United States District Court,
M.D. North Carolina.

The ELLISON COMPANY, INC., f/k/a Specialty Manufacturing Company,
Plaintiff.
v.
TRANSPEC, INC,
Defendant.

Aug. 11, 2006.

Background: Patent holder brought infringement action against competitor regarding patent for device commonly used as safety units mounted on exterior of school buses.

Holdings: The District Court, Tilley, Chief Judge, held that:
(1) word "between" referred to movement from retracted position to deployed position and from deployed position back to retracted position;
(2) term "opening" meant space within switch housing;
(3) corresponding means existed to function of operating motor unit in response to two signals;
(4) clear means had been identified in specification to support definition of "conventional logic circuit";
(5) method or process claim did not have to recite structure to be valid; and
(6) Court could correct typographical error in sentence in patent as inadvertent omission.

Claims construed.

5,812,052. Construed.

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MEMORANDUM OPINION

TILLEY**, Chief Judge.**

This suit arises from a dispute between Plaintiff The Ellison Company, Inc., f/k/a Specialty Manufacturing Company ("Ellison") and Defendant Transpec, Inc. ("Transpec") regarding Ellison's patent for a device commonly used as safety units mounted on the exterior of school buses. It is currently before the Court for claim construction.

I.

Plaintiff Ellison asserts a claim for patent infringement against Defendant Transpec relating to United States Patent No. 5,812,052 (the " '052 Patent"). The '052 Patent, entitled Switch Operated Actuating Device, was issued on September 22, 1998 and assigned to Specialty Manufacturing Company. The invention in the '052 Patent is a device most commonly used to extend and retract safety units on school buses, such as crossing arms mounted on the front of school buses or the octagonal shaped stop signs mounted on the side of school buses. In its Amended Complaint [Doc. # 42] Ellison alleges that Transpec has infringed and is infringing claims 1-4 and 7-10 of the '052 Patent by making, offering for sale, and selling an actuating device for operating a safety crossing arm mounted on the front bumper of a bus as described in the '052 Patent.

On December 16, 2003, Defendant Transpec filed a Motion for Claim Construction [Doc. # 45] seeking construction of claims 1 and 5 of the '052 Patent consistent with the procedures set forth in Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996), and its progeny. On February 13, 2004, this Court granted Transpec's motion for claim construction in part: agreeing that the Court will interpret the patent claims at issue, but not necessarily limiting construction to claims 1 and 5 [Doc. # 50]. The parties were directed to submit support for their respective positions in accordance with that opinion.

In its Claim Construction Brief filed April 5, 2004, Plaintiff Ellison identified claims 1 and 7 as those patent claims at issue in this infringement suit requiring construction [Doc. # 54]. Transpec filed its Claim Construction Brief and Response on April 26, 2004 [Doc. # 56]. Ellison's Reply was filed on May 17, 2004 [Doc. # 57]. Upon leave from the Court [Doc. # 59], Transpec filed a Sur-Reply on September 29, 2004 [Doc. # 60]. A claim construction, or Markman, hearing took place on June 1, 2006.

II.

The determination of patent infringement requires two steps. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed.Cir.1995), aff'd, 517 U.S. 370, 391, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). First, the "meaning and scope of the patent claims asserted to be infringed" must be determined. Id. Second, the properly construed claims must then be compared to the product that is accused of infringing. Id. Because the first step, an assessment of the meaning and scope of the patent claims, is a matter of law, it is the duty of the district court to make the determination. Id.

The procedure that the district court takes when determining a claim construction is well known. The first step is an examination of the intrinsic evidence which includes: (1) the language of the claims themselves; (2) the patent's specification; and (3) the patent's prosecution history. Markman, 52 F.3d at 979. This intrinsic evidence is the "most significant source of the legally operative meaning of the disputed claim language." Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996). Thus, a district court should "[f]irst ... look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention." Id.

The court is then to look to the specification of the patent which contains a written description of the invention which must be clear and complete enough to enable those of ordinary skill in the art to make and use the invention. Id. Although the claims define the invention, the specification "is always highly relevant" and is often "the single best guide to the meaning of a disputed term." Id. In reviewing the specification, the court should consider whether the specification uses terms inconsistently with their ordinary meanings and if the patentee has clearly redefined a term in the specification, the meaning of that word or term will be construed in the way the patentee has defined it, rather than using its ordinary meaning. Id.

[1] Finally, the prosecution history, often referred to as the "file wrapper," should be considered by the court if it is in evidence. Id. The prosecution history contains the complete record of all of the proceedings before the United States Patent and Trademark Office ("PTO"). *See* Southwall Tech. Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.1995) ("The prosecution history limits the interpretation of claim terms so as to

exclude any interpretation that was disclaimed during the prosecution.") (citations omitted). However, "[a]lthough the prosecution history can and should be used to understand the language used in the claims, it ... cannot 'enlarge, diminish, or vary' the limitations in the claims." Markman, 52 F.3d at 980 (quoting Goodyear Dental Vulcanite Co. v. Davis, 102 U.S. 222, 227, 12 Otto 222, 26 L.Ed. 149 (1880)).

