

UNITED STATES DISTRICT COURT
DISTRICT OF NEW HAMPSHIRE

SignalQuest, Inc.

v.

Civil No. 11-cv-392-JL
Opinion No. 2015 DNH 020

Ten-Ming Chou,
OncQue Corporation,
and Bravotronics Corporation

MEMORANDUM ORDER

This is a dispute over the construction of the claims of a patent for a vibration switch, United States Patent No. 6,706,979 (filed Mar. 16, 2014). The plaintiff, SignalQuest, Inc., commenced this action by way of a complaint for a declaratory judgment that its products do not infringe the '979 patent, owned (at that point) by defendant Ten-Ming Chou. Chou, who is also the patent's named inventor, responded with a counterclaim alleging that certain SignalQuest products, including its "SQ-SEN-200 model number vibration switch," in fact infringe the '979 patent.¹ SignalQuest subsequently amended its complaint to bring claims of patent infringement against defendant OncQue Corporation (of which Chou is allegedly the chief executive officer) and Chou, asserting that its products infringe patents for an omnidirectional tilt and vibration sensor, which are owned

¹Bravotronics Corporation, to which Chou has since assigned his interest in the '979 patent, was subsequently added as a defendant and counterclaimant by way of the parties' joint motion. Order of Jan. 10, 2014.

by SignalQuest.² This court has subject-matter jurisdiction under [28 U.S.C. § 1338\(a\)](#) (patents).

The parties differ over the meaning of a number of terms as they appear in the only independent claim of the '979 patent, claim 1, as well as certain of its dependent claims. The court received briefing and conducted a hearing on this issue in accordance with [Markman v. Westview Instruments, Inc.](#), 517 U.S. 370, 388 (1996), though the parties used the hearing solely to present oral argument. Based on those presentations, the court arrives at the interpretations of the disputed claim terms specifically set forth below.

I. Applicable legal standard

The meaning of language in a patent claim presents a question of law for the court to decide. [Markman](#), 517 U.S. at 388. "[T]he words of a claim are generally given their ordinary

²These patents, United States Patent Nos. 7,067,748 (filed June 27, 2006), 7,326,866 (filed Feb. 5, 2008), and 7,326,867 (filed Feb. 5, 2008), were the subject of reexamination proceedings before the United States Patent and Trademark Office filed after the commencement of this action. Based on the pendency of those proceedings, the court had stayed litigation of SignalQuest's patent infringement claims here, but decided that litigation of its claim for a declaration of non-infringement, and Bravotronics's corresponding infringement claim, should proceed. [Order](#) of Apr. 29, 2014. Accordingly, this order addresses the construction of the '979 patent only, with construction of the other patents--which survived reexamination--to await a later stage in the case, if necessary.

and customary meaning,” i.e., “the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” [Phillips v. AWH Corp.](#), 415 F.3d 1303, 1212-13 (Fed. Cir. 2005) (en banc) (quotation marks omitted). In arriving at this meaning,

a claim construction analysis must begin and remain centered on the claim language itself, for that is the language the patentee has chosen to particularly point out and distinctly claim the subject matter which the patentee regards his invention. The claims, of course, do not stand alone. Rather, they are part of a fully integrated written instrument, consisting principally of a specification that concludes with the claims. For that reason, claims must be read in light of the specification, of which they are a part.

[Source Vagabond Sys. Ltd. v. Hydrapak, Inc.](#), 753 F.3d 1291, 1299 (Fed. Cir. 2012) (citations, quotation marks, and bracketing by the court omitted).

Yet “[w]hen consulting the specification to clarify the meaning of claim terms, courts must take care not to import limitations into the claims from the specification.” [Abbott Labs. v. Sandoz](#), 566 F.3d 1282, 1288 (Fed. Cir. 2009) (en banc). “It is therefore important not to confuse exemplars or preferred embodiments in the specification that serve to teach and enable the invention with limitations that define the outer boundaries

of claim scope.” [Intervet Inc. v. Merial Ltd.](#), 617 F.3d 1282, 1287 (Fed. Cir. 2010) (citing [Phillips](#), 415 F.3d at 1323).³

II. Background

The ‘979 patent teaches “a vibration switch which can be instantly disposed in a switch-off state when jerked by a force coming from any direction.” The invention consists of “two electrically conductive rollable bodies which abut against two tangential areas of two electric contact bodies to establish electric contact between the electric contact bodies, and which will lurch toward a farthestmost area of a respective one of the electric contact bodies when the vibration switch is in an unsteady state so as to break the electric contact.”

