

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

HABASIT BELTING INCORPORATED, :
:
Plaintiff, :
:
v. : Civil Action No. 03-185 JJF
:
REXNORD INDUSTRIES, INC. and :
REXNORD CORPORATION, :
:
Defendants. :

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MEMORANDUM OPINION

October 15, 2004
Wilmington, Delaware

Farnan, District Judge.

This action was brought by Plaintiff Habasit Belting Incorporated ("Habasit") against Defendants Rexnord Industries, Inc., and Rexnord Corporation (collectively "Rexnord") alleging infringement of United States Patent Nos. 6,330,941 (the "'941 patent") and 6,523,680 (the "'680 patent"). Currently before the Court are the claim integration issues raised by the parties. The parties briefed their respective positions and the Court held a Markman hearing on June 30, 2004. This Opinion presents the Court's claim construction of the disputed terms in the '941 and '680 patents.

BACKGROUND

I. Introduction to the Technology Generally

The '941 and '680 patents relate to modular, plastic conveyor belts typically used in the food handling industry. The belts consist of rows of belt modules interlinked by transverse pivot rods. The module's unique design enables the belt to easily negotiate a curved path--hence its title, "radius" conveyor belt.

II. The Patents

The '941 patent discloses the configuration for the radius conveyor belt. The '680 patent is a continuation-in-part of the '941 patent.

A. The '941 patent

The '941 patent describes the radius conveyor belt. When negotiating a curve, a modular plastic belt customarily experiences stress on the outside of the belt and compression on the inside. Excessive lateral stress at a curve often causes the belt to rise out of the conveyor support. The radius conveyor belt is designed to resist such compression and thus improve the belt's engagement.

The '941 patent describes the belt design as follows. A single module has a long, thin "intermediate section" with finger-like "link ends" protruding from either side. The link ends have either slots or holes. Pivot rods inserted in the slots or holes of the link ends interconnect the modules side-by-side. The connected modules form the belt. As shown in Figures 2, 4, and 5 of the '941 patent, the intermediate section consists of an upper, web portion 47 and a lower, corrugated portion 50.

B. The '680 Patent

The '680 patent improves upon the '941 patent by limiting the spaces in the belt in which an operator could insert and injure his or her finger. The '680 patent accomplishes this by extending the top surface 77 of the cross-rib such that the opening 200 is less than ten millimeters.

DISCUSSION

I. The Legal Principles of Claim Construction

Claim construction is a question of law. Markman v. Westview Instruments, Inc., 52 F.3d 967, 977-78 (Fed. Cir. 1995), aff'd, 517 U.S. 370, 388-90 (1996). When construing the claims of a patent, a court considers the literal language of the claim, the patent specification, and the prosecution history. Markman, 52 F.3d at 979. A court may consider extrinsic evidence, including expert and inventor testimony, dictionaries, and learned treatises, in order to assist it in construing the true meaning of the language used in the patent. Id. at 979-80 (citations omitted). A court should interpret the language in a claim by applying the ordinary and accustomed meaning of the words in the claim. Envirotech Corp. v. Al George, Inc., 730 F.2d 753, 759 (Fed. Cir. 1984). If, however, the patent inventor clearly supplies a different meaning, the claim should be interpreted accordingly. Markman, 52 F.3d at 980 (noting that patentee is free to be his own lexicographer, but emphasizing that any special definitions given to words must be clearly set forth in patent). If possible, claims should be construed to uphold validity. In re Yamamoto, 740 F.2d 1569, 1571 & n.* (Fed. Cir. 1984) (citations omitted).

