Sukup Manufacturing Co v. Sioux Steel Company Doc. 65

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF IOWA
CENTRAL DIVISION

SUKUP MANUFACTURING CO.,

Plaintiff/Counter Defendant,

vs.

SIOUX STEEL COMPANY,

Defendant/Counter Claimant.

No. C17-3073-LTS (Lead Case)
C18-3017-LTS (Related Case)

MEMORANDUM OPINION AND ORDER REGARDING CONSTRUCTION OF DISPUTED PATENT CLAIM TERMS

I. INTRODUCTION

This action is before me for submission to the parties of a ruling on patent claims construction after a *Markman* hearing.[1] Defendant Sioux Steel Company (Sioux Steel) holds United States Patent No. 6,499,930 ('930 patent) which, as will be discussed, involves a grain bin unloading system. Plaintiff Sukup Manufacturing Co. (Sukup) seeks a declaratory judgment under 28 U.S.C. §§ 2201 and 2202 that its Zero-Entry Paddle Sweep products do not infringe the '930 patent. *See* Doc. No. 1.[2] The parties dispute the construction of certain claim terms contained in the '930 patent.

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[1] *See Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996).

[2] On August 29, 2017, Sioux Steel filed a patent infringement action against Sukup in the United States District Court for the Central District of Illinois based on the same Zero-Entry Paddle Sweep products at issue in this case. *See* Doc. No. 1 in Case No. 3:18-cv-3017-LTS. That case was transferred to this district on February 21, 2018, and the parties jointly moved to consolidate the cases. *See* Doc. Nos. 16 and 20. I granted the motion and directed that all filings be made in Case No. 3:17-cv-3073-LTS. *See* Doc. No. 21. All citations in this order will refer to that docket.

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II. BACKGROUND

A. Procedural History

Sukup filed its complaint (Doc. No. 1) on November 16, 2017. On August 3, 2018, the parties filed a joint claim construction and prehearing statement. Doc. No. 31. This was later amended and submitted with a joint appendix. *See* Doc. Nos. 37, 38. On September 13, 2018, the parties presented a technical tutorial on the background of the technology at issue in the case. *See* Doc. No. 36. On September 19, 2018, Sukup filed its opening claim construction brief. Doc. No. 43. Sioux Steel submitted its rebuttal claim construction brief (Doc. No. 44) on September 24, 2018, and Sukup submitted a reply (Doc. No. 45) on October 1, 2018. Prior to the *Markman* hearing, Sioux Steel submitted another rebuttal (Doc. No. 50) and Sukup submitted a supplement (Doc. No. 52). The parties appeared for a *Markman* hearing on October 30, 2018. Sioux Steel submitted a supplement (Doc. No. 56) and post-hearing claim construction brief (Doc. No. 57) on November 13, 2018. Sukup submitted a supplemental brief (Doc. No. 58) on November 14, 2018.

B. The '930 Patent and Disputed Claims

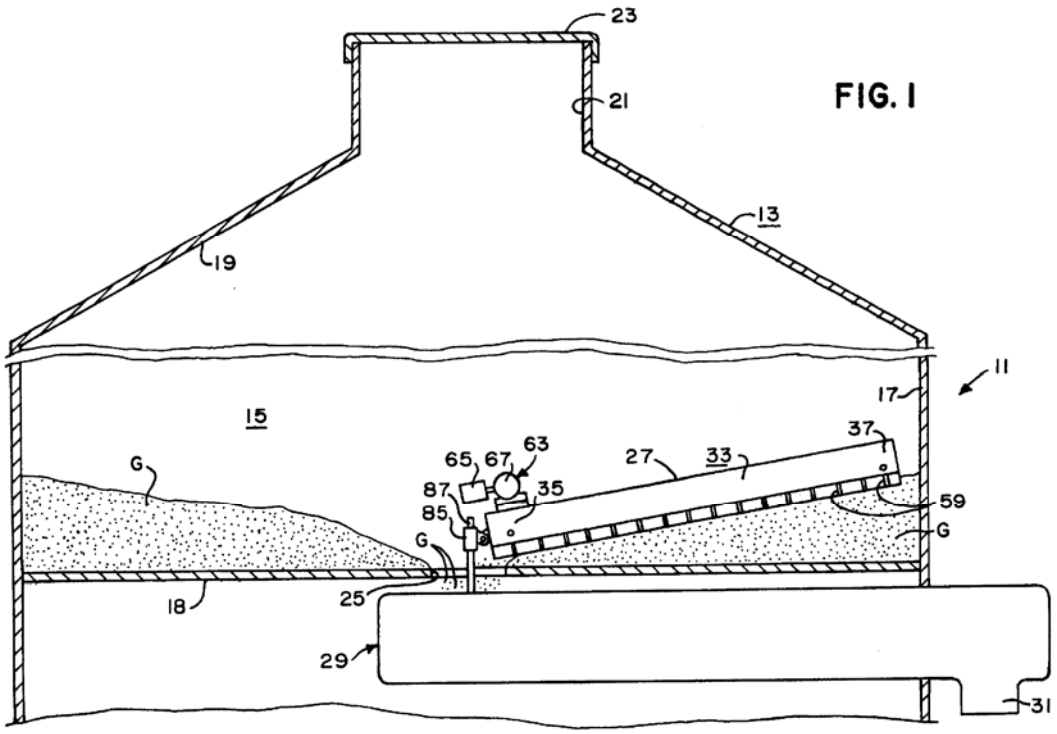
This case involves a "grain bin unloading system" with five claims and up to 13 terms at issue. Grains bins are used to store harvested grain, such as wheat and corn, to protect the grain from weather conditions prior to the grain being used or sold. *See* Doc. No. 42 at 10. After grain is harvested, it is generally dried and then loaded into the grain bin through an opening in the roof. *Id.* To unload a cylindrical grain bin, the grain flows under the force of gravity through a well or sump in the floor to a discharge conveyor or other system under the grain bin, which transports the grain to a truck or other means of transport. *Id.* When the grain reaches the angle of repose, gravity no longer works to evacuate the grain bin, resulting in an "inverted cone" formation of the grain. *Id.* The residual grain can amount to 20 to 25 percent of grain in the bin, which must be physically

removed through some mechanism. *Id.* This can be done by sweeping the grain toward the opening by a mechanical sweep. *Id.* at 10-11.

The '930 patent discloses a "Grain Bin Unloading System,"[3] which is described in the abstract as follows:

> An unloading system for a grain bin. The unloading system includes a sweep conveyor for sweeping grain from the interior of the grain bin to a well in the floor of the grain bin. The sweep conveyor includes an elongated frame, a first sprocket at one end of the frame, an endless chain extending between the first and second sprockets, a plurality of spaced apart paddles attached to the chain, and a motor for causing the chain to rotate whereby the paddles will drag or sweep grain to the well in the floor of the grain bin.

Doc. No. 38-1 at 2. Or, as illustrated in the patent:



[3] Sioux Steel alternatively refers to the grain bin unloading system as a paddle sweep. *See* Doc. No. 42 at 11.

Id. at 3.

The '930 patent originally made six claims. It was amended in 2016 to include 15 more claims. *See* Doc. No. 38-1 at 10. Of the 21 total claims, five are at issue. They include the following:

> 1. An unloading system for a grain bin having an interior for holding a quantity of grain, having a floor within said interior for supporting said quantity of grain, and having a well in said floor for allowing grain to be unloaded from said interior of said grain bin therethrough, said unloading system comprising:
>
> (a) an elongated frame for position on said grain supported on said floor of said grain bin, said frame having a first end and a second end, said first end of said frame being positioned adjacent said well in said floor of said grain bin; said frame including an elongated hood having a top panel, a first wall, and a second side wall, and an opened bottom;
> (b) a first wheel rotatably attached to said frame adjacent said first end of said frame;
> (c) a second wheel rotatably attached to said frame adjacent said second end of said frame;
> (d) a belt passing about said first and second wheels;
> (e) a plurality of spaced apart paddles attached to said belt for engaging grain on said floor of said grain bin through said opened bottom of said hood of said frame; and
> (f) power means for rotating one of said wheels to cause said belt to rotate about said first and second wheels and cause said paddles to sweep grain from said floor of said grain bin to said well of said grain bin.
>
> 4. The unloading system of claim 1 in which is included drive means for causing said frame to rotate about said well.
>
> 8. The unloading system of claim 1 wherein at least one of the paddles extends downwardly from said belt and extends laterally to said belt in a direction substantially parallel to the floor.
>
> 14. An unloading system for a grain bin having an interior for holding a quantity of grain, having a floor within said interior for supporting said

quantity of grain, and having a well in said floor for allowing grain to be unloaded from said interior of said grain bin therethrough, said unloading system comprising:

(a) an elongated frame for position on said grain supported on said floor of said grain bin, said frame having a first end and a second end, said first end of said frame being positioned adjacent said well in said floor of said grain bin, said frame including an elongated hood having a top panel, a first side wall, and a second side wall, and an opened bottom;
(b) a first wheel rotatably attached to said frame adjacent said first end of said frame;
(c) a second wheel rotatably attached to said frame adjacent said second end of said frame;
(d) a belt passing about said first and second wheels;
(e) a plurality of spaced apart paddles attached to said belt for engaging grain on said floor of said grain bin through said opened bottom of said hood of said frame, said first and second side walls extending downwardly from said top panel, said first and second side walls laterally shielding portions of said paddles extending above said belt and positioned between said first and second wheels, said second side wall having a bottom edge spaced further from said top panel than a bottom edge of said first side wall;
(f) power means for rotating one of said wheels to cause said belt to rotate about said first and second wheels and cause said paddles to sweep grain from said floor of said grain bin to said well of said grain bin, said first side wall being positioned adjacent to portions of said paddles extending below said belt and moving towards said well when said belt is rotated by said power means, said paddles being configured to sweep grain into said well.

15. The unloading system of claim 14 wherein at least one of the paddles extends downwardly from said belt and extends laterally to said belt in a direction substantially parallel to the floor.

Doc. No. 38-1.

C. History of the '930 Patent

The original application that led to the '930 patent was filed on September 17, 2001, by the inventor, Carl R. Dixon. *See* Doc. No. 38-2 at 2. The application contained six claims, including one independent claim (Claim 1) and five dependent claims (Claims 2-6). Initially, the claims were rejected as being obvious in light of the prior art. *Id.* at 58-61. Dixon then amended Claim 1 to:

> define the frame of applicant's unloading system as including an elongated hood having a top panel, a first side wall, and a second side wall, and an opened bottom; and to define the paddles of applicant's unloading system as for engaging grain on the floor of the grain bin through the opened bottom of the hood of the frame.

Doc. No. 38-2 at 72. The United States Patent and Trademark Office (USPTO) allowed the claims, *see id.* at 85, and issued the '930 patent on December 31, 2002. *See* Doc. No. 38-1 at 2. On June 16, 2011, Dixon assigned the '930 patent to Sioux Steel.

