United States District Court,
N.D. Iowa, Cedar Rapids Division.

Jon E. KINZENBAW and Kinze Manufacturing, Inc,
Plaintiffs/Counter-Defendants.
v.
CASE, LLC, f/k/a Case Corporation and New Holland North America, Inc,
Defendants/Counter-Plaintiffs.

and

Case LLC, f/k/a Case Corporation and New Holland North America, Inc,
Counter-Plaintiffs.
v.
Jon E. Kinzenbaw, Kinze Manufacturing, James J. Hill and Emrich & Dithmar, a partnership,
Counter-Defendants.

No. C01-133 LRR

May 12, 2004.

Background: Exclusive licensee of patent for agricultural planter sued competitors for infringement.

Holdings: Construing claims, the District Court, Reade, J., held that:
(1) claim preamble was limitation on invention;
(2) "draft tongue means" had functions of connecting implement's carrier frame to tractor hitch and permitting pivotal movement between tractor and implement about vertical axis;
(3) "lift frame means" limitation was not subject to means-plus-function treatment;
(4) "power swing means" had function of rotating lift frame in raised position about vertical axis between use position and transportation position; and
(5) requirement that weight of lift frame means had to be "substantially uniformly distributed" did not mean that pivot axis had to be located on centerline of implement.

Claims construed.

4,721,168. Construed.

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ORDER REGARDING CLAIM CONSTRUCTION

READE**, District Judge.**

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I. INTRODUCTION

This matter comes before the court for construction of the disputed claims of the patent-in-suit. The court heard oral argument in a *Markman* FN1 Hearing on October 21, 2003. Attorneys John Chestnut and Jan Feldman represented Plaintiffs Jon E. Kinzenbaw and Kinze Manufacturing, Inc. (collectively "Kinze"); attorneys Mark Boland, Robert Fanter, John Killacky, Michael King and Roger Saliba represented Defendants Case LLC, formerly known as Case Corporation, and New Holland North America, Inc. (collectively "Case").

FN1. *See* Markman v. Westview Instruments, Inc., 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996).

A. Procedural Background

Kinze filed this action on September 17, 2001 against Case LLC alleging infringement of United States Patent No. 4,721,168 (issued on Jan. 26, 1988) for "AGRICULTURAL IMPLEMENT WITH RAISABLE LIFT FRAME ROTATABLEABOUT VERTICAL AXIS" (the " '168 patent"). Case filed its answer to Kinze's complaint on June 25, 2002. Case asserted in its answer the following counterclaims: (1) a claim for a declaratory judgment of non-infringement and invalidity of the '168 patent; (2) a claim for conspiracy to breach fiduciary duty against Kinze, attorney James J. Hill and the law firm of Emrich & Dithmar; (3) a claim for aiding and abetting breach of fiduciary duty against Kinze; and (4) a claim for breach of fiduciary duty against James J. Hill and Emrich & Dithmar. On October 15, 2002, Kinze amended its complaint to add New Holland North America, Inc. ("New Holland") as a defendant. On November 22, 2002, Case filed an answer to Kinze's amended complaint. On November 22, 2002, New Holland filed an answer to Kinze's amended complaint and asserted counterclaims for a declaratory judgment of non-infringement and invalidity of the '168 patent. Trial in this matter currently is set for June 16, 2004.

B. Factual Background

Jon E. Kinzenbaw is an individual residing in Williamsburg, Iowa. Kinze Manufacturing, Inc., is an Iowa corporation with its principal place of business in Williamsburg, Iowa. Kinze Manufacturing, Inc., is the exclusive licensee of the '168 patent and manufactures agricultural planters which incorporate the inventions of the '168 patent.

Case LLC is a limited liability company organized and existing under the laws of the state of Delaware with its principal place of business in Racine, Wisconsin. Case LLC is a manufacturer and supplier of agricultural equipment, including the CASE IH Series 1200 Pivot-Transport Planter, which Kinze alleges infringes the '168 patent.

New Holland is a Delaware corporation with its principal place of business in New Holland, Pennsylvania. New Holland is a manufacturer and supplier of agricultural equipment, including the SP800 Planter which Kinze alleges infringes the '168 patent.

The Case IH Series 1200 Pivot-Transport Planter and the New Holland SP800 Planter incorporate inventions described in U.S. Patent No. 6,213,034 (issued April 10, 2001) entitled "PLANTER APPARATUS AND METHOD."

II. LEGAL ANALYSIS

A. Rules of Claim Construction

[1] [2] A patent is a legal document which describes the exact scope of an invention to "secure to [the patentee] all to which he is entitled, [and] to apprise the public of what is still open to them." Markman, 517 U.S. at 373, 116 S.Ct. 1384 (citations omitted). A patent consists of two different elements: one or more "claims," which "particularly poin[t] out and distinctly clai[m] the subject matter which the applicant regards as his invention," and the "specification," which describes the invention "in such full, clear, concise and exact terms as to enable any person skilled in the art ... to make and use the same." *Id*. (citing 35 U.S.C. s. 112). The public record of the patent before the United States Patent and Trademark Office (the "PTO"), on which the public is entitled to rely in examining a patent, also includes the prosecution history which is the written record of the submissions of the patentee and the comments of the PTO. *See* Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1583 (Fed.Cir.1996). The claims, the specification and the prosecution history make up the intrinsic evidence of the meaning of the claim terms used in a patent and are considered to be the most important resources for construing a patent. Id. at 1582; *see also* CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002) ("Claim interpretationbegins with an examination of the intrinsic evidence, *i.e.*, the claims, the rest of the specification and, if in evidence, the prosecution history."). As the Federal Circuit articulated in *Vitronics:*

in most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence. In those cases where the public record unambiguously describes the scope of the patented invention, reliance on any extrinsic evidence is improper. The claims, specification and file history, rather than extrinsic evidence, constitute the public record of the patentee's claim, a record on which the public is entitled to rely. In other words, competitors are entitled to review the public record, apply the established rules of claim construction, ascertain the scope of the patentee's claimed invention and, thus, design around the claimed invention. Allowing the public record to be altered or changed by extrinsic evidence introduced at trial, such as expert testimony, would make this right meaningless.

90 F.3d at 1583 (citations omitted). *See also* Georgia-Pacific Corp. v. United States Gypsum Co., 195 F.3d 1322, 1332 (Fed.Cir.1999) ("[W]hen intrinsic evidence is unambiguous, it is improper for the court to rely on extrinsic evidence to contradict the meaning of the claims.") (citation omitted). Claim construction is a question of law for the court. Markman, 517 U.S. at 372, 116 S.Ct. 1384.

1. "Standard" Claim Construction

a. Claim language

[3] [4] [5] [6] [7] [8] The goal of claim interpretation is to give proper meaning and scope to claim language. Abtox, Inc. v. Exitron Corp., 122 F.3d 1019, 1023 (Fed.Cir.1997). While the entire patent document may be used to construe a claim, claim construction always starts with the language of the claim itself. Vitronics, 90 F.3d at 1583. *See also* Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1344 (Fed.Cir.1998) ("The actual words of the claim are the controlling focus.") (citing Thermalloy, Inc. v. Aavid Eng'g, Inc., 121 F.3d 691, 693 (Fed.Cir.1997)); Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1248 (Fed.Cir.1998) (stating that claim construction "begins and ends in all cases with the actual words of the claim"); SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed.Cir.1985) ("[I]t is the *claims* that measure the invention.") (emphasis supplied). There is a heavy presumption that a term used in a claim carries its ordinary and customary meaning, CCS Fitness, 288 F.3d at 1366, "unless the patentee unequivocally imparted a novel meaning to those terms or expressly relinquished claim scope during prosecution." Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1323 (Fed.Cir.2003) (citations omitted). The ordinary rules of grammar and syntax apply to interpreting the meaning of a claim. In re Hyatt, 708 F.2d 712, 714 (Fed.Cir.1983). Claim terms are to be examined from the perspective of the ordinary person skilled in the art. *See* Hoechst Celanese Corp. v. BP Chems. Ltd., 78 F.3d 1575, 1578 (Fed.Cir.1996) ("A technical term used in a patent document is interpreted as having the meaning that it would be given by

persons experienced in the field of invention, unless it is apparent from the patent and the prosecution history that the inventor used the term with a different meaning."). To discern the ordinary meaning of a claim term, "[courts] turn [ ], generally, to the dictionary definition of the term." Optical Disc Corp. v. Del Mar Avionics, 208 F.3d 1324, 1335 (Fed.Cir.2000) (citing Vitronics, 90 F.3d at 1584 n. 6).FN2 The ordinary meaning of a claim term, as discerned from its dictionary definition, provides the "default meaning" of such term. The court must then consider the specification and, if in evidence, the prosecution history to determine whether the patentee provided a distinct definition for a term, or used any terms in a manner inconsistent with their ordinary meaning. *See, e.g.,* Hormone Research Found., Inc. v. Genentech, Inc., 904 F.2d 1558, 1563 (Fed.Cir.1990) ("It is a well-established axiom in patent law that a patentee is free to be his or her own lexicographer and thus may use terms in a manner contrary to or inconsistent with one or more of their ordinary meanings."); Vitronics, 90 F.3d at 1582 ("[I]t is always necessary to review the specification to determine whether the inventor has used any terms in a manner inconsistent with the ordinary meaning.").

FN2. The court notes that while dictionaries technically are extrinsic evidence (and, accordingly, under Federal Circuit rules entitled to relatively little weight), the Federal Circuit has distinguished dictionaries from other types of extrinsic evidence and held that "[j]udges are free to consult such resources at any time ... and may also rely on dictionary definitions when construing claim terms, so long as the dictionary definition does not contradict any definition found in or ascertained by a reading of the patent document." Vitronics, 90 F.3d at 1584 n. 6. The rationale underlying this rule is the fact that both the patentee and the public have access to these reference materials and thus they appropriately may be used to assist in understanding the meaning and scope of the claim. *See id*. *See also* CCS Fitness, 288 F.3d at 1366 (stating "[s]ensibly enough, our precedents show that dictionary definitions may establish a claim term's ordinary meaning") (citing Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1344 (Fed.Cir.2001) (using *Random House Unabridged Dictionary* to define the ordinary meaning of a "portion" as encompassing both a one-piece and a two-piece structure)); Renishaw, 158 F.3d at 1250 (noting that the meaning of a claim term may come from a "relevant dictionary" so long as the definition does not fly "in the face of the patent disclosure"); Kegel Co., Inc. v. AMF Bowling, Inc., 127 F.3d 1420, 1427 (Fed.Cir.1997) (using Webster's *Third New International Dictionary* to define the claim term "assembly").

b. Specification

[9] [10] If there is a dispute regarding the meaning of a claim term, the specification presents "the single best guide to the meaning of the disputed term." Vitronics, 90 F.3d at 1582. *See also* Markman v. Westview Instruments, Inc., 52 F.3d 967, 979 (Fed.Cir.1995) (holding claims "must be read in view of the specification, of which they are a part"). It is well-settled, however, that courts cannot read a limitation into a claim from the specification. As the Federal Circuit makes clear:

[The Federal Circuit] has consistently adhered to the proposition that courts cannot alter what the patentee has chosen to claim as his invention, that limitations appearing in the specification will not be read into claims, and that interpreting what is *meant* by a word *in* a claim is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.