II. The Meaning Of The Disputed Terms of the '306 and '768 Patents

A. The '941 Patent

The language of claim 1 of the '941 patent is representative of the asserted claims:

A belt module, which comprises:

- a) an intermediate section having opposed first and second walls, wherein the intermediate section has an intermediate width defined by the first and second walls and a thickness defined by an upper surface and a lower surface and wherein the intermediate section comprises a web portion extending across the intermediate width between the first and second walls and from one of the upper and lower surfaces to a portion of the way through the thickness of the intermediate section to form into a corrugated portion extending across the intermediate width between the first and second walls to the other of the upper and lower surfaces, wherein the corrugated portion has a sinusoidal shape comprising a series of regularly spaced ridges and valleys extending substantially across a lateral width of the module;
- b) a first plurality of link ends extending outwardly from the intermediate section including the web portion and being connected to the regularly spaced ridges of the first wall of the corrugated portion;
- c) a second plurality of link ends extending outwardly from the intermediate section including the web portion and being connected to the regularly spaced ridges of the second wall of the corrugated portion and in a direction opposite the first link ends; and
- d) transverse openings provided in each of the first and second link ends.

The Court will consider each of the disputed terms and phrases below.

1. **Intermediate width**

Habasit contends that the term "intermediate width" means "the width of the intermediate section at either the web portion or the corrugated portion." (D.I. 55 at 16; D.I. 62 at 4.) Habasit contends that, since the intermediate section consists of a web portion and a corrugated portion, and the intermediate width extends from one wall to the other, its proposed construction is more complete.

In contrast, Rexnord contends that "intermediate width" means "the width of the intermediate portion of the belt module." (D.I. 57 at 19.) Rexnord argues that Habasit's construction attempts to establish two, separate intermediate widths, a concept not found in the '941 patent. Rexnord argues that the '941 patent has only one intermediate width--i.e., the middle portion of the intermediate section, absent the link ends.

After reviewing the claim language, specification, and prosecution history of the '941 patent and the parties' respective positions, the Court agrees with Habasit's interpretation of the language. The claim language clearly indicates that intermediate width may be measured at the web or corrugated portion: "the intermediate section comprises a web portion extending across the intermediate width" and "a corrugated portion extending across the intermediate width." ('941 patent, col. 6.) Furthermore, Rexnord admits in its Opening Brief that all the independent claims describe the

intermediate section as having two portions, a web portion and a corrugated portion, and that each portion “‘extend[s] across’ the ‘intermediate width.’” (D.I. 57 at 19.) The intermediate width is “defined by the first and second walls” (‘941 patent, col. 6) and, therefore, its measurement must include the widths at both the web and corrugated portions. Rexnord is correct that there is only one method for measuring intermediate width; however, the value of that width changes depending on the cross section measured. Thus, the Court concludes that “intermediate width” means “the width of the intermediate section at either the web portion or the corrugated portion.”

2. **Extending across**

Related to “intermediate width” is the phrase “extending across.” As the claim states, the intermediate section has a web and corrugated portion, each “extending across the intermediate width.” (‘941 patent, col. 6.) At the June 30, 2004, Markman hearing, the parties agreed that their “extending across” dispute was essentially an extension of their “intermediate width” dispute. (“The only disagreement on extending across is that extending across modifies intermediate width.” (Markman Tr. at 43.)) Because the Court has adopted Habasit’s construction of “intermediate width,” it will accordingly adopt its construction of “extending across.” The Court therefore interprets “extending across” to mean “the ‘intermediate width’ of the web portion or

the corrugated portion of the intermediate section as that portion extends across the intermediate section, from one wall to its corresponding opposed wall."

3. **Corrugated**

Habasit contends that the term "corrugated" means "formed into or having a series of either straight or rounded ridges and valleys." In defending its construction, Habasit argues that corrugated should be read in the context of the '941 patent specification and understood to identify the "corrugated portion."

Habasit further contends that the term corrugated does not require that the ridges and valleys be "parallel" or "even," as Rexnord insists. (D.I. 62 at 8.) First, Habasit argues that the term "parallel" is inappropriate because, while the vertical walls 95 of the corrugated portion are parallel, the curved walls 92 are not. Second, Habasit contends that the term "even" is repetitive because the term "sinusoidal" in the claim requires the corrugated portion to have a regular frequency and height.