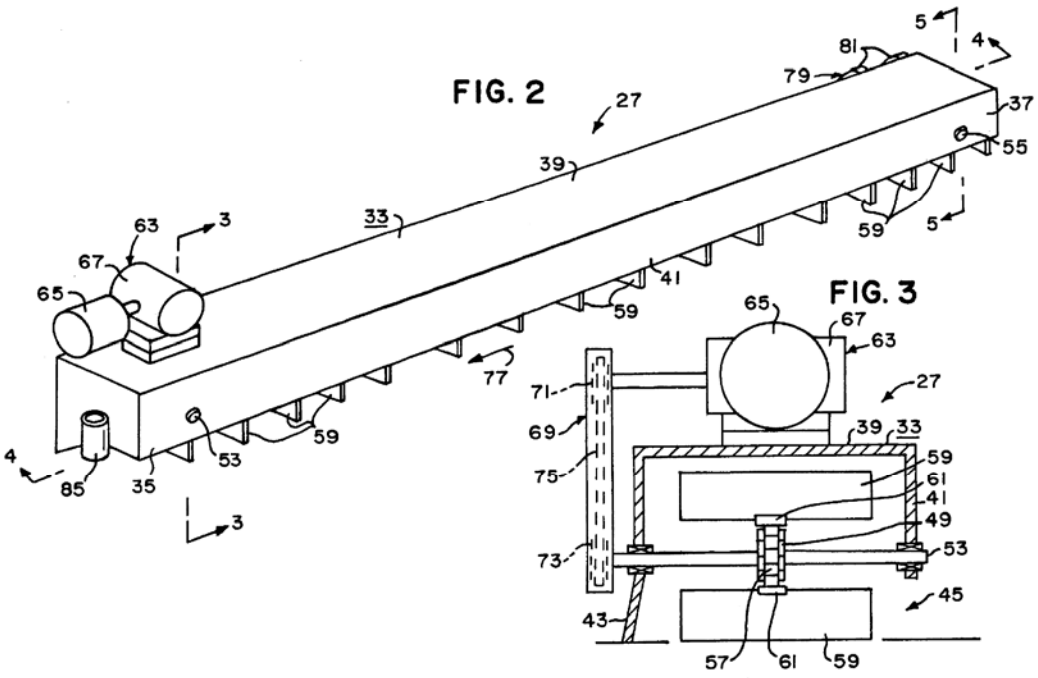
On September 4, 2012, a competitor filed a request for ex parte reexamination of the '930 patent, challenging all six claims. *See* Doc. No. 38-3 at 2-29. The USPTO granted the request for reexamination. On February 18, 2013, Sioux Steel added claims 7-21. On April 10, 2013, the USPTO issued a Final Rejection, rejecting claims 1-21. *Id.* at 180. Sioux Steel appealed and the Patent Trial and Appeal Board (PTAB) reversed the Examiner's decision, concluding that the six original claims were confirmed patentable and new claims 7-21 were deemed patentable over the newly cited prior art. *Id.* at 421-22; 432-41; 464-69. The ex parte Reexamination Certificate was issued on January 7, 2016. *Id.* at 476-77.

D. Sukup's Zero-Entry Paddle Sweep and Other Grain Bin Sweeps

The accused product is Sukup's Zero-Entry Paddle Sweep. While not particularly relevant to claim construction for the '930 patent, it does provide some context of why these claims and terms matter to the parties. *See Pall Corp. v. Hemasure Inc.*, 181 F.3d

1305, 1308 (Fed. Cir. 1999) ("Although the construction of the claim is independent of the device charged with infringement, it is convenient for the court to concentrate on those aspects of the claim whose relation to the accused device is in dispute.").

Doc. No. 43 at 6. Sukup notes that its paddle sweep (pictured above) is composed of two metal sheets bolted together to form an A-frame design. The '930 patent includes the following illustration of the preferred embodiment of its design.



Doc. No. 38-1 at 4. Sukup points out that in the "Background of the Invention" section of Dixon's 2001 patent application, he characterized the prior art as including only auger-style sweeps. Doc. No. 43 at 6. Sukup argues that paddle sweeps existed at the time, including French Patent Application No. FR8805249A (published as FR 2,630,620) in 1988, by Jean Carrouget. Sukup argues the paddles of the Carrouget device engage grain on the floor of the grain bin and move it through an opened bottom of the hood towards the well of the grain bin. *Id.* at 7. Sukup contends this is the "critical" feature Dixon identified in distinguishing prior art during the original prosecution and subsequent reexamination. *Id.* The Carrouget patent was never disclosed to nor considered by the USPTO, and Sukup argues Sioux Steel's constructions are aimed at distinguishing the '930 patent from this "knock out" prior art.

III. APPLICABLE STANDARDS

Before the fact finder can consider a claim of patent infringement, the court must determine what the claim (the patent) is. Thus, an infringement case has two distinct stages. First, the court finds the proper construction of the patent. Second, the fact finder considers whether the patent was violated. *See Cook Biotech Inc. v. Acell, Inc.*, 460 F.3d 1365, 1372 (Fed. Cir. 2006).

The court interprets the words of the claim to determine their meaning and scope. *See Presidio Components, Inc. v. American Tech. Ceramics Corp.*, 702 F.3d 1351, 1358 (Fed. Cir. 2012) (citing *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1454 (Fed. Cir. 1998); *Markman*, 517 U.S. at 391. "When the parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve it." *O2 Micro Int'l, Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008). "There are limits to the court's duties at the patent claim construction stage. For example, courts should not resolve questions that do not go to claim scope, but instead go to infringement, or improper attorney argument." *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1319 (Fed. Cir. 2016) (citations omitted). However, claim construction is a quasi-factual question, and the court is allowed to make factual findings and resolve fact-based disputes. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838 (2015). After the claim is construed, the fact finder then "compares the properly construed claims to the allegedly infringing device." *Presidio Components*, 702 F.3d at 1358. Thus, my task is to "define[] the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction," and then, "the task of determining whether the construed claim reads on the accused product is for the finder of fact." *Markman*, 517 U.S. at 370.

The interpretation and construction of patent claims is a matter of law solely for the court. *Id.* at 390. "It is the claims that define the metes and bounds of the patentee's invention." *Thorner v. Sony Computer Entertainment America, L.L.C.*, 669 F.3d 1362,

1367 (Fed. Cir. 2012) (citing *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc)). Claim interpretation proceeds under the guidelines set forth in *Markman*. Accordingly:

> To ascertain the meaning of claims, we consider three sources: the claims, the specification, and the prosecution history. Expert testimony, including evidence of how those skilled in the art would interpret the claims, may also be used. In construing the claims in this case, all these sources, as well as extrinsic evidence in the form of [] sales literature, were included in the record of the trial court proceedings.

Markman, 52 F.3d at 979 (citations and internal quotations omitted).

The construction process begins with the language of the claims. *See Renishaw P.L.C. v. Marposs Societá Per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998). Claim terms are generally given their plain and ordinary meanings to one of skill in the art when read in the context of the specification and prosecution history. *See Phillips*, 415 F.3d at 1313. "There are only two exceptions to this general rule: 1) when a patentee sets out a definition and acts as his own lexicographer, or 2) when the patentee disavows the full scope of the claim term either in the specification or during prosecution." *Thorner*, 669 F.3d at 1365. The standards for finding lexicography and disavowal are exacting. *Hill-Rom Servs. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014). "To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning" and must "clearly express an intent to redefine the term." *Thorner*, 669 F.3d at 1365. Disavowal requires that "the [intrinsic record] makes clear that the invention does not include a particular feature." *SciMed Life Sys., Inc. v. Advanced Cardiovascular Sys., Inc.*, 242 F.3d 1337, 1341 (Fed Cir. 2001).

The ordinary meaning of a claim term is not "the meaning of the term in the abstract." *Eon Corp.*, 815 F.3d at 1321. Instead, "the 'ordinary meaning' of a claim term is its meaning to the ordinary artisan after reading the entire patent. *Id.*; *see also Toro Co. v. White Consol. Indus., Inc.*, 199 F.3d 1295, 1299 (Fed. Cir. 1999)

("Determining the limits of patent claim required understanding its terms in the context which they were used by the inventor, considered by the examiner, and understood in the field of the invention."); *Anderson v. Int'l Eng'g & Mfg., Inc.*, 160 F.3d 1345, 1348-49 (Fed. Cir. 1998) ("a word describing patented technology takes its definition from the context in which it was used by the inventor."). "[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which [it] appears, but in the context of the entire patent, including the specification." *Phillips*, 415 F.3d at 1313. While claim terms are understood in light of the specification, a claim construction must not import limitations from the specification into the claims. *Id.* at 1323. The Federal Circuit views intrinsic evidence as "the most significant source of the legally operative meaning of disputed claim language." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

When the meaning of a claim term is in doubt, the specification is the "single best guide to the meaning of a disputed term" and is typically dispositive on the issue of claim construction. *Id.* "It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115-16 (Fed. Cir. 2004). However, "it is improper to read limitations from a preferred embodiment described in the specification—even if it is the only embodiment—into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited." *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004). Because claim terms are construed based on the intrinsic evidence to the particular patent at issue, one court's construction of a word in one patent is not conclusive, and may not even be probative, of that word's meaning in another patent. *e.Digital Corp. v. Futurewei Tech., Inc.*, 772 F.3d 723, 727 (Fed. Cir. 2014). It is improper to rely on extrinsic evidence when any ambiguity in the claims can be resolved by reference to the intrinsic record alone. *Id.* at 1583.

Determining the ordinary meaning as understood by an ordinary person of skill in the art is the heart of claim construction. *Aylus Networks, Inc. v. Apple Inc.*, 856 F.3d 1353 (Fed. Cir. 2017). In the most desirable situation, the ordinary meaning of a claim's language may be apparent to lay judges, and the claim construction may involve little more than the application of the widely accepted meaning of commonly understood words. *Brown v. 3M*, 264 F.3d 1349, 1352 (Fed. Cir. 2001). "A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute." *Id.* at 1361. This does not mean, however, that a court must attempt the impossible task of resolving all questions of meaning with absolute, unambiguous finality. *Eon Corp.*, 815 F.3d at 1318. "[A] sound claim construction need not always purge every shred of ambiguity." *Id.* (quoting *Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 806 (Fed. Cir. 2007)); *see also Vivid Techs., Inc. v. Am. Science & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.").

"[T]he construction of claims is simply a way of elaborating the normally terse claim language: in order to understand and explain, but not to change, the scope of the claims." *Scripps Clinic & Research Foundation v. Genetech, Inc.*, 927 F.2d 1565, 1580 (Fed. Cir. 1991). Courts have wide latitude in the type of sources that can be used in construing claim meaning. *Phillips*, 415 F.3d at 1324 (the court is not "barred from considering any particular sources or required to analyze sources in any specific sequence."). The claim construction process is not confined to the intrinsic record alone, however extrinsic evidence may not be used "to contradict claim meaning that is unambiguous in light of the intrinsic evidence." *Id.* However, courts must be wary of extrinsic evidence because "legal error arises when a court relies on extrinsic evidence

that contradicts the intrinsic record." *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1379 (Fed. Cir. 2016).

The doctrine of claim differentiation creates a presumption that distinct claims, particularly an independent claim and its dependent claim, have different scopes. *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1125 (Fed. Cir. 2014). "'In the most specific sense, claim differentiation refers to the presumption that an independent claim should not be construed as requiring a limitation added by a dependent claim.'" *Enzo Biochem, Inc. v. Applera Corp.*, 780 F.3d 1149, 1156-57 (Fed. Cir. 2015) (quoting *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1381 (Fed. Cir. 2006) (citing *Nazomi Commc'ns, Inc. v. Arm Holdings, PLC*, 403 F.3d 1364, 1370 (Fed. Cir. 2005))). However, claim differentiation is merely a presumption. *CardSoft (assignment for the Benefit of Creditors), LLC v. VeriFone, Inc.*, 807 F.3d 1346, 1352 (Fed. Cir. 2015). "It is 'a rule of thumb that does not trump the clear import of the specification.'" *Id.* (quoting *Eon-Net LP v. Flagstar Bancorp*, 653 F.3d 1314, 1323 (Fed. Cir. 2011); *see also Marine Polymer Techs., Inc. v. HemCon, Inc.*, 672 F.3d 1350, 1359 (Fed. Cir. 2012) (en banc) ("[C]laim differentiation is not a hard and fast rule and will be overcome by a contrary construction dictated by the written description or prosecution history." (citation and quotation omitted.)). "There is presumed to be a difference in meaning and scope when different words or phrases are used in separate claims." *Tandon Corp. v. U.S. Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987).

