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3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			SHUMATE, ANTHONY R	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE
THE PATENT TRIAL AND APPEAL BOARD

Ex parte SEYED A. ANGADJIVAND,
Philip G. Martin, and David B. Running

Appeal 2011-005253
Application 11/275,300
Technology Center 1700

Before CATHERINE Q. TIMM, MARK NAGUMO, and
CHRISTOPHER L. CRUMBLEY, *Administrative Patent Judges.*

NAGUMO, *Administrative Patent Judge.*

DECISION ON APPEAL

A. Introduction¹

Seyed A. Angadjivand, Philip G. Martin, and David B. Running (“Angadjivand”) timely appeal under 35 U.S.C. § 134(a) from the final rejection² of claims 1-30, which are all of the pending claims. We have jurisdiction. 35 U.S.C. § 6. We AFFIRM.

The subject matter on appeal relates to filter elements, more particularly, to filter elements containing a “plenum.” The 300 Specification defines the term “plenum” as “a part or a combination of parts that is/are capable of distributing or managing fluid flow over a surface of a filter media.” (Spec. 4 [0024].) The Specification describes the filter element as containing a new plenum that “comprises continuous filaments that are bonded to each other at points of filament intersection.” (*Id.* at 1 [0001].) The term “bonded” is defined by the Specification as “contact between two or more filaments that results in a restriction of movement between those filaments relative to each other.” (*Id.* at 3 [0010].) As a result, the plenum is said to achieve “a rapid distribution of fluid flow across the filter media without causing a substantial pressure drop increase” (*id.* at 3, ll. 1-2), i.e., an increase in the resistance of air movement through the filter media (*id.* at 1 [0002] ll. 23-24.) Because the filaments are continuous, rather than cut to some length, fewer fibers may be used to make the plenum, and the

¹ Application 11/275,300, *Filter Element That Has Plenum Containing Bonded Continuous Filaments*, filed 22 December 2005. The specification is referred to as the “300 Specification,” and is cited as “Spec.” The real party in interest is listed as 3M Company. (Appeal Brief, filed 19 October 2010 (“Br.”), 2.)

² Office action mailed 20 May 2010 (“Final Rejection”; cited as “FR”).

resistance to fluid flow through the plenum is said to be reduced. (*Id.* at 3, ll. 3-6.) As a result of the low pressure drop, the filter elements are said to be well suited for facial respiratory masks that can be contorted into a variety of shapes without being compressed. (*Id.* at ll. 9-19.)

Claim 1 is representative and reads:

A filter element that comprises:

- (a) a fluid inlet;
- (b) a fluid outlet in fluid communication with the inlet;
- (c) a filter media through which a fluid passes when moving from the inlet to the outlet; and
- (d) a plenum that comprises continuous filaments that are bonded to each other at points of filament intersection.

(Claims App., Br. 11.)

The Examiner maintains the following grounds of rejection:³

- A. Claims 1,5-17, 21, 22, and 25-28 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Brostrom⁴ and Kim.⁵
- B. Claims 19 and 20 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Brostrom, Kim, Brink,⁶ and Angadjivand.⁷

³ Examiner's Answer mailed 9 December 2010 ("Ans.").

⁴ Gerald M. Brostrom et al., *Filter Element*, U.S. Patent 4,886,058 (1989), assigned to Minnesota Mining and Manufacturing Co., now 3M.

⁵ Charles W. Kim, *Nonwoven Fabric and Process for Preparing*, U.S. Patent 3,705,070 (1969).

⁶ Joseph A. Brink and William W. Sugg, U.S. Patent 3,352,778 (1967).

⁷ Seyed A. Angadjivand et al., U.S. Patent Application Publication 2004/0011362 A1 (22 January 2004).

- C. Claims 1-4, 18, 23, 24, 29, and 30 stand rejected under 35 U.S.C. § 103(a) in view of the combined teachings of Brostrom, Kim, and Martin.⁸

B. Discussion

Findings of fact throughout this Opinion are supported by a preponderance of the evidence of record.

Initially, we find that Angadjivand presents arguments directed solely to claim 1. All claims therefore stand or fall with claim 1.