Laitram Corp. v. NEC Corp., 163 F.3d 1342, 1348 (Fed.Cir.1998) (citations omitted) (emphasis in original). *Accord,* KCJ Corp. v. Kinetic Concepts, Inc., 223 F.3d 1351, 1356 (Fed.Cir.2000) ("[A]lthough the specifications may well indicate that certain embodiments are preferred, particular embodiments appearing in a specification will not be read into the claims when the claim language is broader than such embodiments.") (quoting Electro Med. Sys., S.A. v. Cooper Life Sciences, Inc., 34 F.3d 1048, 1054 (Fed.Cir.1994)).

c. Prosecution history

[11] In addition, the prosecution history may assist in claim interpretation although, as a general rule, it may not "enlarge, diminish or vary the limitations in the claims." Markman, 52 F.3d at 980 (internal quotations omitted). As the FederalCircuit recognized in Teleflex, Inc. v. Ficosa North America Corp., 299 F.3d 1313 (Fed.Cir.2002), however, the doctrine of prosecution disclaimer provides:

... the prosecution history may demonstrate that the patentee intended to deviate from a term's ordinary and accustomed meaning, i.e., if it shows the applicant characterized the invention using words or expressions of manifest exclusion or restriction during the administrative proceedings before the [PTO]. "Arguments and amendments made during the prosecution of a patent application and other aspects of the prosecution history, as well as the specification and other claims, must be examined to determine the meaning of terms in the claims." Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576 (Fed.Cir.1995). In particular, "the prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance." Standard Oil Co. v. Am. Cyanamid Co., 774 F.2d 448, 452 (Fed.Cir.1985).

Id. at 1326. Any disavowal of claim scope during prosecution must be unambiguous and may not be amenable to many reasonable interpretations. Omega Eng'g, 334 F.3d at 1324. Rather, allegedly disavowing statements must be "both so clear as to show reasonable clarity and deliberateness ... and so unmistakable as to be unambiguous evidence of disclaimer." Id. at 1325 (citing Northern Telecom Ltd. v. Samsung Electronics Co., 215 F.3d 1281, 1294-95 (Fed.Cir.2000)) (declining to apply doctrine of prosecution disclaimer because the infringer had not shown "that the patentees-with reasonable clarity and deliberateness-defined 'plasma etching' as excluding ion bombardment"). *See also* Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1332 (Fed.Cir.2004) (refusing to apply prosecution history disclaimer "[b]ecause statements in the prosecution history are subject to multiple reasonable interpretations, [and therefore] they do not constitute clear and unmistakable departure from the ordinary meaning of the term ..."); Storage Tech. Corp. v. Cisco Sys., Inc., 329 F.3d 823, 833 (Fed.Cir.2003) ("We therefore do not consider the applicants' statement to be a clear and unambiguous disavowal of claim scope as required to depart from the meaning of the term provided by the written description."); Invitrogen Corp. v. Biocrest Mfg., L.P., 327 F.3d 1364, 1369 (Fed.Cir.2003) ("The prosecution history does not show any clear and unambiguous disavowal of steps in advance of the step of growing E. coli cells in the claimed temperature range.").

d. Extrinsic evidence

Extrinsic evidence is "evidence which is external to the patent and file history, such as expert testimony, inventor testimony, dictionaries, and technical treatises and articles." Vitronics, 90 F.3d at 1584. A court may consider extrinsic evidence in certain circumstances, but it is entitled to very little weight. *Id*.

[12] [13] [14] "While a judge is well-equipped to interpret the legal aspects of the document, he or she must also interpret the technical aspects of the document, and indeed its overall meaning, from the vantage point of one skilled in the art." Pitney Bowes, Inc. v. Hewlett-Packard, Co., 182 F.3d 1298, 1309 (Fed.Cir.1999). Thus, a court may use extrinsic evidence to "educate itself about the patent and the relevant technology," Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc., 152 F.3d 1368, 1373 (Fed.Cir.1998), in order to "ensure that [its] understanding of the technical aspects of the patent [are] not entirely at variance with the understanding of one skilled in the art." Pitney Bowes, 182 F.3d at 1309. *See also* Merck & Co., Inc. v. Teva Pharma. USA, Inc., 347 F.3d 1367, 1372 (Fed.Cir.2003) (finding "it is not prohibited to provide the opinions and advice of experts to explain the meaning of terms as they are used in patents and as they would be perceived and understood in the field of an invention"). A court may use extrinsic evidence to aid in construction of claim terms only where the intrinsic evidence is insufficient. Vitronics, 90 F.3d at 1583. "In most situations, an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term. In such circumstances, it is improper to rely on extrinsic evidence." *Id*. Thus, where the intrinsic evidence resolves any ambiguities in the claim language, extrinsic evidence should not be used to alter or

change the meaning of that language. *Id*. Stated differently, extrinsic evidence relating to the proper construction of a claim "may only be relied upon if the patent documents, taken as a whole, are insufficient to enable the court to construe disputed claim terms." Pitney Bowes, 182 F.3d at 1308-09. "Such instances will rarely, if ever, occur." Vitronics, 90 F.3d at 1585. Moreover, extrinsic evidence may never be used to vary or contradict the terms of a claim. Markman, 52 F.3d at 981. The rationale underpinning this rule is that, because competitors of the patentee are entitled to rely on the public record of the patent, a court should not alter or change the public record through extrinsic evidence. Vitronics, 90 F.3d at 1583. *See also* Key Pharm. v. Hercon Labs. Corp., 161 F.3d 709, 716-17 (Fed.Cir.1998) ("Competitors are entitled to rely on the public record of the patent and if the meaning of the patent is plain, the public record is conclusive.").

2. Means-plus-function construction

[15] Under 35 U.S.C. s. 112, para. 6 FN3, "a patentee may define the structure for performing a particular function generically through the use of a means expression, provided that it discloses specific structure corresponding to that means in the patent specification." Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1360 (Fed.Cir.2000) (citations omitted). *See also* Envirco Corp. v. Clestra Cleanroom, Inc., 209 F.3d 1360, 1364 (Fed.Cir.2000) (noting s. 112, para. 6 "allows patent applicants to claim an element of a combination functionally, without reciting structures for performing those functions"); IMS Tech., Inc. v. Haas Automation, Inc., 206 F.3d 1422, 1429-30 (Fed.Cir.2000) ("Limitations contemplated by s. 112, para. 6, often referred to as means-plus-function or step-plus-function limitations, recite a specified function to be performed rather than the structure, material, or acts for performing that function."). Where a patent claim includes a means-plus-function element, the construction of the element is "limited to the structure corresponding to the claimed function as 'described in the specification and equivalents thereof.' " Envirco Corp., 209 F.3d at 1365 (quoting s. 112, para. 6). *See also* Atmel Corp. v. Information Storage Devices, Inc., 198 F.3d 1374, 1380-82 (Fed.Cir.1999) (holding the structure supporting a means-plus-function limitation must be disclosed in the specification).

FN3. 35 U.S.C. s. 112, para. 6 provides:
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.

[16] The use of the word "means" in a claim gives rise to a presumption that s. 112, para. 6 applies. Personalized Media Communications, LLC v. ITC, 161 F.3d 696, 703-04 (Fed.Cir.1998) (citing York Prods., Inc. v. Central Tractor Farm & Family Ctr., 99 F.3d 1568, 1574 (Fed.Cir.1996)). Conversely, failure to use the term "means" creates a presumption that s. 112, para. 6 does not apply. *Id*. (citing Mas-Hamilton Group v. LaGard, Inc., 156 F.3d 1206, 1213 (Fed.Cir.1998)). "These presumptions can be rebutted if the evidence intrinsic to the patent and any relevant extrinsic evidence so warrant." *Id*. at 704 (citing Cole v. Kimberly-Clark Corp., 102 F.3d 524, 531 (Fed.Cir.1996)). "In deciding whether either presumption has been rebutted, the focus remains on whether the claim as properly construed recites sufficiently definite structure to avoid the ambit of s. 112, para. 6." *Id*. (citing Sage Prods., Inc. v. Devon Indus., Inc., 126 F.3d 1420, 1427-28 (Fed.Cir.1997)).

Once a court has determined that a claim limitation is written in means-plus-function format, construction of the means-plus-function limitation proceeds as follows:

The first step in construing a means-plus-function claim is to define the particular function of the claim limitation. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1376 (Fed.Cir.2001). "The court must construe

the function of a means-plus-function limitation to include the limitations contained in the claim language, and only those limitations." Cardiac Pacemakers, Inc. v. St. Jude Med., Inc., 296 F.3d 1106, 1113 (Fed.Cir.2002).... Ordinary principles of claim construction govern interpretation of this claim language, *see id.*, and ... we construe this function according to its ordinary meaning....

The next step in construing a means-plus-function claim is to look to the specification and identify the corresponding structure for that function. "Under this second step, 'structure disclosed in the specification is "corresponding" structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim.' " Med. Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1210 (Fed.Cir.2003) (quoting B. Braun Med. Inc. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed.Cir.1997)).

Golight, Inc. v. Wal-Mart Stores, Inc., 355 F.3d 1327, 1333-34 (Fed.Cir.2004).

B. Construction of the '168 Patent

Kinze and Case agreed to limit the scope of the *Markman* Hearing to a construction of independent claims 1 and 22 of the '168 patent.