IV. ANALYSIS

As noted above, the parties have filed an amended joint claim construction statement, which is generally intended to narrow the scope of the *Markman* process. This statement identifies the following disputed claim terms:

<table>
<tr><th colspan="2">Claim Term/Phrase #1 (proposed by both parties)

Grain Bin
(Claims 1 and 14)</th></tr>
<tr><th>Sioux Steel's Position</th><th>Sukup's Position</th></tr>
<tr><td>A structure for storing grain that is primarily cylindrical in nature and that can be emptied, at least partially, by gravity through a center well.

Supporting evidence:
The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness; Sukup Manufacturing Co.'s Bin Operational Manual.</td><td>A structure for storing grain.

Supporting evidence:
The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to how a person of ordinary skill in the art would understand the claim language; Merriam-Webster's Collegiate Dictionary (10th ed.; online ed.).</td></tr>
<tr><th colspan="2">Claim Term/Phrase #2 (proposed by both parties)

Well
(Claims 1 and 14)</th></tr>
<tr><th>Sioux Steel's Position</th><th>Sukup's Position</th></tr>
<tr><td>An opening that allows for the discharge of grain from the grain bin through the grain bin floor

Supporting evidence:
The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness; Sukup Manufacturing Co.'s Bin Operational Manual.</td><td>A structure for receiving grain.

Supporting evidence:
The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to how a person of ordinary skill in the art would understand the claim language.</td></tr>
<tr><th colspan="2">Claim Term/Phrase #3 (proposed by Sioux Steel)

An elongated hood having a top panel, a first side wall, and a second side wall
(Claims 1 and 14)</th></tr>
</table>

Sioux Steel's Position	Sukup's Position
An extended cover or shroud that has a part above the paddles and two lateral portions Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness; Oxford Dictionary of Mechanical Engineering.	Sukup contends it is improper to construe all of the subject claim terms together as Sioux Steel proposes to do, as it risks not giving meaning to all of the structural limitations in the claim language.
Claim Term/Phrase #4 (proposed by Sukup) Elongated (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: Extended Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	Extending the length of; long in proportion to width. Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to how a person of ordinary skill in the art would understand the claim language. Merriam-Webster's Collegiate Dictionary (10th ed.; online ed.)
Claim Term/Phrase #5 (proposed by Sukup) Elongated frame (Claims 1 and 14)	

Sioux Steel's Position	Sukup's Position
Sioux Steel does not believe that this term needs to be construed by the Court. To the extent the Court believes a construction is needed for the jury, Sioux Steel proposes: An extended supporting structure Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	See proposed constructions and supporting evidence identified for "elongated" and "frame".
Claim Term/Phrase #6 (proposed by Sukup) Frame (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed by the Court. To the extent the Court believes a construction is needed for the jury, Sioux Steel proposes: A supporting structure Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	A supporting structure Supporting evidence: Merriam-Webster's Collegiate Dictionary (10^{th} ed.; online ed.)
Claim Term/Phrase #7 (proposed by Sukup) Elongated hood (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**

Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: An extended cover or shroud Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	See proposed constructions and supporting evidence identified for "elongated" and "hood".
Claim Term/Phrase #8 (proposed by Sukup) Hood (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: A cover or shroud Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	A protective cover. Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to how a person of ordinary skill in the art would understand the claim language.
Claim Term/Phrase #9 (proposed by Sukup) Top panel (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**

Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: A part of the hood above the paddles Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	A top wall that protects the paddles from grain. Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to how a person of ordinary skill in the art would understand the claim language.
Claim Term/Phrase #10 (proposed by Sukup) Side wall (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: A lateral portion of the hood Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	A lateral wall that controls the amount of grain that enters the housing. Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to how a person of ordinary skill in the art would understand the claim language.
Claim Term/Phrase #11 (proposed by both parties) Power means (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**

Claimed Function: for rotating one of said wheels; [wherein the wheel may be a sprocket] Corresponding structure: motor Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	Claimed Function: for rotating one of said wheels to cause said belt to rotate about said first and second wheels and cause said paddles to sweep grain from said floor of said grain bin to said well of said grain bin. Corresponding Means: a motor 65 and a gear box 67 for reducing the speed or revolutions per minute of the output shaft of the motor 65 and changing the axis of rotation of the output shaft of the motor 65, and a belt drive means 69 (defined below) for transferring power from the gear box 67 to the first shaft 53. The motor 65 and gear box 67 are mounted on the first end 35 of the frame 33. The belt drive means 69 includes a first pulley or sprocket 71 attached to the output shaft of the gear box 67, a second pulley or sprocket 73 attached to one end of the first shaft 53, and a belt or chain 75 extending between the first and second pulleys 71, 73 so that power from the motor 65 can be transferred through the gear box to the sprocket 49 to cause the chain 57 and paddles 59 to circle about the sprockets 49, 51 in the direction of the arrows 77 in FIGS.2 and 4, dragging grain G toward the first end 35 of the frame 33 to a well 25. Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to the claimed function and corresponding structure in the '930 Patent.

Claim Term/Phrase #12 (proposed by both parties) Drive means (Claim 4)	
Sioux Steel's Position	**Sukup's Position**
Claimed function: for causing said frame to rotate Corresponding structure: at least one drive wheel Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	Claimed Function: for causing said frame to rotate about said well. Corresponding structure: One or two drive wheels 81 mounted to the second end 37 of the frame 33 for being rotated by the power means 63 (same Power Means as defined above in the Power Means construction) and for drivably engaging the floor 18 of the grain bin 13 and grain G supported on the floor 18 of the grain bin 13 to rotate the frame 33 about the well 25. The drive means 79 includes a gear box 83 coupled between the drive wheels 81 and one end of the second shaft 55 for being rotated by the second shaft 55, for reducing the speed or revolutions per minute of the second shaft 55, for changing the axis of rotation, and for rotating the drive wheel 81 in response to the rotation of the first sprocket 49 by the power means 63 (same Power Means as defined above in the Power Means construction). Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes as to the claimed function and corresponding structure in the '930 Patent.

Claim Term/Phrase #13 (proposed by Sukup) Substantially parallel (Claims 8 and 15)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed by the Court. To the extent the Court believes a construction is needed for the jury, Sioux Steel proposes: largely but not wholly in the same direction Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from a person of ordinary skill in the art, Jim Maness.	Indefinite. Supporting evidence: The specification, including the claims, of the '930 Patent and its prosecution history; written or oral testimony from Dr. Ronald Noyes.

Doc. No. 37 at 7-13. I will consider each of these issues separately after first addressing Sukup's argument that the preambles of Claims 1 and 14 are not limiting.

A. Preambles

The preambles of Claims 1 and 14 state:

> An unloading system for a grain bin having an interior for holding a quantity of grain, having a floor within said interior for supporting said quantity of grain, and having a well in said floor for allowing grain to be unloaded from said interior of said grain bin therethrough, said unloading system comprising: . . .

Doc. No. 38-1 at 7, 10. Sukup argues these preambles are not limiting and there is no need to construe them.[4] *See* Doc. No. 43 at 9-10. It contends that the '930 patent contains strictly apparatus claims, meaning that its patentability depends on the claimed structure and not its use or purpose. *Id.* at 10. Sukup argues the preambles are statements of intended use, meaning they are not limiting. *Id. See also Catalina Marketing Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (noting that a preamble is not limiting "when the claim body describes a structurally complete invention such that the deletion of the preamble phrase does not affect the structure . . . of the claimed invention.").

Sioux Steel points out that Sukup has agreed to construe claim terms that appear in the preambles – "grain bin" and "well." *See* Doc. No. 50. It states that "a preamble limits the [claimed] invention if it recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Eaton Corp.*, 323 F.3d at 1339. Relying on the same case cited by Sukup, it states that "dependence on a particular disputed preamble phrase for antecedent basis may limit claim scope because it indicates reliance on both the preamble and claim body to define the claimed invention." *Catalina Marketing*, 289 F.3d at 808. Sioux Steel argues that the preambles provide the antecedent basis for claim elements "grain bin" and "well" because those elements, described in the body of the claims, are also found in the preambles. Thus, Sioux Steel contends that the preambles provide necessary limitations to the scope of the claimed invention.

"Whether to treat a preamble as a limitation is a determination 'resolved only on review of the entire[] . . . patent to gain an understanding of what the inventors actually invented and intended to encompass by the claim.'" *Catalina Marketing*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*,

[4] Sukup did not identify this issue in the parties' Amended Joint Claim Construction and Prehearing Statement. *See* Doc. No. 37.

868 F.2d 1251, 2157 (Fed. Cir. 1989)). As the parties point out, a preamble limits the invention if it "recites essential structure or steps, or if it is 'necessary to give life, meaning, and vitality' to the claim." *Id.* (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed. Cir. 1999)). *See also Proveris Scientific Corp. v. Innovasystems, Inc.*, 739 F.3d 1367, 1372 (Fed. Cir. 2014) ("For example, the preamble may be construed as limiting when it recites particular structure or steps that are highlighted as important by the specification."). It is not limiting "where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention." *Id.* (quoting *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997)).

The preamble is also limiting if it provides an antecedent basis for claim terms. *See Pacing Techs., LLC v. Garmin Intern., Inc.*, 778 F.3d 1021, 1024 (Fed. Cir. 2015) ("Because the preamble terms 'user' and 'repetitive motion pacing system' provide an antecedent basis for and are necessary to understand positive limitations in the body of claims in the '843 patent, we hold that the preamble . . . is limiting."); *Deere & Co. v. Bush Hog, LLC*, 703 F.3d 1349, 1358 (Fed. Cir. 2012) ("[A] preamble phrase that provides antecedent basis for a claim limitation generally limits the scope of the claim."); *Eaton Corp. v. Rockwell Int'l Corp.*, 323 F.3d 1332, 1339 (Fed. Cir. 2003) (noting that when the limitations in the body of the claim "rely upon and derive antecedent basis from the preamble, then the preamble may act as a necessary component of the claimed invention."). If the claim drafter "chooses to use *both* the preamble and the body to define the subject matter of the claimed invention, the invention so defined, and not some other, is the one the patent protects." *Bell Commc'ns Research, Inc. v. Vitalink Commc'ns Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995) (emphasis in original).

Catalina Marketing provides a good example of both of these concepts. In that case, the invention concerned a selection and distribution system for discount coupons. *Catalina Marketing*, 289 F.3d at 805. The preferred embodiment was a remote, kiosk-

like terminal connected to a central host computer system. Consumers could activate the terminal at retail locations, review available coupons displayed on the terminal screen, select coupons and print them. *Id.* The contested preambles provided for: "a system for controlling the selection and dispensing of product coupons at a plurality of remote terminals located at predesignated sites such as consumer stores wherein each terminal comprises: . . . ." *Id.* at 805-06. The claims then included activation means, display means, selection means, print means and control means and others. *Id.*

The district court in *Catalina* focused on the phrase "located at predesignated sites such as consumer stores," which appeared in the preamble to Claim 1 and in both the preamble and body of Claim 25. *Id.* at 807-08. On appeal, Catalina argued the disputed language was not a limitation because it merely stated an intended use for the claimed system. *Id.* at 807. The Federal Circuit concluded that that the preamble phrase "located at predesignated sites such as consumer stores" was not a limitation of Claim 1 because the applicant "did not rely on this phrase to define its invention nor [was] the phrase essential to understand limitations or terms in the claim body." *Id.* at 810. Specifically, the court noted that the location of the terminals was not an additional structure for the claimed terminals. *Id.* The preamble phrase was not used to distinguish it over another patent and deletion of the phrase did not affect the structural definition or operation of the terminal itself. *Id.* The court also reasoned:

> deletion of the disputed phrase from the preamble of Claim 1 does not affect the structural definition or operation of the terminal itself. The claim body defines a structurally complete invention. The location of the terminals in stores merely gives an intended use for the claimed terminals. As already noted, the applicants did not rely on this intended use to distinguish their invention over the prior art.