Rexnord responds that "corrugated" means "having even parallel ridges and furrows." (D.I. 57 at 18.) Since the term does not have a special meaning in the art, Rexnord refers to Webster's dictionary for its definition. Rexnord argues that its proposed dictionary definition is consistent with the specification of the '941 patent which states, "The corrugated

portion forms a series of ridges and valleys ...” (’941 patent, col. 3, l. 50-51.)

After considering the claim language, specification, and prosecution history of the ’941 patent and the parties’ respective positions, the Court agrees with Habasit’s interpretation of the language. Corrugated must be read in the context of the specification as “corrugated *portion*.” Claim 1 states, “the corrugated *portion* has a sinusoidal shape comprising a series of regularly spaced ridges and valleys ...” (’941 patent, col. 6.) The preferred embodiment of the specification further supports this understanding. The intrinsic evidence clearly sets forth the meaning of corrugated, thus eliminating the need to consult outside dictionaries. Moreover, the Court finds that the addition of the terms “even” and “parallel” are confusing and unnecessary for the construction. Thus, the Court concludes that corrugated means “formed into or having a series of either straight or rounded ridges and valleys.”

4. **Sinusoidal shape**

Habasit contends that “sinusoidal shape” means “having a regular amplitude and frequency.” (D.I. 55 at 25.) The disputed phrase, it argues, must be considered in the context of the claim. Habasit contends that all of the intrinsic evidence of the ’941 patent supports its construction. For example, Habasit points out that the specification states, the “corrugated portion

forms a series of ridges and valleys in a sinusoidal *manner*," not a sinusoidal wave. ('941 patent, col. 3, l. 49-51.)

Additionally Habasit contends that Figures 2, 5, and 9 depict a sinusoidal shape that is not strictly limited to a sine curve or a sinusoid. Finally, Habasit contends that Rexnord's proposed construction reads the preferred embodiment out of the claims at issue.

Habasit also contends that Webster's dictionary supports its construction. That is, an object has a sinusoidal "shape" if it is shaped "like or similar to" a sine wave. (D.I. 55 at 25.) Habasit argues that Rexnord avoids this problem by reading "shape" out of the phrase "sinusoidal shape."

Habasit cites the Court to Medtronic Inc. V. Advanced Cardiovascular Sys., Inc., 182 F.Supp.2d 810 (D. Minn. 2000), which it argues supports, rather than undermines, its construction. The court in Medtronic, Habasit contends, construed "generally sinusoidal" as "a further description of the zig-zag shape" that "does not come to sharp angles." (D.I. 62 at 23.) Habasit argues that Figures 1-8 from the Medtronic patent, which the court found to be "generally sinusoidal," did not possess the strict shape of a sine curve. Finally, Habasit contends that the '941 patent has the two mathematical characteristics necessary, according to the Medtronic court, for constituting a sine wave: (1) it has only one defined value at

each point along the horizontal X-axis (it cannot "double back" on itself) and (2) it can have its mathematical derivative taken at every point along its curve. (D.I. 62 at 24, citing Medtronic, 182 F.Supp.2d at 823.)

Rexnord contends that "sinusoidal shape" means "a shape defined by a curve having a magnitude that varies as the sine of an independent variable such that 'y = sin x'." (D.I. 57 at 3.) It argues that, since the term has neither an explicit definition in the text of the '941 patent nor a special meaning to one skilled in the art of conveyor belts, the Court should apply the common, mathematical definition. (Id. at 13.) Rexnord contends that Habasit instead proposes a construction far beyond how sinusoidal is defined by persons skilled in the art.

With regard to Medtronic, Rexnord contends that Habasit's construction lacks both of the aforementioned requirements for a sine wave. It argues that the patent's preferred embodiment both doubles back on itself and has vertical lines that do not have a derivative. Furthermore, Rexnord contends that Habasit's construction lacks other common characteristics of sine waves, such as having no straight sections and no sections of constant radius curvature.