1. Construction of Claim 1

Claim 1 of the '168 patent reads as follows:

An agricultural implement adapted to be pulled by a tractor with a hitch and convertible between a use position and a transport position without unhitching from the tractor hitch, comprising: a carrier frame including a plurality of ground support wheels; draft tongue means connecting said carrier frame to the tractor hitch for permitting pivotal movement between said tractor and said implement about a first vertical hitch axis; lift frame means including a lift frame and a plurality of work units spaced along said lift frame, said lift frame including at least an integral center frame section extending to either side of the centerline of the implement in the use position; mounting means for mounting said lift frame such that said center frame section thereof is rotatable about a second vertical axis of rotation; powered lift linkage means connecting said lift frame to said carrier frame for lifting said lift frame and said work units above said carrier frame to a raised position wherein all of said units are elevated above said support wheels; and power swing means for rotating said lift frame in said raised position about said second vertical axis between said use position and said transport position in which said lift frame is elongated in the direction of travel; and characterized in that the said second vertical axis of rotation is located such that the weight of said lift frame means is substantially uniformly distributed to either side thereof in the direction of elongation of said lift frame means.

United States Patent No. 4,721,168 (issued Jan. 26, 1988), Col. 18, lines 45-68 to Col. 19 lines 1-4.FN4 Kinze and Case urge different interpretations of nearly every clause in claim 1. The court therefore will address each clause in turn.

FN4. All portions of the '168 patent hereinafter cited will refer only to the columns and lines at which such portions are located in the '168 patent.

a. The preamble

[17] [18] [19] The parties' first dispute regarding the interpretation of claim 1 involves the preamble. The preamble is an introductory statement that precedes the body of the claim. Corning Glass Works v. Sumitomo Elec. U.S.A., Inc., 868 F.2d 1251, 1257 (Fed.Cir.1989). As a general rule, 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. v. Rockwell Intern. Corp., 323 F.3d 1332, 1339 (Fed.Cir.2003) (citation omitted). "[A] claim preamble has the import that the claim as a whole suggests for it. In other words, when the 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 Communications Research, Inc. v. Vitalink Communications Corp., 55 F.3d 615, 620 (Fed.Cir.1995) (emphasis in original). Where limitations in the body of a claim "rely upon and derive antecedent basis from the preamble," the preamble may serve as a necessary component of the claimed invention. Eaton Corp., 323 F.3d at 1339 (citing Electro Scientific. Indus., Inc. v. Dynamic Details, Inc., 307 F.3d 1343, 1348 (Fed.Cir.2002); Rapoport v. Dement, 254 F.3d 1053, 1059 (Fed.Cir.2001); and Pitney Bowes, 182 F.3d at 1306). However, where the body of the claim sets out the complete invention, the language of the preamble may be considered superfluous. *Id*. (citing Schumer v. Lab. Computer Sys., Inc., 308 F.3d 1304, 1310 (Fed.Cir.2002) and Bristol-Myers Squibb Co. v. Ben Venue Labs., Inc., 246 F.3d 1368, 1373-74 (Fed.Cir.2001)).

The preamble of claim 1 states:

An agricultural implement adapted to be pulled by a tractor with a hitch and convertible between a use position and a transport position without unhitching from the tractor hitch, comprising: ...

Col. 18, lines 45-48.

Kinze urges the court to interpret the preamble of claim 1 as a positive, structural limitation on the '168 patent which restricts its coverage to only agricultural implements that can be converted from the use position to the transport position without unhitching the agricultural implement from the tractor. Case asserts the preamble of claim 1 is not a structural limitation of the claim because the body of the claim does not rely on the preamble to define the recited structure; rather, the words used in the preamble are given their complete meaning in the remainder of the claim.

The court holds the inventor chose to use both the preamble and the body of the claim to define his invention and the preamble therefore limits the invention. The preamble gives "life meaning and vitality" to claim 1-it defines, or is the "raison d' etre," for the claim. *See* Boehringer Ingelheim Vetmedica, Inc. v. Schering-Plough Corp., 320 F.3d 1339, 1343 (Fed.Cir.2003). In addition, it provides an antecedent basis for certain of the structures and terms included in claim 1. The "draft tongue means" limitation claims a "draft tongue means connecting said carrier frame to the tractor hitch for permitting pivotal movement between said tractor and said implement about a first vertical hitch axis." The reference to said tractor and said implement in this limitation is to the tractor and to the agricultural implement described in the preamble. Moreover, the "power swing means" limitation claims a means for "rotating said lift frame in said raised position about said second vertical axis between said use position and said transport position." The only other reference to the implement in the transport position in claim 1 is in the preamble. The preamble therefore also provides an antecedent basis for the reference to "transport position" in the "power swing means" limitation. Thus, the coverage of claim 1 is restricted to an agricultural implement which is adapted to be pulled by a tractor and which is convertible between a use position and a transport position without unhitching the implement from the tractor hitch.

b. Carrier frame

[20] The parties essentially are in agreement regarding the construction of the first limitation of claim 1 which is the carrier frame limitation. The carrier frame limitation claims "a carrier frame including a plurality of ground support wheels." Col. 18, lines 48-49. The court therefore construes this limitation to claim a frame or structure that carries and that includes a number of wheels which are engaged with the

ground and which provide support for the frame or structure.

c. Draft tongue means

[21] The next limitation at issue is the "draft tongue means" limitation, which claims:

... draft tongue means connecting said carrier frame to the tractor hitch for permitting pivotal movement between said tractor and said implement about a first vertical hitch axis;

Col. 18, lines 49-53.

The parties agree this limitation is written in means-plus function format. The court must therefore determine the claimed function and identify the structure or structures which are necessary to perform the function. Kinze asserts permitting pivotal movement between the tractor and the implement about a first vertical axis is the function recited in this limitation of claim 1. Case contends the functions recited are connecting the carrier frame to a towing vehicle hitch and permitting pivotal movement between the towing vehicle and the implement about a first vertical axis.

In construing this means-plus-function clause, the court is mindful of the Federal Circuit's admonition that s. 112, para. 6 "does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim." Micro Chemical, Inc. v. Great Plains Chemical Co., Inc., 194 F.3d 1250, 1258 (Fed.Cir.1999). Nor does s. 112, para. 6 "permit incorporation of structure from the written description beyond that necessary to perform the claimed function." *Id*. Thus, the court concludes the functional language associated with the term "means" in this clause is connecting the carrier frame to the tractor hitch and permitting pivotal movement between the tractor and the implement about a first vertical hitch axis. The court must therefore review the written description of the patent to determine which structures are necessary to perform these functions. The portions of the specification which discuss the telescoping hitch tongue are as follows:

... The planter 10 includes a telescoping hitch 15 which includes, at its forward end, a clevis 16 for attaching to the tractor hitch. Col. 5, lines 52-54.

The rear of the tongue 15 includes a bifurcated section generally designated 17 and which includes left and right side members 18, 19 which are spaced apart to permit a forward, central row unit 20 to be located on the center line of the apparatus, as will become apparent. Col. 5, lines 55-60.

The rear of the bifurcated tongue section 17 is rigidly attached to a main carrier frame 24. Col. 5, lines 61-62.

The tongue 15 is retracted to minimize the distance between the rear wheels of the tractor and the planter to facilitate turns at the end of a swath traversed by the planter. Col. 7, lines, 44-47.

Turning now to FIGS. 2, 3, and 4, the telescoping hitch tongue 15 includes an inner tubular member 70 which is rigidly attached to the bifurcated tongue section 17, and houses an hydraulic cylinder 71, the base of which is mounted to tube 70 near its rear end. Col. 8, lines 55-59.

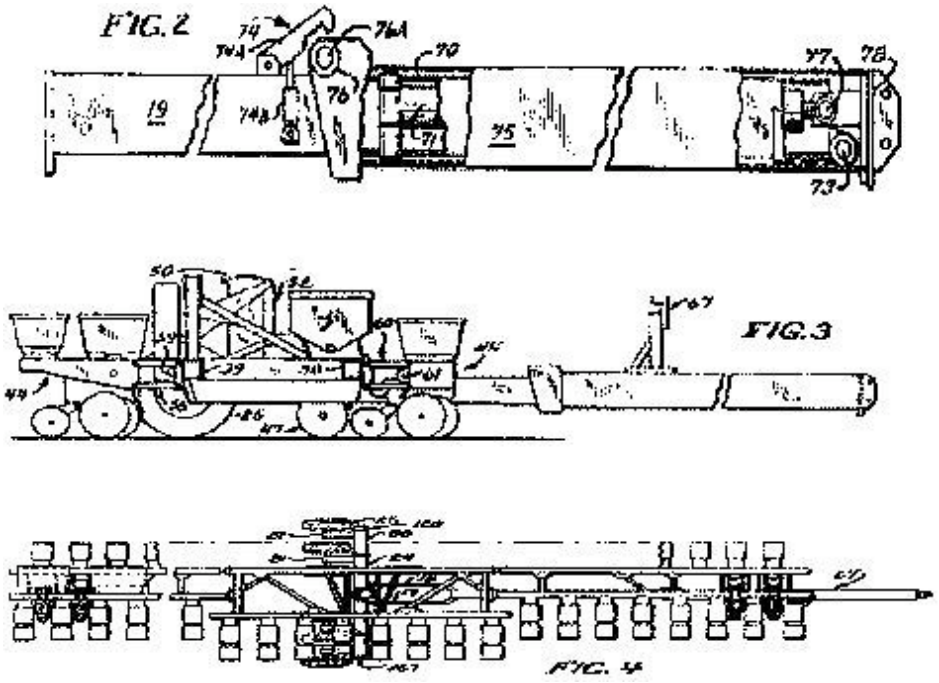
The forward end of the tube is open (see FIG. 2) and it is provided at its lower portion with a bearing roller 73 which supports the forward end by engagement with the inner surface of the lower side of an outer tubular tongue portion 75. The tubular members 70, 75 have generally square cross sections; and the outer member 75 is telescopically received on the inner member 72 when the tongue is retracted as seen in FIG. 2. The upper rear end of the outer tube 75 is provided with a bearing roller 76 mounted on a shaft 76A, which

rides on the outer surface of the upper wall of the inner tube 70 during telescoping action. The forward or rod end of the hydraulic cylinder 71 is pivotally connected at 77 to the forward end of the outer tube 75 which is provided with an end plate 78 adapted to receive the clevis 16 for connection to the tractor hitch. Col. 8 lines 60-68; Col. 9 lines 1-7.

The left and right frame members 18, 19 of the bifurcated frame section 17 are flanged as seen at 79 for member 19 in FIG. 2 for mounting to a transverse frame member of the carrier frame 24 (see FIG. 4). Col. 9, lines 14-17.

