United States District Court,
D. Minnesota.

3M COMPANY, and 3M Innovative Properties Company,
Plaintiffs.
v.
MOLDEX-METRIC, INC,
Defendant.

Civil No. 03-5292 (MJD/AJB)

May 13, 2008.

Background: Patent owner brought action against competitor alleging infringement of patents directed to valved respirator masks. Court set forth to construe disputed claim terms.

Holdings: The District Court, Michael J. Davis, J., held that:
(1) phrase, "cantilevered flexible flap," meant flexible flap that was mounted at one end so that end did not lift from sealing surface when air flowed through valve during exhalation;
(2) phrase, "root end," meant end portion or region of flap that did not lift from sealing surface when air flowed through valve during exhalation and was not limited to edge or far extremity of flap;
(3) phrase, "free end," meant end portion or region of flap that lifted from sealing surface when air flowed through valve during exhalation where free end was not limited to edge or far extremity of flap;
(4) inventor intended that phrase, "sealing surface," cover any surface that created seal with flap, not just those that might have been characterized as "ridge";
(5) inventor envisioned that flap itself could provide requisite curvature, rather than valve seat;
(6) claim in one patent could not be construed based on prosecution history of other patent on same subject matter that named different inventors, and did not reference other, claim priority over other, or incorporate other;
(7) phrase, "transverse configuration extending in a direction transverse to said longitudinal axis," meant shape and relative arrangement of parts in crosswise direction perpendicular to longitudinal direction; and
(8) phrase, "flexible flap," meant flap that flexed.

Ordered accordingly.

Court-Filed Expert Resumes

37,974. Construed.

Alan G. Carlson, Matthew J. Goggin, J. Derek Vandenburgh, Russell J. Rigby, Carlson Caspers Vandenburgh & Lindquist, Minneapolis, MN, for Plaintiffs.

William J. Robinson, Victor deGyarfas, Stephen M. Lobbin, Allen A. Arntsen and Stephan J. Nickels, Foley & Lardner, LLP, Los Angeles, CA, for Defendant.

MEMORANDUM & ORDER

MICHAEL J. DAVIS**, District Judge.**

I. INTRODUCTION

This matter is before the Court for a Markman hearing. The parties request claim construction on disputed terms contained in four different 3M patents.

Plaintiffs (collectively "3M") contend that Defendant Moldex-Metric, Inc. ("Moldex") is infringing four 3M-owned patents directed to valved respirator masks: U.S. Patent Nos. 6,854,463 ("the '463 patent") and 6,843,248 ("the '248 patent"), U.S. Reissue Patent No. RE 37,974 ("the '974 patent") and U.S. Patent No. 7,117,868 ("the '868 patent").

II. BACKGROUND

The patents in suit all relate to respirator masks having exhalation valves. Respirator masks are used to prevent inhalation of particulates suspended in the air and typically employ some sort of filter that the air must pass through during inhalation.

A. *Prior Art*

Unvalved respirator masks and respirators can trap warm, moist, exhaled air inside the mask. Because exhaled air is rich in carbon dioxide, having the exhaled air trapped directly in front of the user's face can cause the user to feel hot, anxious and uncomfortable. Exhalation valves increase comfort by allowing the exhaled air to easily flow out of the mask during exhalation.

1. *Button Valves*

The relevant prior art in this case includes exhalation valves known as "button valves". Button valves consist of a valve seat, with a seal surface surrounding a circular orifice. A flexible flap is connected at the center of the valve seat by way of a central mounting. *See* Declaration of J. Derek Vandenburgh, Ex. 1 (U.S. Patent No. 4,630,604). When the mask wearer inhales, the flexible flap is pressed against the sealing surface of the valve seat, and when the wearer exhales, the air pressure opens the flap, allowing air to exit the mask.

3M asserts that it discovered that button valves are not effective at purging air from the mask because of the force needed to push the flap away from the sealing surface and because the flap of a button valve tends to open along a small portion of its circumference, letting only a small amount of air exit through the valve.

2. *Cantilevered Flap Valves*

The prior art also includes "cantilevered flap valves", in which the flexible flap is held at one end rather than at the center. An example of a prior art cantilevered flap valve is contained in U.K. Patent Application No.

2,072,516 ("Simpson"). *Id.,* Ex. 2. Fig. 2. The advantage of a cantilevered flap valve is that the valve opens easier and wider than a button valve.

According to 3M, cantilevered flap valve masks had a significant problem. Unless the mask was held so that the valve tilted upward, the flap would droop away from the seal surface, allowing unfiltered air to enter the mask through the valve. Clearly, this caused a problem when the mask wearer worked with his head down.

B. *3M's Valves*

3M sought to remedy these problems by inventing a flap valve wherein the flap would not droop. Four of the patents associated with 3M's designs are at issue in this case.

The '463 patent discloses an exhalation valve with a cantilevered flap, the free portion of said flap being curved or biased to the sealing surface. '463 patent, Fig. 3. The '248 patent and the '868 patent issued from a continuation of the '463 patent application. 3M asserts the ' 868 patent improves on the '463 patent by providing "a ribbed or coarse pattern or a release surface to prevent the free end of the flexible flap from adhering to the ceiling when moisture is present on the ceiling or the flexible flap." '868 patent, col. 11:17-21.

The '974 patent discloses a valve that biases the flap toward the sealing surface by means of a transverse curvature or configuration.

III. DISCUSSION

A. *General Claim Construction Principles*

[1] [2] Interpretation of the terms used in a patent is a matter of law to be decided by the Court. *See* Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995) (en banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The Court need only construe the disputed claim language "to the extent necessary to resolve the controversy." Vivid Techs., Inc. v. American Sci. & Eng'g, Inc., 200 F.3d 795, 803 (Fed.Cir.1999).

[3] [4] [5] To ascertain the meaning of claims, the Court begins its analysis by focusing on the words of the claims themselves. "It is a 'bedrock principle' of patent law that 'the claims of the patent define the invention to which the patentee is entitled the right to exclude.' " Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed.Cir.2005)(listing cases). Words in a claim are generally given their ordinary and customary meaning. Id. at 1313. The ordinary and customary meaning of a claim term is that which would be understood by a person of ordinary skill in the art in question at the time of the invention. Id.

It is the person of ordinary skill in the field of the invention through whose eyes the claims are construed. Such person is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field. The inventor's words that are used to describe the invention-must be understood and interpreted by the court as they would be understood and interpretedby a person in that field of technology. Thus the court starts the decisionmaking process by reviewing the same resources as would that persona, viz. the patent specification and the prosecution history.

Id. (quoting Multiform Desiccants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1477 (Fed.Cir.1998)).

[6] [7] [8] [9] [10] The specification is a written description of the invention, which description is to be "clear and complete enough to enable those of ordinary skill in the art to make and use it." Vitronics Corp. v. Conceptronic Inc., 90 F.3d 1576, 1576 (Fed.Cir.1996). "The specification is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Id. The Court must keep in mind, however, that the "specification itself does not delimit the right to exclude. That is the function and purpose of the claims." Markman, 52 F.3d at 980. Nonetheless, claims must be read in view of the specification. Phillips, 415 F.3d at 1315.

Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent's description of the invention will be, in the end, the correct construction.

Id. (quoting Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed.Cir.1998)).