After reviewing the claim language, specification, and prosecution history of the '941 patent in light of the parties' respective positions, the Court agrees with Habasit's proposed

interpretation. The Court concludes that Rexnord's narrow interpretation of sinusoidal shape does not comport with the intrinsic evidence. First, the claim itself provides that "the corrugated portion has a sinusoidal *shape*." Furthermore, the specification states, the "corrugated portion forms a series of ridges and valleys in a sinusoidal *manner*." Nowhere in the specification does the patent claim to use an exact sine wave. Second, the figures of the patent's preferred embodiment clearly indicate that sinusoidal manner did not mean a sine wave in the strict sense. The claim construction propounded by Rexford excludes the preferred embodiment and "is rarely, if ever, correct and would require highly persuasive evidentiary support."

Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576 1996

In addition, the Court finds Rexford's arguments regarding Medtronic unpersuasive. Rexnord's proposed construction of sinusoidal shape far exceeds Medtronic's two requirements for a "sine wave." Rexnord's proposed construction would render Figures 1-8 of the Medtronic patent, which the Medtronic court considered "generally sinusoidal," to be non-sinusoidal. Moreover, the rings that the Medtronic court found non-sinusoidal deviated much more from a strict sine wave than the '941 patent embodiment. Thus, the Court finds that Medtronic's holding therefore does not deal with the type of shape at issue in the instant case. In sum, the Court concludes that "sinusoidal

shape" means "having a regular amplitude and frequency."

5. Link ends (in conjunction with "web")

Habasit contends that "link ends" means "the link ends must *originate from* and touch the web portion." (D.I. 55 at 32 (emphasis added).) In contrast, Rexnord's construction omits the words "originate from." Habasit supports its position by quoting claim 1: the belt module comprises "a first [and second] plurality of link ends extending outwardly from the intermediate section *including the web portion ...*" ('941 patent, col. 6, l. 43-52 (emphasis added).) Habasit reasons that a part can only extend from its point of origin if it was part of (i.e., originated from) that point of origin. Habasit therefore contends that the meaning of link ends is clear and unambiguous and, as such, should include the words "originate from."

Rexnord contends that "link ends" means "the link ends must touch the web portion." (D.I. 63 at 8.) Rexnord argues that Habasit's construction is inconsistent with the specification of the '941 patent which states "the ridges 53 extending toward the left of FIG. 2 support the first link ends 41 while the ridges 53 extending toward the right in the drawing support the second link ends 44." (D.I. 63 at 8 (citing '941 patent, col. 3, l. 52-55).)

After considering the claim language, specification, and prosecution history of the '941 patent and the parties' respective positions, the Court agrees with Habasit's

interpretation of the term. Claim 1 states that the link ends "extend[] outwardly from the intermediate section *including the web portion.*" ('941 patent, col. 6. (emphasis added).) Although Rexnord is correct that the link ends, according to the specification, extend from the corrugated portion, claim 1 states that the link ends *also* extend from the web portion. ('941 patent, col. 6.) Thus, the Court concludes that the link ends both touch and originate from the web portion.

B. The '680 Patent

Claim 1 of the '680 patent is representative of the asserted claims:

A radius conveyor belt, comprising:

a plurality of belt modules having a plurality of first link ends disposed in the direction of belt travel and having a plurality of second link ends disposed in the opposite direction, a cross-rib disposed between the first and second link ends and having a web, and a corrugated portion disposed adjacent to the web, the first and second link ends disposed such that a space capable of receiving a link end is formed between each adjacent link end, the space being open at one end and terminating in a rounded region at the opposite end, the plurality of first link ends being offset from the plurality of second link ends such that the first link ends align with the space between the second link ends such that the adjacently positioned belt modules are capable of intercalating so that the first link ends of one belt module fit into the space defined between the second link ends of an adjacent belt module, the plurality of first link ends having a slot defined therein, the slot disposed transverse to the direction of belt travel and extending in the direction of belt travel, the plurality of second link ends having a transverse opening defined therein;