Id. As for Claim 25, containing the same preamble, the court noted the phrase "located at predesignated sites such as consumer stores" appeared in both the preamble and body

of the claim. *Id.* at 811. The court stated, "[b]y virtue of its inclusion in the body of Claim 25, this phrase limits Claim 25." *Id.*

Here, I find that the preambles are limiting because they provide the antecedent bases for several terms used in the body of the claims and recite an essential structure that is referenced repeatedly in the specification. The preambles make it clear that the location of the system is essential to the performance of the invention. *Compare Georgetown Rail Equip. Co. v. Holland L.P.*, 867 F.3d 1229, 1237-38 (Fed. Cir. 2017) (concluding that the preamble term "mounted on a vehicle for movement along the railroad track" was meant to describe the principal intended use, but nothing in the specification or prosecution history suggested that the holder intended to exclude use of technology that was structurally identical to its claimed product but installed on a non-vehicle mount). The preambles describe the grain bin (primarily with regard to having a floor with a well in the floor), rather than the unloading system. The body of Claims 1 and 14 refer back to the grain, floor, grain bin and well identified in the preamble. *See* Doc. No. 38-1 at 7, 10 (referring to "said grain," "said floor," "said grain bin," and "said well").

The specification also repeatedly refers to the placement of the system in a grain bin that has a floor and a well. *See* Doc. No. 38-1 at 6 ("The unloading system 11 includes a sweep conveyor 27 positioned above the floor of the grain bin 13 for conveying grain G that does or will not fall by gravity into the well (or wells) thereinto . . . ."); *Id.* at 7 ("Once the grain bin 13 is unloaded to a certain level, grain G will stop falling into the well or wells 25 by gravity, but will instead remain on the floor 18 of the grain bin 13 adjacent the well or wells 25, with substantial amounts of grain G remaining between the well or wells 25 and the wall structure 17 of the grain bin 13. Once this happens, the conveyor sweep 27 is moved into the interior 15 of the grain bin 13, the frame 33 is placed on top of the remaining grain G, and the receiver means 85 is coupled to the center pivot stud 87 of the discharge conveyor 29, etc. The motor 65 can then be activated to

cause the chain 57 to rotate in the direction of the arrows 77, whereby the paddles 59 will drag or sweep grain G to the well 25."); *Id.* ("Once all of the grain G within the grain bin 13 has been thus swept into the well 25 and transferred to the discharge point 31, the sweep conveyor 27 can be removed and transferred to another grain bin 13, etc."). Finally, the title of the invention is a "grain bin unloading system." The entirety of the '930 patent reveals that the preamble language relating to the nature of the grain bin does not state a purpose or intended use of the invention, but identifies essential structure that works in conjunction with the structure identified in the claims, that the preamble must be construed as a limitation of Claims 1 and 14. *See Poly-America, L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004) (finding phrase "blown-film" used in preamble limiting where: (1) specification was replete with references to invention as a "blown-film" liner, (2) the title of the patent itself and summary of the invention used the phrase, (3) the phrase was used repeatedly to describe the preferred embodiments and (4) was restated in the claims, indicating that it was a fundamental characteristic of the claimed invention.).

Because I find the preambles are limiting, I will construe the disputed terms "grain bin" and "well" that are set forth in the preambles.

B. Grain Bin

Sioux Steel's Proposed Construction	Sukup's Proposed Construction
A structure for storing grain that is primarily cylindrical in nature and that can be emptied, at least partially, by gravity through a center well	A structure for storing grain

1. The parties' arguments

Sioux Steel argues that the term grain bin has a well-understood meaning in the art in the context of a sweep being used to reclaim residual grain, and that its construction

is consistent with the '930 patent itself, particularly the preambles. It submits a declaration from James Maness as a purported "person of ordinary skill in the art." Maness is an independent consultant who has a Bachelor of Science in Mechanical Engineering and extensive background in the grain industry. Doc. No. 42-3 at 3. He states that "grain bin" has a well-understood meaning in the art as a structure that is cylindrical in nature and that can be emptied, at least partially, by gravity through a center well. *Id.* at 13. He also states that the circular design is inherent because the behavior of grain when allowed to free-fall by gravity into a pile forms a cone-shaped mass, which has a base that is circular in shape. *Id.* at 14.

Sioux Steel does not deny that there are other structures used for storing grain, but contends that a grain bin is different than a "flat storage structure," which is expressly defined by the Occupational Safety and Health Administration (OSHA). *See* 29 C.F.R. 1910.272(c). Another structure is a "square bolted bin" in which the floor is cone-shaped, allowing the grain to be completely emptied via gravity. At the time the '930 patent was issued, Sioux Steel contends only one type of structure was known in the art as a "grain bin" in the context of flat bottom reclaim systems, such as the one disclosed in the '930 patent. Such structures were cylindrically-shaped and could be partially emptied by gravity through a center well.

Sioux Steel argues the mechanisms of the '930 patent and language used to describe it are consistent with this definition. For instance, it states that the sweep is constructed so that one end is pivotably positioned at the center of the grain bin and the other end is positioned adjacent the wall of the grain bin. This allows the sweep to rotate around in a circle. Sioux Steel contends that for the invention to work, i.e., empty the grain bin, the grain bin must be circular. It also relies on the specification, which states:

> The grain bin 13 may be of any typical construction having wall structure 17, floor or floor structure 18 for supporting a quantity of grain G, and a roof structure 19 coacting with the wall and floor structures 17, 18 to define the interior 15. Thus, for example, the grain bin 13 may be constructed of

> metal with the wall structure 17 having a substantially cylindrical shape and with the roof structure 19 having a substantially conical shape covering the upper end of the cylindrical wall structure 17.

Doc. No. 38-1 at 6. In discussing the background of the invention, the patent states:

> Systems for unloading grain bins typically include a discharge auger positioned under the floor of the grain bin for conveying grain from a well or sump in the floor of the grain bin to a discharge point outside the grain bin. The grain falls by gravity into the well into the discharge auger. Once the level of grain falls below a certain level, it will no longer fall through the well by gravity.

Id. The object of the invention is: "to provide a safe, efficient unloading system for unloading that portion of grain stored within a grain bin that will not fall by gravity into the loading well." *Id.*

Sukup argues that there is no need to construe "grain bin" beyond "a structure for storing grain" because it is consistent with the ordinary and customary meaning. It relies, in part, on the specification, which states:

> The grain bin 13 *may be of any typical construction* having wall structure 17, floor or floor structure 18 for supporting a quantity of grain G, and a roof structure 18 for supporting a quantity of grain G, and a roof structure 19 coacting with the wall and floor structures 17, 18 to define the interior 15.

Doc. No. 38-1 at 6 (emphasis added).[5] It states that nothing in the patent suggests that the term's scope is limited to a grain bin that is "primarily cylindrical in nature." Indeed, Sukup argues that the specification even states that a structure "with the wall structure having a substantially cylindrical shape" is one "example" of a grain bin. *Id.* ("Thus, for example, the grain bin 13 may be constructed of metal with the wall structure 17

[5] Sioux Steel argues that the phrase "any typical construction" is referring to the material with which the bin is constructed, such as steel or cement.

having a substantially cylindrical shape and with the roof structure 19 having a substantially conical shape covering the upper end of the cylindrical wall structure.").

2. Analysis and Final Construction

As set out above, in constructing a claim there is hierarchy of relevant evidence. The first and most important evidence is the language of the claim itself. Second, the court looks to intrinsic evidence from the remainder of the patent. Third, the court considers the patent prosecution history. Fourth is all other extrinsic evidence, whether it be deposition testimony, case law, dictionaries or other documents. *See UUSI, LLC v. United States*, 131 Fed. Cl. 244, 256 (2017).

In finding the preambles limiting, I note that they essentially define grain bin as "having an interior for holding a quantity of grain, having a floor within said interior for supporting said quantity of grain, and having a well in said floor for allowing grain to be unloaded from said interior of said grain bin therethrough." Doc. No. 38-1. "If the claim language is clear on its face, then . . . consideration of the rest of the intrinsic evidence is restricted to determining if a deviation from the clear language of the claims is specified." *Interactive Gift Exp., Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1331 (Fed. Cir. 2001). As to the cylindrical element, I agree with Sukup that the intrinsic evidence from the specification does not limit grain bins to structures with cylindrical walls, as that is only one "example" provided in the specification. *See Comark Commc'ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) ("[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims."); *Liebel-Flarsheim Co.*, 358 F.3d at 913 ("[I]t is improper to read limitations from a preferred embodiment described in the specification – even if it is the only embodiment – into the claims absent a clear indication in the intrinsic record that the patentee intended the claims to be so limited."). While the claims may suggest that the

system moves in a circular fashion[6] (and thus, is most efficient in a cylindrical bin), I do not find the claim language or specification encompasses only this form when referring to grain bin.

Moreover, one patent referenced in the '930 patent (the Siemens patent) specifically references a "circular grain bin" and a grain bin "having a circular floor." Doc. No. 38-6. If Dixon had intended to limit the "grain bin" referenced in the '930 patent in such a way, he could have expressly said so, especially because he described other characteristics of the grain bin, i.e., having a well in the floor. Sioux Steel relies primarily on Manness' declaration that at the time of the invention, the term "grain bin" was understood by a person of ordinary skill in the art to be a cylindrical structure. This is extrinsic evidence, which I find unnecessary for construction given that the claim language and specification provide a sufficient basis to construe the term. *See Phillips*, 415 F.3d at 1318 (noting that expert testimony is useful for providing background on the technology at issue or explaining how an invention works, but that "conclusory unsupported assertions by experts as to the definition of a claim term are not useful to a court.").

I also reject that part of Sioux Steel's proposed construction regarding the means by which a grain bin is emptied – "can be emptied, at least partially, by gravity through a center well." The specification provides "[t]he floor has at least one well or sump opening . . ." and refers to "well (or wells)" throughout, without identifying their location as "center." *See* Doc. No. 38-1 at 6-7. As such, I decline to construe "grain bin" to contain Sioux Steel's proposed limitation, as the patent itself does not limit the term in such a way.

[6] *See* Doc. No. 38-1 at 8 (stating in Claims 4 and 5 "rotate about said well"); at 10 (stating in Claim 21 "said first end is adapted to pivot around said well of grain bin).

Based on the claim language and specification, I find that the appropriate construction of grain bin is "a structure for storing grain having an interior for holding a quantity of grain, having a floor within said interior for supporting said quantity of grain, and having a well in said floor for allowing grain to be unloaded from said interior." This language comes directly from the preambles, which I find limiting, but only to extent described therein, and which is consistent with the specification.

C. Well

Sioux Steel's Position	Sukup's Position
An opening that allows for the discharge of grain from the grain bin through the grain bin floor	A structure for receiving grain.

1. The parties' arguments

Sioux Steel argues that "well" has a well-recognized meaning in the art as "an opening in the grain bin floor that allows for the discharge of grain." Doc. No. 42 at 22. It relies on the preambles, which identify that the grain bin has a well that allows the grain to be unloaded "therethrough." It also cites the specification language that the floor of the grain bin "has at least one well or sump opening 25 therein for allowing grain G to pass therethrough and be unloaded from the interior 15 of the grain bin 13." Doc. No. 38-1 at 6. Finally, Sioux Steel cites Figure 1 of the '930 patent, which shows grain flowing through the floor of the grain bin. *Id.* at 23.