[11] [12] There may be cases in which the ordinary and customary meaning of claim language as understood by one skilled in the art is readily apparent, and claim construction simply involves application of the widely accepted meaning. In such cases, general dictionaries may be helpful. Id., at 1314. When the ordinary and customary meaning of claim language is not readily apparent, however, the Court must look to "those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean." Id. (citation omitted). Such sources include the words of the claims themselves, the specification, the prosecution history and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art. Id.

[13] [14] As with the specification, the prosecution history can be used to understand the claim, but it cannot enlarge, diminish or vary the limitations in the claim. Markman, 52 F.3d at 980. Similarly, extrinsic evidence cannot be used to vary or contradict the terms of the claims. Id. at 981.

B. '974 Patent

[15] The parties have asked that certain terms in claim 15 of the '974 patent be construed. Claim 15 reads as follows:

15. A filter mask having an exhalation valve comprising:

a cantilevered flexible flap and a cooperating valve seat surrounding a valve orifice;

the cantilevered flexible flap having a planform defining a root end and a free end at opposite ends of a longitudinal axis of the cantilevered flexible flap; and two peripheral side edges respectively extending between the root end and the free end;

the valve seat having sealing surfaces that contact the cantilevered flexible flap along said root end, free end and peripheral side edges when the exhalation valve is closed;

the cantilevered flexible flap being mounted in contact with the respectivesealing surface of the valve seat at said root end and being freely movable to flex away from the respective sealing surfaces of the valve seat at

said free end and along at least portions of said peripherals side edges when a user of the filter mask exhales and causes the exhalation valve to open where said root end of the cantilevered flexible flap and the respective sealing surface that contacts the cantilevered flexible flap at said root end have a transverse configuration extending in a direction transverse to said longitudinal axis so that the flap is substantially maintained in contact with all of said sealing surfaces of the valve seat in the absence of an exhalatory pressure differential across the flap, in any orientation of the valve.

Term 1. "Cantilevered" Flexible Flap

3M's proposed construction: A flexible flap that is held at one end so that the end does not lift from the sealing surface when air flows through the valve during exhalation.

Moldex's proposed construction: In the context of a flexible flap, cantilevered means "a projecting structure supported at one end."

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3M argues that the term "cantilevered" is used in the field of respirator mask valves to distinguish over button valves, which are centrally-mounted, and to describe a type of valve where the flap is held at one end. In support, 3M points to the following language in the specification: "In another known type [of exhalation valve,] the diaphragm is in the form of a flexible flap which is attached to a cooperating seat structure at one end, that is to say in cantilever fashion, and flexes away from the rest of the seat when the user exhales." '974 patent, col. 1:35-38.

3M asserts that Moldex's proposed construction-that a cantilevered flexible flap is one that has a projecting structure-should not be adopted as it implies an additional structure (a "projecting structure") into the claim language. Rather, the claim states that the flexible flap itself is "cantilevered."

Moldex responds that the above-cited portion of the specification supports the conclusion that when defining "cantilever," 3M was using the ordinary dictionary definition which provides the following: "A projecting structure, as a beam, supported at one end." WEBSTER'S NEW COLLEGE DICTIONARY 163 (1995). Moldex further argues that the specification discusses a flexible flap that is "attached to the seat", yet 3M's construction proposes a flap that is "held". *See* '974 patent, col. 1:36; 2:8, 23. Moldex further argues that 3M's construction includes the phrase "so that the end does not lift from the sealing surface when air flows through the valve during exhalation" and that such phrase is unnecessary.

In its rebuttal brief, Moldex also argues that the specification provides that "[t]he arching of the flap stiffens it sufficiently to prevent it drooping away from any part of the seal ridge under zero pressure differentiated conditions, whatever the orientation of the valve." '974 patent, col. 3:37-39. Based on this language, Moldex argues that forming a cantilever beam requires more than just attachment at one end because without the curvature in the mounting, the flap would droop and not project from the self-supporting arc.

The Court finds that there is no need to look to extrinsic evidence to properly construe "cantilevered flexible flap". The specification defines the term as "a flexible flap which is attached to a cooperating seat structure at one end, that is to say in cantilever fashion." '974 patent, col. 1:36-37. Further, the specification teaches that the focus is on the way the flap is attached or mounted, not the way the flap "projects" at the other end. Id., col. 2:7-10; 3:19-25. That portion of the specification cited by Moldex to support its argument that

cantilevering also requires curvature referred to the preferred embodiment. *See* Id., col. 3:28-31. The claim, however, does not import a curvature requirement in the term "cantilevered flexible flap." Accordingly, the Court will construe the term as proposed by 3M with one exception. The word "held" will be replaced with "mounted", which is the word used in both the claim language and the preferred embodiment.

Term 2. "Root End" (claim 15 of the '974 patent)

3M's Proposed Construction: The end portion or region of the flap that does not lift from the sealing surface when air flows through the valve during exhalation. The root end is not limited to the edge or the far extremity of the flap.

Moldex's Proposed Construction: The fixed extremity of a flap, subject to external restraint, which is attached to the valve seat.

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[16] 3M argues that Moldex proffers a definition of "root end" that is too narrow because it effectively limits "root end" to the very edge or extremity of the flap. 3M avers that if the Court were to adopt Moldex's definition, the claims using this term would not even cover the preferred embodiment listed in the patent.

Moldex again refers to the dictionary definition to support its proposed construction. Because the Court can resolve this dispute by relying on intrinsic evidence, it need not consider the parties' proffered dictionary definitions. *See* Phillips, 415 F.3d at 1320-23.

First, the patent states that "the free end of the flap will rapidly flex away." '974 patent, col. 2:20-21. This does not indicate a certain portion of the flap, and certainly not the vast majority of the flap. Second, the preferred embodiment states that "the portion of the seal ridge at the free end of the flap rises further from the plane of the member than does the root end portion." Id., col. 3:66-4:1. Again, this does not dictate that only the very edge will not rise. Third, the preferred embodiment indicates that the "root end portion 9A" of the invention is more than just the edge. Id., col. 4:1. Figure 4 of the patent shows that the term is not limited to the edge or extremity. Rather, a portion of the "root end" is attached to the seat. Although the size of this portion is undefined, it is clearly substantial and not limited to the very edge or extremity of the flap.

[17] An interpretation that does not cover the preferred embodiment is "rarely, if ever, correct." Pfizer, Inc. v. Teva Pharms. USA, Inc., 429 F.3d 1364, 1374 (Fed.Cir.2005) (citation omitted). Figure 4 confirms that "root end" refers to an end portion or region, and is not limited to the extremity of the flap.

Moldex's proffered construction also includes "subject to external restraint", yet claim 1 of the patent provides that the flap "is mounted in contact with the respective sealing surface of the valve seat at said root end." '974 patent, col. 4:24-26. There is no definitive statement regarding how the root end is mounted or that the root end has to be attached. Rather, it seems that the root end can just be a certain end of the flap that happens to be mounted or stationary. Accordingly, neither the claim language or specification support this limitation.