Set forth below are Figures 2, 3, and 4 referenced in these portions of the specification:

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Kinze asserts the only structures recited in the specification necessary to perform the function of permitting pivotal movement are the telescoping hitch 15 and the clevis 16 for attaching to the tractor hitch. Case contends these sections of specification disclose the following structures as necessary for performing the connecting and pivoting functions: the telescoping hitch 15, which includes outer tube 75, inner tube 70, hydraulic cylinder 71, clevis 16, and bifurcated rear section 17.

The court concludes the structures disclosed in the specification which are necessary to perform the connecting function are the telescoping hitch 15, the clevis 16 and the bifurcated rear section of the telescoping hitch 17. The structures necessary to perform the pivoting function are the telescoping hitch 15 and the clevis 16. The court finds the structures included in the telescoping hitch-the outer tube 75, inner tube 70, and hydraulic cylinder 71-are not necessary to connect the implement to the tractor or to permit pivotal movement. Thus, the draft tongue means limitation of claim 1 covers the telescoping hitch 15, the clevis 16, and the bifurcated rear section of the telescoping hitch 17 and the equivalents thereof.

d. Lift frame means

The next limitation at issue is the lift frame means limitation which claims:

... lift frame means including a lift frame and plurality of work units spaced along said lift frame, said lift frame including at least an integral center frame section extending to either side of the centerline of the implement in the use position; ...

Col. 18, lines 53-57.

The parties dispute whether this claim is written in means-plus-function format. Kinze contends this is not a means-plus-function clause because it describes the structure of the lift frame means and does not refer to any function that is to be performed by the structure. Conversely, Case urges the use of the term "means" in this clause gives rise to a presumption this is a means-plus-function clause and contends Kinze has fallen short of rebutting this presumption. Case proposes an interpretation of the life frame means clause which includes the following functions: (1) to support in a manner permitting lifting and rotation of a plurality of work units spaced along the lift frame of the lift frame means, and (2) to centrally support the center frame section on the center line of the implement in the use position. In support of its position, Case directs the court to the specification and to the prosecution history, which Case asserts emphasize the necessity for having the center frame section centrally supported to ensure equal weight distribution. Case contends one skilled in the art, having read the specification and the prosecution history, would have understood the function of centrally supporting the center frame section to be critical to the claimed subject matter and a required limitation of the "lift frame means" clause.

The court recognizes that while Kinze's use of the term "means" in this clause gives rise to a presumption "the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses," York Prods., 99 F.3d at 1574, this presumption is not conclusive. Sage Prods., 126 F.3d at 1427. When a claim uses the word "means" but recites no corresponding function for the "means," the claim does not implicate s. 112, para. 6. *Id*. (citing York Prods., 99 F.3d at 1574) (construing "means" in claim without reference to s. 112, para. 6). Moreover, when a claim recites a function but then proceeds to articulate "sufficient structure, material or acts within the claim itself to perform entirely the recited function, the claim is not in means-plus-function format." *Id*. (citation omitted).

[22] Looking to the language of the claim, this limitation begins with the words "lift frame means," but what follows is a detailed recitation of structure. The language of the claim provides that the "lift frame means" includes a "lift frame and plurality of work units spaced along the lift frame" with "at least an integral center frame section extending to either side of the center line of the implement in the use position." Thus, while this limitation does in fact use the term "means," the claim language does not link the term "means" to any function. Instead, the claim language describes the structures that make up the lift frame means. The court therefore concludes the use of the term "means" in this limitation does not invoke s. 112, para. 6. *See* York Prods., 99 F.3d at 1574 (holding that s. 112, para. 6 does not apply when claim uses term "means" without including in claim a function identified with the term "means").

[23] In light of its conclusion the "lift frame means" limitation is not subject to s. 112, para. 6, the court must apply the standard rules of claim construction to interpret the claim language. Thus, the court begins with the presumption that the terms used in the claim take on their ordinary meaning. Accordingly, the term "frame" refers to a structure that is composed of parts fitted together and united, *see Webster's Ninth New Collegiate Dictionary* 489 (3rd ed.1983), and "lift" refers to raising from a lower to a higher position. *See id*. at 690. A "means" is a "method or course of action or instrument through which some act can be accomplished or some end achieved." *The American Heritage Dictionary, Second College Ed*. 775 (2d ed.1982). The term "plurality" means "a large number or quantity," while the term "integral" means

"essential or necessary for completeness." *Id*. at 878, 657. "Center" refers to "the middle part," *id*. at 178, while "section" means "one of several component parts that may be assembled or reassembled," *id*. at 1036, and "extend" means "to stretch out in distance, space or time." *Id*. at 402. Giving the terms used in the "lift frame means" limitation their ordinary meaning, this limitation claims a structure or instrument that moves from a lower to a higher position that includes a number of work units spaced along the structure and includes, as an essential part, a center structure that reaches to either side of the centerline of the implement in the use position. The court's review of the specification and the prosecution history does not suggest a different interpretation of this claim language. The court therefore declines to impose the additional limitations urged by Case.

e. Mounting means

[24] The next limitation at issue is the mounting means limitation which claims:

... mounting means for mounting said lift frame such that said center frame section thereof is rotatable about a second vertical axis of rotation; ...

Col. 18, lines 57-59.

The parties agree this clause is written in means-plus-function format and thus the court must determine the claimed function and identify the structure or structures which perform that function. Kinze asserts the function recited is mounting the lift frame so that it is rotatable about a second vertical axis of rotation. Case contends functions recited in this limitation are mounting or connecting the lift frame to the carrier frame and bearing or supporting the entire weight of the lift frame when the lift frame is raised for rotation. Case suggests the second function for the mounting means clause based upon language in the specification which provides, "[w]hen the lift frame is raised for transport, the entire weight of the lift frame, row units, fertilizer and accessories is borne by the pivot post assembly and transmitted to the carrier frame at a location forward of the main support wheels 25, as will be further described herein." Col. 7, lines 5-10. Case asserts further support for the addition of the second function is found in the prosecution history where Kinze distinguished the claimed subject matter from the prior art references to the Pratt and Rettig patents by further emphasizing the functional requirement that the mounting means bears the entire weight of the lift frame.

The function recited in this limitation is mounting the lift frame in a way in which the center frame section of the lift frame is rotatable about a second vertical axis of rotation. The court construes the term "mounting" to have its plain meaning which is "to fix securely to a support." *The American Heritage Dictionary, Second College Edition* 817 (2d ed.1982). The court declines to construe the mounting function to include the function of bearing or supporting the entire weight of the lift frame. The claim language cannot reasonably be interpreted to include this function and the court cannot import into this means-plus-function clause a function that is not expressed in the claim language. *See* Golight, 355 F.3d at 1333-34.

Having determined the function of the mounting means clause, the court must look to the specification to determine which structures are necessary to mount the lift frame to the carrier frame. The specification discusses the structure that performs the mounting function as follows:

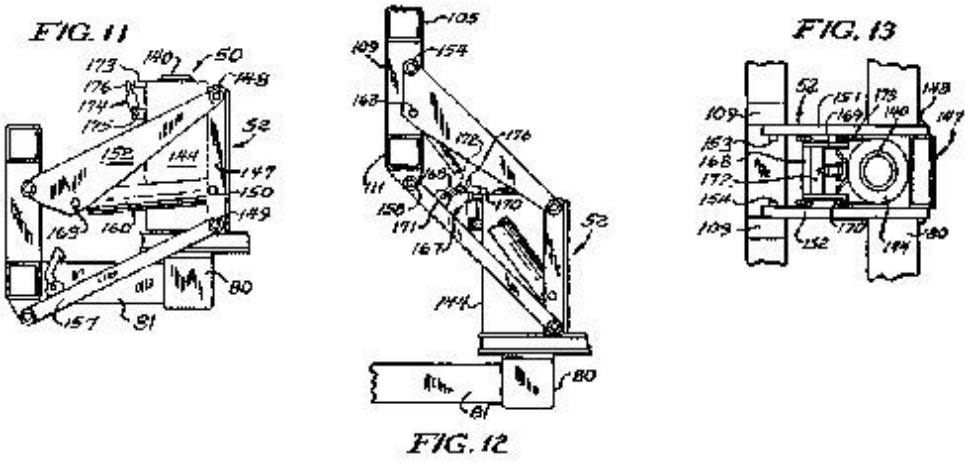
The lift frame 28 is connected to the carrier frame 24 by means of a pivot post assembly generally designated 50 in FIG. 1 and an hydraulically powered lift linkage mechanism generally designated 52 and seen in detail in FIGS. 11-13. It will be observed from FIG. 1 that the vertical axis of the pivot post assembly 50 is located forward of the axes of rotation of the carrier frame support wheels 25, and on the centerline of the implement. When the lift frame is raised for transport, the entire weight of the lift frame, row units, fertilizer and accessories is borne by the pivot post assembly and transmitted to the carrier frame 24 at a location forward of the main support wheels 25, as will be further described within. Col. 6, lines 65-

68; Col. 7, lines 1-10.

... The pivot post assembly 50 includes a rigid center post 140 which is rigidly secured to the transverse tubular frame member 80 of the carrier frame 24. The post 140 defines a vertical axis about which the lift frame rotates, but the post itself does not rotate. The post 140 is actually a cylinder with internal bracing which is rigidly connected to tubular frame member 80 of the carrier frame 24. Col. 11, lines 34-41.

A sleeve or bell housing 144 is rotatably mounted on the post 140 by means of upper and lower tapered roller bearings to permit carrying a vertical load as well as to resist side thrust. Col. 11, lines 42-45.

Figures 11, 12 and 13 referenced in these portions of the specification are set forth below:



Kinze argues the only structures necessary to perform the function of mounting the lift frame to the center frame are the rigid center post 140 and the sleeve or bell housing 144 mounted on the post. Case contends the specification makes clear the structures necessary to perform the mounting function are: the single pivot post assembly 50 including the rigid center post 140 and the sleeve or bell housing 144 mounted on the post together with the forward bracket 147 provided on the bell housing and configured to couple to the lift linkage 52.

The court's reading of the specification leads it to conclude the structures necessary to perform the mounting function are the pivot post assembly 50, which includes the rigid center post 140 and the sleeve or bell housing 144 mounted on the post. Accordingly, the mounting means clause covers these structures and the equivalents thereof.

f. Powered lift linkage means

[25] The next limitation at issue is the powered lift linkage limitation which provides:

... powered lift linkage means connecting said lift frame to said carrier frame for lifting said lift frame and said work units above said carrier frame to a raised position wherein all of said units are elevated above said support wheels; ...