Sukup argues that Sioux Steel's proposed construction would render the language in the preambles superfluous because those aspects of well are already encompassed in the preambles. Doc. No. 43 at 15. Moreover, Sukup argues that Sioux Steel improperly seeks to narrow the construction of the term to an "opening" rather than a structure having an opening. *Id.* It uses a sump as an example. While sumps in basements form

an opening, the sump itself is a structure and water on a basement floor enters the sump through the opening. No one mistakes the sump as the opening rather than the structure itself. Similarly, Sukup argues that a well forms an opening to receive grain, but an opening (a void) is a product of the surrounding structure of the well. *Id.*

Sioux Steel argues that Sukup's proposed construction fails to acknowledge that "well" requires an "opening" even though Claims 1 and 14 state that the grain bin floor has "a well in said floor for allowing grain to be unloaded from said interior of said grain bin therethrough." Doc. No. 50 at 12-13 (citing Doc. No. 38-1 at 7). It states that a "well" as used in the '930 patent is defined by its opening and is not dependent on "structure." *Id.* at 13. Moreover, it disagrees with Sukup's argument that a purported "absence of structure" or negative claim limitation in not allowed. Sioux Steel cites the Manual of Patent Examining Procedure, which states, "[t]he current view of the courts is that there is nothing inherently ambiguous or uncertain about a negative limitation. So long as the boundaries of the patent protection sought are set forth definitely, albeit negatively, the claim complies with the [statutory] requirements." Doc. No. 57 at 5 (citing MPEP 2173.05(i)). Sioux Steel also takes issue with the word "receive," as it contends the grain passes through the well rather than the well "receiving" the grain. Doc. No. 50 at 13. It contends that Sukup's use of the word "receive" would allow it to claim that other "structures" that "receive" grain, such as conveyors and other devices, could constitute a "well" under Sukup's proposed construction. *Id.* Sioux Steel contends the intrinsic evidence of the '930 patent (recognizing an opening in the grain bin floor) is contrary to that concept.

2. Analysis and Final Construction

I agree that Sukup's proposed construction does not fully convey the concept of "well" as set forth in the claim language and specification. While I appreciate that a "well" requires some structure, I find that the structure can be understood by a

construction that specifies a well is an opening in the grain bin floor. I agree with Sioux Steel that it is the opening in the floor that is crucial to the construction because the claim and specification describe the grain passing "therethrough." *See* Doc. No. 38-1 at 6-7 ("the floor 18 has at least one well or sump opening 25 therein for allowing grain G to pass therethrough and be unloaded from the interior 15 of the grain bin 13" and "having a well in said floor for allowing grain to be unloaded from said interior 15 of said grain bin therethrough")). Based on the intrinsic evidence, I construe "well" to be "an opening in the grain bin floor that allows grain to pass therethrough."

D. The Elongated Hood/Frame

The parties disagree on the terms that need to be construed describing the components of the frame. Their respective positions are outlined below:

Claim Term/Phrase #3 (proposed by Sioux Steel) An elongated hood having a top panel, a first side wall, and a second side wall (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
An extended cover or shroud that has a part above the paddles and two lateral portions	Sukup contends it is improper to construe all of the subject claim terms together as Sioux Steel proposes to do, as it risks not giving meaning to all of the structural limitations in the claim language.
Claim Term/Phrase #4 (proposed by Sukup) Elongated (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**

Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: Extended	Extending the length of; long in proportion to width.
Claim Term/Phrase #5 (proposed by Sukup) Elongated frame (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed by the Court. To the extent the Court believes a construction is needed for the jury, Sioux Steel proposes: An extended supporting structure	See proposed constructions and supporting evidence identified for "elongated" and "frame".
Claim Term/Phrase #6 (proposed by Sukup) Frame (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed by the Court. To the extent the Court believes a construction is needed for the jury, Sioux Steel proposes: A supporting structure	A supporting structure
Claim Term/Phrase #7 (proposed by Sukup) Elongated hood (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**

Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: An extended cover or shroud	See proposed constructions and supporting evidence identified for "elongated" and "hood".
Claim Term/Phrase #8 (proposed by Sukup) Hood (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: A cover or shroud	A protective cover.
Claim Term/Phrase #9 (proposed by Sukup) Top panel (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**
Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: A part of the hood above the paddles	A top wall that protects the paddles from grain.
Claim Term/Phrase #10 (proposed by Sukup) Side wall (Claims 1 and 14)	
Sioux Steel's Position	**Sukup's Position**

Sioux Steel does not believe that this term needs to be construed in isolation of the entire phrase in Item 3. To the extent the Court believes a separate construction is needed for the jury, Sioux Steel proposes: A lateral portion of the hood	A lateral wall that controls the amount of grain that enters the housing.

1. The parties' arguments

Sioux Steel argues the claim phrase related to the elongated hood should be construed as a whole, rather than individual parts. In support of its position, it notes that the claims recite a sweep having an "elongated frame" having two ends, with one end located adjacent to the well around which the sweep rotates and having an "elongated hood." With regard to the other end of the frame, Sioux Steel notes that the specification says it should be "preferably positioned adjacent the wall structure 17 of the grain bin 13." It argues that the frame/hood must be extended between these two ends (the well and the wall) in order to cover the grain bin floor as it rotates around the well.

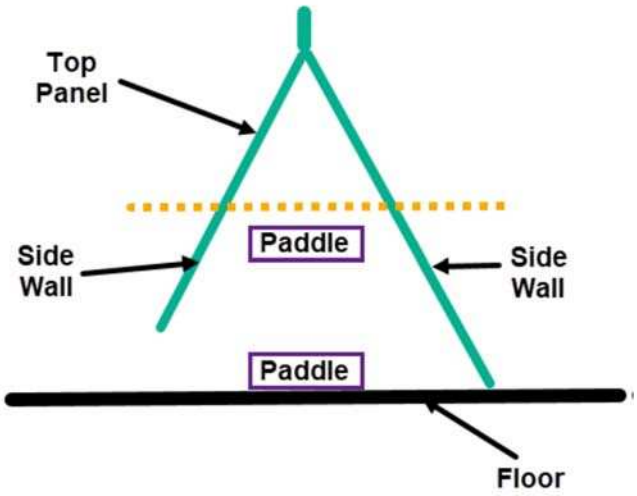
Sioux Steel also relies on the specification language referring to the hood as a "shroud." Because the hood covers the paddles (except at the open bottom and open mouth of the sweep), Sioux Steel argues there are two lateral portions (side walls) and a top panel. With regard to "panel," Sioux Steel relies on the Oxford Dictionary of Mechanical Engineering, which defines it as "1. A sheet of metal, plastic, or other material held in a frame" or "2. A basic element of a framework in the form of a triangle, square, or other shape." *See* Doc. No. 42-9. It contends the top panel is one basic element of the overall framework or hood. For these reasons, it argues that "an elongated hood having a top panel, a first side wall, and a second side wall" should be construed to mean "an extended cover or shroud that has a part above the paddles and two lateral portions." Doc. No. 42 at 26. It contends that "frame" does not require construction but agrees with Sukup that it means "a supporting structure."

Sukup argues it is improper to construe a phrase that includes numerous structural limitations as a single claim term because it risks not giving meaning to all of the structural limitations in the claim language. Doc. No. 43 at 17. Sukup argues that "elongated," "hood," "top panel," and "side wall" should all be construed separately. Sukup relies heavily on the prosecution history, arguing that Dixon had to significantly limit the scope of the claims by adding structural limitations in order to distinguish cited prior art. *Id.* Dixon amended the claim to further define "an elongated housing" and housing including "a top panel, a first side wall, and a second side wall." Sukup notes that Dixon referred to these parts as "critical limitations of amended claim 1" when arguing for allowance of the patent. *See* Doc. No. 38-2 at 72. Sukup argues "to fall within the scope of the claims, a paddle sweep must have more than just any elongated hood; the elongated hood must have a top panel and two side walls as claimed." Doc. No. 43 at 17.

Sukup also argues that the top panel and two side walls are claim limitations that must be given meaning and that Sioux Steel cannot seek to broaden the claim now. *Id.* at 18. Finally, Sukup argues that the specification also supports construing "top panel" and "side wall" separately. *Id.* It points out that Dixon chose to describe the hood by referencing its constituent parts (top panel, first side wall and second side wall). These parts are even labeled separately in the figures with reference numerals 39, 41 and 43. The written description further identifies these structural limitations separately. *Id.*

In response, Sioux Steel argues that its definition accounts for all claim terms because the "part above the paddles" refers to the top panel and "two lateral portions" refers to a first side wall and a second side wall. It argues that different claim elements need not be construed as "separate and distinct" structures where the claim does not require such a limitation. It contends that the "elongated hood" does not have to have distinct, separate structures, and that the top panel can be any number of shapes – domed, circular, oval triangular, obelisk or even tepee-shaped – and still fall within the scope of

the claim. For instance, it illustrates how its construction could read on Sukup's sweep with respect to the top panel and side walls:



With regard to Sukup's proposed construction of breaking down each element, Sioux Steel argues this destroys the context of the disputed phrase by relying on dictionary definitions and limits the scope of the '930 patent to the preferred embodiment. Doc. No. 50 at 16. It turns to Maness' declaration, which states that the inventor's use of "metal hood or shroud" in the specification is an expansive phrase indicating that the "elongated hood" element should not be limited to the structure shown in the preferred embodiment, but could be constructed in many different shapes/configurations. *Id.*

To the extent I find that the phrase "an elongated hood having a top panel, a first side wall, and a second side wall" should be construed in separate parts, Sukup argues that "elongated," "hood," "top panel" and "side wall" should all be separately construed. While Sioux Steel's position is that they should be construed as one, I will consider its alternative arguments addressing Sukup's proposed constructions for the individual terms.

Regarding "elongated," Sukup's proposed construction is: "extending the length of; long in proportion to width." Doc. No. 43 at 18-19. Sioux Steel does not believe

the term needs to be construed in isolation, but to the extent the court finds it necessary, it proposes: "extended." Doc. No. 42 at 26. Sukup argues that Sioux Steel's proposed construction is inconsistent with the ordinary and customary meaning of the term which refers to the length of a structure, not just an extension. Doc. No. 43 at 19. It cites three cases in which courts construed elongated by referencing length in relation to width. *Id.* at 19-20. Sioux Steel argues that elongated should be construed as an adjective, not a verb. *See* Doc. No. 42 at 26. It further argues that there is no requirement that the hood be of any particular length, only that it be elongated. *Id.* It contends Sukup's definition is typically used in the medical field and that such a definition is inconsistent with the claim language here as the claim does not compare length of the hood in relation to its width in any way. *Id.* at 27.

With regard to "frame," the parties appear to agree that it means "a supporting structure." Sioux Steel, however, proposes "an extended supporting structure" be used for the term "elongated frame." Even though "elongated frame" is proposed by Sukup, Sukup also directs the court to its separate constructions for "elongated" and "frame." [7]

[7] Sukup proposes "elongated frame" as a separate term in addition to "elongated" and "frame," but refers the court to its proposed constructions for "elongated" and "frame" in describing the proposed construction for "elongated frame" as one phrase. *See* Doc. No. 43 at 20. It is confusing why Sukup has proposed this as a separate term as it appears that Sukup would prefer "elongated" and "frame" to be construed separately and that Sioux Steel would prefer "elongated frame" to be construed together to the extent the court does not find it appropriate to construe it within the longer phrase "an elongated hood having a top panel, a first side wall and a second side wall." The same situation exists with regard to "hood." In any event, because Sukup refers to the separate definitions, I will primarily focus on those and note any arguments by Sioux Steel for construing any of the terms together. Alternatively, Sukup has stated it would have no objection to the following constructions of "elongated frame" and "elongated hood," which Manness agreed with during his deposition:

- "Elongated frame" – a frame that extends over the entirety of the paddles and chain of the conveyor sweep

To the extent the terms are separated, Sioux Steel argues "frame" need not be construed by the court. Doc. No. 42 at 26, n.8.

Regarding "hood" or "elongated hood," Sioux Steel's proposed construction is an extended cover or shroud, while Sukup's proposed construction for "hood" only is "a protective cover." Therefore, the parties are in agreement with regard to the "cover" aspect. Sukup relies on the specification and prosecution history for its construction. Doc. No. 43 at 22. It notes that the specification expressly refers to the hood as a "protective cover" for the paddles:

> The hood or shroud formed by the frame 33 is preferably shaped and sized so that the paddles 59 are covered except at the opened bottom 45 and mouth 47 thereof to provide a protective cover extending over the top and at least a portion of the sides of the sprockets 49, 51, the chain 57, and the paddles 59 to provide safety and protection as will now be apparent to those skilled in the art.

