

The opinion in support of the decision being entered today was **not** written for publication and is **not** binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KWANTAI CHO, CLIFTON J. DELOZIER,
LINUS I. HOLSTEIN, ALLEN PITTMAN,
CHARLES J. RUNKLE, and AMITAVA SENGUPTA

Appeal No. 2005-1608
Application No. 10/424,327

ON BRIEF

Before GARRIS, PAK, and TIMM, *Administrative Patent Judges*.
TIMM, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal involves claims 1-20 which are all the claims pending in the application. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 134.

INTRODUCTION

The claims are directed to a contactor. According to the specification, contactors use a thin walled membrane to separate, via diffusion, gaseous, solid or liquid components from a solution or colloidal mixture (specification, p. 1). Claim 1 illustrates the subject matter on appeal:

1. A contactor for degassing a liquid comprising:
 - a perforated core;
 - a pre-shrunk microporous membrane fabric wrapped around said core, said fabric comprising a polymethyl pentene hollow fiber weft and polyolefin warp yarn wherein the weft count is between 50 and 70 fibers per inch, the warp count is between 3 and 12 yarns per inch, and the warp yarn is finer than an 80 denier 40 filament yarn;
 - a tube sheet securing the ends of said fiber;
 - a shell encasing said tube sheet and fabric;
 - at least one opening in said shell to permit fluid flow through said shell; and
 - an end cap affixed to the shell.

As evidence of unpatentability, the Examiner relies upon the following prior art references:

Anazawa et al. (Anazawa)	4,664,681	May 12, 1987
Akasu et al. (Akasu)	4,911,846	Mar. 27, 1990

Claims 1-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Akasu in view of Anazawa. As the claims are not separately argued, we consider them together. We select claim 1 to represent the issues on appeal in accordance with 37 CFR § 41.37(c)(1)(vii)(2004).

We affirm the Examiner's decision to reject the claims for the following reasons.

OPINION

The focus of this appeal is on the limitation “pre-shrunk microporous membrane fabric” and, particularly, on the term “pre-shrunk” (compare Briefs and Answer). Appellants argue that the Examiner has failed to show that the combined teachings of Akasu and Anazawa teach or suggest the claimed “pre-shrunk microporous membrane fabric” (Brief, p. 10). With regard to the membrane fabric, Akasu suggests a microporous membrane fabric having hollow fibers of polymethylpentene (PMP) with a warp yarn of, for instance, polypropylene polyolefin, for forming the hollow fiber into a cord fabric (Akasu, col. 5, ll. 29-33; col. 6, ll. 3-8). Such is acknowledged by Appellants in the specification (specification, p. 3). As such Akasu teaches or suggests a contactor meeting all the limitations of claim 1 with the exception that Akasu does not explicitly state that the fabric is pre-shrunk, although Akasu suggests forming the fabric from the same materials as Appellant, i.e., PMP and polyolefin.

One of Appellants’ arguments is that “pre-shrunk” is a structural limitation. The threshold question, therefore, is one of claim interpretation, specifically, the question is how “pre-shrunk” places limits on the structure of the contactor of the claim. During prosecution, claim terminology must be interpreted in conformance with the meaning conveyed by the specification as we must give the claims their broadest reasonable interpretation “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364, 70 USPQ2d 1827, 1830 (Fed. Cir. 2004). Looking to the specification for the meaning of “pre-shrunk” we note that such is discussed in the first

paragraph of page 10 of the specification. Here, the specification indicates that “PMP hollow fibers have a natural tendency to shrink which increases with temperature.” It is said that, “in preferred embodiments of the invention, the PMP fabric 36 is preshrunk prior to winding.” The specification further states that “a preferred method of preshrinking and stabilizing the fabric is to heat the fabric to about 15 °C above the expected operating temperature for approximately 2 to 8 hours, preferably 4 hours.” All references to “pre-shrunk” in the specification are to a process operation of pre-shrinking by heating. Therefore, we cannot agree with Appellants that “pre-shrunk” is a structural limitation per se in the context of Appellants’ claims. Because “pre-shrunk” references a process step, this limitation can only serve to differentiate the claimed structure from the prior art structure on the basis of the structure that arises due to the operation of pre-shrinking. While Appellants are correct that they are free to define the device by what it does rather than by what it is, *In re Swinehart*, 439 F.2d 210, 212, 169 USPQ 226, 228 (CCPA 1971), such a method of claim drafting carries the risk that the claims will not distinguish the structure from that of the prior art. *In re Schreiber*, 128 F.3d 1473, 1478, 44 USPQ2d 1429, 1432 (Fed. Cir. 1997).