Col. 18, lines 59-64.

The parties agree this limitation is written in means-plus function format. The court must therefore determine the claimed function and identify the structure or structures which are necessary to perform the function. Kinze asserts the function recited in this clause is lifting the lift frame and work units above the carrier frame to a raised position wherein all of the work units are elevated above the support wheels. Case contends the functions recited in the clause are connecting the lift frame to the carrier frame and lifting the lift frame and work units from a lower position to a raised position so that all of the work units are elevated above the support wheels.

The court agrees with Case that the functions recited in this limitation are connecting the lift frame to the carrier frame and lifting the lift frame and work units from a lower position to a raised position in which all of the work units are elevated above the ground support wheels. The court must now examine the specification to determine the structure or structures revealed therein which are necessary to perform these functions. The specification provides the following description of the structures necessary to perform the connecting and lifting functions:

Referring now to FIG. 13, the lift linkage 52 includes left and right upper links 151, 152 which have their forward ends journalled to the upper pivot pin 148 and their rear ends journalled on a pivot pins 153, 154 mounted respectively to the two center struts 109 of the arched rear mounting bar of the center section frame.

The lift linkage 52 also includes a pair of lower links, one of which is designated 157, which have their forward ends journalled on the lower pivot pin 149 mounted in the bracket 147 and their rear ends journalled on a pivot pin 158 which is mounted beneath the previously described horizontal mounting section 111 of the arched rear mounting bar.

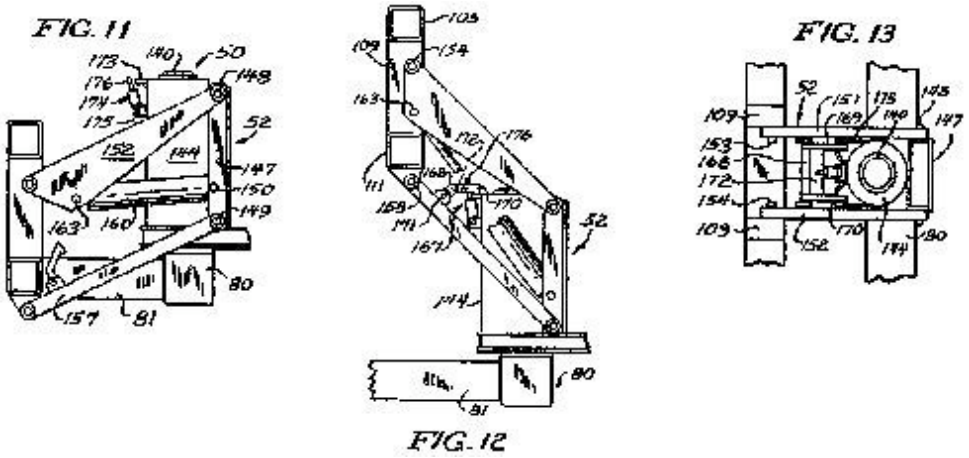
A pair of hydraulic cylinders, the right side cylinder being seen and designated 160, have their butt ends pivotally mounted on pin 150 and their rod ends journalled on pin 163 which is mounted in upper link 152. The upper links 151, 152 are in the form of inverted channels which partially encompass their associated cylinders in the lowered position (FIG.11), so they cannot be seen from above.

When the cylinders 160 are retracted, the lift linkage 52 is rotated counterclockwise to the lowered position (when viewed from the right) of FIG. 11. When the cylinders are extended, the linkage is rotated clockwise to raise the lift frame as seen in FIG. 12.

Col. 11, line 48-Col. 12, line 5.

Set forth below are Figures 11, 12 and 13 referenced in these portions of the specification:

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Kinze asserts the structures necessary to perform the lifting function are the powered lift linkage assembly 52 (which includes links 151, 152 and 157 and hydraulic cylinders 160) and the pivot post assembly 50. Case contends the structures corresponding to the powered lift linkage means are: "the four bar lift linkages 52 which includes the left and right upper links 151, 152 immediately adjacent the bell housing, their forward ends pivotally coupled with pins 148 to the forward bracket 147 provided on the bell housing and their rear ends pivotally coupled with pins 153, 154 to two center struts 109, respectively, of the arched rear mounting bar of the lift frame; a pair of lower links 157, which have their forward ends pivotally coupled with pins 149 to the forward bracket 147 provided on the bell housing, and their rear ends pivotally coupled with pins 158 to a horizontal mounting section 111 of the arched rear mounting bar; a pair of hydraulic cylinders 160 that have their butt ends pivotally mounted with pins 150 to the forward bracket 147 provided on the bell housing, and their rod ends pivotally coupled with pins 163 to the corresponding upper link 152."

The court concludes Case has correctly identified the structures necessary to perform the connecting and lifting functions recited in this element of claim 1. Accordingly, the structures covered by the powered lift linkage means limitation are: the four bar lift linkages 52 which includes the left and right upper links 151, 152 immediately adjacent the bell housing, their forward ends pivotally coupled with pins 148 to the forward bracket 147 provided on the bell housing and their rear ends pivotally coupled with pins 153, 154 to two center struts 109, respectively, of the arched rear mounting bar of the lift frame; a pair of lower links 157, which have their forward ends pivotally coupled with pins 149 to the forward bracket 147 provided on the bell housing, and their rear ends pivotally coupled with pins 158 to a horizontal mounting section 111 of the arched rear mounting bar; a pair of hydraulic cylinders 160 that have their butt ends pivotally mounted with pins 150 to the forward bracket 147 provided on the bell housing, and their rod ends pivotally coupled with pins 163 to the corresponding upper link 152. The powered lift linkage means clause therefore covers each of these structures and the equivalents thereof.

g. Power swing means

[26] The next limitation at issue is the "power swing means" limitation which recites:

... power swing means for rotating said lift frame in said raised position about said second vertical axis between said use position and said transport position in which said lift frame is elongated in the direction of travel; ...

Col. 18, lines 64-68.

The parties agree this element of claim 1 is written in means-plus-function format. The parties further agree the function recited therein is rotating the lift frame in the raised position about the second vertical axis between the use position and the transportation position. The court therefore adopts the parties' position in this regard.

The court must now review the specification to determine the disclosed structures which are necessary to perform the function of rotating the lift frame in the raised position between the use and transport position. The specification describes the structure of the power swing linkage assembly as follows:

Turning now to FIGS. 19 and 20, the swing linkage assembly 65 for rotating the lift frame will now be described. As seen in FIG. 19, a plate 215 is provided at the bottom of the bell housing 144 (see also FIG. 11) and rests on the lower bearing for the rotatable portion of the pivot post assembly 50. The swing linkage is mounted above the main transverse frame member 80 of the carrier frame, as already described. A crank arm 217 is welded to the circular plate 215. A connecting link 218 is pivotally connected at 219 to the crank arm 217, and it is pivotally connected at 220 to a link 221 which, in turn, is pivotally mounted at 222 to the transverse frame member 80. An hydraulic cylinder generally designated 225 has its butt end pivotally connected at 226 to the frame member 80 for horizontal movement about a vertical axis. The rod end of the cylinder 225 is pivotally connected at 227 to the link 221. Col. 15 line 64 to Col. 16, line 13.

A first stop member 228 is welded to the top of the transverse frame member 80 to limit the clockwise rotation of the crank arm 217; and a second stop member 229 is welded to the rear wall of the frame member 80 and extends above it to limit the counterclockwise rotation of the link 221 to the position shown in FIG. 19. Col. 16, lines 13-18.

In operation, when the swing cylinder 225 is extended, the link 221 is rotated counterclockwise until it engages the stop 229. At the same time, the link 218 causes the crank arm 217 to be rotated clockwise until it engages the stop 228. In this position, the pivot post disposes the planter frame so that it extends transverse of the direction of travel of the tractor. The frame is locked in that position even if hydraulic power is lost because the link 218 (more precisely, a line 218A passing through the centers of the pivots 219, 220) is "over center" relative to the axis of pivot 222; and the link 221 cannot rotate any further counterclockwise due to the presence of stop 229. Col. 16, lines 19-32.

When the hydraulic cylinder 225 is retracted, the link 221 is rotated clockwise to the position shown in FIG. 20, thereby causing crank arm 217 to be rotated approximately ninety degrees counterclockwise to the position shown in FIG. 20 wherein the lift frame will rotate relative to the original transverse or use position to the transport position in which the planter frame extends approximately parallel to the direction of travel. Col. 16, lines 33-41.

Figures 19 and 20 referenced in the portions of the specification set forth above show:

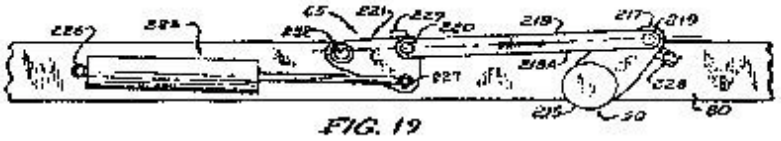


FIG. 19

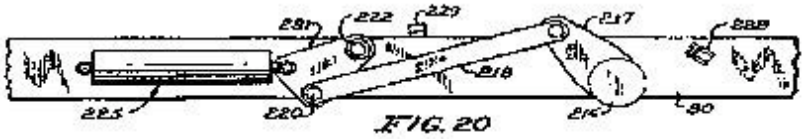


FIG. 20

Based on the specification, Kinze asserts the structure necessary to perform the rotating function is the power swing linkage assembly 65 which includes crank arm 217 and hydraulic cylinder 225. Case contends the structures described in the specification which are necessary to perform the rotating function are the power swing linkage assembly 65, which includes a circular plate 215, a crank arm 217 welded to the circular plate 215, a connecting link 218 which is pivotally connected at 219 to the crank arm 217 and pivotally connected at 220 to a link 221, which, in turn, is pivotally mounted at 222 to the carrier frame; a hydraulic cylinder generally 225 with its butt end pivotally connected at 226 to the carrier frame for horizontal movement about a vertical axis, and with its rod end pivotally connected at 227 to a link 221, a first stop member 228 welded to the top of the carrier frame to limit the clockwise rotation of the crank arm 217, a second stop member 229 welded to the carrier frame and extending above the carrier frame to limit the counterclockwise rotation of the link.