Doc. No. 38-1 at 7. Sukup notes the prosecution history indicates that the Examiner initially rejected claims 1 and 4 as obvious in light of the prior art under 35 U.S.C. § 103(a), stating:

> From these teachings of Chapman et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reimbart by providing the scraper arm 6 with an elongated hood having a top panel, first and second side walls, and an opened bottom, with the first side wall having an opened mouth for allowing bulk material to enter the hood, and with the paddles engaging the bulk material of the floor 2 of the silo 1 through the opened bottom of the hood, because the provision of such a hood provides protection for the upper run of the sweep conveyor and also acts as a stabilizer for the sweep conveyor (see Fig. 1; column 3, lines 52-59 of Chapman et al.).

- "Elongated hood" – a hood having a top panel, a side wall, a second side wall, and an opened bottom, that all extend over the entirety of the paddles and chain of the conveyor sweep.

See Doc. No. 58 at 4, n.1. Manness has since indicated that he was referring only to the preferred embodiment when he agreed with those definitions. *See* Doc. No. 59-1.

Doc. No. 38-3 at 117. In response, Dixon argued the "hood" was novel because of the "shielding" function:

> One advantage of the Dixon device is the ability to use a pair of side walls to only expose a portion of the paddles, which controls that amount of grain entering the housing to prevent the housing from climbing the grain pile and to relieve stress on the belt or chain. Chapman does not teach shielding its slats (defined by paddles by the Examiner) and, in fact, exposes nearly all of its slats at both the top and bottom with only a few of the slats being covered.
>
> . . . .
>
> It is believed that though Chapman calls element 56 a protective cover, there is contrary evidence to its protection purpose or abilities and instead is simply a stabilizing enhancement.
>
> . . . .
>
> This basis for element 56, combined with a complete lack of any statements by Chapman as to what is being protected, while clearly showing pictures of the slats being substantially non-shielded, as related to silage or grain, can only lead one skilled in the art to the understanding that Chapman is not teaching a paddle shielding housing analogous to that claimed by the applicant. As such, no one in the art of augers would ever look to Chapman to find a protective cover or shield for a grain material sweep and instead would remain with the open faced design typically associates with auger sweeps.

Doc. No. 38-3 at 142-43. Sukup argues that claims cannot be construed one way in order to obtain their allowance and in a different way against accused infringers. Doc. No. 43 at 24 (citing *Unique Concepts, Inc. v. Brown*, 939 F.2d 1558, 1562 (Fed. Cir. 1991)). Sukup argues its proposed construction of hood as a "protective cover" is consistent with the applicant's argument in overcoming the USPTO's obviousness rejection and that defining it as merely a "cover or shroud" would broaden the claims beyond what was argued to obtain their allowance. Doc. No. 43 at 24. *See also* Doc. No. 45 at 7.

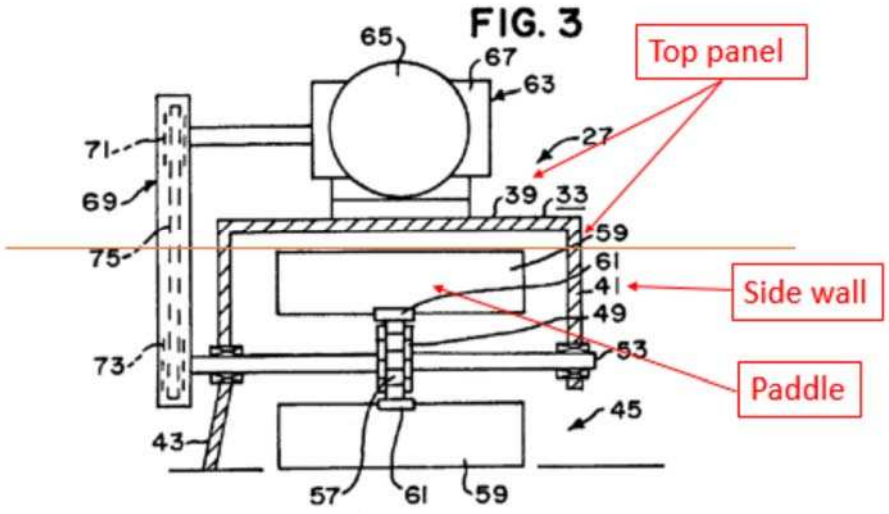
Sioux Steel argues that the word "protective" inserts a functional limitation that is not found in the claims. Doc. No. 42 at 27. It emphasizes that the specification describes the protective nature of the hood as a preference, not a requirement. It argues the hood provides other functions including preventing grain from contacting the paddles at undesired locations, such as paddles on the "return path" moving away from the well. *Id.* With regard to the reexamination, Sioux Steel argues that the Examiner initially rejected claims 1 through 6 because the slats or scoops of Chapman (Silage Handling Machines) disclosed paddles similar to those recited in the '930 patent capable of sweeping grain. Doc. No. 50 at 18. Sioux Steel explains that the Examiner failed to appreciate the difference between silage and grain[8] and the applicant was forced to file multiple arguments, conduct in-person interviews and ultimately appeal to PTAB. Doc. No. 50 at 19. It states that PTAB ultimately reversed the Examiner's rejections because the applicant had "persuasively shown that Chapman's slats or scoops are not necessarily capable of engaging or sweeping grain." *Id.* at 20. In other words, Sioux Steel argues that the fighting issue was the difference between "paddles" or "slats" for a silage device and a device for engaging dry, free-flowing grain, not the nature of the hood. *Id.*; *see also* Doc. No. 38-3 at 436-37, 440. To the extent that Sukup's use of the word "protective" is to express that it prevents grain from entering the hood except at desired locations, Sioux Steel argues that concept is embraced by the claim language "elongated hood . . . having an opened bottom" through which the paddles engage the grain. For these reasons, Sioux Steel argues that the "elongated hood" extends over the top and at least a portion of the sides of the paddles, which is embraced by its construction of "a cover or shroud." *Id.*

[8] *See* Doc. No. 38-3 at 124-26, 141-42 (describing silage as a mash of thick, compacted material, such as the stalks of corn and other green matter, which is typically allowed to partially decompose in an environment of low oxygen).

The next disputed terms are "top panel" and "side wall." Sukup argues these should be construed separately. As to "top panel," Sukup proposes: "a top wall that protects the paddles from grain." Doc. No. 43 at 25. For "side wall," it proposes: "a lateral wall that controls the amount of grain that enters the housing." *Id.* Again, Sukup relies on the prosecution history in support of its proposed constructions. It argues that neither the specification nor the claims provide a structural or functional distinction between a panel and a wall and that the terms are used interchangeably throughout the intrinsic record. *Id.* at 26. It points out that the applicant did distinguish between a "top panel" and "side wall," however. Specifically, Sukup notes that the claimed "elongated hood having a top panel" was distinguished over prior art because of the protective or "shielding" function it provided that was not present in the prior art. "Side wall" was used to similarly distinguish the prior art because the applicant emphasized the "ability to use a pair of side walls to only expose a portion of the paddles, which controls the amount of grain entering the housing to prevent the housing from climbing the grain pile and to relieve stress on the chain." *Id.* at 27. Finally, Sukup points to Figures 2 and 3 of the '930 patent labeling the top panel 39 and side wall 41 from a sectional perspective and diagrammatic perspective. *Id.* at 29. *See also* Doc. No. 45 at 8-9.

Sioux Steel argues that a separate construction for top panel should be: "a part of the hood above the paddles." Doc. No. 42 at 28. It argues that Sukup's proposal adds a functional limitation not required by the claim and adds unneeded complexity by equating or substituting panel with wall. It contends that panel is best known to be an element or portion of a larger object. With regard to "side wall," Sioux Steel proposes: "a lateral portion of the hood." *Id.* It notes that Claim 6 recites the "open mouth" of the first side wall which "allow[s] grain to enter said hood." *Id.* It argues that it is the mouth that allows or controls the grain entering the hood. *Id.* at 28-29.

Sukup points out that Sioux Steel's proposed construction of "top panel" would include a portion of the "side wall" that is above the paddles, as illustrated below:



Doc. No. 43 at 30. It argues that this proposed construction is inconsistent with the intrinsic evidence and Sioux Steel's own proposed construction of "side wall." Sukup notes that the parties agree on the "lateral" component and that Figure 3 depicts a "lateral portion of the hood" as including that portion of the wall that extends above the paddles. *Id.* at 30-31. Under Sioux Steel's proposed construction, the portion of the "side wall" that is both a "lateral portion of the hood" and "above the paddles" would fall within Sioux Steel's proposed constructions of both a "top panel" and a "side wall." Sukup argues that "top panel" must be construed to recite structure as different than the structure described as a "side wall." *Id.* at 31. For these reasons, Sukup argues Sioux Steel's proposed construction must be rejected.

2. Analysis and Final Construction

Claim 1 references both an "elongated frame" and an "elongated hood." *See* Doc. No. 38-1 at 7-8 ("an elongated frame for position on said grain supported on said floor of said grain bin, said frame having a first end and a second end, said first end of said frame being positioned adjacent said well in said floor of said grain bin; said frame including an elongated hood having a top panel, a first side wall, and a second side wall,

and an opened bottom."). I find that "elongated frame" and "elongated hood" should be construed and that "top panel" and "side wall" also require separate construction.

With regard to the elongated aspect of "elongated frame" and "elongated hood," Sioux Steel proposes it does not need construction, but offers "extended" as an alternative. Sukup argues that "extended" is insufficient because it does not indicate how far and in what direction (length in proportion to width). In construing "elongated frame" and "elongated hood," I note that it is not the measurement or proportions that matter, but the fact that it extends far enough so that all paddles fall beneath the hood. The claims, specification and prosecution history all emphasize that the paddles engage the grain only through the opened bottom of the hood of the frame. If the hood was not designed to cover the length of the frame, the paddles would likely engage grain elsewhere. *See also* Doc. No. 54 at 76-82 (discussing Manness' testimony in which he acknowledged that the hood should extend the length of the frame).[9] As such, I find that "elongated frame" should be construed as: "a supporting structure that extends over the entirety of the paddles and chain of the conveyor sweep."

With regard to "hood," the dispute centers on whether "protective" can be used to describe it. By stating that the hood extends the length of the frame and is composed of a top panel, a first side wall, and a second side wall, I find that the protective nature of the hood is inherent. I do not find that "protective" needs to be expressly used in the construction, as doing so would confuse structure with a function that is not expressly claimed. While the protective nature of the Dixon device was used to distinguish it from the Chapman device in the prosecution history, I note that the protective feature primarily related to how far the hood (or more precisely, the side walls) extended towards the floor

[9] Manness later clarified that in stating "there has to be a cover or hood that serves the function of the side walls and top panel the entire length" he meant this as to the preferred embodiment. *See* Doc. No. 59-1.

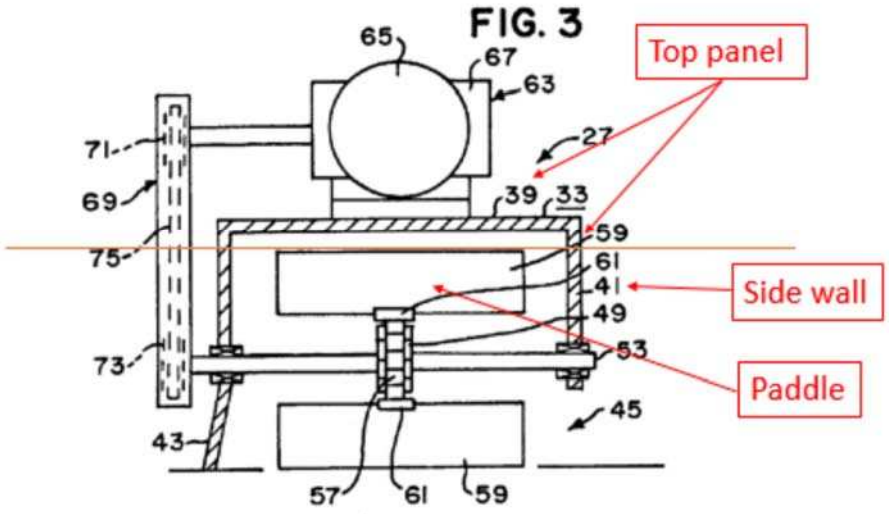
to cover the paddles or slats. *See* Doc. No. 38-3 at 141 ("Chapman is not teaching a paddle shielding housing analogous to that claimed by the applicant."). This concept is addressed by Claim 14(e), which states:

> a plurality of spaced apart paddles attached to said belt for engaging grain on said floor of said grain bin through said opened bottom of said hood of said frame, said first and second side walls extending downwardly from said top panel, said first and second side wall laterally shielding portions of said paddles extending above said belt and positioned between first and second wheels, and second side wall having a bottom edge spaced further from said top panel than a bottom edge of said first side wall.