The patent consists of one independent claim, to wit:
A vibration switch adapted to be in electric contact
with a support, comprising:

a housing adapted to be mounted on the support in an upright direction, and including an upper wall and a lower wall spaced apart from each other in the upright direction to confine an accommodation chamber;

first and second electric contact bodies which are disposed in said accommodation chamber, and which

³“In addition to consulting the specification, . . . a court should also consider the patent’s prosecution history, if it is in evidence.” [Phillips](#), 415 F.3d at 1317. Here, the parties have not submitted any prosecution history of the ‘979 patent, which was allowed as originally filed. Nor, aside from a few references to a general purpose dictionary, have the parties submitted any extrinsic evidence, e.g., “expert and inventor testimony, dictionaries, [or] learned treatises.” [Id.](#) at 1317.

respectively have first and second rolling surfaces that are spaced apart from each other along a centerline oriented in one of the upright direction and a longitudinal direction that is transverse to the upright direction, said first and second rolling surfaces respectively defining first and second farthestmost areas which are spaced apart from each other by a first length along a centerline, and respectively defining first and second tangential areas being spaced apart from each other by a distance that, when projected on a longitudinal line in the longitudinal direction, is equivalent to a second length; and

first and second electrically conductive rollable bodies which are rollable on said first and second rolling surfaces about first and second rolling axes respectively, and which respectively have first and second perimetrical areas that are in contact with the first and second rolling surfaces, respectively, and first and second widths, each of said first and second widths being defined by a distance that is between two diametrically opposite points in a respective one of said first and second perimetrical areas, sum of the first width and the second width being smaller than the first length and larger than the second length, such that when the support on which said housing is mounted stands still, said first and second electrically conductive rollable bodies are tangent to each other, and respectively abut against said first and second tangential areas by virtue of gravity to thereby establish electric contact between said first and second electrical contact bodies, and such that once the support is caused to quiver in an unsteady state, said first and second electrically conductive rollable bodies will be caused to lurch towards one of said first and second farthestmost areas so that one of said first and second electrically conductive rollable bodies is out of contact with a corresponding one of said first and second rolling surfaces which defines the other one of said first and second farthestmost areas, thereby breaking the electric contact between said first and second electric contact bodies.

III. Analysis

As noted at the outset, the parties differ over the meaning of a number of terms as they appear in claim 1 (and, in some cases, of certain dependent claims) of the '979 patent. The court resolves those disputes as follows.

A. Independent claim 1⁴

1. "adapted to be mounted"

The patent claims "[a] vibration switch adapted to be in electric contact with a support, comprising," among other elements, "a housing adapted to be mounted on the support in an upright direction." SignalQuest argues that this means "an integrally formed extension of the housing itself mounts on the support," i.e., "[t]here is no separate and removable item connecting the housing to the support." But the defendants disagree, arguing that "adapted to be mounted" means simply "capable of mounting." The court agrees with the defendants.

Claim 1's teaching that the "housing [is] adapted to be mounted on the support" does not, as SignalQuest argues, necessarily "mean[] that there is a physical limitation to the housing itself"--as opposed to a structure that is added to but

⁴Insofar as any of the terms construed in this section also appear in dependent claims, the same construction applies.

remains separable from the housing--to accomplish the mounting. There is nothing inherent in the phrase "adapted to" that requires an alteration of, rather than an addition to, that which existed prior to the adaptation.

As the Court of Appeals for the Federal Circuit has observed, "[i]n common parlance, the phrase 'adapted to' is frequently used to mean 'made to,' 'designed to,' or 'configured to,' but it can also be used to mean 'capable of' or 'suitable for.'" [Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.](#), 672 F.3d 1335, 1349 (Fed. Cir. 2012) (citing [Sta-Rite Indus., LLC v. ITT Corp.](#), 682 F. Supp. 2d 738, 753 (E.D. Tex. 2010)); [Boston Scientific Corp. v. Cordis Corp.](#), No. 02-1474, 2006 WL 3782840, at *2 (N.D. Cal. 2006)). While SignalQuest cites these cases, they do not support its construction of "adapted to" to exclude "a separate and removable item." As one of the cases observes, the terms "configured to" or "designed to" simply "embrace[] the concept of a device intentionally and specifically made to act in a certain way." [Boston Scientific](#), 2006 WL 3782840, at *2. That definition readily fits a "housing adapted to be mounted" by inserting an element into the housing to allow for mounting. SignalQuest does not argue to the contrary.⁵

⁵Instead, SignalQuest argues that these cases have "universally rejected" the defendants' proposed construction of "adapted to" as "capable of." That is not so, as the Federal

SignalQuest also points to the section of the specification that describes the first preferred embodiment of the invention, in which "[t]he housing is made from an electrically conductive material, and is adapted to be mounted on a support." In particular, this section of the specification teaches, a "first electric terminal is integrally formed with the left end portion of the housing, and has a connected end connected to the first electric contact body, and a terminal end extending from the