Appellants argue that “pre-shrunk” is a structural limitation in the claim because it is cast in a product claim format and is it used in the past-tense form instead of the “ing” form of the verb, i.e., pre-shrinking as used in process claims. This is not persuasive because whether the claim recites the limitation as a positive process step or more subtly references the process by using a past-tense verb form, the words still reference a process operation. *See In re Brown*, 459

F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972)(Court recognized that claims to a catalyst which is "oxygen-activated" and comprises silver which is a "thermal decomposition product of a pore solution-deposited silver salt" were product-by-process claims.).

Appellants further attempt to distinguish the facts here from those in the case relied upon by the Examiner, i.e., *In re Thorpe*, 777 F.2d 695, 227 USPQ 964 (Fed. Cir. 1985). But the fact that claim 1 is not solely reciting the product in terms of process steps as was the claim of *In re Thorpe* does not transform the process limitation at issue here into a structural limitation. In fact, *Thorpe* cites *Brown* for the idea that even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. Any process-based limitation is subjected to the analysis mandated by *Thorpe*, *Brown* and other cases cited therein. Those cases stand for the proposition that once the PTO provides a reasonable basis to conclude that the prior art that appears to be identical or substantially identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 799, 803, 218 USPQ 289, 292-293 (Fed. Cir. 1983); *In re Best*, 562 F.2d at 1255, 195 USPQ at 433-34; *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972). The fairness of this burden shift is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products. *Best*, 562 F.2d at 1255, 195 USPQ at 434; *Brown*, 459 F.2d at 535, 173 USPQ at 688.

It is reasonable here to conclude that the microporous membrane fabric of the prior art has the same or substantially similar structure as that of the claimed “pre-shrunk microporous membrane fabric.” In this regard we note that the claims include no limitation on how pre-shrinking is obtained. The specification describes heating the fabric to specific temperatures for specific times, but such limitations will not be read into the claim. *See In re Bigio*, 381 F.3d 1320, 1324-25, 72 USPQ2d 1209, 1210-11 (Fed. Cir. 2004). Therefore, the claim encompasses a fabric having properties resulting from any amount of pre-shrinking however minuscule that amount may be. It is reasonable to conclude that the pre-shrunk structure resulting would be the same or substantially the same as the structure of the prior art fabric containing PMP hollow membrane fibers whether shrinking has occurred or not. Note that Appellants acknowledge that Akasu describes a fabric containing PMP hollow fibers, the same type of fibers claimed (specification, p. 3, ll. 9-10; see also Akasu, col. 5, ll. 29-33). Anazawa describes a process of forming hollow fibers such as PMP hollow fibers for membrane use involving extruding, stretching and heat setting. That some shrinking will occur in PMP fibers is evidenced by Appellants’ own specification which indicates that the “PMP hollow fibers have a natural tendency to shrink.” (specification, p. 10).

Appellants argue that neither Akasu nor Anazawa mention anything about a “pre-shrunk microporous membrane fabric.” (Brief, pp. 6-7). But in determining whether the prior art teaches or suggests a fabric as claimed, the key question is not whether the references *mention* that their membrane fabric is pre-shrunk, it is whether there is a reason to conclude the

membrane fabric suggested by the prior art has the same or substantially the same structure and properties that would be present in a membrane fabric that is pre-shrunk as claimed.

Under the circumstances, we agree with the Examiner that it is reasonable to conclude that the fabric structure suggested by the prior art combination has the same or a substantially similar structure to that claimed. Because the PTO does not have the facilities to test the claimed structure and compare it to the structures of the prior art, it is eminently fair and reasonable to shift the burden to Appellants to show that the claimed structure is, indeed, patentably different from the structure of the prior art. *Best*, 562 F.2d at 1255, 195 USPQ at 433-34; *Brown*, 459 F.2d at 535, 173 USPQ at 688.

We conclude that the Examiner has established a prima facie case of obviousness with respect to the subject matter of claims 1-20 which has not been sufficiently rebutted by Appellants. In fact, the rejection could have been based on anticipation by Akasu. Note that anticipation is the ultimate or epitome of obviousness. *In re Fracalossi*, 681 F.2d 792, 794, 215 USPQ 569, 571 (CCPA 1982).

CONCLUSION

To summarize, the decision of the Examiner to reject claims 1-20 under 35 U.S.C. § 103(a) is affirmed.

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

AFFIRMED

BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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)	BOARD OF PATENT
CHUNG K. PAK)	APPEALS
Administrative Patent Judge)	AND
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