[2] When the intrinsic evidence fails to resolve the ambiguity in the disputed term, extrinsic evidence may be considered. *See, e.g.,* Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1216 (Fed.Cir.1995) ("Extrinsic evidence may also be considered, if needed to assist in determining the meaning or scope of technical terms in the claims."); Vitronics Corp., 90 F.3d. at 1583 (explaining that it is only proper to rely on extrinsic evidence if the analysis of the intrinsic evidence fails to resolve the ambiguity in the disputed claim term). Extrinsic evidence includes evidence outside of the patent and its prosecution history, such as expert testimony, the inventor's testimony, dictionaries, and learned treatises. Markman, 52 F.3d at 980-81 (suggesting this is not an exhaustive list and that any evidence that is helpful may be admitted as extrinsic evidence). However, if this evidence is necessary, it can only be used by the court to aid its understanding of the patent, and not to vary or contradict the terms as used in the claims. *See* id. at 981; Vitronics Corp., 90 F.3d at 1583 ("Allowing the public record to be altered or changed by extrinsic evidence ... such as expert testimony, would make [the public's right to rely on the public record] meaningless"); Southwall, 54 F.3d at 1578 ("A patentee may not proffer an interpretation for the purposes of litigation that would alter the indisputable public record consisting of the claims, the specification and the prosecution history....").

III.

[3] Claim 1 of the '052 Patent reads as follows (emphasis added to disputed terms):

1. An actuating device for operating a safety unit which is mounted on a vehicle or the like and *moved between a first retracted position and a second extended position,* said actuating device including:

(a) a motor unit having a rotating output shaft;

(b) a movable support for supporting said safety unit and being movable between said retracted and extended positions;

(c) a *switch housing formed with an opening therein,* and including:

(i) means located on one side of said opening for generating a beam that passes across said opening;

(ii) sensor means located at the other side of said housing and located in the path of said beam for generating a first signal when said beam is sensed and for generating a second signal when said beam is not sensed; and

(iii) a plate attached to said drive shaft for rotation therewith, said plate being disposed within said opening and being formed with first portions that block the passage of said beam across said opening at predetermined positions of said plate during said rotation thereof, and being formed with a second portions for permitting said beam to pass across said opening at other predetermined positions of said plate during said rotation thereof; FN1 and

FN1. Although originally the proper construction of this portion of claim 1 was disputed, the parties reached an agreement at the claim construction hearing held on June 1, 2006. The parties agreed that as to (c)(iii) no further interpretation was needed.

(d) *control means for operating said motor unit in response to one of said signals to move said support*

between said retracted and extended positions, and for operating said motor unit in response to the other of said signals for stopping movement of said support.
('052 Patent, col.7, l.57-col.8, l.21 (emphasis added).) Each of the disputed terms in claim 1 will be discussed in turn.

A.

The parties' first disagreement regarding the construction of claim 1 revolves around the meaning of "between" in the following sentence: "an actuating device for operating a safety unit which is mounted on a vehicle or the like and moved between a first retracted position and a second extended position...." ('052 Patent, col.7, ll.58-61.) The parties both contend that the plain and ordinary meaning should be given to these terms. Additionally, the plain and ordinary meaning of the term "between" is not contested by the parties: The term "between" means "from one to the other of." Webster's 9th New College Dictionary, 146. However, although the parties agree that this language means that the safety unit moves from its retracted position to its extended position, they disagree on exactly what the plain meaning of "between" is in this situation.

Specifically, Transpec claims that the word "between" suggests not only that the safety unit moves from a retracted to an extended or deployed position, but also that it moves from the extended or deployed position back to its retracted position. In support, Transpec cites to the specification which describes an embodiment of the invention moving the attached safety unit "back and forth between its retracted and deployed positions." ('052 Patent, col.6, ll.23-25.)

Ellison disagrees with this interpretation of the word "between"; suggesting that once the safety unit is in its extended position its function is completed and the claim does not necessarily require a movement back to the retracted position.FN2 In support, Ellison contends there may be a different method of bringing the safety unit back to its retracted position other than the actuating device described in claim 1.

FN2. Although in the claim construction hearing Ellison argued that this language does not necessarily require the safety unit to move to an extended position and suggested that the claim could cover a point anywhere between the two locations as in "Salisbury is 'between' Greensboro and Charlotte", the language of the claim is clear that it does, in fact, contemplate an extended or deployed position. For example, claim 1 clearly states that the safety unit moves from a first retracted position to a "second extended position." ('052 Patent, col.9, l.15.) Additionally, the specification refers to the second positions as the "deployed position [ ]." ('052 Patent, col.6, ll.24-25.) There is no discussion in either the patent or the specification of an intermediate position or the possibility that the safety arm is designed to stop sometime before it is fully extended or deployed to a position that is perpendicular to the bumper in the case of the crossing arm or the side of the bus in the case of the stop arm. ('052 Patent, col.3, ll.34-44.)