Circuit's [Aspex Eyewear](#) opinion demonstrates (in the foregoing quotation as well as elsewhere). 672 F.3d at 1349 (observing that "'adapted to'" is sometimes used in claim drafting to carry the broader meaning," i.e., "'suitable for' rather than 'made to'"). It is true that, in [Aspex Eyewear](#) and the other cases on which SignalQuest relies, the courts ultimately construed "adapted to" to mean "designed to" or "configured to," rather than "capable of" or "suitable for," but even the narrower reading does not support SignalQuest's proffered construction here, as just explained in the main text. For the moment, then, it is sufficient to reject SignalQuest's proffered construction, without deciding whether to adopt the defendants' proposed construction, of "adapted to." (Indeed, the defendants point out that the case law construes the term as "'configured to' or 'capable of'" without saying which definition should control here.) If further developments in the case (such as summary judgment practice or trial) require this court to choose whether "adapted to" means "designed to" or simply "capable of," the court will make that decision at the appropriate time. See [Vivid Techs., Inc. v. Am. Science & Eng'g, Inc.](#), 200 F.3d 795, 803 (Fed. Cir. 1999) ("only those terms need be construed that are in controversy, and only to the extent necessary to resolve [the controversy]").

connected end outwardly and downwardly of the left end portion to be in electric contact with the support.”⁶

As an initial matter, this argument appears to “confuse exemplars or preferred embodiments in the specification that serve to teach and enable the invention with limitations that define the outer boundaries of claim scope,” which is impermissible. [Intervet](#), 617 F.3d at 1287. In any event, the specification also discloses third and fourth preferred embodiments in which the first electric contact body is “separable from the housing. An additional insulating plug is provided to be fitted into the opening end of the housing to serve as the left end portion” (emphasis added). In these embodiments, the terminal is connected to the contact body “through a through hole in the insulating plug,” with “a terminal end that extends . . . outwardly of the insulating plug and bent downwardly of the housing to be in electric contact with the support.” Importantly, this terminal is not “an integrally formed extension of the housing itself,” since it extends from the electric contact body (which, again, is “separable from the housing”) through an insulating plug which is itself “fitted into

⁶The second preferred embodiment also discloses “a first electric terminal [that] is integrally formed with the housing, and has a terminal end which extends outwardly and downwardly of the lower wall.”

the opening end of” (and therefore, like the contact body, not “integrally formed of”) the housing.

The specification, then, explicitly discloses preferred embodiments in which the housing connects to the support by way of a terminal extending from a “separable” contact body--as opposed to the “integrally formed” terminal disclosed in the embodiments on which SignalQuest relies. So construing the claim to exclude any “separate and removable item connecting the housing to the support,” as SignalQuest urges, would exclude two of the preferred embodiments disclosed in the patent--as SignalQuest acknowledges. And “[a] claim construction that excludes [a] preferred embodiment ‘is rarely, if ever correct.’” [Adams Respiratory Therapeutics, Inc. v. Perrigo Co.](#), 616 F.3d 1283, 1290 (Fed. Cir. 2010) (quoting [Vitronics Corp. v. Conceptronic Inc.](#), 90 F.3d 1576, 1583-84 (Fed. Cir. 1996)).

Of course, “rarely” does not mean “never,” and, at the hearing, SignalQuest pointed to a few cases where the Court of Appeals for the Federal Circuit has construed a patent to exclude one of its preferred embodiments. See [August Tech. Corp. v. Camtek, Ltd.](#), 655 F.3d 1278, 1285 (Fed. Cir. 2011); [Rolls-Royce, PLC v. United Techs. Corp.](#), 603 F.3d 1325, 1334-35 (Fed. Cir. 2010); [TIP Sys., LLC v. Phillips & Brooks/Gladwin, Inc.](#), 529 F.3d 1364, 1373 (Fed. Cir. 2008). In these cases, however, “to

construe the term to encompass [an] alternative embodiment would contradict the language of the claims," [TIP Sys.](#), 529 F.3d at 1373; see also [August Tech.](#), 655 F.3d at 1284-85 (rejecting a construction which, while necessary to encompass one of the disclosed embodiments, "renders [the] difference between the singular and the plural terms [in the claim] superfluous"), or otherwise lead to an "unreasonable" result, [Rolls-Royce](#), 603 F.3d at 1335 (rejecting such a construction as "because the single claimed direction 'forward' would then encompass two directions at right angles to each other").⁷ Here, no such problems arise from construing the phrase "a housing adapted to be mounted on the support," as it appears in claim 1, to include a housing that connects to the support by way of the terminal running through the insulating plug to the separable contact body, as disclosed by the third and fourth preferred embodiments.