Finally, Moldex seeks to add the phrase "which is attached to the valve seat" to the definition of "root end." However, this construction also reads words into the claim language. Nothing in the term "root end" or in the remainder of the claim language requires that the root end be attached to the valve seat. In fact, the

language Moldex relies on from a prior patent was expressly removed from the '974 patent. *See* '974 patent, col. 1:3-6; 4:25 (indicating that "attached to" was removed from the '974 patent); FH 01198 (explaining that "attached to" rendered the original patent inoperative or invalid because it made the patent narrower than required by the detailed description of the invention). *See* Liebel-Flarsheim Co. v. Medrad, Inc., 358 F.3d 898, 911-12 (Fed.Cir.2004) (citing Texas Instruments Inc. v. U.S. Int'l Trade Comm., 871 F.2d 1054 (Fed.Cir.1989)) (finding that it was not proper to read into a claim a limitation that the patentee deleted during prosecution of a continuation application).

Accordingly, the Court will adopt 3M's construction of "root end."

Term 3. "***Free End***" **(claim 15 of the** '974 patent)

3M's Proposed Construction: The end portion or region of the flap that lifts from the sealing surface when air flows through the valve during exhalation. The free end is not limited to the edge or the far extremity of the flap.

Moldex's Proposed Construction: The unfixed extremity of the flap, i.e., end opposite the root end, not subject to external restraint.

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[18] 3M's definition of "free end", which does not restrict the term to the far extremity of the flap, is supported by the intrinsic evidence. Figures 4 and 5 show that the term is not limited to the far extremity of the flap. *See also* '974 patent, col. 2:8-10. 18-21, 3:48-51. Given the plain and ordinary meaning of "end", common sense dictates that depending upon the strength of any certain exhale, more or less of the flap would rise and fall, but certainly not just the extreme outer edge. Therefore, the Court will adopt 3M's definition of "free end."

Term 4. "***the cantilevered flexible flap ... defining a root end and a free end at opposite ends of a longitudinal axis of the flap***" **(claim 15 of the** ' 974 patent)

3M's Proposed Construction: This phrase otherwise needs no additional definition beyond the definitions of the individual terms.

Moldex's Proposed Construction: A projecting flap, subject to external restraint, which is fixed at one extremity of the flap and which is not fixed at the other extremity of the flap.

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The Court agrees that further qualifying this definition, which is mostly comprised of already defined individual terms, may only complicate matters for the jury. Moldex appears to agree that further explanation over the already defined terms is unnecessary, as it merely relies on its previous definitions of the individual terms.

Term 5. ***the valve seat having "sealing surfaces that contact the flap at [the] root end and the free end***" **(claim 15 of the** '974 patent)

3M's Proposed Construction: The surfaces of the valve seat that contact the flap at the root end (as defined) and the free end (as defined) so as to prevent the flow of air into the mask through the valve when the valve is in its closed position.

Moldex's Proposed Construction: The valve seat having "airtight or watertight ridges that touch the flap at: (1) the fixed extremity of a flap which is curved so as to impart to the flap a transversely arched configuration, in the longitudinal direction; and (2) the free end (as defined)."

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The meaning of this phrase is clear from the claim language itself-that "sealing surfaces" are the surfaces of the valve seat that contact the flap when the valve is closed. '974 patent, col. 3:6-62.

Moldex's proposed construction attempts to add limitations to the phrase that are not supported by either the claim language or the specification. First, Moldex relies on a dictionary definition of "seal" that refers to an "airtight or watertight closure." Nothing in the claim language, the specification or the prosecution history supports this limitation however. *See* Phillips, 415 F.3d at 1321-22 (cautioning that words in patents should be construed within the context of the patent, rather than in the abstract).

[19] Moldex also uses the word "ridge" in its construction, and in support cites to the descriptions of prior art and the preferred embodiment. The actual claims, however, use the word "surface" not "ridge." The Court thus agrees with the position of 3M that by using the broader term "surface" in the claims, the inventor intended "sealing surface" to cover any surface that creates a seal with the flap, not just those that might be characterized as a "ridge."

Moldex also seeks to further limit this phrase by including the following "extremity of a flap which is curved" in its proposed construction. The word "curved" or "curvature" is not included in claim 15. While the preferred embodiment describes a curved seal surface, claims cannot be limited by language found only in connection with the description of the preferred embodiment. Phillips, 415 F.3d at 1323.

[20] Moreover, the specification expressly states that the "flap for the valve according to the invention *may* be manufactured to exhibit the requisite transverse curvature in its normal state.... In the preferred embodiment, ... however, the flap as manufactured is flat and its curvature is imparted in use by means of the shaping of the valve structure in which it is mounted." ' 974 patent, col. 2:30-36 (emphasis added). Thus, the inventor clearly envisioned that the flap itself may provide the requisite curvature, rather than the valve seat.

Lastly, the claims of the original '767 patent expressly required that portions of the sealing surface and flap be curved in the transverse direction, but this language was omitted from the new claims added during the broadening reissue. *See* Id. at col. 1:1-12 (explaining the reissue); 4:17-28 (claim 1 which includes language from the original '767 patent); 5:26-6:64 (claims 12-15 which are new claims, and which omit any reference to a curved seal surface.) Accordingly, the Court will not limit the term "valve seat" or "seal surface" to one which is curved.

Term 6. "***the cantilevered flexible flap being mounted in contact with the respective sealing surface of the valve seat at [the] root end***" **(claim 15 of the** '974 patent)

3M's Proposed Construction: This phrase needs no additional definition beyond the definitions of the individual terms. The language does not require that the flap be fixed or otherwise attached to the sealing surface.

Moldex's Proposed Construction: A projecting flap, fixed to the valve seat at one extremity of the flap, subject to external restraint, mounted so as to maintain contact with an airtight or watertight ridge that touches the flap at the fixed extremity of a flap having length and is curved in the longitudinal direction.

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The Court finds that this term does not need additional definitions beyond the definitionof the individual terms. 3M requests the Court to construe this term so that the flap need not be fixed or otherwise attached to the sealing surface. 3M's requested clarification is proper, as it is consistent with the Court's previous determination as to the construction of Term 2.

[21] The Court would note that Moldex's proposed construction includes the limitation that the sealing surface be "curved in the longitudinal direction." In support, Moldex relies on the prosecution history of a "parent of the '248 patent." *See* Joint Claim Construction Statement at 18. However, it appears the '974 patent is unrelated to the '248 patent. The patents name different inventors, they do not reference the other, claim priority over the other or incorporate the other. Accordingly, it would be error for this Court to construe a claim in the '974 patent based on the prosecution history of the '248 patent. *See* Goldenberg v. Cytogen, Inc., 373 F.3d 1158, 1167 (Fed.Cir.2004) (listing cases).

Furthermore, the '974 patent does not disclose a valve with sealing surfaces that are curved in the longitudinal direction, but rather that the sealing surfaces in the preferred embodiment of the '974 patent are "straight in the longitudinal direction." '974 patent, col. 4:2-3; Fig 3. Accordingly, the Court will not include a curvature limitation in this term.

Term 7. "***a transverse configuration extending in a direction transverse to said longitudinal axis***" **(claim 15 of the** '974 patent)

3M's Proposed Construction: The shape and relative arrangement of the parts in the crosswise direction perpendicular to the longitudinal direction.

Moldex's Proposed Construction: Crosswise to the center line defined by the fixed extremity of a flap having length, subject to external restraint (i.e., the "root end") and the unfixed extremity not subject to external restraint (i.e. the "free end").