37 C.F.R. § 41.37(c)(1)(vii) (2011).⁹

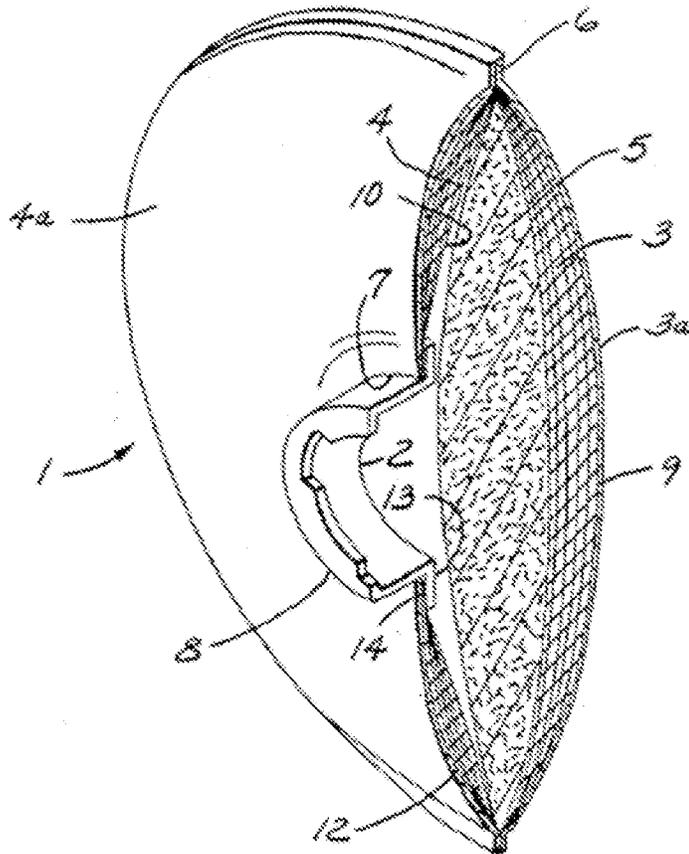
We note further that claim 1 requires a filter element having a fluid inlet, a “filter media” through which the fluid passes before reaching the outlet, and a plenum—an element or elements that is capable of “distributing or managing fluid flow over the surface of a filter media.” The plenum comprises bonded continuous fibers. We note that, given the broad definition of the term “bonded” provided by the Specification, adhesion is not required between filaments because mere contact between solid filaments will result in “restriction of movement between the filaments relative to one another.” Moreover, claim 1 does not specify or limit how

⁸ Philip G. Martin et al., *Undrawn Tough Durably Melt-Bondable Macrodenier Thermoplastic Multicomponent Filaments*, U.S. Patent 5,733,825 (1988), assigned to Minnesota Mining and Manufacturing Co., now 3M.

⁹ Because Angadjivand’s citation of certain dependent claims in the Reply Brief is untimely and without an explanation of good cause we need not address those claims in this Opinion.

the plenum distributes or manages the flow of fluid over the surface of the filter media.

The Examiner finds that Brostrom describes a filter element **1**, illustrated in cross section in Fig. 2, which is reproduced below, which meets all the limitations of claim 1, including filter media **3**, **4**, and filaments bonded to one another in plenum **5**, but for the use of continuous filaments in the plenum.¹⁰ (FR 3, ll. 1-8, citing Brostrom col. 4, ll. 50-68, col. 5, ll. 40-68, and the figures; *see also* Ans. 4 (same).)



{Brostrom Fig. 2 shows a cross section of filter element **1**}

¹⁰ Throughout this Opinion, for clarity, labels to elements in figures are presented in bold font, regardless of their presentation in the original document.

In particular, we note that Brostrom teaches that “[t]he front and rear walls **3**, **4** are comprised of material which can function as filter material,” (Brostrom col. 4, ll. 59-60); that “[t]he baffle component **5** maintains the front and rear walls **3**, **4** in a substantially spaced-apart relationship and also causes inhaled air to be drawn more evenly across the filter element **1**” (*id.* at col. 5, ll. 41-44.) In Brostrom’s words, “[p]referably, the baffle component **5** comprises compressible, resilient, nonwoven web . . . on blends of staple and binder fibers such that the fibers are bonded together at points of fiber intersection after the [carding or air laying] operation.” (*Id.* at ll. 61-67.)