The use of the word "between" in claim 1 strongly suggests coverage of the movement both ways. The word "between" is actually used several times in claim 1. The additional two times "between" is used in the following manner: "between said retracted and extended positions." ('052 Patent, col.7, l.64 & col.8, l.19.) As pointed out by Transpec, if Ellison had intended the patent to cover only one direction it could have said so in the Claim. However, instead of doing so, the way "between" is used within the claim supports an interpretation that covers movement of the safety unit out fully and back again.

Further support for this interpretation is found in the specification. First, the specification's discussion of the preferred embodiment clearly anticipates movement to and from the deployed or extended positions. For example, the improved switch operating device is discussed in the specification and explained as "moving safety units of this type between their retracted and extended positions." ('052 Patent, col.3, ll.53-55.) Additionally, the specification describes a system of beam generators and beam sensors that function to deploy the safety unit, as well as to retract it. (*see* chart, '052 Patent, col.5, ll.20-29.) Finally, the

specification discusses the signals of the sensors and their purpose to move "the pivot arm 32 FN3 with its attached safety unit back and forth between its retracted and deployed positions." ('052 Patent, col.6, ll.24-25.) There is also no suggestion in the patent regarding how, if not through this device, the safety unit returns to its retracted position.

FN3. The numbers inserted throughout the specification correspond to the structures depicted in the accompanying figures of the '052 Patent.

Additionally, in its discussion of the background of the invention, the specification cites to several other patents regarding the construction and operation of crossing arms of this type. These patents also suggest that the word "between" is commonly used in the field to describe the movement of the safety unit in and out. For example, Latta U.S. Pat. No. 4,599,518 discusses movement between a retracted and deployed position and then references the "deployment and retraction of said safety device." Similarly, in Latta U.S. Pat. No. 4,339,744, relating to a stop sign located on a school bus, "between" is used to explain the movement of the sign and then later in the language of the same claim is a discussion of movement from the retracted to deployed positions and again back to the retracted position. *See also* Latta U.S. Pat No. 6,138,688 (utilizing the same language in discussing the movement of a safety arm).

Thus, Ellison's contention that "between" refers only to the movement from retracted to deployed position and not back to the retracted position is unsupported by both the language of the claim as well as the accompanying specification. There is, however, ample support for Transpec's contention that the word "between" in claim 1 refers to the movement from the retracted position to the deployed position and from the deployed position back to the retracted position. Thus, "between" will be interpreted as such and the introduction of claim 1 will be construed as follows:

1. An actuating device for operating a safety unit which is mounted on a vehicle or the like. This safety unit is moved from a retracted position to an a extended or deployed position and from an extended or deployed position back to a retracted position.

B.

[4] The parties also disagree over the meaning of the phrase "switch housing formed with an opening therein." ('052 Patent, col.7, l.66.) Specifically, the parties' interpretation diverges in relation to the word "opening". Both parties refer to the Oxford English Dictionary for the plain meaning of "opening" which defines it as "a vacant space between portions of solid matter; a gap, hole, or passage; an aperture." Oxford English Dictionary Vol X 044-045 (2d ed.1989). However, based on this definition, the parties urge two entirely different constructions.

Transpec contends that "opening" refers to a hole or a slot located in the side of the switch housing that would allow passage from the inside to the outside of the housing. Specifically, Transpec contends that column 4, line 10 of the specification, which states: "the switch housing is formed with a large opening or slot," supports such a construction. Additionally, Transpec suggests that it is inherent in the meaning of "housing" that there is some empty space inside the housing and thus the term "opening" could be omitted without altering the meaning of the claim.FN4

FN4. Transpec relies on a definition of housing which describes it as a "case or enclosure to cover and protect a structure or a mechanical device." McGraw-Hill Dictionary of Scientific and Technical Terms 957 (5th ed.).

Ellison, however, asserts that "opening" in this sentence refers to the vacant space inside of the switch

housing and not to a slot or passage from the inside of the housing to the outside of the housing. In support of its claim Ellison also relies on the plain meaning of "opening" but focuses instead on the portion which describes an opening as a "vacant space between portions of solid matter." Oxford English Dictionary Vol. X, 044-045 (2d ed.1989). Ellison also contends that Transpec's proposed construction is wrong because the claim language states that the housing has an "opening" *therein* and not *thereon,* thus suggesting that it is referring to the space within the housing and not some type of hole or slot in the side of the housing. Finally, Ellison argues that the language in the specification referring to the opening as a "slot" is not decisive because it serves only as a preferred embodiment of the invention and should not be used to limit the meaning of the claims. (Pl.'s Reply Br. 4-5.)