Finally, SignalQuest's proposed construction of the phrase "adapted to be mounted" in claim 1 would also read a limitation into it which is expressly spelled out in one of its dependent claims. Specifically, claim 7 discloses (by reference to other

⁷To similar effect, when faced with "multiple embodiments" (as is the case here), the Court of Appeals for the Federal Circuit has "interpreted claims to exclude embodiments where those embodiments are inconsistent with unambiguous language" elsewhere in the patent (which, as just discussed, is not the case here). [Sinorgchem Co., Shangdong v. ITC](#), 511 F.3d 1132, 1138 (Fed. Cir. 2007).

claims) the same vibration switch as claim 1, except that (in addition to other limitations) "said housing is made from an electrically conductive material and said first electric contact body and said first electric terminal are integrally formed with said housing" (emphasis added). As the defendants point out, "the doctrine of claim differentiation disfavors reading a limitation from a dependent claim into an independent claim" in this manner. [Virnetx, Inc. v. Cisco Sys., Inc.](#), 767 F.3d 1308, 1316 (Fed. Cir. 2014). The doctrine proceeds from the presumption of "a difference in meaning and scope when different words and phrases are used in separate claims. To the extent that the absence of such difference in meaning would make a claim superfluous, the doctrine of claim differentiation states the presumption that the difference between claims is significant." [Andersen Corp. v. Fiber Composites, LLC](#), 474 F.3d 1361, 1369 (Fed. Cir. 2007) (quotation marks omitted).

SignalQuest argues that "the doctrine is not implicated because the challenged limitation . . . is not the only meaningful difference between the two claims." In particular, SignalQuest asserts, claim 7 includes an additional limitation, beyond the "integrally formed" terminal and housing, i.e., that the housing be "electrically conductive." As discussed in more detail below, however, SignalQuest also proposes to read that

very same limitation into claim 1. See infra Part II.A.2. Implementing these two aspects of SignalQuest's proposed construction--that the terminal and housing be "integrally formed" and the housing be "electrically conductive"--would indeed give claim 1 the same scope as claim 7, one of its dependent claims. In other words, to use SignalQuest's language, adopting its "challenged limitations" (plural) would eliminate "the only meaningful differences" (plural) that it has identified between claims 1 and 7.⁸ That is at odds with the doctrine of claim differentiation, as just discussed.

SignalQuest also argues that the doctrine of claim differentiation is not "a hard and fast rule." That is correct: as already noted, the doctrine simply creates a presumption against arriving at the same construction for differently worded claims. See, e.g., Andersen Corp., 474 F.3d at 1369. Here, though, SignalQuest has not identified anything to overcome the presumption that the limitations of claim 7, requiring an "integrally formed" terminal and housing, and an "electrically conductive housing," should not be read into claim 1. As already discussed, a terminal that is "integrally formed" of the housing

⁸While this problem would be avoided if the court adopted SignalQuest's construction of just one of these terms, SignalQuest has not requested that relief and, in any event, the court declines to adopt SignalQuest's proffered interpretation of either of these terms. See infra Part II.A.2.

does not necessarily follow from claim 1's teaching that the housing is "adapted to be mounted on the support," and two of the four preferred embodiments in the specification disclose switches where the terminal connects to the support yet is "separable" from the housing. Accordingly, the court rejects SignalQuest's proffered construction of claim 1 to require that "an integrally formed extension of the housing itself," rather than any "separate or removable item," mounts on the support.

2. "housing"

While both SignalQuest and the defendants agree that the term "housing," as it appears in claim 1, means "enclosure," they disagree on whether the enclosure must also be "electrically conductive." SignalQuest insists that it must, relying principally on the fact that--in teaching the first preferred embodiment of the invention--the specification describes the housing as "made from an electrically conductive material." Again, however, the court must guard against reading limitations from the specification's teaching of a preferred embodiment into the claims themselves. See [Abbott Labs.](#), 566 F.3d at 1288.

But neither must the court ignore the specification in construing the claims, see [id.](#), and, seizing on this principle, SignalQuest argues that the patent "provides no alternative to the conductive housing called for in the specification," because

it nowhere "reference[s] a housing that is not electrically conductive." Of course, the patent--like any patent necessarily bound by limitations of time and space in its drafting--"fails" to specify many characteristics that the invention, or its elements, does not have, so this argument does not go very far.

To the contrary, courts usually may not

add a narrowing modifier before an otherwise general term that stands unmodified in a claim. For example, if an apparatus claim recites a general structure (e.g., a noun) without limiting that structure to a specific subset of structures (e.g., with an adjective), [courts] will generally construe the claim to cover all types of that structure that are supported by the patent disclosure.