The Examiner finds that Kim describes nonwoven fabrics that can be produced from continuous filaments for a filtering environment. (FR 3; Ans. 4; both citing Kim, col. 1, ll. 20-30, col. 2, ll. 1-25, and col. 7, ll. 1-15.) The Examiner finds further that Kim teaches that continuous filaments are “inherently stronger than staple fibers of the same denier” (Ans. 4, *citing* Kim col. 2, ll. 17-20), and argues that it would have been obvious to substitute the continuous filament nonwoven webs described by Kim for the staple fiber non-woven web described by Brostrom (*id.*, para. bridging 4-5.)

Angadjivand concedes that the Examiner has not erred in characterizing Brostrom (Br., para. bridging 4-5), but urges that Brostrom does not disclose or suggest a filter that is curved when viewed in cross section (*id.* at 5). Angadjivand invites the Board to take judicial notice that the plenum becomes pinched at the perimeter of breather tube **8** when the Brostrom product is attempted to be curved like the filter element shown in Specification Figure 3. (*Id.*) Moreover, in Angadjivand’s view, Kim

describes a nonwoven fabric useful for use in reinforcing paper (*id.* at 6), that the nonwoven fabric is primarily two-dimensional, and would not be suitable for use as a plenum required by Brostrom (*id.* at 7). Angadjivand argues further the filaments used by Kim, which are about 50 μm in diameter, would be too small, and would produce a structure too thin, for “suitable lateral flow of air through a plenum.” (*Id.*)

These arguments are not persuasive of harmful error. First, claim 1 does not require a curved filter. Moreover, Angadjivand has not explained what limitation in claim 1 (or in any other claim) results in the necessary absence of crimping. Patentability may not be based on limitations not present in a claim. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982). Moreover, to the extent Angadjivand is relying on a demonstration of unexpected results, the results proffered are not commensurate in scope with the exclusive rights sought. *E.g.*, *In re Peterson*, 315 F.3d 1325, 1330–31 (Fed. Cir. 2003). Nor is “judicial notice” appropriate for the findings of fact Angadjivand seeks to have us make. Second, Angadjivand improperly focuses solely on the use of the nonwoven fabrics taught by Kim as paper-reinforcing structures, and overlooks Kim’s teachings that the disclosed nonwoven fabrics “can be employed in any of the applications where nonwovens are conventionally employed” (Kim col. 6, ll. 73-75). Angadjivand also overlooks the invitation by commonly assigned Brostrom to use nonwoven web bonded at points of intersection as baffle component **5** (Brostrom, col. 5, ll. 59-68), as well as Brostrom’s teaching that baffle component **5** comprise a nonwoven material having “at least a “10 micrometer average fiber diameter” (*id.* at col. 6, ll. 40-43).

Angadjivand has not demonstrated harmful error in the Examiner's holding that it would have been obvious to use nonwoven webs described by Kim, which are not inconsistent with the requirements specified by Brostrom for components of baffle [plenum] **5** in filter elements described by Brostrom,

Regarding the Examiner's rejection of claim 1 further in view of Martin, Angadjivand argues that the suggestion to use the Martin construction as a plenum "comes not from the prior art, but from applicants' specification" (Br. 9; *cf.* Spec. 15, l. 1, citing Martin.) This argument is without merit because Brostrom suggests using nonwoven fabrics, including nonwoven fabrics bonded at points of intersecting fibers, as a baffle component, which, Angadjivand concedes (Br. 5. last two lines) is a plenum. Angadjivand has not controverted the Examiner's findings (FR 10; Ans. 14), that Martin describes nonwoven webs from fibers having diameters that overlap with fiber diameters disclosed by Brostrom to be useful in nonwoven web embodiments of baffle **5**. Particularly given the overlapping fiber dimensions, Angadjivand's argument (Br. 9, last para.) that Martin's products are not suitable for filtering air is not persuasive of harmful error.

C. Order

We AFFIRM the rejection of claims 1, 5-17, 21, 22, and 25-28 under 35 U.S.C. § 103(a) in view of the combined teachings of Brostrom and Kim.

We AFFIRM the rejection of claims 19 and 20 under 35 U.S.C. § 103(a) in view of the combined teachings of Brostrom, Kim, Brink, and Angadjivand.

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We AFFIRM the rejection of claims 1-4, 18, 23, 24, 29, and 30 under 35 U.S.C. § 103(a) in view of the combined teachings of Brostrom, Kim, and Martin.

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

AFFIRMED

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