a pivot rod extending transverse to the direct of belt

travel through the openings in the second link end of one of the plurality of belt modules and extending through the slotted openings in the first link end of an adjacent belt module such that the first and second link ends of the adjacent belt modules are intercalated and the adjacent belt modules are interlinked into adjacent hinged rows capable of following a curved path;

wherein the web on the cross-rib extends in the direction of belt travel such that, when the belt is at its maximum extension in the direction of belt travel, a space bounded by the web, on outer end of the first link end and the sidewalls of second link ends has a diameter less than 10mm.

The Court will consider each of the disputed terms and phrases below.

1. **Belt**

Rexnord contends that "belt" means "a belt with a pitch larger than or equal to 1.5 inches." (D.I. 57 at 22.) Rexnord argues that a court should deviate from the ordinary meaning of the claim term when compelling evidence in the patent specification so indicates. (Id. at 21-22 (citing Rexnord v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001).) Rexnord argues that compelling evidence occurs if the patentee "disavowed or disclaimed scope of coverage, by using words or expressions of manifest exclusion or restriction, representing a clear disavowal of claim scope." Id. (quoting Laitram, 274 F.3d at 1342). For example, Rexnord notes that a patentee narrows the scope of claims by describing in the specification a narrower, specific purpose of the patent. Id.

Rexnord argues that the '680 patent requires such a narrowing of scope. According to Rexnord, the specification discloses "a radius belt 20 suitable for larger pitch (>1.5") radius belt applications ..." ('680 patent, col. 5, l. 28-32.) Moreover, Rexnord argues that the '680 patent has the sole and entire purpose of protecting fingers of operators from getting caught in large pitch belts. Rexnord argues that, because the specifications and purpose of the '680 patent clearly deviate from the ordinary meaning of belt, the Court should narrow the construction of the term belt accordingly.

In contrast, Habasit contends that "belt" means "radius conveyer belt without any limitation as to the size of the pitch." (D.I. 55 at 36.) Habasit argues that no language in the '680 patent disclaims coverage of small pitch belts and thus the Court should apply the ordinary meaning of belt. Habasit concedes that the patent discloses the solution in the context of large pitch belts, but insists that the Court should not import limitations from the specifications into the claim. Id. at 35 (citing Northern Telecom Ltd. v. Samsung Electronics Co., 215 F.3d 1281, 1290 (Fed. Cir. 2000)).

After considering the claim language, specification, and prosecution history of the '680 patent and the parties' respective positions, the Court agrees with Habasit's interpretation of the disputed term. The Federal Circuit cautions

against limiting claims to specific embodiments in the specification. Specialty Composites v. Cabot Corp., 845 F.2d 981, 987 (Fed. Cir. 1988). The Federal Circuit also warns against importing specifications into the claim. Northern Telecom Ltd., 215 F.3d at 1290. Despite these cautions, Rexnord asks this Court to import such a limitation. Rexnord, however, has not presented the "compelling evidence" of "clear disavowal" necessary to justify deviating from the ordinary meaning of belt. Therefore, the Court concludes that the term belt means "radius conveyer belt without any limitation as to the size of the pitch."

2. **Space**

Habasit contends that "space" means "the opening bounded by the web and interlinked link ends when the opening is at its maximum." (D.I. 55 at 39.) First, Habasit argues that the spaces must be open. In support of its construction, Habasit contends that, since the '941 patent was primarily designed for the food-handling industry, its belt required holes for both easy cleaning (drainage and airflow) and the flash-freezing of food. Therefore, Habasit contends, the spaces described in the '941 patent had to be opened. Because the '680 patent is a continuation-in-part of the '941 patent, Habasit concludes that the spaces of the '680 patent must also be open.