[Renishaw PLC v. Marposs Societa' per Azioni](#), 158 F.3d 1243, 1249-50 (Fed. Cir. 1998) (citations omitted).

In any event, the specification in fact discloses preferred embodiments (namely, the third and fourth) in which the electric contact bodies, which are "separable" from the housing, have terminals that extend through insulating plugs before bending "downwardly of the housing to be in electric contact with the support." As the defendants explain, this configuration allows current to flow through the contact bodies (and, when the switch is in the "on" position, the electrically conductive rollable bodies) and terminals to the support and, as such, eliminates any need for the body of the housing to be electrically conductive.

SignalQuest does not dispute this point, which serves to show that, in fact, the specification discloses embodiments in which the housing need not itself be electrically conductive. SignalQuest has provided no basis, then, for reading into claim 1 the requirement that the housing be "electrically conductive." In addition, as already discussed, claim 7 specifically describes a switch "wherein said housing is made of electrically conductive material," so adopting SignalQuest's proffered construction of "housing" (at least while also adopting its proffered construction of "adapted to be mounted") in claim 1 would result in an independent claim with the same scope as one of its dependent claims--a disfavored result. See Part II.A.1, supra. Accordingly, this court rejects SignalQuest's proffered construction of the term "housing" in claim 1 to require an "electrically conductive enclosure," and reads it simply to require an "enclosure."

3. "accommodation chamber"

The parties also dispute the proper construction of claim 1's teaching that the housing "includ[es] an upper wall and a lower wall spaced apart from each other in the upright direction to confine an accommodation chamber." SignalQuest argues that the accommodation chamber must be "confined by an upper wall and a lower wall spaced apart from each other in the upright

direction, a left end portion, and a right end portion." The defendants argue that the "accommodation chamber" is merely "a space with walls," eliminating any need for the "left end portion" and the "right end portion" urged by SignalQuest.⁹

As support for their reading, the defendants rely on the language of claim 1, which, as just quoted, discloses "an upper wall and a lower wall spaced apart from each other in the upright direction" as the elements that "confine an accommodation chamber"--without mentioning any right end or left end portion. This argument, however, ignores the import of the term "chamber" itself, which is not ordinarily used to describe a space confined by only two walls (or at least two walls that are "spaced apart from each other" so that they do not intersect). To the contrary, "[t]he plain and ordinary meaning of chamber is an enclosed space or cavity." [Agilent Techs., Inc. v. Affymetrix, Inc.](#), No. 06-5958, 2008 WL 7348188, at *6 (N.D. Cal. June 13, 2008) (quotation marks omitted). A space between only two walls is not "enclosed," nor, for that matter, is it "confined."

⁹While the defendants further assert that the accommodation chamber "need not be vertical at any instance," SignalQuest does not respond to this assertion in its claim construction briefing. Given the apparent absence of a dispute over this alleged requirement, the court need not address it at this time. See n. 5, supra.

Based on the plain and ordinary meaning of the word "chamber," then, the court rejects the defendants' proffered construction of the term "accommodation chamber" as simply "a space with walls." Instead, the court adopts SignalQuest's proposal that the term means "a chamber confined by an upper wall and a lower wall spaced apart from each other in the upright direction, a left end portion, and a right end portion."

This reading gains additional support from the specification, which, in discussing the first preferred embodiment, teaches that "[t]he housing has an upper wall and a lower wall spaced apart from each other in the upright direction, a left end portion which is integrally formed with the upper and lower walls, and a right end portion which is configured as an insulating plug that is fitted into an opening end cooperatively defined by the upper and lower walls, thereby confining an accommodation chamber" (emphasis added). This sentence clearly identifies the upper and lower wall, the left end portion, and the right end portion as the elements that "confine" the accommodation chamber--as any "chamber" must be confined.

Furthermore, the other preferred embodiments disclosed in the specification do not teach any configuration of the accommodation chamber that excludes end portions. The third preferred embodiment, in fact, features an "insulating plug

[that] is provided to be fitted into an opening end of the housing to serve as the left end portion" (emphasis added).