The court concludes the following structures described in the specification are necessary to perform the function of rotating the lift frame in the raised position between the transport and use position about the second vertical axis: the power swing linkage assembly 65 which includes a circular plate 215, a crank arm 217 welded to the circular plate 215, a connecting link 218 pivotally connected at one end 219 to the crank arm 217 and pivotally connected at the other end 220 to a link 221. Link 221 is pivotally mounted at 222 to the carrier frame. The structure further includes a hydraulic cylinder 225 with its butt end pivotally connected at 226 to the carrier frame for horizontal movement about a vertical axis with its rod end pivotally connected at 227 to the link 221. Accordingly, the court concludes the power swing means limitation covers each of these structures and their equivalents.

h. Characterizing clause

[27] The final limitation of claim 1 at issue provides:

... characterized in that the said second vertical axis of rotation is located such that the weight of said lift frame means is substantially uniformly distributed to either side thereof in the direction of elongation of the lift frame means.

Col. 18, line 68-Col. 19, line 4.

Kinze asserts the terms used in this limitation should be given their ordinary meaning. Kinze suggests the term "weight" should be construed to mean "the amount a thing weighs," the term "substantially uniformly distributed to either side thereof" means "to a considerable extent" uniformly distributed on either side of the second vertical axis, and the term "direction of elongation" should be construed to mean the direction in which the lift frame is elongated. Case posits this clause should be interpreted to mean that the second vertical axis of rotation is located on the center line of the implement.

[28] The court notes the language used in this portion of claim 1 states the second vertical axis of rotation "is located such that the weight of said lift frame means is substantially uniformly distributed to either side thereof in the direction of elongation of said lift frame means." Thus, the language of the claim does not specify that the second vertical axis of rotation must be located on the center line of the implement. Rather, the claim language dictates that the second vertical axis of rotation be located in a position that allows for the weight of the lift frame means to be substantially uniformly distributed to either side of the second vertical axis of rotation in the direction of elongation of the lift frame means. The Federal Circuit has found the term "substantially" may be interpreted as a term of approximation or as a term of magnitude, i.e., not insubstantial. *Epcon Gas,* 279 F.3d at 1031. Where the term "substantially" is used as one of approximation, the term means "to a considerable degree," *id.,* or "largely but not wholly that which is specified." LNP Engineering Plastics, Inc. v. Miller Waste Mills, Inc., 275 F.3d 1347, 1354 (Fed.Cir.2001) (citing *Webster's Ninth New Collegiate Dictionary* 1176 (9th ed.1983) and Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1369 (Fed.Cir.2001) ("substantially uniform" means largely, but not wholly in the same form)). Thus, substantially, in this context means to a considerable degree or largely but not wholly. Moreover, the term "uniform" means "without fluctuation or variation, consistent," *The American Heritage Dictionary* 1321 (2d. ed.1983), and the term "elongate" means "lengthened or extended." *Id.* at 446. Giving the claim terms their ordinary meaning, the court construes this clause to mean that the second vertical axis of rotation must be located in a position which allows for the weight of the lift frame means to be substantially, that is, to a considerable degree, or largely but not wholly, uniformly or consistently distributed to either side of the second vertical axis of rotation in the direction of elongation or extension of the lift frame means.

The court must now examine the specification to determine whether it supports a different meaning for this claim language. Case asserts the specification consistently and explicitly emphasizes the requirement that the machine have a symmetrical design with a pivot axis on the center line of the machine. In support of this assertion, Case cites the following portions of the specification:

The present invention achieves a desirable weight distribution by a number of factors.... Weight distribution is further enhanced by mounting the axis of the vertical pivot post on which the carrier frame is mounted at a location on the center line of the system.... The result is a weight distribution between the carrier frame wheels and the hitch tongue which facilitates control of the planter in all positions of use or transport and under all conditions of weight of the various hoppers or attachments on the planter. Col. 4, lines 17-36.

It will be observed from FIG. 1 that the vertical axis of the pivot post assembly 50 is located forward of the axes of rotation of the carrier frame support wheels 25, and on the center line of the implement. Col. 7, lines 1-10.

It can now be appreciated by persons skilled in the art that the following factors contribute to a desirable balance of the weight of the planter .... The vertical axis of the pivot post assembly 50 is forward of the axis for the carrier frame wheels (i.e., between the tractor hitch and those wheels). There is symmetry (i.e., substantially equal weight) on the left and right sides of the center line of the implement. Col. 18, lines 17-31.

Case argues the specification is clear on the requirement that the entire weight of the lift frame be supported by only the pivot post assembly without the presence of an additional support structure to counteract an unequal weight distribution of the lift frame. Case also maintains the specification makes it clear that the location of the pivot axis is on the center line of the machine to prevent "duck walk" of the tool bar.

Case is correct in its assertion that Kinze mentions in the specification that the location of the second vertical axis of rotation is on the center line of the implement. What Kinze describes in the specification is the preferred embodiment of his invention. The court is mindful, however, of the well-settled rule that

limitations from the preferred embodiment may not be imported to more broadly worded claim language unless it is clear that the patentee was acting as his own lexicographer to impart a novel meaning to a term. KCJ Corp., 223 F.3d at 1356. Consequently, the court's reading of the specification does not lead it to the conclusion that it must take the drastic step of interpreting the phrase "located such that the weight of said lift frame means is substantially uniformly distributed to either side thereof in the direction of elongation of the lift frame means" to mean that the second vertical axis of rotation must be on the center line of the implement.

Case further argues the prosecution history leaves no doubt the second vertical axis of rotation is on the center line of the machine. Case notes that, in response to the Examiner's rejection of claim 1, Kinze amended claim 1 to add the entire "characterized" clause and argued that support for this language inherently was found in the original specification. Case points out that Kinze made the following argument to the PTO:

the apparatus is characterized in that the second vertical axis of rotation is located such that the weight of said lift frame, row units and attachments is "substantially uniformly distributed to either side thereof in the direction of elongation of said lift frame means." This limitation is inherent in the disclosure that the pivot axis is on the center line of the implement (see the paragraph bridging pages 13-14) [of the original specification]. It is also disclosed in substance, though not in the precise language used in the claim, in the discussion of the desired weight distribution beginning at the bottom of page 7 of the original specification. It, therefore, does not raise a problem of new matter.

JX-2 at CP855-56.

As further support for its position, Case maintains that Kinze distinguished claim 1 from prior art, the Carter patent in particular, on the ground that claim 1 recites a centrally located pivot axis. Case further contends Kinze made clear during prosecution of the '168 patent that the invention required the entire weight of the lift frame be supported only by the pivot post assembly without the presence of any additional support structure. Case cites the following argument made by Kinze in support of the patentability of its invention as particularly informative:

Further, because the main pivots for the wings of Pratt and Rettig are at the inboard sides of the wings, when they are folded, either the forward ends of the wings have to be supported in the raised position (as in Pratt), or the hinges must be made strong enough to hold a wing in cantilever (practically impossible for a very large planter) or some other provision (such as caster wheels) must be made. The present invention overcomes all these disadvantages, and has additional advantages as well.

JX-2 at CP853. Case characterizes Kinze's statements to the PTO as an express admission that a centrally located pivot axis is inherent in locating the axis such that the "weight of said lift frame means is substantially uniformly distributed to either side thereof in the direction of elongation of said lift frame means." Case also maintains that Kinze expressly disclaimed any construction of claim 1 that would include an off-center pivot axis when it distinguished claim 1 from the Carter reference. Case further argues Kinze disavowed any construction of claim 1 that would locate the second vertical axis at a location that causes the wings of the implement to be held in cantilever or the need for any support structure for the lift frame when it distinguished claim 1 from the Rettig and Pratt patents.

The court's review of the prosecution history of the '168 patent as a whole leaves the court unconvinced by Case's arguments in this regard. The court is unable to conclude that Kinze clearly and unambiguously disavowed any meaning of the characterizing clause other than one in which the second vertical axis of rotation is on the center line of the implement. The prosecution history provides no basis for diverging from the plain language of claim 1. Compare Golight, 355 F.3d at 1332 (finding patent applicant's "statements in

the prosecution history [were] subject to multiple reasonable interpretations, they [did] not constitute clear and unmistakable" disclaimer such as would warrant departure from ordinary meaning of claim term) *and* Storage Tech. Corp., 329 F.3d at 833 (holding prosecution history did not warrant a narrower claim construction because the applicant failed to make a clear and unambiguous disavowal of the claim scope) *with* Bell Atlantic Network Servs., Inc. v. Covad Communications Group, Inc., 262 F.3d 1258, 1273 (Fed.Cir.2001) (holding claims describing invention were not entitled to any broader scope because the prosecution history supported limiting the scope of the claims.)

2. Construction of Claim 22

The parties also have asked the court to construe claim 22 of the '168 patent, which provides:

An agricultural implement adapted to be pulled by a tractor with a hitch and convertible between a use position and a transport position without unhitching from the tractor, comprising: a carrier frame including a plurality of ground support wheels; draft tongue means connected to said carrier frame for connecting said carrier frame to the tractor hitch for permitting pivotal movement between said tractor and said implement about a hitch axis; lift frame means including a laterally elongated integral lift frame and plurality of ground-engaging work units spaced along said lift frame, said lift frame being extended in a direction transverse of the direction of travel of said tractor when said lift frame is in the use position; powered lift linkage means connecting said lift frame to said carrier frame for selectively lifting said lift frame and said work units to a first raised position wherein said work units are above the ground to permit said implement to turn and to a second raised position above said first raised position, wherein all of said work units are above said carrier frame and above said ground support wheels in said second raised position; and power swing means for rotating said lift frame in said second raised position about a vertical axis between said use position and said transport position in which said lift frame is elongated in the direction of travel and characterized in that said vertical axis of rotation of said lift frame is substantially on the center line of said implement and proximate the mid-point of said lift frame in its direction of elongation and is located forwardly of at least two of said ground support wheels of said carrier frame.

Col. 21, lines 41-50-Col. 22, lines 1-21.

a. The preamble

The preamble to claim 22 of the '168 patent reads as follows:

An agricultural implement adapted to be pulled by a tractor with a hitch and convertible between a use position and a transport position without unhitching from the tractor, comprising: ...

Col. 21, lines 41-44.

Kinze urges the court to interpret the preamble of claim 22 as a positive, structural limitation on the '168 patent which restricts its coverage to only agricultural implements that can be converted from the use to the transport position without unhitching the agricultural implement from the tractor. Case asserts the preamble of claim 22 is not a structural limitation of the claim because the body of the claim does not rely on the preamble to define the recited structure; rather, the words used in the preamble are given their complete meaning in the remainder of the claim.