Doc. No. 38-1 at 10.

With regard to top panel and side wall, I find that these terms must be included in the construction of hood as they describe the components that make up the hood. In other words, "hood" in the context of the '930 patent refers to a top panel and two side panels. Therefore, I find that "elongated hood" should be construed to mean "a cover or shroud extending the length of the frame that is comprised of a top panel, a first side wall and a second side wall."

I further find that top panel and the side walls must be separately construed given that the parties advocate for two very different meanings. Sioux Steel proposes to construe side wall as *a lateral portion* of the hood. I disagree that a "side wall" should be construed in such a way that it could be divided by an invisible line marking the top of the paddles underneath so that a lateral wall could be considered part "top panel" and part "side wall" as illustrated below.



Sioux Steel argues that nothing in the patent suggests that top panel and side walls must be mutually exclusive. I disagree, given that the claim defines a hood by three separate parts and the side walls are described as extending "from the top panel." Doc. No. 38-1 at 6. Had they not been mutually exclusive, there would be no need to separately name them and include them in the claims. I also disagree with Sukup's construction of side wall because it focuses on the function rather than the claimed structure. This aspect of side wall is covered by Claim 6. *See* Doc. No. 38-1 at 8 ("The unloading system of claim 1 in which the lower end of said first side wall of said hood of said frame has an opened mouth for allowing grain to enter said hood."). Because the parties agree as to the lateral aspect, and I find that the lateral portion of the hood cannot be conceptually divided into a top panel and side wall, I find that the proper construction for side wall is "the lateral part of the hood." This construction clarifies that the entire lateral part of the hood constitutes the side wall.

As for top panel, the parties disagree as to whether it is a "wall" that protects or shields the paddles from grain (Sukup's position) or a "part" of the hood above the panels (Sioux Steel's position). I have already rejected Sioux Steel's position that any lateral part of the hood can constitute the top panel. I also note that the claim declined to use

the word "wall" to describe the top part of the hood. *See Innova/Pure Water, Inc.*, 381 F.3d at 1119 ("when an applicant uses different terms in a claim it is permissible to infer that he intended his choice of different terms to reflect a differentiation in the meaning of those terms."). Therefore, I find the appropriate construction for top panel is "the medial part of the hood." Taken together, the constructions for top panel and side wall indicate that the "elongated hood" is composed of three parts: two lateral parts and one medial part.

E. Power Means

Sioux Steel's Position	Sukup's Position
Claimed Function: for rotating one of said wheels; [wherein the wheel may be a sprocket] Corresponding structure: motor	Claimed Function: for rotating one of said wheels to cause said belt to rotate about said first and second wheels and cause said paddles to sweep grain from said floor of said grain bin to said well of said grain bin.[10] Corresponding Means: a motor 65 and a gear box 67 for reducing the speed or revolutions per minute of the output shaft of the motor 65 and changing the axis of rotation of the output shaft of the motor 65, and a belt drive means 69 (defined below) for transferring power from the gear box 67 to the first shaft 53. The motor 65 and gear box 67 are mounted on the first end 35 of the frame 33. The belt drive means 69 includes a first pulley or sprocket 71 attached to the output shaft of the gear box 67, a second pulley or sprocket 73 attached

[10] During the *Markman* hearing, Sukup agreed to Sioux Steel's construction of the claimed function. *See* Doc. No. 54 at 109-10.

	to one end of the first shaft 53, and a belt or chain 75 extending between the first and second pulleys 71, 73 so that power from the motor 65 can be transferred through the gear box to the sprocket 49 to cause the chain 57 and paddles 59 to circle about the sprockets 49, 51 in the direction of the arrows 77 in FIGS.2 and 4, dragging grain G toward the first end 35 of the frame 33 to a well 25.

1. The parties' arguments

The parties agree that power means is a mean-plus-function claim phrase governed by 35 U.S.C. § 112(f), which states:

> An 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. § 112(f). The parties agree that the first step in construing such a phrase is to "identify the function explicitly recited in the claim." *See* Doc. No. 42 at 17 (quoting *Asyst Tech. v. Empak, Inc.*, 268 F.3d 1364, 1369 (Fed. Cir. 2001)). The second step is to "identify the corresponding structure set forth in the written description that performs the particular function set forth in the claim." *Id.* *See also* Doc. No. 43 at 32.

As noted above, Sukup agreed to Sioux Steel's construction of the claimed function as follows: "for rotating one of said wheels [wherein the wheel may be a sprocket]." Doc. No. 54 at 109-110. Therefore, only the second step – identifying the corresponding structure or the – is in contention. Sukup argues that the scope of a mean-plus-function limitation does not extend to *all* means for performing a certain function, but is limited to the structure disclosed in the specification and its equivalents. Doc. No. 43 at 33. Sioux Steel's proposed construction of the corresponding structure is "motor." *See* Doc.

No. 42 at 29. Sukup argues this construction ignores most of the corresponding structure disclosed in the specification, as follows:

> The power means 63 preferably includes a motor 65 and a gear box 67 for reducing the speed or revolutions per minute of the output shaft of the motor 65 and changing the axis of rotation of the output shaft of the motor 65, and changing the axis of rotation of the drive or output shaft of the motor 65, and a belt drive means 69 or the like for transferring power from the gear box 67 to the first shaft 53. The motor 65 and gear box 67 are preferably mounted on the first end 35 of the frame 33. The belt drive means 69 may include a first pulley or sprocket 71 attached to the drive or output shaft of the gear box 67, a second pulley or sprocket 73 attached to one end of the first shaft 53, and a belt or chain 75 extending between the first and second pulleys 71, 73 so that power from the motor 65 can be transferred to the sprocket 49 to cause the chain 57 and paddles 59 to circle about the sprockets 49, 51 in the direction of the arrows 77 in FIGS. 2 and 4, dragging grain G toward the first end 35 of the frame 33 to a well 25.

Doc. No. 43 at 33-34 (citing Doc. No. 38-1 at 7).

Sioux Steel argues that the corresponding structure is the "motor" as it is only the motor that provides the "power" for rotation. Doc. No. 42 at 30. Sioux Steel contends Sukup's construction is over-inclusive because it incorporates the result of the rotation of the wheel into its claimed function. *Id.* at 31. It also argues that Sukup includes structure that merely enables the motor to carry out the claimed function of "rotating one of said wheels." *Id.* With regard to "gear box" and "belt drive means" being identified within the corresponding structure, Sioux Steel argues these are other components identified in the specification that are part of the overall structure that again, enable the device to operate as intended, but do not actually perform the function – providing the power for "rotating one of said wheels," and therefore, do not further limit the claims. *Id.* (citing *Ayst*, 268 F.3d at 1370 for the proposition that "[s]tructural features that do not actually perform the recited function do not constitute corresponding structure and thus do not serve as claim limitations."). Sioux Steel also argues that gear box would be the corresponding structure for the function of reducing the speed or revolutions of the output

shaft and that the belt drive means is the corresponding structure for transferring power from the gearbox to the first shaft. Doc. No. 54 at 113-14.

Sioux Steel relies heavily on *Asyst* in support of its position. In that case, the means-plus-function limitation was a "second microcomputer means for receiving and processing digital information." *Asyst*, 268 F.3d at 1371. The function was receiving and processing digital information. The district court concluded the corresponding structure for this included a communication line. *Id.* The Federal Circuit reversed, holding that the disclosed local control processor performed the function and the communication line was not part of the corresponding structure because it merely allowed the local control processor to communicate with other components. *Id.*

Sioux Steel also emphasizes that "gear box" and "drive belt means" cannot be included in the corresponding structure because that specification states these are "preferable" structures and identifies that they perform other functions than the one claimed. *See* Doc. No. 57 at 7-8 (citing Doc. No. 38-1 at 6 stating "the power means preferably includes a motor 65 and a gear box 67 for reducing the speed or revolutions per minute of the drive or output shaft of the motor 65 and changing the axis of rotation of the drive or output shaft of the motor 65, and a belt drive means 69 or the like for transferring power from the gear box 67 to the first shaft 53."). It cites the following from the specification as evidence that the motor is the corresponding structure for "rotating one of said wheels [sprocket]":

- " . . . an endless chain extending between the first and second sprockets . . . and a motor for causing the chain to rotate . . ."
- " . . . so that power from the motor 65 can be transferred to the sprocket 49 to cause the chain 57 and paddles 59 to circle about the sprockets . . ."
- "The motor 65 can then be activated to cause the chain 57 to rotate in the direction of the arrows 77 . . ."

Doc. No. 57 at 8 (citing Doc. No. 38-1 at 1, 6).

Sukup cites the same language of the specification cited by Sioux Steel above and emphasizes that, broken down, the specification states, "the power means 63 preferably includes a motor 65 and a gear box 67 . . . and a belt drive means 69." *See* Doc. No. 45 at 12 (citing Doc. No. 38-1 at 6). It then goes on to describe what the belt drive means includes (a first pulley or sprocket 71 . . . a second pulley or sprocket 73 . . . and a belt or chain 75 . . .). *Id.* Sukup argues this entire structure is clearly linked to the functions recited in the claims and is further supported by the illustrations of the preferred embodiment, which show power means is inclusive of the motor, gear box and belt drive means. *Id.* at 13. It contends that without including each of these three structural components, the scope of the claims will be improperly broadened. *Id.* It states that all three are necessary to perform the claimed function (rotating the wheel). The fact that the gear box may also reduce the speed or revolutions is not dispositive according to Sukup because corresponding structure may provide other features as long as it operates to perform the claimed function. *See* Doc. No. 58 at 7 (citing *Kinzenbaw v. Case LLC*, 179 F. App'x. 20, 29 (Fed. Cir. 2006) (concluding that district court was correct to construe the limitation as requiring intermediate links that were necessary for performing the claimed function of "rotating the lift frame" even though they performed additional operations). Sukup emphasizes that if the function was to provide power, then the motor may be the only necessary corresponding structure, but the claimed function here is to rotate the wheel, which is why all three components are necessary. *See* Doc. No. 54 at 123-25.

2. Analysis and Final Construction

As noted above, the parties agree that the claimed function is "for rotating one of said wheels [wherein the wheel may be a sprocket]." Doc. No. 54 at 109-110. In construing the corresponding structure, I must determine what is the minimum structure

that allows this function to occur. *See Asyst*, 268 F.3d at 1370-71 ("Section 112 paragraph 6 does not 'permit incorporation of structure from the written description beyond that necessary to perform the claimed function.'") (quoting *Micro Chem., Inc. v. Great Plains Chem. Co.*, 194 F.3d 1250, 1257-58 (Fed. Cir. 1999)). "The corresponding structure to a function set forth in a means-plus-function limitations must actually perform the recited function, not merely enable the pertinent structure to operate as intended." *Asyst*, 268 F.3d at 1371. In *Asyst*, the court gives the example that "[a]n electrical outlet enables a toaster to work, but the outlet is not for that reason considered part of the toaster." *Id.* Where "a patentee chooses to disclose a single embodiment, then any means-plus-function claim limitation will be limited to the single disclosed structure and equivalents thereof." *Mettler-Toledo, Inc. v. B-Tek Scales, LLC*, 671 F.3d 1291, 1296 (Fed. Cir. 2012) (citing *Nomos Corp. v. Brainlab U.S.A., Inc.*, 357 F.3d 1364, 1368 (Fed. Cir. 2004)).