Because the plain and ordinary meaning of the term "accommodation chamber" as it appears in claim 1 requires end portions as well as upper and lower walls, and the specification only reinforces that meaning, the court adopts SignalQuest's proffered construction of "accommodation chamber" as "a chamber confined by an upper and lower wall spaced apart from each other in the upright direction, a left end portion, and a right end portion."¹⁰

4. "disposed in said accommodation chamber"

Claim 1 teaches that, in addition to the housing, the vibration switch is comprised of "first and second electric contact bodies which are disposed in said accommodation chamber." SignalQuest argues that this phrase requires the electric contact bodies to be "entirely located within the accommodation chamber,"

¹⁰Relying on the third preferred embodiment, the defendants argue that the left end portion need not be "integrally formed with the upper and lower walls" as taught in the first preferred embodiment. While SignalQuest originally argued that the term "accommodation chamber" required the left end portion to be integrally formed with the upper and lower walls, it retreated from that position in its responsive claim construction brief. Given this development, the court need not decide whether the term "accommodation chamber" requires the end portions to be integrally formed with the upper and lower walls--only whether, as SignalQuest now argues, the end portions are required.

while the defendants argue that the bodies need only be "at least partly inside the accommodation chamber." The defendants have the better argument.

As an initial matter, the plain and ordinary meaning of the phrase "disposed in" does not require its subject to be "entirely located"--or, it might be said, "subsumed"--within its object. The plain and ordinary meaning of "disposed in" is simply "placed in." Indeed, elsewhere in the patent, the term "disposed in" is used in this sense: the "summary of the invention" section of the patent teaches that the "switch is adapted to be disposed in electric contact with a support." There is, of course, a "general requirement that claim terms be construed consistently throughout a patent." [Joovy LLC v. Target Corp.](#), 437 Fed. Appx. 932, 937 (Fed. Cir. 2011) (citing [Rexnord Corp. v. Laitram Corp.](#), 274 F.3d 1336, 1342 (Fed. Cir. 2001)).

SignalQuest argues that, regardless, "[n]owhere in the specification or figures is the concept of the electric contact bodies being partly located within the accommodation offered or suggested." Again, though, it is the claims, not the specification and its illustrations, that define the scope of the invention. [Intervet](#), 617 F.3d at 1287. In any event, the specification discloses, as the first preferred embodiment, a configuration in which "[t]he first electric contact body is

integrally formed with the left end portion, and is disposed in the accommodation chamber." In this configuration, as the defendants point out, the outer faces of the contact body also constitute the outer faces of the left end portion, so that the contact body is not "entirely located within the accommodation chamber" (instead, its outer faces form the outer portion of the chamber and are therefore outside of it). Because neither the plain and ordinary meaning of the claim language itself, nor the specification, supports SignalQuest's proffered reading of the term "disposed in" as "entirely located within," the court rejects that construction, and adopts the defendants' proffered reading of the term, i.e., "at least partly inside."

5. "rolling surfaces"/"tangential areas"

Claim 1 further teaches that the aforementioned first and second electric contact bodies

respectively have first and second rolling surfaces that are spaced apart from each other along a centerline oriented in one of the upright direction and a longitudinal direction that is transverse to the upright direction, said first and second rolling surfaces respectively defining first and second farthestmost areas which are spaced apart from each other by a first length along a centerline, and respectively defining first and second tangential areas being spaced apart from each other by a distance that, when projected as a longitudinal line in the longitudinal direction, is equivalent to a second length.

The parties dispute the meanings of a number of terms from this description of the contact bodies. In essence, SignalQuest reads the description to exclude the "tangential areas" from the "rolling surfaces" such that "[t]he first and second rolling surfaces define outer perimeters that border the first and second tangential areas respectively."¹¹ The defendants, however, argue that the "tangential areas" are in fact part of the "rolling surfaces," i.e., the "areas of [the] rolling surfaces contacted by the rolling bodies when [the] rolling bodies touch."

The text and structure of the claim language support the defendants' proffered construction. As an initial matter, "tangential" is commonly and ordinarily used to refer to a spatial relationship in which forms touch at their peripheries, or outer edges. To describe an "area" as tangential to a "surface," then, indicates that the surface and the area share some space in common and, as a consequence, are not entirely distinct. Indeed, claim 1 states that the first and second rolling surfaces "respectively defin[e] first and second

¹¹SignalQuest further asserts that the tangential area of each electric contact body "does not meet or cross the centerline." In their reply brief, the defendants agree, describing the tangential areas as "basically upright rings which extend around the centerline in a plane transverse to the centerline. Therefore, of course, they never cross the centerline." This aspect of SignalQuest's proffered construction, then, is not in dispute, so the court need not rule on it. See n. 5, supra.

tangential areas.” One would not normally speak of a surface “defining” an area yet remaining entirely distinct from it. While, as SignalQuest points out, “defining a border of a thing . . . defines the limits of that thing,” it does not follow that what defines the border remains separate from the area defined. In any event, claim 1 does not say that the rolling surfaces “define the borders”—or, to quote from SignalQuest’s proffered construction, “define outer perimeters”—of the tangential areas, but simply that the surfaces “defin[e]” the areas themselves. “[A]n analysis that adds words to the claim language without support in the intrinsic evidence . . . does not follow the standard canons of claim construction.” [Source Vagabond Sys. Ltd. v. Hydrapak, Ltd.](#), 753 F.3d 1291, 1299 (Fed. Cir. 2014) (quotation marks and bracketing by the court omitted).