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[22] While the parties' constructions of this term are similar, the Court finds that 3M's proposed construction is supported by the claim language and is in concert with the preferred embodiment of the patent, which both use "transverse" to refer to the crosswise direction. '974 patent, col. 2:7-18; 3:28-39; Fig. 5. In addition, as discussed with regard to the construction of Term 2, there is no intrinsic evidentiary support for the added limitation "subject to external restraint."

Term 8. "***flexible flap***" **(claim 15 of the** '974 patent)

3M's Proposed Construction: A flap that flexes during exhalation.

Moldex's Proposed Construction: The flap can deform or bend in the form of a self-supporting arc when secured at one end as a cantilever and viewed from a side elevation.

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[23] The Court finds that this term should be accorded its ordinary meaning-a flap that flexes. Moldex's proposed construction is taken from the ' 248 and '463 patents, where it is specifically defined in the patents. The Court will not construe claims of the '974 patent based on unrelated patents, however.

In the absence of an express intent to impart a novel meaning to claim terms, an inventor's claim terms take on their ordinary meaning. [The Federal Circuit] indulge[s] a 'heavy presumption' that a claim term carries its ordinary and customary meaning.... The patentee may demonstrate an intent to deviate from the ordinary and accustomed meaning of a claim term by including in the specification expressions of manifest exclusion or restriction.

Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313,1325 (Fed.Cir.2002) (internal citations omitted). Thus, in the absence of guidance regarding *this* patent, it seems that the ordinary meaning should control.

D. '*248 and* '463 Patents

3M alleges that Moldex infringes claims 4, 5 and 44 of the '463 patent. The '463 patent discloses an exhalation valve that has a cantilevered flap. 3M asserts that this patent is unlike the prior art, because the flap is mounted at the root end, and that the free portion of the flap is curved and is biased, or pressed against, the sealing surface. Independent claim 44 is reproduced below.

44. A filtering face mask that comprises:

(a) a cup shaped mask body that is adapted to fit over the nose and mouth of a person; and

(b) an exhalation valve that is attached to the mask body directly in front of where the wearer's mouth would be when the mask is worn, which exhalation valve comprises;

(i) a valve seat that comprises an orifice, a seal surface surrounding the orifice, and a flap retaining surface; and

(ii) a single flexible flap that has a stationary portion, one free portion, and a peripheral edge that includes stationary and free segments, the stationary segment of the peripheral edge being associated with the stationary portion of the flexible flap so as to remain in substantially the same position during an exhalation, and the free segment of the peripheral edge being associated with the one free portion of the flexible flap so as to be movable during an exhalation, the free segment of the peripheral edge being disposed beneath the stationary segment when the valve is viewed from the front in an upright position;

the flexible flap being secured to the valve seat at the flap retaining surface closer to the stationary segment of the peripheral edge than to the free segment, the flap retaining surface and seal surface are nonaligned

and positioned relative to each other to create a cross-sectional curvature of at least the one free portion of the flexible flap when viewed from the side in a closed position, the securement of the flexible flap at the flap-retaining surface allowing for the one free portion of the flexible flap to be pressed against the seal curve when a wearer of the mask is neither inhaling nor exhaling and allowing for the one free portion of the flexible flap to be lifted from the seal surface during an exhalation.

The '248 patent issued from a continuation of the '463 patent application and therefore contains the same disclosure as the '463 patent; only the claims are different. 3M asserts Moldex infringes claims 1, 19, 31 and 34 of the '248 patent. Independent claim 1 is reproduced below.

1. A filtering face mask that comprises:

(a) a mask body that is adapted to fit over the nose and mouth of a wearer, the mask body comprising a filtration layer through which inhaled air may pass before being inhaled by a wearer of the face mask; and

(b) an exhalation valve that is attached to the mask body directly in front of where the wearer's mouth would be when the mask is worn, the exhalation valve allowing air exhaled by a wearer to pass from an interior of the mask body to its exterior without having to pass through the filtration layer, the exhalation valve comprising:

(1) a valve seat that comprises:

(i) a seal surface; and

(ii) an orifice that is circumscribed by the seal surface, the orifice having a cross-sectional area greater than about 2 square centimeters; and

(2) a single flexible flap that has only one stationary portion and only one free portion and a circumferential edge, the circumferential edge having a first segment that is associated with the only one stationary portion of the flap so as to remain at rest during an exhalation and having a second segment that is associated with the only one free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the second segment of the circumferential edge also being located below the first segment when the filtering face mask is worn on a person, the flexible flap being mounted to the valve seat such that the one free portion of the flap exhibits a curvature over the orifice area when viewed from the side in the closed position and is pressed towards the seal surface in an abutting relationship with it, under any orientation of the exhalation valve, when a fluid is not passing through the orifice.

Term 9. ***The "Stationary Portion" of the Flexible Flap*** **(claim 1 of the** '248 patent **and claim 44 of the** '463 patent)

3M's Proposed Construction: The portion of the flexible flap that does not lift from the seal surface when air flows through the valve during an exhalation.

Moldex's Proposed Construction: The non-moving portion of the flexible flap attached to the valve seat, which includes a portion of the circumferential edge of the flexible flap.

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[24] The parties agree that in the context of the '248 and '463 patents, "flexible flap" means "[a] flap that can deform or bend in the form of a self-supporting arc when secured at one end as a cantilever and viewed from a side elevation." The parties also agree that the ordinary meaning of "stationary" is "non-moving."

Moldex asserts that its proposed construction is necessary to clarify that the stationary portion of the flexible flap is stationary because it is attached. The Court disagrees that this term needs to be clarified given the fact that the parties' agree to the definition of "flexible flap" and "stationary". The only word left is "portion", and in the context of this claim term, the Court finds it should be given its ordinary meaning.

Moldex's construction implies a limitation to "stationary portion" that is not supported by the claim language or the specification. The language of the specification cited by Moldex refers to the preferred embodiment, and as stated previously, a claim must not be limited by language found only in connection with a preferred embodiment. Phillips, 415 F.3d at 1323.

Moldex also seeks to define this term to "include[ ] a portion of the circumferential portion of the flap." In support, Moldex refers to language in claim 1 of '248 patent referring to the "remaining circumferential edge", which implies that a portion of the circumferential edge is included in the stationary portion. *See* '248 patent, col. 5-:26-29. Again, the Court sees no need to clarify the meaning of "stationary portion" by including "a part of the circumferential edge" in the definition. More importantly, however, the ' 463 patent does not include the reference to the circumferential edge. *See* '463 patent, col. 19:1-5. It would thus be improper to limit this term with respect to the '463 patent, based on claim language that appears in another patent. *See* Lemelson v. TRW, Inc., 760 F.2d 1254, 1267 (Fed.Cir.1985) (reasoning that "the scope of each individual claim must be examined on its own merits, apart from that of other claims, even in the same patent").

Accordingly, the Court adopts 3M's construction of "stationary portion of the flexible flap."

Term 10. "***the 'seal surface' of the valve seat***" **(claim 1 of the** '248 patent **and claim 44 of the** '463 patent)

3M's Proposed Construction: The surface of the valve seat that contacts the flap so as to prevent the flow of air into the mask through the valve when the valve is in its closed position.