Second, Habasit argues that the space must be measured at

its maximum width, regardless of whether the belt is running in a straight or curved path. Habasit observes that the '680 patent adds to its predecessor by ensuring that the maximum width of the holes remains less than ten inches. Therefore, Habasit reasons, to ensure that the space never opens large enough to endanger the fingers of an operator, the space must be measured when the hole is at its maximum width, regardless of whether the belt is running in a straight or curved path.

Rexnord contends that Habasit's proposed construction is erroneous. Rexnord argues that Habasit's construction impermissibly adds an additional limitation to "space" by requiring that the space be open. Rexnord asserts that Habasit never mentions the flash-freezing and cleaning purposes of the belt in the '680 patent, and therefore cannot add them at this point to buttress its position. The space, Rexnord contends, can be opened or closed. Rexnord next argues that "space" only occurs when the belt is running straight. Rexnord contends that, since at a curve the inside of the belt collapses, the belt is only at its maximum extension when it is running straight. Since the claim language states that the opening only occurs at the belt's "maximum extension," such extension can only occur when the belt is running straight, not at a curve.

After considering the claim language, specification, and prosecution history of the '680 patent and the parties'

respective positions, the Court agrees with Habasit's interpretation of the disputed language. First, the Court concludes that a "space" can occur at both a straight or curved portion of the belt. Claim 1 states that the belt is "capable of following a curved path" and "when the belt is at its maximum extension ... a space bounded by the web ... has a diameter less than 10mm." ('680 patent, col. 6.) Thus, the belt is essentially designed to round curves and protect fingers. If the 10mm limitation only applied to the belt when it traveled straight, the belt would fail its objective. Second, the space is designed to be open. The '680 patent is a continuation-in-part of the '941 patent, and accordingly contains its relevant disclosures. The '941 patent disclosed that the design pertained to "light weight" and "easy to clean" plastic belt modules used "especially in conveying food products." ('941 patent, col. 1, l. 11-13). Thus, the '680 patent shares the '941 patent's food-handling purpose. For these reasons, the Court concludes that space means "the opening bounded by the web and interlinked link ends when the opening is at its maximum."

CONCLUSION

For the reasons discussed, the Court has construed the disputed terms of the '941 and '680 patents as provided herein and an Order consistent with this Memorandum Opinion will be entered.

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FOR THE DISTRICT OF DELAWARE

HABASIT BELTING INCORPORATED, :
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Plaintiff, :
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v. : Civil Action No. 03-185 JJF
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REXNORD INDUSTRIES, INC. and :
REXNORD CORPORATION, :
:
Defendants. :

CLAIM CONSTRUCTION ORDER

At Wilmington, this 15th day of October 2004, for the reasons discussed in the Memorandum Opinion issued this date;

IT IS HEREBY ORDERED that for purposes of United States Patent Nos. 6,330,941 (the '941 patent) and 6,523,680 (the '680 patent) the following terms and/or phrases are assigned the following meanings:

1. The phrase "intermediate width" as used in the '941 patent means "the width of the intermediate section at either the web portion or the corrugated portion."

2. The phrase "extending across" as used in the '941 patent means "the 'intermediate width' of the web portion or the corrugated portion of the intermediate section as that portion extends across the intermediate section, from one wall to its corresponding opposed wall."

3. The term "corrugated" as used in the '941 patent means "formed into or having a series of either straight or rounded ridges and valleys."

4. The phrase "sinusoidal shape" as used in the '941 patent means "having a regular amplitude and frequency."

5. The phrase "link ends" as used in the '941 patent means "the link ends must originate from and touch the web portion."

6. The term "belt" as used in the '680 patent means "radius conveyer belt without any limitation as to the size of the pitch."

7. The term "space" as used in the '680 patent means "the opening bounded by the web and interlinked link ends when the opening is at its maximum."

Joseph J. Farnan, Jr.
UNITED STATES DISTRICT JUDGE