SignalQuest argues that the intrinsic evidence, namely, the illustrations, in fact supports reading “rolling surfaces” to exclude the tangential areas. It is true that, in several of the cross-sectional figures, the “tangential area” is labeled as a segment of the contact body shown at a right angle to the semicircular curve labeled as the “rolling surface.” But it is far from clear from the cross-sectional drawings whether the labeling of each respective rolling surface and tangential area excludes the point at which they touch—which, in a three-

dimensional rendering, would form an entire ring that is unaccounted for in SignalQuest's attempt to divide the contact body into a rolling surface and a tangential area. The configuration in the drawings, moreover, is nowhere described in the text of the patent, either in the specification or, more importantly, the language of claim 1 itself (which, again, states simply that the rolling surfaces "define" the tangential areas). And "the mere fact that the patent drawings depict a particular embodiment of the patent does not operate to limit the claims to that specific configuration." [Anchor Wall Sys., Inc. v. Rockwood Retaining Walls, Inc.](#), 340 F.3d 1298, 1306-07 (Fed. Cir. 2003).

SignalQuest also relies on claim 1's teaching that, "when the support on which [the] housing is mounted stands still, [the] first and second electrically conductive rollable bodies . . . respectively abut against [the] first and second tangential areas by virtue of gravity." Because "[a]but against' is not the same as 'roll on,'" SignalQuest argues, it follows that the rolling surfaces exclude the tangential areas. As the defendants point out, however, when the switch becomes unsteady, each rollable body necessarily begins to "roll" at the point where it is at rest when the switch is in a steady state. The fact that the bodies "abut" the tangential areas, then, does not support

SignalQuest's effort to read claim 1 to segregate those areas from the rolling surfaces.

In sum, the text and structure of claim 1 do not support SignalQuest's proffered construction of "tangential areas" as "not being part of the rolling surfaces" or "rolling surfaces" as "not including the tangential areas." To the contrary, the plain and ordinary meaning of those terms, as used in the claim, aligns with the defendants' proffered construction: "tangential areas" means the areas of the rolling surfaces contacted by the rolling bodies when the rolling bodies touch, and "rolling surfaces" means the surfaces on which the rolling bodies roll.

6. "farthermost area"

Again, claim 1 states that the "first and second rolling surfaces respectively defin[e] first and second farthermost areas which are spaced apart from each other by a first length along a centerline." The claim further teaches that

once the support is caused to quiver in an unsteady state, [the] first and second electrically conductive rollable bodies will be caused to lurch towards one [the] first and second farthermost areas so that one of [the] first and second electrically conductive rollable bodies is out of contact with a corresponding one of [the] first and second rolling surfaces which defines the other one of [the] first and second farthermost areas, thereby breaking the electric contact between [the] first and second electric contact bodies.

SignalQuest argues that each “farthermost area” is “the point of the [respective] rolling surface that is furthest from the [opposite] rolling surface and furthest from [the same] surrounding region” (e.g., the “first farthermost area is the point of the first rolling surface that is furthest from the second rolling surface and furthest from the first surrounding region”). But the defendants argue that the farthermost areas are simply the “[a]reas where the bodies are spaced apart.”

The plain and ordinary meaning of “farthermost” is simply “farthest,” as in “most distant.” Because, again, claim 1 states that the first and second rolling surfaces “respectively defin[e] first and second farthermost areas which are spaced apart from each other by a first length along a center line,” the description of those areas as “farthermost” indicates that they are, as SignalQuest suggests, the area of each rolling surface that lies at the greatest distance from the other. But the claim language does not fully support SignalQuest’s proffered construction of “farthermost area” as “the point of the [respective] rolling surface that is furthest from the [opposite] rolling surface,” because an “area,” by definition, is not a “point.” Cf. [SecurityPoint Holdings, Inc. v. United States](#), 111 Fed. Cl. 1, 8-9 (Fed. Cl. 2013) (declining to read the claim terms “proximate end” and “distal end” to refer to “a precise

point as compared to a more general area at the extent or boundary of something"). Nor is there any support in the claim language for SignalQuest's additional proposed limitation, i.e., that each farthestmost area is also the "point . . . that is farthest from [the same] surrounding region," since, again, an "area" is not a "point," and, for that matter, the term "surrounding region" does not appear in claim 1, but only in dependent claim 3. As already noted, courts generally avoid reading limitations from a dependent claim into an independent claim in this manner. See [Virnetx](#), 767 F.3d at 1316.