Moldex's Proposed Construction: Airtight or watertight surface circumscribing the valve orifice with a concave curvature corresponding to the deformation curve displayed by the flexible flap when it is secured as a cantilever beam (when viewed from the side) that makes contact with the flexible flap.

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[25] Nothing in the claim language, specification or prosecution history supports the limitations that the seal surface has to be airtight or watertight. Accordingly, such limitation will not be adopted to construe "sealing surface" as that term appears in claim 1 of the '248 patent and claim 44 of the '463 patent.

Moldex also seeks to limit "seal surface" as requiring a concave curvature. Claim 1 of the '248 patent provides for "the flexible flap being mounted to the valve seat such that the one free portion of the flap exhibits a curvature over the orifice area when viewed form the side in the closed position and is pressed towards the seal surface." '248 patent, col. 16:53-57. This claim language describes a curved flap, not a

curved seal surface. Similarly, claim 44 of the '463 patent provides "the flap retaining surface and seal surface are non aligned and positioned relative to each other to create a cross-sectional curvature of at least the one free portion of the flexible flap" ' 463 patent, col. 20:1-5. Again, this claim language does not described a curved seal surface, rather it describes a configuration of the flap retaining surface and the seal surface, which results in a curving of the flap. Thus, the claim language itself does not specifically require a curved seal surface.

The Court further finds that the specifications of both patents do not support the limitation that the seal surface is curved. Moldex cites to that portion of the specification entitled the "Summary of the Invention". In this summary, the inventor describes four aspects of the invention. The language cited by Moldex is a description of the first aspect of the invention. '248 patent, col. 1:41-44. However, the description of the third aspect of the invention does not mention a curved seal ridge. "[T]he flexible flap being attached to the valve seat at a first end and resting upon the seal ridge when the exhalation valve is in a closed position, the flexible flap having a second free-end that is lifted from the seal ridge when a fluid is passing through the exhalation valve" '248 patent, col. 2:23-27. See also, '463 patent, col. 2:20-25 (same). It is thus apparent that a curved seal ridge was not a requirement of the invention as generally described in the specification.

Moldex argues that the patentee devoted six columns of the patent specification to explain the deformation curve of the flexible flap and corresponding seal ridge/surface, and that since so much space is devoted to this, one of ordinary skill in the art would understand that a curved seal surface is critical to the invention since it is tied to the shape of the cantilevered beam. In response, 3M asserts that the prosecution history of the '463 patent shows that the requirement that the seal surface be curved was written out of the independent claims.

The Court has thoroughly reviewed the prosecution history of the ' 463 patent which spans over eleven years. As the record indicates, many claims were submitted to the patent examiner, and such claims were rejected for various reasons. On occasion, the claims were amended to address the patent examiner's rejections. With respect to seal surface, it is true that at one time, the applicant was claiming a seal ridge with a concave curvature. FH00051. Ultimately, however, these claims were rejected by the Board of Examiners as obvious. FH00517-FH00526. After this decision was issued, the applicant submitted a continued prosecution patent application with new claims 33-38. FH00528-FH00544. Independent claim 33 did not require a seal surface with a concave curvature. FH00533. The curvature limitation was, however, included in the claimed dependant claim 34. FH00534.

In response to this application, the examiner rejected claim 33 as being anticipated by Simpson; prior art which shows an exhalation valve with a flat seal surface. FH00547-48; Vandenburgh Decl., Ex. 2, 2. In response to this rejection, 3M did assert amended claims, but those claims did not include the limitation that the seal surface be curved. FH00213-FH00220. In addition, the applicant did not include any argument to distinguish its claims from Simpson on the basis that the seal surface must be curved. FH00221-FH00222. Nowhere in the remaining prosecution history does it appear that the applicant ever attempted to distinguish Simpson based on a curved seal surface limitation. Accordingly, the prosecution history does not support the limitation that the seal surface be curved.

Finally, the doctrine of claim differentiation supports 3M's argument that these patents do not require a curved seal surface. Dependant claim 3 of the '463 patents provides "[t]he filtering face mask of claim 1, wherein the seal surface of the valve seat has a curvature when viewed form a side elevation." If seal surfaces were all intended to be curved, claim 3 would be superfluous. Phillips, 415 F.3d at 1315

(recognizing that the presence of a limitation in a dependent claim is "strong evidence that the independent claim does not contain that limitation").

Based on the above, the Court will adopt 3M's construction of "seal surface" as that term is used in claim 1 of the '248 patent and claim 44 of the ' 463 patent.

Term 11. ***the "free portion" of the flexible flap*** **(claim 1 of the** '248 patent **and claim 44 of the** '463 patent)

3M's Proposed Construction: The portion of the flexible flap that lifts from the sealing surface when air flows through the valve during exhalation

Moldex's Proposed Construction: That portion of the flexible flap suspended as a cantilever beam that can deform

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[26] Moldex's construction is overly-complicated and confusing. Claim 44 provides that "one free portion of the flexible flap to be lifted from the seal surface during exhalation." '463 patent, col. 20:12-13. Claim 1 of the ' 248 patent provides "one free portion of the flexible flap so as to be lifted away from the seal surface during exhalation." '248 patent, col. 16:48-50. It is thus clear that the free portion is what is important, not the fact that the portion "cantilevers" or is attached in only one place. The Court will thus adopt 3M's construction.

Term 12. ***"[a] single flexible flap that has ... a circumferential edge ... the circumferential edge having a first segment that is associated with the only one stationary portion of the flap so as to remain at rest during an exhalation"*** **(claim 1 of the** '248 patent)

3M's Proposed Construction: The flexible flap has a circumferential edge, a first segment of which is associated with the only one stationary portion (as defined) and does not move during an exhalation.

Moldex's Proposed Construction: The flap perimeter has only one stationary portion (previously defined), and that portion remains at rest during exhalation.

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3M argues that this claim term describes a circumferential edge that is *associated with* the only one stationary portion, not a circumferential edge *with* a stationary portion. Furthermore, while circumferential and perimeter do have similar meanings, both terms are commonly understood and there is thus no reason to substitute perimeter for circumferential. 3M thus argues that its construction should be adopted as consistent with the claim language.

While stationary portion was previously construed, the Court finds that neither parties' construction provides any meaningful guidance over the actual claim language. Accordingly, the Court finds this claim term does not need further construction, and the term shall be given its plain and ordinary meaning.

Term 13. ***"[A]single flexible flap that has ... only one free*** **portion and a circumferential edge ... having**

a second segment that is associated with the only one free portion of the flexible flap so as to be lifted away from the seal surface during an exhalation" (claim 1 of the '248 patent)

3M's Proposed Construction: The flexible flap has a circumferential edge, a second segment of which is associated with the only one free portion (as defined) and moves away from the seal surface (as defined) during an exhalation.

Moldex's Proposed Construction: Only one part of the 'flexible flap' (previously defined) having a circumferential edge is unconstrained, so as to be lifted away from the 'seal surface' (previously defined) during an exhalation.

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This claim is similar to Term 12, the difference being it addresses segment of the flap that is free and therefore can be lifted away from the seal surface during exhalation. Neither party has demonstrated a need to further construe this claim, and the Court declines to do so. Accordingly, the term will be given its plain and ordinary meaning.