The court holds the inventor chose to use both the preamble and the body of the claim to define his invention and the preamble therefore limits the invention. The preamble gives "life meaning and vitality" to claim 22-it defines, or is the "raison d' etre," for the claim. *See* Boehringer Ingelheim Vetmedica, 320 F.3d at 1343. In addition, it provides an antecedent basis for certain of the structures and terms included in claim

22. The "draft tongue means" limitation claims a "draft tongue means connecting said carrier frame to the tractor hitch for permitting pivotal movement between *said* tractor and *said* implement about a first vertical hitch axis." The reference to *said* tractor and *said* implement in this limitation is to the tractor and to the agricultural implement described in the preamble. Moreover, the "power swing means" limitation claims a means for "rotating said lift frame in said raised position about said second vertical axis between said use position and *said* transport position." The only other reference to the implement in the transport position in claim 22 is in the preamble. The preamble therefore also provides an antecedent basis for the reference to "transport position" in the "power swing means" limitation. Thus, the coverage of claim 22 is restricted to an agricultural implement which is adapted to be pulled by a tractor and which is convertible between a use position and a transport position without unhitching the implement from the tractor hitch.

b. Carrier frame

The parties essentially are in agreement regarding the construction of the first limitation of claim 22 which is the carrier frame limitation. The carrier frame limitation claims "a carrier frame including a plurality of ground support wheels." Col. 21, lines 44-45. The court therefore construes this limitation to claim a frame or structure that carries and that includes a number of wheels which are engaged with the ground and which provide support for the frame or structure.

c. Draft tongue means

The next limitation at issue is the draft tongue means clause which reads:

...draft tongue means connected to said carrier frame for connecting said carrier frame to the tractor hitch for permitting pivotal movement between said tractor and said implement about a hitch axis; ...

Col. 21, lines 45-49.

The parties agree this limitation is written in means-plus function format. The court must therefore determine the claimed function and identify the structure or structures which are necessary to perform the function. Kinze asserts permitting pivotal movement between the tractor and the implement about a first vertical axis is the function recited in this limitation. Case contends the functions recited are connecting the carrier frame to a towing vehicle hitch and permitting pivotal movement between the towing vehicle and the implement about a first vertical axis.

In construing this means-plus-function clause, the court is mindful of the Federal Circuit's admonition that s. 112, para. 6 "does not permit limitation of a means-plus-function claim by adopting a function different from that explicitly recited in the claim." Micro Chemical, 194 F.3d at 1258. Nor does s. 112, para. 6 "permit incorporation of structure from the written description beyond that necessary to perform the claimed function." *Id*. Thus, the court concludes the functional language associated with the term "means" in this clause is connecting the carrier frame to the tractor hitch and permitting pivotal movement between the tractor and the implement about a first vertical hitch axis. The court must therefore review the written description of the patent to determine which structures are necessary to perform these functions. The portions of the specification which discuss the draft tongue means are as follows:

... The planter 10 includes a telescoping hitch 15 which includes, at its forward end, a clevis 16 for attaching to the tractor hitch. Col. 5, lines 52-54.

The rear of the tongue 15 includes a bifurcated section generally designated 17 and which includes left and right side members 18, 19 which are spaced apart to permit a forward, central row unit 20 to be located on the center line of the apparatus, as will become apparent. Col. 5, lines 55-60.

The rear of the bifurcated tongue section 17 is rigidly attached to a main carrier frame 24. Col. 5, lines 61-62.

The tongue 15 is retracted to minimize the distance between the rear wheels of the tractor and the planter to facilitate turns at the end of a swath traversed by the planter. Col. 7, lines, 44-47.

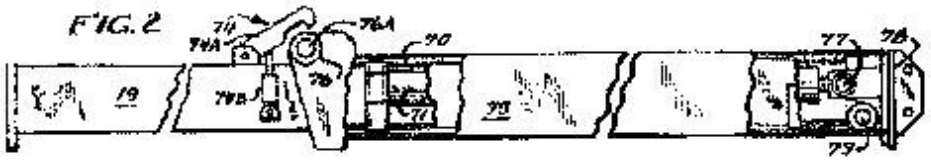
Turning now to FIGS. 2, 3, and 4, the telescoping hitch tongue 15 includes an inner tubular member 70 which is rigidly attached to the bifurcated tongue section 17, and houses an hydraulic cylinder 71, the base of which is mounted to tube 70 near its rear end. Col. 8, lines 55-59.

The forward end of the tube 70 is open (see FIG. 2) and it is provided at its lower portion with a bearing roller 73 which supports the forward end by engagement with the inner surface of the lower side of an outer tubular tongue portion 75. The tubular members 70, 75 have generally square cross sections; and the outer member 75 is telescopically received on the inner member 72 when the tongue is retracted as seen in FIG. 2. The upper rear end of the outer tube 75 is provided with a bearing roller 76 mounted on a shaft 76A, which rides on the outer surface of the upper wall of the inner tube 70 during telescoping action. The forward or rod end of the hydraulic cylinder 71 is pivotally connected at 77 to the forward end of the outer tube 75 which is provided with an end plate 78 adapted to receive the clevis 16 for connection to the tractor hitch. Col. 8 lines 60-68; Col. 9 lines 1-7.

The left and right frame members 18, 19 of the bifurcated frame section 17 are flanged as seen at 79 for member 19 in FIG. 2 for mounting to a transverse frame member 80 of the carrier frame 24 (see FIG. 4). Col. 9, lines 14-17.

Figures 2, 3 and 4 referenced in these portions of the specification are set forth below:

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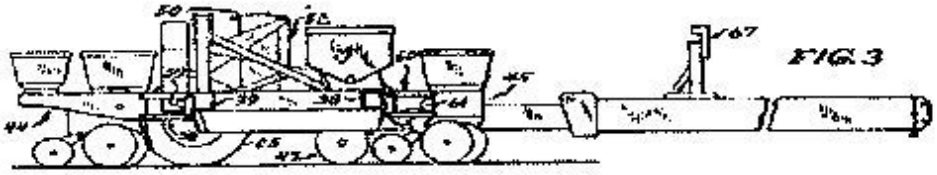


FIG. 3

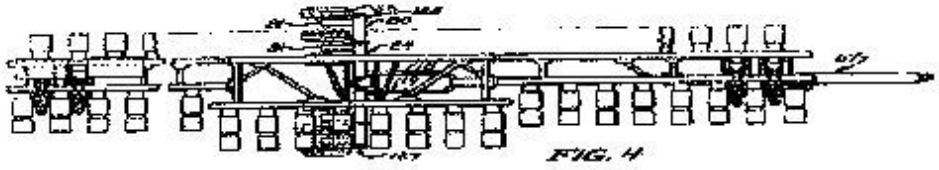


FIG. 4

Kinze asserts the only structures recited in the specification necessary to perform the function of permitting pivotal movement are the telescoping hitch 15 and the clevis 16 for attaching to the tractor hitch. Case contends these sections of specification disclose the following structures as necessary for performing the connecting and pivoting functions: the telescoping hitch 15, which includes outer tube 75, inner tube 70, hydraulic cylinder 71, clevis 16, and bifurcated rear section 17.

The court concludes the structures disclosed in the specification which correspond to the connecting function are the telescoping hitch 15, the clevis 16 and the bifurcated rear section of the telescoping hitch 17. The structures necessary to permit pivotal movement between the tractor and the implement about a first vertical hitch axis are the telescoping hitch 15 and the clevis 16. The court declines to interpret this clause to include the structures necessary to perform the telescoping function-the outer tube 75, inner tube 70, and hydraulic cylinder 71-because such structures are not necessary to connect the implement to the tractor or to permit pivotal movement. Thus, the draft tongue means limitation of claim 22 covers the telescoping hitch 15, the clevis 16, and the bifurcated rear section of the telescoping hitch 17 and the equivalents thereof.

d. Lift frame means

The next limitation the court has been asked to construe is the lift frame means limitation:

... lift frame means including a laterally elongated integral lift frame and plurality of ground-engaging work units spaced along said lift frame, said lift frame being extended in a direction transverse of the direction of travel of said tractor when said lift frame is in the use position;...

Col. 21, lines 49-50-Col. 22, lines 1-4.

The parties dispute whether this claim is written in means-plus-function format. Kinze contends this is not a means-plus-function clause because it describes the structure of the lift frame means and does not refer to

any function that is to be performed by the structure. Conversely, Case urges the use of the term "means" in this clause gives rise to a presumption this is a means-plus-function clause and contends Kinze has fallen short of rebutting this presumption. Case proposes an interpretation of the life frame means clause which includes the following functions: (1) to support in a manner permitting lifting and rotation of a plurality of work units spaced along the lift frame of the lift frame means, and (2) to centrally support the center frame section on the center line of the implement in the use position. In support of its position, Case directs the court to the specification and to the prosecution history, which Case asserts emphasize the necessity for having the center frame section centrally supported to ensure equal weight distribution. Case contends one skilled in the art, having read the specification and the prosecution history, would have understood the function of centrally supporting the center frame section to be critical to the claimed subject matter and a required limitation of the "lift frame means" clause.

The court recognizes that while Kinze's use of the term "means" in this clause gives rise to the presumption that "the inventor used the term advisedly to invoke the statutory mandates for means-plus-function clauses," York Prods., 99 F.3d at 1574, this presumption is not conclusive. Sage Prods., 126 F.3d at 1427. When a claim uses the word "means" but recites no corresponding function for the "means," the claim does not implicate s. 112, para. 6. *Id*. (citing York Prods., 99 F.3d at 1574) (construing "means" in claim without reference to s. 112, para. 6). Moreover, when a claim recites a function but then proceeds to articulate sufficient structure, material or acts within the terms of the claim itself, the claim is not in means-plus-function format. *Id*. (citation omitted).

While the this clause of claim 22 begins with the words "lift frame means," what follows is a detailed recitation of structure. The language of the claim provides that the "lift frame means" includes a "lift frame and plurality of work units spaced along the lift frame" with "at least an integral center frame section extending to either side of the center line of the implement in the use position." Thus, while the clause does in fact use the term "means," the claim language does not link the term "means" to any function. Rather, the claim language describes the structure which makes up the lift frame means. The court therefore concludes the use of the term "means" in this claim does not invoke s. 112, para. 6. *See* York Prods., 99 F.3d at 1574 (holding that s. 112, para. 6 does not apply when claim uses term "means" without including in claim a function identified with the term "means").