The court agrees with SignalQuest, however, that the defendants' proposed construction of "farthestmost areas" as merely "areas where bodies are spaced apart" does not quite do the trick either. Again, claim 1 teaches that the first and second electric contact bodies "have first and second rolling surfaces that are spaced apart from each other along a centerline," but that these rolling surfaces in turn "define first and second farthestmost areas which are spaced apart from each other by a first length along the centerline." Claim 1 goes on to state that the "sum of the first width and the second widths" of the rollable bodies is "smaller than the first length and larger than the second length" (the "second length" is the distance between the tangential areas "when projected on a

longitudinal line in a longitudinal direction"). It follows that the farthestmost areas are not merely the "areas where the [electric contact bodies] are spaced apart," but where they are spaced apart by the "first length." This construction receives additional support from the only figures from the patent that label the farthestmost areas: those figures place the farthestmost areas at either end of the first length.

"In construing a patent, this court's 'task is not to decide which of the adversaries is correct' in its proffered interpretation, but to fulfill the court's 'independent obligation to determine the meaning of the claims, notwithstanding the views asserted by the adversary parties.'" [Best Mgmt. Prods., Inc. v. New Eng. Fiberglass, L.L.C.](#), 2008 DNH 099, 2 n.2 (quoting [Exxon Chem. Patents, Inc. v. Lubrizol Corp.](#), 64 F.3d 1553, 1555-56 (Fed. Cir. 1995)). Doing so here, the court construes "farthestmost area" to mean the area defined by each rolling surface that is distant from the other rolling surface by the first length.

B. Dependent claims

1. "integrally formed" (claims 7, 10)

As already noted, dependent claim 7 (as well as dependent claim 10) disclose a switch wherein the "first electric contact

body and [the] first electric terminal are integrally formed with [the] housing.” See Part II.A.1, supra. SignalQuest argues that this means the contact body and terminal are “formed as an extension of, and not separable from,” the housing, while the defendants argue that “integrally formed” simply means “united.”

As the defendants point out, the plain and ordinary meaning of “integral” is simply “formed as a unit with another part,” as the Court of Appeals for the Federal Circuit has recognized.

[Vanguard Prods. Corp. v. Parker Hannifin Corp.](#), 234 F.3d 1370, 1371-72 (Fed. Cir. 2000) (construing “integral therewith”). The plain and ordinary meaning of “integrally formed,” then, would seem to be the same, i.e., “formed as a unit.” Here, then, claims 7 and 10 require simply that the first electric contact body and first electric terminal are formed as a unit with the housing. There is no support for the additional limitation urged by SignalQuest, i.e., that the contact body and terminal are also an “extension” of and are “not separable” from the housing. While SignalQuest (as it does in support of many of its proffered constructions) relies on certain of the patent’s accompanying drawings, those two figures provide no indication as to whether the contact body and terminal are “separable” from the housing and, again, drawings generally should not be used to limit the plain and ordinary meaning of claim language. See [Anchor Wall](#)

[Systems](#), 340 F.3d at 1306-07. Accordingly, the court construes the requirement in dependent claims 7 and 10 that the “first electric contact body and [the] first electric terminal are integrally formed with [the] housing” to require simply that the first electric contact body and first electric terminal are “formed as a unit” with the housing.

2. “surrounding regions” (claim 3)

As also already noted, see Part II.A.6, supra, claim 3 describes a switch “wherein [the] first and second tangential areas extend to surround the centerline so as to form first and second surrounding regions, respectively.” SignalQuest argues that the “surrounding regions” are the “surfaces covered only by the first and second tangential areas,” while the defendants argue that the term means simply the “portions”—the defendants do not say of what—“extending around the centerline.”

The language of dependent claim 3 clearly describes the “surrounding regions” as “exten[sions]” of the tangential areas beyond their definitions as set forth in independent claim 1. Accordingly, if SignalQuest means by its proffered construction that the surrounding regions are the same as the tangential areas, then that construction cannot be correct. In the few sentences of its briefing that it devotes to its proffered interpretation of “tangential areas,” SignalQuest does not

identify any support for it--aside from references to one of the drawings, a cross-section view which does not separately identify the "surrounding regions" and would therefore appear irrelevant to their proper definition. In accordance with the plain language of claim 3, then, the court construes "surrounding regions" as extensions of the tangential areas that surround the centerline.

III. Conclusion

For the reasons set forth above, the court adopts the foregoing constructions of the disputed claim terms.

SO ORDERED.



Joseph N. Laplante
United States District Judge

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