Term 14. "*mounted to the valve seat such that the one free portion of the flap exhibits a curvature over the orifice area*" (claim 1 of the '248 patent)

3M's Proposed Construction: The phrase should be given its plain and ordinary meaning, and no further interpretation is required.

Moldex's Proposed Construction: Mounted to the valve seat, subject to external restraint, to cause suspension as a cantilever beam such that the one free portion of the flap exhibits a curvature over the orifice.

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Moldex's construction seeks to insert the phrase "subject to external restraint, to cause suspension as a cantilever beam." In support, Moldex cites to portions of the specification that discusses a cantilever beam. '248 patent, col. 8:26-30; 9:23-24 and Fig. 3.

The Court finds there is no basis for additional limitations into this claim term. The cited portions of the specification do not dictate that the flexible flap is "subject to external restraint." Rather, the specification notes the flap is "secured", but does not provide the manner in which it is secured. Similarly, the cited portions of the specification describe the preferred embodiment. Since the claims themselves do not include "cantilever beam", the Court cannot limit the claim with words used only to describe the preferred embodiment. Phillips, 415 F.3d at 1323.

The Court finds that this term should be given its plain and ordinary meaning. Accordingly, no further construction of this term is necessary.

Term 15. "*pressed toward the seal surface in an abutting relationship with it*" (claim 1 of the '248 patent)

3M's Proposed Construction: The phrase should be given its plain and ordinary meaning, and no further

interpretation is required.

Moldex's Proposed Construction: The cantilevered flap presses against the seal.

The Court has repeatedly declined to define the flap as a cantilever. Accordingly, the Court will give this term its plain and ordinary meaning.

Term 16. ***(a) "a valve seat that comprises ... a flap retaining surface"*** (claim 44 of the '463 patent)

3M's Proposed Construction: The valve seat has a surface that the flap is retained against. There is no requirement that the flap retaining surface be outside the seal surface.

Moldex's Proposed Construction: The flap is attached to the valve seat beyond an extremity of the sealing surface.

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[27] The parties' constructions differ in two respects. Moldex argues the flap is "attached" to a surface, while 3M asserts the flap is "retained against" a surface. Moldex also argues this surface is beyond the extremity of the sealing surface, while 3M argues there is no such requirement.

As to the first dispute, the Court will construe the term consistent with the claim language, which specifically defined the term as a surface that the flap is retained against.

[28] As to the second dispute, Moldex cites to the specification and to portions of the prosecution history in support of the limitation that the flap retaining surface must be outside the orifice. With respect to the specification, Moldex again cites to the preferred embodiment. However, the specification also includes descriptions of four aspects of the invention. ' 463 patent, col. 1:37-2:50. Only the second aspect of the invention is described as having a flexible flap "being attached to the valve seat outside the region encompassed by the orifice." Id. col. 1:67-2:1. It would thus be improper to limit this term to a description that is consistent with only one of four aspects of the invention.

With respect to the portions of the prosecution history cited to by Moldex, they reference office actions from 1995 and 1996, and one from February 2001. While the applicant clearly attempted to distinguish its invention from prior art based on the limitation that the flap retaining surface be outside the orifice, as pointed out by Moldex, it is also clear that this specific limitation was taken out of the claim language in July 2001. *See* FH00283. This may be because the examiner determined that both the McKim and Farr prior art taught a hinged valve outside the boundaries of the exit orifice. FH00484. Nonetheless, in the comments that follow the July 2001 response to office action, the applicant described the flexible flap of the invention as being "secured to the valve seat non-centrally relative to the orifice and it has a stationary free segment along its circumferential edge." FH00289. The applicant further described the invention as achieving the goal of keeping the valve closed under a variety of orientations "through use of a single flexible flap that has one free portion, which one free portion has its free circumferential edge being disposed beneath the stationary edge and by the nonalignment and relative positioning of the flap-retaining surface and the seal surface and the resultant curvature imported to the flap." FH00290.

The Court further notes that in response to the examiner's previous rejection of the claims as obvious based

on the Simpson and Cover prior art, the applicant submitted the affidavit of Brian McGinley for the purpose of demonstrating that after 3M first published its invention in 1993, all prior art involved button valves. FH00301. Thereafter, five different companies introduced filtering masks with flapper style valves, including Moldex. FH00302. McGinley opined that the initial public disclosure of the invention by 3M, followed by five competitive products that share the same new technology, demonstrates copying, and thus nonobviousness. FH00292, FH00305.

The patent examiner rejected the new claims, again on the basis of obviousness, by combining Simpson and McKim, which teaches a flap retaining surface and a seal surface being nonaligned and positioned relative to each other. FH00318. Reference to the McKim prior art suggests that the examiner recognized that the limitation that the flap retaining surface be located outside of the orifice was no longer at issue. The applicant challenged this rejection, as McKim is not analogous art. FN1 Eventually, the Board of Examiners agreed with the applicant, and reversed the examiner. FH00195-FH00203. Given the progression of the arguments and the claims submitted, it is clear that the acceptance of the claims of the ' 463 patent was not based on the argument that the flap retaining surface be positioned outside the orifice.

FN1. McKim encompasses a reed valve in a gasoline engine.

Moldex argues that 3M cannot surrender claim scope during prosecution, then turn around and recapture that scope during litigation. *See* Invitrogen Corp. v. Clontech Labs., Inc., 429 F.3d 1052, 1078 (Fed.Cir.2005). That is not what happened in this case, however, as explained above. The claims that included the language that the flap retaining surface be located outside the orifice were *cancelled,* and new claims added that did not contain this language. *See* Ventana Med. Sys. v. Biogenex Labs., 473 F.3d 1173, 1182 (Fed.Cir.2006) (doctrine of prosecution disclaimer does not apply to allegedly disclaiming statements made with respect to different claim language). To the extent that Moldex complains that 3M broadened its claims in order to capture its product, such practice is not prohibited. *See* Kingsdown Med. Consultants, Ltd. v. Hollister Inc., 863 F.2d 867, 874 (Fed.Cir.1988) (to the extent any amendments comply with relevant statutes and regulations, it is not improper to amend or insert claims during prosecution of patent application in order to cover a competitor's product); Liebel-Flarsheim, 358 F.3d at 911 (same).

Accordingly, the Court will adopt 3M's construction.

Term 19. "***a circumferential edge that includes stationary and free segments***" **(claim 1 of the** '463 patent)

3M's Proposed Construction: The phrase should be given its plain and ordinary meaning, and no further interpretation is required.

Moldex's Proposed Construction: The perimeter edge of the flap has a stationary segment and a free segment.

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The difference between these two constructions is that Moldex seeks to substitute "circumferential" with "perimeter". The Court finds that as both words are easily recognizable, there is no need for such substitution. Accordingly, this term will be given its plain and ordinary meaning. No further construction is necessary.

Term 20. "***the stationary segment of the circumferential edge being associated with the stationary portion of the flexible flap so as to remain in substantially the same position during an exhalation***" **(claim 1 of the** '463 patent)

3M's Proposed Construction: The stationary portion (as defined) of the flap and the stationary segment of its circumferential edge do not move substantially during an exhalation.

Moldex's Proposed Construction: The stationary portion of the flexible flap attached to the circumferential edge of the flexible flap remains at rest during exhalation.