[5] Although the specification is to be viewed as a preferred embodiment and not used to limit the terms of the claim language, the claim should not be interpreted in a way that renders the specification outside of the patent claim. *See* E-Pass Tech., Inc. v. 3Com Corp., 343 F.3d 1364, 1369 (Fed.Cir.2003) ("The problem is to interpret claims 'in view of the specification' without unnecessarily importing limitations from the specification into the claims.") (citing Texas Digital Sys., Inc. v. Telegenix, Inc., 308 F.3d 1193, 1204-05 (Fed.Cir.2002)). Transpec's proposed interpretation, although conceivably suggested by the term "slot" in the specification, would result in such an interpretation. For example, column 4 of the specification contains the following description for the beam generators and sensors' location:

A pair of beam generators 38, 38' are *mounted in the switch housing* on *one side of the opening* 34 ... for generating and directing a linear beam across the opening 34. A pair of beam sensors 40, 40' are mounted *in the switch housing* 30 on the *other side of the opening* 34 and directly in the path of the beams generated by the beam generators 38, 38' respectively.

('052 Patent, col.4, ll.14-23 (emphasis added).) This embodiment clearly describes the beam sensors and generators being inside the switch housing and on opposite sides of the switch housing. However, if the "opening" referred to was a hole or passage to the outside of the housing, it would be impossible for the generating and sensing means to both be located on opposite sides of the opening and at the same time be *in the switch housing*. Thus, if Transpec's interpretation were adopted, the specification would not fall within the scope of the patent. Such interpretations are highly disfavored. *See* Vitronics Corp., 90 F.3d at 1583-84 ("Such an interpretation is rarely, if ever, correct and would require highly persuasive evidentiary support ...."); *see also* Hoechst Celanese Corp. v. BP Chemicals Ltd., 78 F.3d 1575, 1581 (Fed.Cir.1996) ("We share the district court's view that it is unlikely that an inventor would define the invention in a way that excluded the preferred embodiment, or that persons of skill in this field would read the specification in such a way."). Thus, the term "opening" in claim 1 will be interpreted to mean the space within the switch housing and not a hole or slot that allows passage to the outside of the switch housing and will be construed as follows:

(c) An enclosed structure containing the three elements in subsection (i), (ii), and (iii) and also some vacant, unoccupied space.

C.

The parties also seek construction of the following two phrases: (1) "(i) Means located on one side of said opening for generating a beam that passes across said opening"; and (2) "(ii) Sensor means located at the other side of said housing and located in the path of said beam for generating a first signal when said beam is sensed and for generating a second signal when said beam is not sensed." ('052 Patent, col.8, ll.1-7.) The parties agree that both portions of the claim are in means-plus-function format in accordance with 35 U.S.C. s. 112 para. 6.

[6] Under s. 112 para. 6 "[a]n element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification

and equivalents thereof." 35 U.S.C. s. 112 para. 6. Thus, if a claim is a "means-plus-function" claim, the interpreting court must determine the meaning of both the claimed function and the corresponding structure or means. *See* WMS Gaming, Inc. v. Int'l Game Tech., 184 F.3d 1339, 1346 (Fed.Cir.1999). The construction of such claims involves two steps.

[7] First, the court must identify the claimed function. Telemac Cellular Corp. v. Topp Telecom, Inc., 247 F.3d 1316, 1324 (Fed.Cir.2001) (citing Kemco Sales, Inc. v. Control Papers Co., 208 F.3d 1352, 1361 (Fed.Cir.2000). The construction of the function in the means-plus-function format should include any limitations contained in the claim language, however it is "improper to narrow the scope of the function beyond the claim language." Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 296 F.3d 1106, 1113 (Fed.Cir.2002). Additionally, it is equally improper either "to broaden the scope of the claimed function by ignoring clear limitations in the claim language", id., or to "import[ ] unclaimed functions into a mean-plus-function claim limitation," Applied Med. Res. Corp. v. United States Surgical Corp., 448 F.3d 1324, 1334 (Fed.Cir.2006).

[8] [9] Second, after the claimed function is identified, the court must determine, what structure, if any, corresponds with the claimed function. Cardiac Pacemakers, 296 F.3d at 1113. The structure should be disclosed in the specification and it must not only perform the claimed function, "but the specification must clearly associate the structure with performance of the function." Id.; *see also* Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed.Cir.2001) ("It is not until the structure corresponding to the claimed function in a means-plus-function limitation is identified and considered that the scope of coverage of the limitation can be measured."). This determination is made from the "perspective of a person of ordinary skill in the art." Id. (citing Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1378-79 (Fed.Cir.1999)). However, if there is no embodiment that discloses a corresponding structure, the claim is invalid for failure to satisfy the definiteness requirement of s. 112 para. 2. Cardiac Pacemakers, 296 F.3d at 1113; Budde, 250 F.3d at 1376 (citing In re Dossel, 115 F.3d 942, 945 (Fed.Cir.1997)).

