0124
Application No. 08/467,438

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 7-11, 19, 21, 23, 24 and 27-32, all the claims currently pending in the application.

Background

Appellants' invention pertains to "[a] liquid management member[] that facilitate[s] desired anisotropic or directionally dependent distribution of liquids" (specification, page 3). More specifically, appellants' liquid management member comprises a film of impermeable material having at least one microstructure-bearing hydrophilic¹ surface that promotes directional spreading of liquids. Appellants' microstructures are in the form of a

¹ Reference is made to page 7, line 37 through page 8, line 23 of appellants' specification, where the terms "hydrophilic" and "contact angle" as used in the present application are defined. In particular, "contact angle" is defined as "the angle between a line tangent to the surface of a bead of liquid on a surface at its point of contact to the surface and the plane of the surface" (page 8, lines 6-9) and "hydrophilic" is defined as "[s]urfaces on which drops of water or aqueous solutions exhibit a contact angle of less than 90°" (page 8, lines 14-15).

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plurality of V-shaped grooves having side walls that form an angle α (") therebetween of about 10° to about 120° . In addition, the hydrophilic surface has a contact angle with water of θ (2) equal to or less than $90^\circ - \alpha/2$. Independent claim 32, a copy of which can be found in Appendix A to appellants' brief, is the sole independent claim on appeal and is illustrative of the appealed subject matter.

The references relied upon by the examiner as evidence of obviousness are:

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|----------|-----------|---------------|--|
| Thompson | 3,929,135 | Dec. 30, 1975 | |
| Noda | 4,735,843 | Apr. 05, | |
| 1988 | | | |

The appealed claims stand rejected under 35 U.S.C. § 103 as being unpatentable over Thompson in view of Noda.

Thompson and Noda are each directed to topsheets for absorptive devices such as diapers, wherein the topsheets have absorptive structures which freely allow fluid to pass into the interior of the absorptive device but which inhibit the reverse flow of fluid. In Thompson, the absorptive structures are in the form of tapered capillaries or orifices 26 (see, for example, Figures 2 and 4), each having a base in the plane

of topsheet 22 and an apex in intimate contact with an absorbent core element 23. Noda is directed to an enhancement to topsheets of the type disclosed in Thompson.² More particularly, Noda discloses that the performance of a topsheet may be improved by coating one or both surfaces thereof with a film of material that renders the coated surface hydrophilic.

The examiner found that Thompson's capillaries 26 comprise "grooves" within the meaning of the claims, such that topsheet 22 comprises a liquid management member generally as claimed. The examiner further found that Noda teaches a film having surface hydrophilic properties with an average contact angle θ (2) of 77.5 ± 4 degrees. Based on the above findings, the examiner concluded that it would have been obvious to one of ordinary skill in the art "to have provided the invention of Thompson with the hydrophilic surface of contact angle θ as taught by Noda in order to provide a better absorbent material and reduce wet-back" (answer, page 4). Implicit in

² Note column 7, lines 61-63, wherein Noda refers to the Thompson patent.

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the above is the examiner's position that the modified topsheet of Thompson would correspond to the claimed subject matter in all respects.

Reference is made to appellants' brief (Paper No. 13) for the position of appellants with respect to the merits of the above rejection.

Discussion

An issue in this appeal is whether Thompson's capillaries constitute "grooves" within the meaning of that term as used in the appealed claims. In proceeding before it, the PTO applies to verbiage of claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in appellants' specification. *In re Morris*, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997).

Applying these principles here, we observe that the word "groove" may mean "a long, narrow hollow or channel made artificially in a surface," and that the word "channel" may mean "a long gutter, groove, or furrow: as **a**: a street or road gutter."³ We further observe that the purpose of appellants' groove is to "spontaneously transport[] liquids *along* the axis of the channels" (specification, page 5, lines 32-34; emphasis added) rather than through the member, and that in the event transmission of fluid through the member is desired, separate apertures may be provided for this purpose (specification, page 4, lines 7-10; page 10, line 33 through page 11, line 4). In light of above, we find that a "groove," as used herein, denotes a long, narrow, closed-bottomed channel made in the surface of the member for directing the distribution of fluids such as water or aqueous solutions.

While the examiner has pointed to Thompson's capillaries 26 as shown in the drawing figures as structure that corresponds to the claimed "grooves," we note that Thompson

³ Webster's Third New International Dictionary, G. & C. Merriam Co., copyright © 1971.

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also describes in the specification an unillustrated embodiment of capillaries in the form of elongated "slots."⁴ This unillustrated capillary embodiment would appear to be more pertinent than the type of capillary shown in Thompson's drawing figures to the issue of whether Thompson's capillaries constitute "grooves" as now claimed. Based on our interpretation *supra* of "grooves," we hold that one of ordinary skill in the art would not consider either the tapered capillaries 26 as shown in Thompson's drawing figures or the unillustrated "slot" type capillaries described in the specification at column 3, lines 60-65, as corresponding to the claimed "grooves" because in neither case are the capillaries closed-bottomed.

⁴ More specifically, Thompson's specification contains the following statement:

Also included in the term tapered capillary is a slot formed into topsheet 22, said lot [sic, slot] having finite length less than the width of topsheet 22 and having its sides and ends tapered at angles analogous to those hereinafter described in relation to a circular tapered capillary. [Column 3, lines 60-65.]

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In any event, even if we were to consider Thompson's capillaries as responding to the claimed "grooves," the standing rejection still would not be sustainable. Independent claim 32 calls for the V-shaped grooves to have side walls that form an angle (") therebetween of about 10E to about 120E, and for the hydrophilic surface to have a contact angle (2) with water equal to or less than $90E - \frac{1}{2}$. Thus, the contact angle (2) for the hydrophilic surface must be about 30E to about 85E. The examiner's reliance on Noda for a teaching of this relationship is not well taken. In the first place, neither Noda nor Thompson disclose any relationship whatsoever between groove angle (") and contact angle (2). Second, while we appreciate that Noda's Example VIII includes a disclosure at column 9, lines 38-40, of an average contact angle of a latex rubber compound of $77.5 \pm 4E$, this contact angle is for a latex *precursor* of the material actually used to coat the front and/or back sides of Noda's topsheet. This is made abundantly clear upon reading column 9, lines 41-61, of Noda, wherein it is explained that the latex precursor is reacted with other substances and that the resulting *modified*

latex material, which is the material actually used to coat the topsheet, has an average contact angle of water placed thereon of only 6.2E, which clearly is outside the claimed range. A review of Noda's other examples⁵ yields similar results, i.e., that the topsheet should be coated with a film that has a relatively low contact angle that lies outside the claimed range. Accordingly, Noda does not make up for the deficiencies of Thompson with respect to the relationship of groove angle (") to contact angle (2) set forth in the appealed claims, such that the claimed subject matter as a whole would not have been obvious to one of ordinary skill in the art in view of the teachings of the applied references.

For these reasons, the standing rejection of the appealed claims cannot be sustained.

⁵ See column 4, lines 50-51; column 5, lines 15-19; column 5, lines 48-52; Tables I and II in column 6; and column 6, lines 67-68.

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Conclusion

The decision of the examiner is reversed.

Reversed

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| HARRISON E. MCCANDLISH |) | |
| Senior Administrative Patent Judge |) | |
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| |) | BOARD OF PATENT |
| CHARLES E. FRANKFORT |) | |
| Administrative Patent Judge |) | APPEALS AND |
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| |) | INTERFERENCES |
| |) | |
| LAWRENCE J. STAAB |) | |
| Administrative Patent Judge |) | |

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