I disagree with Sioux Steel that the corresponding structure for the claimed function can be limited to the motor. Without the gear box and belt means, the motor would merely run without causing the wheel or sprocket to rotate. If the claimed function was solely to provide power, perhaps the motor on its own would be the appropriate corresponding structure. However, the parties agree that the claimed function of power means is "for rotating one of said wheels [wherein the wheel may be a sprocket]." On the other hand, I find that Sukup's proposed construction goes too far, especially with regard to belt drive means. The parties did not request construction of this term. In construing the corresponding structure, I have also chosen to exclude the additional functions that the gear box and belt drive means provide as identified in Sukup's proposed construction and the specification. These are: "reducing the speed or revolutions per minute of the output shaft of the motor 65 and changing the axis or rotation of the output shaft of the motor 65" (gear box) and "transferring power from the gear box 67 to the first shaft 53" (drive belt means). In sum, I find the appropriate construction of the

corresponding structure for the claimed function of power means is "a motor, a gear box and a belt drive means."

F. Drive Means

Sioux Steel's Position	Sukup's Position
Claimed function: for causing said frame to rotate Corresponding structure: at least one drive wheel	Claimed Function: for causing said frame to rotate about said well. Corresponding structure: One or two drive wheels 81 mounted to the second end 37 of the frame 33 for being rotated by the power means 63 (same Power Means as defined above in the Power Means construction) and for drivably engaging the floor 18 of the grain bin 13 and grain G supported on the floor 18 of the grain bin 13 to rotate the frame 33 about the well 25. The drive means 79 includes a gear box 83 coupled between the drive wheels 81 and one end of the second shaft 55 for being rotated by the second shaft 55, for reducing the speed or revolutions per minute of the second shaft 55, for changing the axis of rotation, and for rotating the drive wheel 81 in response to the rotation of the first sprocket 49 by the power means 63 (same Power Means as defined above in the Power Means construction).

1. The parties' arguments

The parties agree this is another means-plus-function claim element requiring the same two-step process used in construing power means. Sukup argues that it relies on the claim language itself to arrive at its proposed construction of the claimed function as:

"for causing said frame to rotate about said well." Doc. No. 43 at 35. It contends that rotation "about said well" is a clear limitation that Sioux Steel ignores in its proposed construction of the claimed function as: "for causing said frame to rotate." Sioux Steel argues that including "about said well" wrongly includes the result of the function. Doc. No. 42 at 33-34. In its view, rotation of the frame results in it rotating "about the well." Sukup argues "about the well" is not a result, but a limitation. Doc. No. 45 at 11.

With regard to the corresponding structure, Sioux Steel notes the specification states:

> The drive means 79 may include one or preferably two drive wheels 81 mounted to the second end 37 of the frame 33 for being rotated by the power means 63 and for drivably engaging the floor 18 of the grain bin 13 and/or any grain G supported on the floor 18 of the grain bin 13 to rotate the frame 33 about the well 25.

Id. at 34 (citing Doc. No. 38-1 at 7 (emphasis added)). It argues the corresponding structure is limited to "one or preferably two drive wheels," or "at least one drive wheel." It argues that all other structure identified by Sukup merely enables the drive wheel to operate as intended. *Id.* It insists that the drive wheel is what actually performs the function of rotation and nothing else.

Sukup also cites the above section of the specification, but includes additional language where Sioux Steel left off:

> The drive means 79 preferably includes a gear box 83 coupled between the drive wheels 81 and one end of the second shaft 55 for being rotated by the second shaft 55, for reducing the speed or revolutions per minute of the second shaft 55, for changing its axis of rotation, and for rotating the drive wheel 81 in response to the rotation of the first sprocket 49 by the power means 63.

Doc. No. 43 at 36 (citing Doc. No. 38-1 at 7). It argues that similar to "power means," the specification expressly provides that "drive means" includes a "drive wheel" and "gear box." Doc. No. 45 at 14.

Sioux Steel argues that the gear box and second shaft perform other functions such as "reducing the speed or revolutions per minute of the second shaft 55" and "changing the axis of rotation," but states these functions are not recited in the claims. Doc. No. 50 at 28. It contends these structures merely enable the drive wheel to operate as intended in performing the claimed function.

2. Analysis and Final Construction

a. Claimed Function

I agree with Sukup's position that "about said well" includes a limitation to the claimed function rather than a result. The phrase "for causing said frame to rotate" is ambiguous as to the way the frame is meant to rotate. The phrase "about said well" clarifies that the function of the drive means is to rotate the frame about said well and not around itself or in some other manner. Therefore, I find the appropriate construction of the claimed function is "for causing said frame to rotate about said well."

b. Corresponding Structure

The parties essentially disagree over whether the corresponding structure for the drive means includes the gear box. The relevant description in the specification states:

> The sweep conveyor 27 preferably includes drive means 79 for causing the frame 33 to rotate about the well 25. The drive means 79 may include one or preferably two drive wheels 81 mounted to the second end 37 of the frame 33 for being rotated by the power means 63 and for drivably engaging the floor 18 of the grain bin 13 and/or any grain G supported on the floor 18 of the grain bin 13 to rotate the frame 33 about the well 25. The drive means 79 preferably includes a gear box 83 coupled between the drive wheels 81 and one end of the second shaft 55 for being rotated by the second shaft 55, for reducing the speed or revolutions per minute of the second shaft 55, for changing the axis of the rotation, and for rotating the drive wheel 81 in response to the rotation of the first sprocket 49 by the power means 63, etc., as will now be apparent to those skilled in the art.

Doc. No. 38-1 at 7. Notably, one function the gear box performs is "rotating the drive wheel." While there are numerous other functions, I find that it is an essential structure for performing the claimed function "for causing said frame to rotate about said well." The specification makes it clear that the gear box is what causes the drive wheel to rotate, which is what causes the frame to rotate about said well. Therefore, it should be included in the corresponding structure for the claimed function. For these reasons, the corresponding structure is construed as "one or two drive wheels and a gear box."

G. Substantially Parallel

Sioux Steel's Position	Sukup's Position
Sioux Steel does not believe that this term needs to be construed by the Court. To the extent the Court believes a construction is needed for the jury, Sioux Steel proposes: largely but not wholly in the same direction	Indefinite.

1. The parties' arguments

Claims 8 and 15 state: "at least one of the paddles extends downwardly from said belt and extends laterally to said belt in a direction substantially parallel to the floor." Doc. No. 38-1 at 10. Sioux Steel argues "substantially parallel" is readily understandable without further elaboration. Doc. No. 42 at 35. To the extent a construction is required, Sioux Steel argues that the phrase "substantially parallel" should be construed as "largely but not wholly in the same direction." *Id.* It states this construction is consistent with the patent illustration and that "substantially" is an approximation that accounts for imperfections in the floor or paddles such that if the paddles do not extend in a direction perfectly parallel to the floor, this would not defeat their purpose of sweeping grain from the floor into the well of the grain bin. *Id.*

Sukup notes that "substantially parallel" was not part of the original patent application as filed. Doc. No. 43 at 36. It was added when an amendment was submitted during the ex parte reexamination proceeding. Because the amendment added the term "substantially parallel" for the first time, there is nothing in the specification to provide a standard for measuring the term. *Id.* at 36-37. As such, Sukup argues the term is indefinite. *Id.* at 37. *See Biosig Instruments, Inc. v. Nautilis, Inc.*, 783 F.3d 1374, 1380 (Fed. Cir. 2015) (quoting *Nautilis, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2124 (2014)) (noting that a claim term is indefinite where, "read in light of the specification delineating the patent, and the prosecution history, the claim term fails to inform, with reasonable certainty, those skilled in the art about the scope of the invention."). Sukup also states that when a "word of degree" is used, the court must determine whether the patent provides "some standard for measuring that degree." *Id.* It contends the '930 patent does not provide any standard by which to measure the degree encompassed by the term "substantially parallel." Because this term is indefinite, Sukup argues that Claims 8 and 15 of the '930 patent should be deemed invalid under 35 U.S.C. § 112. *Id.* at 38.

Sioux Steel responds that in the context of the claims and specification, the entire phrase (as opposed to the excised words "substantially parallel") adequately conveys the proper scope of "substantially parallel" to one skilled in the art of grain handling. Doc. No. 50 at 29. It contends that one skilled in the art of grain handling can appreciate that the paddles extend in the same direction as the grain bin floor so that the paddles sweep grain from the grain bin floor. *Id.* It compares this situation to that in *Brandt Indus., Ltd. v. Harvest Int'l Corp.*, No. C15-4049-LTS, 2016 WL 1452402, at *17-20 (N.D. Iowa Apr. 13, 2016), in which I found that the word "substantially" was not defined with a specific numerical threshold, but that the definiteness was "confined by the objectives of specific claims." *Brandt Indus., Ltd.*, 2016 WL 1452402 at *19. Sioux Steel states the definiteness of the claim phrase ". . . extends laterally to said belt in a direction

substantially parallel to the floor" is confined by the stated purpose of the '930 patent, which is for the paddles to engage grain on the floor of the grain bin through the opened bottom of the elongated hood so as to sweep grain from the floor into the well. Sukup argues the '930 patent is not comparable to *Brandt* because "substantially parallel" was not a part of the original patent and the claim in which it was added provides no additional guidance by which a person skilled in the art could use as a basis to reasonably ascertain the scope of the claim. Doc. No. 43 at 38.

2. Analysis and Final Construction

I agree with Sioux Steel that "substantially parallel" is sufficiently definite as contained within the entire claim phrase and given the objectives of the '930 patent. The Supreme Court has described definiteness as follows:

> [W]e read § 112, [(b)] to require that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty. The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable. The standard we adopt accords with opinions of this Court stating that 'the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter.'

Nautilus, Inc. v. Biosig Instruments, Inc., 572 U.S. 898, 910 (2014) (quoting *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270 (1916)). Pursuant to this standard, I am confident that one skilled in the art could understand "substantially parallel" in the context of the claim and specification history with reasonable certainty. The claims state that the paddles are for "engaging grain on said floor of said grain bin" (Claim 1), are "configured to sweep grain into said well," (Claim 7) and "configured to contact said floor" (Claim 9). Moreover, as Sioux Steel points out, the entire phrase in which "substantially parallel" falls, provides sufficient context. *See* Doc. No. 38-1 at 10 ("extends laterally to said belt in a direction substantially parallel to the floor"). I also

agree with Sioux Steel that "substantially parallel" requires no construction and can be given its ordinary meaning.

V. CONCLUSION

For the reasons set forth herein, the court's final constructions of the disputed terms and phrases are set out below:

Term/Phrase	Court's Construction
Grain bin	a structure for storing grain having an interior for holding a quantity of grain, having a floor within said interior for supporting said quantity of grain, and having a well in said floor for allowing grain to be unloaded from said interior
Well	an opening in the grain bin floor that allows grain to pass therethrough
Elongated frame	a supporting structure that extends over the entirety of the paddles and chain of the conveyor sweep.
Elongated hood	a cover or shroud extending the length of the frame that is comprised of a top panel, a first side wall and a second side wall
Top Panel	the medial part of the hood
Side wall	the lateral part of the hood
Power Means	Claimed Function: for rotating one of said wheels; [wherein the wheel may be a sprocket] Corresponding Structure: a motor, a gear box and a belt drive means

Drive Means	Claimed Function: for causing said frame to rotate about said well Corresponding Structure: one or two drive wheels and a gear box
Substantially Parallel	No construction necessary

IT IS SO ORDERED.

DATED this 11th day of February, 2019.

Leonard T. Strand, Chief Judge