In this case, the parties also agree on the function and portions of the means described in subsections (c)(i) and (c)(ii) of claim 1. For subsection (c)(i), the function is to "generate a beam that passes across the opening." For subsection (c)(ii), the function of the sensor means is to "generatea first signal when the beam is sensed and to generate a second signal when the beam is not sensed." The corresponding structure which performs those functions is described in column 4 of the specification: "In the preferred embodiment of the present invention, the beam generators 38, 38' and the sensor 40, 40' operate on the Hall-effect principle by which the beam is in the form of a magnetic field extending between the beam generators 38, 38' and the sensor 40, 40' such as the sensor manufactured by Allegero, as its model # UGN3141 ELT" ('052 Patent, col.4, ll.27-33), and "other equivalent beam and sensor arrangements ... such as a photo-electric system by which the beam generated is a light beam, and the sensor is a photo-electric sensor for sensing the presence of the light beam" ('052 Patent, col.4, ll.34-39). FN5

FN5. Although Transpec initially argued that the beam generator and beam sensor means was limited to a Hall-effect or photo-electric sensor, it has withdrawn this contention and agrees it includes any equivalents thereof. ('052 Patent, col.4, ll.27-39.)

The parties, however, disagree as to whether the beam generator, sensor means, or both, must be stationary. Ellison contends that the language of the claim states only that the means for generating a beam be *located* on one side of the opening, but mentions nothing requiring the beam generator to be mounted or stationary. Ellison argues that "located" is a relative term in that the beam generating means must be located opposite of the means sensor but not necessarily in a specific or fixed position. In support Ellison suggests that the beam generator could be mounted to another structure that is itself moving or rotating. Ellison also contends that nothing in the patent requires that the detection means be mounted or stationary. In support, Ellison argues that the phrase "located at the other side of said housing" means only that the sensor means is located

somewhere within the housing on the other side of the housing from the location where the beam generating means is situated.

In response Transpec contends that the language of the claim should, in fact, be interpreted as requiring the beam generating means as well as the sensor means to be stationary. In support Transpec cites to the portion of the specification which describes the beam generators as "mounted in the switch housing on one side of the opening," ('052 Patent, col.4, l.16), and the portion which refers to the beam sensors as "mounted in the switch housing on the other side of the opening" ('052 Patent, col.4, l.19). Transpec also contends that because the claim describes the beam generators as "located on one side of said opening" it implies they are mounted on the side of the housing, and not located on the plate or something else which is disposed within the housing.

[10] When a claim is drafted in the means-plus-function format, it is entirely proper to rely on the terms of the specification to determine what means, if any, correspond with the claimed function. Cardiac Pacemakers, 296 F.3d at 1113. In fact, s. 112, para. 6 specifically "limits the applicant to the structure, material or acts in the specification and their equivalents." Valmont Indus., Inc. v. Reinke Mfg. Co., 983 F.2d 1039, 1042 (Fed.Cir.1993). However, in the recent case of Applied Medical Resources Corp. v. United States Surgical Corp., 448 F.3d 1324 (Fed.Cir.2006), the Federal Circuit warned against improperly importing unclaimed functions into a means-plus-function claim by construing a function to require more than is actually claimed. Id. at 1334 ("[T]he inquiry should be restricted to the way in which the structure performs the *properly-definedfunction* and should not be influenced by the manner in which the structure performs other, extraneous functions.") (emphasis in original).

Here, the function claimed in (i) regarding the beam generators is limited to the generation of a beam that passes across the opening in the switch housing. Similarly the claim language in (ii) covers the function of sensing the beam and generating two different signals depending on whether the beam is or is not sensed. The location of the beam generators and sensors is only described in that they are located on opposite sites of the opening and the beam sensor is located in the path of the beam so that the beam can be sensed. A plate is then disposed, at least in part, somewhere between the beam generators and sensors so that depending on the position of the notches on the plate, the beam is either sensed or not sensed by the beam sensors. ('052 Patent, col.4, ll.44, 52.)

Other than these limitations, the claimed function does not include how or where the beam generating and beam sensing means are located-mounted, swinging, fixed or otherwise-within the housing. Rather it relates to the function of generating the beam and the function of detecting the beam. Although the specification includes one example of how this can be achieved-the generating and sensing means being mounted in a fixed position and interrupted only by the rotation of the plate-it should not be used in a way that imports limitations that are not relevant to the function claimed. *See* Applied, 448 F.3d at 1333 (explaining the specification is to be used to "identify the disclosed structures in the patent ... for performing *[the] claimed functions*.") (emphasis added) (citing JVW Enter., Inc. v. Interact Accessories, Inc., 424 F.3d 1324, 1330 (Fed.Cir.2005)). Thus, Transpec's argument that the beam generating and sensing means as disclosed in claim 1(i) & (ii) must be construed as "mounted in a stationary position" is rejected.