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[29] The Court finds that Moldex's construction impermissibly reads out the word "substantially" from the claim. *See* Playtex Prods., Inc. v. Procter & Gamble Co., 400 F.3d 901, 908 (Fed.Cir.2005) (reasoning that equating "substantially flattened" to "flat" reads out the essence of the claim and contradicts the unambiguous meaning of the term).

The Court further finds that Moldex's use of "attached" would indicate that the "stationary portion" of the flexible flap and the "circumferential edge" of the flexible flap are two separate pieces that are connected in some way. There is no indication, either in the claim language or the specification, that the flexible flap is anything other than a single piece. As pointed out by 3M, the "stationary portion," "circumferential edge," and "stationary segment" all refer to regions of the flap, not to separate components that are attached.

Accordingly, the Court will adopt 3M's proposed construction.

Term 21. "***the flexible flap being secured to the valve seat noncentrally relative to the orifice at the flap retaining surface***" **(claim 1 of the** '463 patent)

3M's Proposed Construction: The flexible flap is secured to the valve seat at a non-central location of the orifice. There is no requirement that the flexible flap be secured at a location outside the orifice.

Moldex's Proposed Construction: This term is indefinite and lacks written description. Alternatively, this term means "the cantilevered flexible flap is secured to the valve seat outside of the orifice, rather than in the center of the valve seat."

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[30] 3M urges the Court to adopt its construction, arguing that the plain meaning of the term is clear-that the flexible flap is secured non-centrally, i.e. not at the center of the orifice. 3M asserts that the primary purpose of this claim language is to distinguish the prior art button valves. As discussed above with respect to Term 16, it would be improper to limit the claims by requiring that the flap be secured to the valve seat outside of the orifice.

Moldex argues that this term fails to meet the definite requirements of 35 U.S.C. s. 112 para. 2, and is therefore invalid. Specifically, Moldex argues the claim term is indefinite because "non-centrally" is used only in the claims, and that there is no description or drawing explaining the meaning of this term. A patent

will be deemed invalid, however, only upon a showing of clear and convincing evidence. Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342,1348 (Fed.Cir.2005). 3M asks that the Court defer any invalidity arguments, because Moldex should not be allowed to avoid its burden of proving invalidity by re-casting its invalidity argument as a claim construction issue. *See* Rhine v. Casio, Inc., 183 F.3d 1342, 1346 (Fed.Cir.1999) (finding that an alleged infringer cannot avoid a full-blown validity analysis by raising the specter of invalidity during the claim construction phase). The Court finds no reasons to delay ruling on this issue, however, as there is no need to specifically define "non-centrally". The term could only mean one thing in the context of this claim language, that the flap is secured at a point that is not the center of the orifice.

Based on the above, and the Court's construction of Term 16, the Court will adopt 3M's construction.

Term 22. ***the "flap retaining surface and seal surface are nonaligned and positioned relative to each other to allow for a cross sectional curvature of at least the one free portion of the flexible flap when viewed from the side in a closed position"*** **(claim 44 of the** '463 patent)

3M's Proposed Construction: The flap retaining surface (as defined) and seal surface (as defined) are offset relative to each other and are positioned relative to each other so that at least the one free portion (as defined) of the flexible flap has a cross sectional curvature when viewed from the side in the closed position.

Moldex's Proposed Construction: The flap retaining surface is positioned as a tangent to the curvature of the seal ridge. Alternatively, the claim term is indefinite and lacks written description.

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3M states that the purpose of this claim was to distinguish this invention from the Simpson invention, which has an exhalation valve with a flap retaining surface and flat seal surface that are both flat, and positioned in the same plane. 3M further asserts that the claim language is understandable as is, and does not require any explanation. To that end, 3M is not opposed to the Court declining to construe this language. 3M only substituted "offset relative to each other" for "nonaligned" because it felt it might be more understandable to a jury.

Moldex, on the other hand, argues that the claim is indefinite because it is neither defined nor explained and because there is no support for the conclusion that "align" means "same plane" or even "parallel." In the alternative, Moldex avers that its construction should control because the specification states the following:

flap-retaining surface 40 preferably is positioned on valve seat 40 to allow flexible flap 24 to be pressed in an abutting relationship to seal ridge 30 when a fluid is not passing through orifice 32. *Flap-retaining surface 40 can be positioned on valve seat 26 as a tangent to the curvature of the seal ridge 30 when viewed from a side elevation.*

'463 patent, col. 6:45-51 (emphasis added). According to Moldex, this statement in the specification is the only guidance the patentee gives as to "nonaligned", and should be adopted if the Court does not hold the claim term indefinite. This statement, however, describes the preferred embodiment, which, in this case, is not a proper basis to limit the claim language at issue. In addition, the cited language provides that the flap retaining *can* be positioned as a tangent. It would thus be inappropriate to construe a claim based on upon

permissive language.

3M responds that the common ordinary meaning of "non-aligned" is easily understood. Moreover, 3M avers that Figures 3 and 4 of the '463 patent show that the flap retaining surface and seal surface are offset, thus supporting its use of that word in its construction.

The Court agrees. In this context, "non-aligned" is easily understood. Accordingly, the terms "flap retaining surface", "seal surface" and "free portion" shall be construed as provided herein, and the remaining terms shall be given its plain and ordinary meaning.

Term 23. "***peripheral edge***" **(claim 44 of the** '463 patent)

3M's Proposed Construction: The term should be given its plain and ordinary meaning, and no further interpretation is required.

Moldex's Proposed Construction: Outermost edge of the flexible flap.

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The Court finds this term is a common one, therefore there is no need to refer to any extrinsic evidence such as a dictionary definition. Accordingly, the term shall be given its plain and ordinary meaning.

Term 24. "***the stationary segment of the peripheral edge being associated with the stationary portion of the flexible flap so as to remain in substantially the same position during an exhalation***" **(claim 44 of the** '463 patent)

3M's Proposed Construction: The stationary portion (as defined) of the flap and the stationary segment of its peripheral edge do not move substantially during an exhalation.

Moldex's Proposed Construction: The flap perimeter has one stationary portion, and that portion remains at rest during exhalation.

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[31] This term is similar to Term 20, the only difference is the inclusion of "peripheral" for "circumferential". Similar to its proposed construction of Term 20, 3M argues that its construction is consistent with the ordinary meaning of the phrase, maintains the hierarchy of terms, and does not read "substantially" out of the claims. Moldex responds in kind, arguing that the reasons it proffered for adopting its construction of Term 20 should also persuade the Court to adopt its construction of Term 24.

Consistent with its construction of Term 20, the Court adopts 3M's proposed construction of Term 24.

Term 25. ***the flexible flap is "secured to the valve seat at the flap retaining surface closer to the stationary segment of the peripheral edge than to the free segment***" **(claim 44 of the** '463 patent)

3M's Proposed Construction: This phrase needs no additional definition beyond the definitions of the individual terms defined elsewhere herein. There is no requirement that the flap retaining surface be outside

the orifice.

Moldex's Proposed Construction: The flexible flap is attached to the flap retaining surface outside the orifice to form a cantilever beam. Alternatively, the claim term is indefinite and lacks written description.