Finally, Ellison claims that there is nothing in the language of the claim requiring the beam to be continuously generated through the opening; rather that it only requires that it be generated through the opening at some point during the operation of the actuating device. Ellison also contends that nothing in the claim language requires the sensor means to be located in the path of the beam on a continuous basis. In support, it proposes the following function: "Detecting or sensing of the beam by being situated in the way of or the course of the beam *at some point in time* during the operation of the actuating device ..." (Pl.'s Claim Const. Br. 10.)

The language of the claim, however, does suggest more than just a generation and sensing of the beam "at

some point" during the operation of the actuating device. The claim language contained in (iii) clearly identifies a rotating plate which is attached to the drive shaft as the way by which the beam between the generator and sensor is selectively blocked. ('052 Patent, col.8, ll.8-16.) Although Ellison is correct that this does not require the beam sensor to be directly in the path of the beam generator at all times, it is clear from the claim language that the invention anticipates the interruption of the beam, at least in part, by the plate disposed within the housing on the drive shaft. (*See* '052 Patent, col.8, ll.8-16.) Thus, the following construction will be given to claim 1, subsections (c)(i) and (c)(ii):

Claim 1(c)(i):

A device used for generating a beam, such as a Hall-effect magnet or light beam generator or equivalents of these devices, located inside the switch housing on one side of the opening. This device's function is to generate a beam that passes across the unoccupied space in the switch housing.

Claim 1(c)(ii):

A device used for sensing a beam, such as a Hall-effect or photo-electric sensor, or equivalents of these devices, located in the switch housing on the other side of the opening from the beam generator and with at least a portion of the plate described in (iii) being disposed between the beam generating and sensing means. This beam sensing device will be placed in a position to intercept at some point a beam passing through the unoccupied space. This device will be capable of detecting the beam generated from the beam generator and, as a result, generating one signal when the beam is detected and generating a different signal when the beam is not detected.

D.

The final portion of claim 1 for which construction is requested by Ellison is subsection (d). Specifically, subsection (d) states: "control means for operating said motor unit in response to one of said signals to move said support between said retracted and extended positions and for operating said motor unit in response to the other of said signals for stopping movement of said support." ('052 Patent, col.8, ll.17-21.) Ellison and Transpec agree that this portion of the claim is stated in the means-plus-function format.

1.

Thus, the court must first determine what function is claimed separate from the structure disclosed for performing that function. Applied, 448 F.3d at 1332. The parties contend that the function claimed in subsection (d) of claim 1 is "the operation of the motor unit in response to two different signals." However subsection (d) discusses not only the function of operating a motor unit in response to two different signals, but also the function of moving the support between its retracted and extended positions, and the function of stopping the movement of the support. ('052 Patent, col.8, ll.18-21.) Thus, the parties' proposed construction stops short of identifying the complete function recited in the claim language. C.f. JVW Enter., 424 F.3d at 1331 ("[A] court may not construe a means-plus-function limitation 'by adopting a function different from that explicitly recited in the claim.' ") (citing Micro Chem., Inc. v. Great Plains Chem Co., 194 F.3d 1250, 1258 (Fed.Cir.1999)). Here, the claim explicitly encompasses both the function of operating of the motor unit as well as the moving and stopping of the support, and therefore it should be construed as follows:

Controlling a motor unit when one signal is sensed to move a support from a retracted position to a fully extended position or from an extended position to a fully retracted position and controlling a motor unit in response to another signal for stopping the movement of the support.

2.

[11] Transpec argues that there is no corresponding control structure disclosed in the patent specification that

would operate a motor unit in response to two different signals which is part of the function claimed in subsection (d). Specifically, Transpec argues that the patent specification recites only one type of controller which relies on a bus door switch and two sensors and none that rely on just one sensor by itself. Transpec contends that because the patent specification discloses only one sensor, it fails to disclose how the motor would be started in response to a signal from that sensor. Because it does not believe a structure to support the claimed control means is disclosed, Transpec argues that the patent fails to comply with 35 U.S.C. s. 112 para. 2, and is therefore invalid.

Ellison disagrees, asserting that there is indeed a corresponding means for this function in the specification.FN6 Specifically, Ellison relies on the following portion of the specification for the means that would perform the function stated in subsection (d):

FN6. Ellison also argues that even if it were true that there were no means disclosed in the patent, that is not an issue for claim construction, but rather must be the subject of a subsequent motion by Transpec such as a motion for summary judgment.

The control system for the present invention is illustrated schematically in FIG. 5 and it includes the two above described sensors 40, 40', each of which transmits its aforesaid first and second signals to a conventional logic circuit 46, and a[sic] operator switch 48 also transmits an on-off signal to the decode logic circuit.
('052 Patent, col.4, ll.58-63.) Based on this portion of the specification, Ellison argues that the specification gives an embodiment of the control means in its description of a logic circuit at column 4, lines 61-63. Additionally, Ellison argues that the claim is written to encompass the movement of the safety unit, not the starting of the unit, and that it covers that movement in one direction only. The second sensor would be used to move the safety unit in the opposite direction. Thus, Ellison contends that claim 1 is written to encompass either, but not necessarily both of the two sensors.
Ellison's argument is persuasive for several reasons. First the language of the specification is clear in its association of the system illustrated in FIG 5 and described in column 4, lines 58-63, with the "control means" identified in claim 1. *See* id. ("[T]he specification must clearly associate the structure with the performance of the function."). Additionally, the description contained in the specification makes it clear that either sensor 40 or 40' is capable of transmitting the first control signal for moving the support and a second control signal for the stopping of the movement of the support. ('052 Patent, col.4, ll.60-61.)

This assertion is also supported by the language of claim 1, subsection (d) which discusses signals "to move said support" and other signals for "stopping movement of said support." ('052 Patent, col.8, ll.17-21.) The claim does not mention the starting and stopping of a motor by the sensor; only the movement of the support. Additionally, the table found in column 5, lines 19-29 of the '052 Patent illustrates Ellison's contention. The table shows the sensors (40 and 40') controlling the movement of the support to the deployed and retracted positions as well as the stopping of such movement only. ('052 Patent, col.5, ll.23-29.)

That the specification also contains language regarding an "operator switch" or "door switch" which also "transmits an on-off signal to the decoded logic circuit" does not invalidate the claim in subsection (d). ('052 Patent, col.4, ll.62 & 63.) The claim language as well as the specification discuss only the movement of the support which is controlled by the sensors, (*see* '052 Patent, col.8, l.18) ("move said support") & col.6, ll.20-25 ("Thus, each of the sensors 40, 40' generates two control signals, namely the off signal and the on signal, which are utilized in the control circuitry to move the pivot arm 32 with it [sic] attached safety unit back and forth between its retracted and deployed positions.")), and not the starting and stopping of the motor. Rather, that appears to be accomplished by the door switch which is not being claimed in the '052 Patent. (*See* '052 Patent, col.5, ll.51-57 ("When the school bus 10 is stopped, and the operator opens the school bus door to permit children to embark or disembark, switch 48 changes from its off position to its on

position.... The control circuit is designed so that in this condition the motor will energize and will start from its retracted position towards its deployed position."). Thus, the patent does identify a corresponding means to the function of operating a motor unit in response to two signals and is not invalid under 35 U.S.C. s. 112 para. 2.

[12] With the proper scope of the claimed function in mind, the specification successfully identifies a corresponding means sufficient to satisfy s. 112 para. 2. Specifically, the specification identifies a "conventional logic circuit" or "decode logic circuit" FN7, a "motor driver circuit", and a "braking circuit" as the means to perform this function. ('052 Patent, col.4, ll.60-63, col.5, l.9 & col.5, l.12.)

FN7. The "conventional logic circuit" mentioned in column 4, lines 61-62 and the "decode logic circuit" mentioned in column 5, line 9 are both referenced by the number 46 and therefore, although referred to by different names, appear to be the same structure.

Ellison contends that "conventional logic circuit" should be further defined as a "programmable communication device capable of performing problem-solving functions." FN8 (Pl.'s Br. 14.) In support Ellison cites the McGraw-Hill Dictionary which defines "logic" as "general term for the various types of ... on/off circuits used to perform problem-solving functions in a digital computer" and defines "circuit" as "a complete wire, radio, or carrier communications channel." McGraw-Hill Dictionary of Scientific and Technical Terms 1231, 396 (6th ed.). In addition, this interpretation of "conventional logic circuit" is supported by the language of the specification which describes the following:

FN8. Because Transpec only argues that there is no corresponding means in the specification, it failed to offer a proposal for the construction of "conventional logic circuit."

[D]epending on the particular signals generated by the sensors 40, 40' and switch 48, the logic circuit will transmit a signal to the motor driver circuit 50 to control the operation of the motor 22, and ... the decode logic circuit 46 will also transmit a signal to a braking circuit 52 which will, in turn, transmit a signal to the motor driver circuit 50 to positively brake or stop rotation of the drive shaft 28 by the motor 22.... ('052 Patent, col. 5, ll.6-13.) Thus, the specification supports a definition of "conventional logic circuit" which construes it as a device capable of being programed or wired to perform the function stated in the claim.
Because there is a clear means identified in the specification for this claim the claim is not invalid under s. 112. The means of subsection (d) of claim 1 will therefore be construed as follows:

A device, such as a logic circuit, or other equivalent device capable of being programmed or wired like a logic circuit. This logic circuit will be capable of transmitting a signal to a motor driver circuit. The motor driver circuit will be capable of controlling the operation of a motor unit so that it moves the support between its fully retracted and fully extended positionsin response to one signal. Additionally, this logic circuit will be capable of transmitting a signal to a braking circuit. The breaking circuit will then be able to transmit a signal to the motor driver circuit to stop the rotation of the drive shaft by the motor.

IV.