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Based on the Court's previous rulings as to the limitation that the flexible flap is secured "outside the orifice," the Court finds this term does not need further construction beyond the definitions of the terms defined herein.

Term 26. ***the flexible flap is mounted to the valve seat in "cantilever fashion"*** **(claim 17 of the** '248 patent **and claim 4 of the** '463 patent)

3M's Proposed Construction: The flexible flap is mounted to the valve seat at one end.

Moldex's Proposed Construction: The flexible flap is mounted as a projecting structure supported at one end.

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[32] The Court adopts 3M's proposed construction, as it is consistent with the Court's prior construction of terms.

E. '868 Patent

Like the patents discussed above, the '868 patent relates to respirator masks that have an exhalation valve. The '868 patent issued from a continuation of the application that issued as the '463 patent. 3M asserts that these two patents have nearly identical disclosures, but claim different inventions. To prevent the flexible flap from adhering to the ceiling of the valve cover, the '868 patent explains that the interior of the ceiling can be provided with a ribbed or course pattern to prevent the free end of the flap from adhering to the ceiling. '868 patent, col. 11, lines 17-21. Independent claims 1 and 3, and dependant claim 8 are set forth below.

1. A filtering face mask that comprises:

(a) a mask body that is adapted to fit over the nose and mouth of a wearer; and

(b) an exhalation valve that is attached to the mask body, the exhalation valve comprising;

(1) a valve seat that comprises:

(i) a seal surface; and

(ii) an orifice that is circumscribed by the seal surface; and

(2) a single flexible flap that has a fixed portion and a free portion and first and second opposing ends, the

first end of the single flexible flap being associated with the fixed portion of the flap so as to remain at rest during an exhalation, and the second end being associated with the fee portion of the flexible flap so as to be lifted away from the seal surface during an exhalation, the second end also being located below the first end when the filtering face mask is worn on a person, the flexible flap being positioned on the valve seat such that the flap is pressed towards the seal surface in an abutting relationship therewith, under any orientation of the valve, when no external forces from the movement of fluid are exerted upon the flap; and

(3) a valve cover that is disposed over the valve seat and that comprises:

(i) an opening that is disposed directly in the path of fluid flow when the free option of the flexible flap is lifted from the seal surface during an exhalation; and

(ii) a fluid impermeable ceiling that has an interior that has a means for preventing the free end of the flexible flap from adhering to the fluid-permeable ceiling when moisture is present on the ceiling or on the flexible flap.

8. The filtering face mask of claim 3 wherein:

The exhalation valve has only one flexible flap that has only one free portion, and the only one flexible flap has a peripheral edge that includes a stationary segment and a free segment, the stationary segment being associated with the stationary portion and the free segment being associated with the free portion, the free portion being located below the stationary portion when the mask is viewed from the front in an upright position, and wherein

The flexible flap is positioned on the valve seat such that the flap exhibits a curvature when viewed from the side in the cross-section.

Term 1. ***Means for preventing the free end of the flexible flap from adhering to the fluid-impermeable ceiling when moisture is present on the ceiling or on the flexible*** **flap (Claim 1)**

3M's Proposed Construction: The claimed function should be given its plain and ordinary meaning, and no further interpretation is required. The corresponding structure is a ribbed pattern, a course pattern, a release surface, or equivalents of any of them.

Moldex's Proposed Construction: The claim function is preventing the free end of the flexible flap from adhering to the fluid-impermeable ceiling when moisture is present on the ceiling or on the flexible flap. The corresponding structure is a ribbed pattern, coarse pattern or release surface, located on the interior of the ceiling of the valve cover that breaks water surface tension that would otherwise persist after a flexible flap contacts the valve cover ceiling, or equivalents under 35 U.S.C. s. 112, para. 6.

[33] The parties' proposed construction as to the claimed function is identical. The parties' construction of the corresponding structure is similar, with the exception that Moldex adds the following limitation: "located on the interior of the ceiling of the valve cover that breaks water surface tension that would otherwise persist after a flexible flap contacts the valve cover ceiling, or equivalents under 35 U.S.C. s. 112,para. 6."

As to the first clause, concerning the location of the claimed structure, the Court notes that the language preceding this claim term in claim 1 is "a fluid impermeable ceiling that has an interior that has a" '868

patent, col. 17:15-16. Accordingly, the limitation that the corresponding structure is located on the interior of the valve cover will be adopted.

The second clause of this limitation-that breaks water surface tension that would otherwise persist after a flexible flap contacts the valve cover ceiling, or equivalents under 35 U.S.C. s. 112,para. 6-is necessary because the '868 patent contemplates that the flap *will* contact the interior surface of the ceiling, but not stick to it due to the ribbed pattern, coarse pattern or release surface.

In support, Moldex cites to that portion of the specification which discusses "adhesive forces caused by condensed moisture." '868 patent, col. 7:41-43. This aspect of the specification focuses on the width of the contact surface, and the concern that if the contact surface is too wide, the condensed moisture may make it harder for the flexible flap to open. Id. The Court thus finds that this portion of the specification does not lend support to Moldex's argument that the patentee contemplated that the flap would contact the interior surface of the ceiling.

Moldex also cites to the deposition testimony of the inventor, Daniel Japuntich, in which he confirmed that the '868 patent prevents sticking by breaking water tension between the flap and the valve cover. In the testimony cited, however, Japuntich talked of " *if* the flap *should* contact the top". Prange Aff., Ex. B., Japuntich Dep., 14. Contrary to Moldex's assertions, such testimony does not support the argument that the '868 patent contemplates that the flap *will* touch the valve cover, only that it *might* touch the valve cover.

The Court agrees with the position of 3M that nothing in the claim language or the specification supports this limitation. Accordingly, the Court finds that the claimed function will be given its plain and ordinary meaning, and the corresponding structure will be construed as "a ribbed pattern, a course pattern, a release surface or equivalents of any of them, located on the interior of the ceiling of the valve cover."

Term 2. Means for preventing the free portion of the flexible flap from adhering to the valve cover when the flexible flap is lifted from the seal surface during the exhalation and when moisture is present on the valve cover and/or flexible flap.

3M's Proposed Construction: The claimed function should be given its plain and ordinary meaning, and no further interpretation is required. The corresponding structure is a ribbed pattern, a coarse pattern, a release surface, or equivalents of any of them.

Moldex's Proposed Construction Function is "preventing the free portion of the flexible flap from adhering to the valve cover when the flexible flap is lifted from the seal surface during the exhalation and when moisture is present on the valve cover and/or flexible flap." Corresponding structure is "A ribbed pattern, coarse patterns or release surface, located on the interior of the ceiling of the valve cover that breaks water surface tension that would otherwise persist after a flexible flap contacts the valve cover ceiling" or the equivalents under 35 U.S.C. s. 112,para. 6.

[34] As with the term discussed above, the parties appear to agree as to the function construction, but disagree as to the corresponding structure. For the reasons discussed above, the claimed function will be given its plain and ordinary meaning, and the corresponding structure will be construed as "a ribbed pattern, a course pattern, a release surface or equivalents of any of them, located on the interior of the ceiling of the valve cover."

For the reasons stated, **IT IS HEREBY ORDERED:**

The claims of the patents at issue in this case should be construed in a manner consistent with the definitions set forth by the Court in this Memorandum & Order.

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