[13] Ellison also seeks construction of claim 7 of the '052 Patent. Specifically, claim 7 states (emphasis added to disputed terms):

7. A method of operating a safety unit which is mounted on a vehicle for movement between a first retracted position and a second extended position, said method including the steps of:

(a) operating a motor unit to rotate a drive shaft;

(b) mounting a safety unit support on said drive shaft for movement therewith;

(c) *creating at least one beam that extends across an opening from one side of said opening;*

(d) *locating a beam sensor on the other side of said opening in the path of said beam and causing said beam sensor to generate a first signal when said beam is sensed to generate a second signal when said beam is not sensed;*

(e) *mounting a plate on said rotating drive shaft so that it is disposed within said opening, and forming said plate with second portions that permit said beam to pass across said opening at other predetermined positions of said plate during said rotation thereof by said drive shaft;* and

(f) *controlling said motor unit in response of one of said signals to move said support between said retracted and extended positions thereof, and controlling said motor unit in response to the other of said signals to stop the movement of said support*.

('052 Patent, col.9, ll.13-41.) The parties agree that the majority of these terms are the same found in claim 1 and therefore should be construed in the same manner. However, they disagree as to two specific portions of claim 7.

A.

First, Transpec contends that subsection (c) of claim 1 is "nonsensical and not capable of being interpreted." (Def.'s Res. 18.) Claim 1, subsection (c) reads: "creating at least one beam that extends across an opening from one side of said opening." ('052 Patent, col.9, ll.21-22.) In support of this claim of non-interpretability, Transpec argues that (1) the claim fails to recite a structure which as an opening, and (2) the recitation "said opening" has no antecedent, rendering the claim indefinite.

Addressing this second argument first, there is no support for Transpec's contention that "said opening" has no antecedent. The word opening appears twice in subsection (c). The first time "opening" is used provides the antecedent basis for the second time it is used with the article "said". Thus, Transpec's argument that the use of "said opening" is indefinite is rejected.

[14] Transpec's other claim-that the claim is invalid because it fails to recite a structure which has an opening-is also misplaced. It is clear from the terminology of claim 7 that it is intended to be a method or process claim. Title 35, s. 101 of the United States Code provides for the patentability of new and useful processes or methods. 35 U.S.C. s. 101; *see also* Cochrane v. Deener, 94 U.S. 780, 788, 4 Otto 780, 24 L.Ed. 139 (1877) ("If new and useful, [a process] is just as patentable as a piece of machinery."). A method or process claim is one which covers the process itself, independent of the means used to practice it. *See* Federal Sign & Signal Corp. v. Bangor Punta Operations, Inc., 357 F.Supp. 1222, 1235 (S.D.N.Y.1973). Thus, because the method claim contained in claim 7 covers the method or process of operating this device and not the accompanying apparatus used in practicing the method, Transpec's contention that the lack of a structure with an opening invalidates the claim is rejected.

B.

[15] Transpec also contends that claim 7, subsection (d) is "nonsensical and therefore not interpretable." (Def's Res. 19.) Ellison, however, contends that claim 7, subsection (d) contains only a typographical error which should be corrected by this Court. Specifically, subsection (d) says "causing said beam sensor to

generate a first signal when said beam is sensed to generate a second signal when said beam is not sensed." ('052 Patent, col. 9, ll.23-27.) Ellison contends that the court should correct this by inserting to word "and" after the word "sensed" and before the words "to generate". Transpec, however, argues that such an error makes the claim indefinite.

[16] Correction of an error in a patent where no certificate of correction has been issued is only permissible if two criteria are met: "(1) the correction is not subject to reasonable debate based on consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims." Novo Indus. L.P. v. Micro Molds Corp., 350 F.3d 1348, 1354 (Fed.Cir.2003). Because the prosecution history is not at issue in this case, the only question is whether there is a reasonable debate on whether or not the omission of "and" in claim 7 is a typographical error. Although Transpec opposes the addition of "and" to the claim language, when asked at the claim construction hearing "How could it be anything else [but 'and']" the response given by counsel was "It probably couldn't."

Additionally, almost identical language is found in claim 1 of the '052 Patent. That language, however, contains an "and" at the same location that Ellison is arguing is proper in claim 7. This strongly suggest not only that there is an omission of a word in claim 7, but also that the word omitted was in fact "and".

Because there appears to be no reasonable debate that the word "and" was inadvertently omitted from claim 7, subsection (d), that word will be inserted and the new claim 7(d) will read:

(d) locating a beam sensor on the other side of the opening in the path of the beam and causing the beam sensor to generate a first signal when the beam is sensed and to generate a second signal when the beam is not sensed.

C.

Apart from the two disputed terms discussed above, the parties agree that the terms of claim 7 should be interpreted consistent with those in claim 1.

V.

For the foregoing reasons, the meaning and scope of the '052 patent claims asserted to be infringed and presented by the parties for construction are determined as set forth in the foregoing Memorandum Opinion.

M.D.N.C.,2006.
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