In light of its conclusion the "lift frame means" limitation is not subject to s. 112, para. 6, the court must apply the standard rules of claim construction to interpret the claim language. Thus, the court begins with the presumption that the terms used in the claim take on their ordinary meaning. Accordingly, the term "frame" refers to a structure that is composed of parts fitted together and united, *see Webster's Ninth New Collegiate Dictionary* 489 (3rd ed.1983), and "lift" refers to raising from a lower to a higher position. *See id*. at 690. A "means" is a "method or course of action or instrument through which some act can be accomplished or some end achieved." *The American Heritage Dictionary, Second College Ed*. 775 (2d ed.1982). The term "plurality" means "a large number or quantity," while the term "integral" means "essential or necessary for completeness." *Id*. at 878, 657. "Center" refers to "the middle part," *id*. at 178, while "section" means "one of several component parts that may be assembled or reassembled," *id*. at 1036, and "extend" means "to stretch out in distance, space or time." *Id*. at 402. Giving the terms used in the "lift frame means" limitation their ordinary meaning, this limitation claims a structure or instrument that moves from a lower to a higher position that includes a number of work units spaced along the structure and includes, as an essential part, a center structure that reaches to either side of the centerline of the implement in the use position. The court's review of the specification and the prosecution history does not suggest a different interpretation of this claim language. The court therefore declines to impose the additional limitations urged by Case.

e. Powered lift linkage means

The next limitation at issue is the powered lift linkage means limitation which reads:

... powered lift linkage means connecting said lift frame to said carrier frame for selectively lifting said lift frame and said work units to a first raised position wherein said work units are above the ground to permit implement to turn and to a second raised position above said first raised position, wherein all of said work units are above said carrier frame and above said ground support wheels in said second raised position...

Col. 22, lines 4-12.

The parties agree this clause is written in means-plus-function format and must therefore be construed in accordance with 35 U.S.C. s. 112, para. 6. Accordingly, the court must determine the claimed function and identify the structure or structures which are necessary to perform the function. Kinze posits the function of the powered lift linkage means is lifting the lift frame and the work units to a first raised position wherein all of the work units are above the ground and to a second raised position above the first raised position. Case maintains the functions recited in the power lift linkage means clause are connecting the lift frame to the carrier frame and lifting the lift frame and the work units from a lower position to a first raised position wherein all of the work units are elevated above the ground to permit the implement to turn, and to a second raised position above the first raised position, wherein all of the work units are above the carrier frame and above the ground support wheels.

Based on its reading of this clause in the context of claim 22, the court concludes the functions claimed therein are connecting the lift frame to the carrier frame and lifting the lift frame to a first raised position in which the work units are above the ground to permit the implement to turn and lifting the lift frame to a second raised position in which all of the work units are above the carrier frame and above the ground support wheels.

Having identified the functions recited in the power lift linkage clause of claim 22, the court must now determine the structures which are necessary to perform these functions. The specification provides the following description of the powered lift linkage means:

Turning now to FIGS. 11-13, the pivot post assembly 50 and hydraulically powered lift linkage assembly 52 will be described in detail. Col. 11, lines 32-34.

Referring now to FIG. 13, the lift linkage 52 includes left and right upper links 151, 152 which have their forward ends journalled to the upper pivot pin 148 and their rear ends journalled on a pivot pins 153, 154 mounted respectively to the two center struts 109 of the arched rear mounting bar of the center section frame.

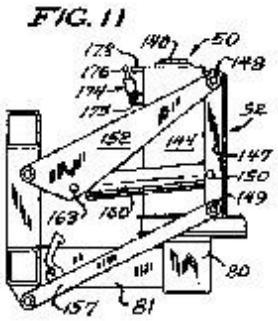
The lift linkage 52 also includes a pair of lower links, one of which is designated 157, which have their forward ends journalled on the lower pivot pin 149 mounted in the bracket 147 and their rear ends journalled on a pivot pin 158 which is mounted beneath the previously described horizontal mounting section 111 of the arched rear mounting bar.

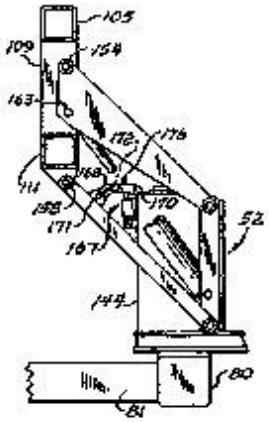
A pair of hydraulic cylinders, the right side cylinder being seen and designated 160, have their butt ends pivotally mounted on pin 150 and their rod ends journalled on pin 163 which is mounted in upper link 152. The upper links 151, 152 are in the form of inverted channels which partially encompass their associated cylinders in the lowered position (FIG.11) so they cannot be seen from above.

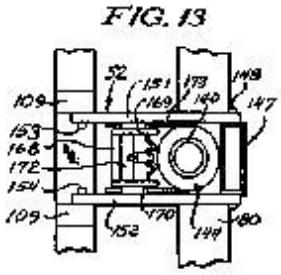
When the cylinders 160 are retracted, the lift linkage 52 is rotated counterclockwise to the lowered position (when viewed from the right) of FIG. 11. When the cylinders are extended, the linkage is rotated clockwise to raise the lift frame as seen in FIG. 12.

Col. 11, lines 32-34; Col. 11, line 48-Col. 12, line 5.

Figures 11, 12 and 13 referenced in these portions of the specification are set forth below:







Kinze asserts the structure described in the specification that performs the lifting function is the powered lift linkage assembly 52, which includes links 151, 152, and 157 and hydraulic cylinders 160, and the pivot post assembly 50. Case contends the structures corresponding to the functions of connecting and lifting are the four bar lift linkages 52, which include left and right upper links 151, 152 immediately adjacent the bell housing with the forward ends of the upper links pivotally coupled with pins 148 to the forward bracket 147 provided on the bell housing and their rear ends pivotally coupled with pins 153, 154 to two center struts 109, respectively, of the arched rear mounting bar of the lift frame; a pair of lower links 157, which have their forward ends pivotally coupled with pins 149 to the forward bracket 147 provided on the bell housing, and their rear ends pivotally coupled with pins 158 to a horizontal mounting section 111 of the arched rear mounting bar; a pair of hydraulic cylinders160 that have their butt ends pivotally mounted with pins 150 to the forward bracket 147 provided on the bell housing, and their rod ends pivotally coupled with pins 163 to the corresponding upper link 152.

The courts concludes based on the specification that the structures necessary to perform the functions of connecting and lifting are: the four bar lift linkages 52 which include the left and right upper links 151, 152 immediately adjacent to the bell housing; the pins 148 to the forward bracket 147 provided on the bell housing; the pins 153, 154 which pivotally couple the rear ends of the upper links to two center struts 109 of the arched rear bar of the lift frame; a pair of lower links 157 which have their forward ends pivotally coupled with pins 149 to the forward bracket 147 provided on the bell housing and their rear ends pivotally coupled with pins 158 to a horizontal mounting section 111 of the rear arched mounting bar; and a pair of hydraulic cylinders 160 that have their butt ends pivotally mounted with pins 150 to the forward bracket 147 provided on the bell housing and their rod ends pivotally coupled with pins 163 to the corresponding upper link 152. Thus, the powered lift linkage means limitation covers each of these structures and their equivalents.

f. Power swing means

The next limitation at issue is the power swing means limitation which states:

... power swing means for rotating said lift frame in said second raised position about a vertical axis between said use position and said transport position in which said lift frame is elongated in the direction of travel ...

Col. 22, lines 12-16.

The parties agree this is a means-plus-function clause the court should construe in accordance with 35 U.S.C. s. 112, para. 6. Accordingly, the court must identify the function recited therein and then discern from the specification the structure or structures necessary to perform the function. The parties essentially agree the function of the power swing means is to rotate the lift frame, when it is in the second raised position, about a vertical axis between the use position and the transport position in which the lift frame is elongated in the direction of travel. The court finds the parties have accurately identified the function of this means-plus-function clause.

With respect to the structure or structures necessary to perform the rotating function, the relevant portions of the specification provide the following:

Turning now to FIGS. 19 and 20, the swing linkage assembly 65 for rotating the lift frame will now be described. As seen in FIG. 19, a plate 215 is provided at the bottom of the bell housing 144 (see also FIG. 11) and rests on the lower bearing for the rotatable portion of the pivot post assembly 50. The swing linkage is mounted above the main transverse frame member 80 of the carrier frame, as already described. A crank arm 217 is welded to the circular plate 215. A connecting link 218 is pivotally connected at 219 to the crank arm 217, and it is pivotally connected at 220 to a link 221 which, in turn, is pivotally mounted at 222 to the transverse frame member 80. An hydraulic cylinder generally designated 225 has its butt end pivotally connected at 226 to the frame member 80 for horizontal movement about a vertical axis. The rod end of the cylinder 225 is pivotally connected at 227 to the link 221. Col. 15 line 64 to Col. 16, line 12.

A first stop member 228 is welded to the top of the transverse frame member 80 to limit the clockwise rotation of the of the crank arm 217; and a second stop member 229 is welded to the rear wall of the frame member 80 and extends above it to limit the counterclockwise rotation of the link 221 to the position shown in FIG. 19. Col. 16, lines 13-18.

In operation, when the swing cylinder 225 is extended, the link 221 is rotated counterclockwise until it engages the stop 229. At the same time, the link 218 causes the crank arm 217 to be rotated clockwise until it engages the stop 228. In this position, the pivot post disposes the planter frame so that it extends transverse of the direction of travel of the tractor. The frame is locked in that position even if hydraulic power is lost because the link 218 (more precisely, a line 218A passing through the centers of the pivots 219, 220) is "over center" relative to the axis of pivot 222; and the link 221 cannot rotate any further counterclockwise due to the presence of stop 229. Col. 16, lines 19-31.

When the hydraulic cylinder 225 is retracted, the link 221 is rotated clockwise to the position shown in FIG. 20, thereby causing crank arm 217 to be rotated approximately ninety degrees counterclockwise to the position shown in FIG. 20 wherein the lift frame will rotate relative to the original transverse or use position to the transport position in which the planter frame extends approximately parallel to the direction of travel. Col. 16, lines 32-40.

Figures 19 and 20 to which these portions of the specification refer are set forth below:

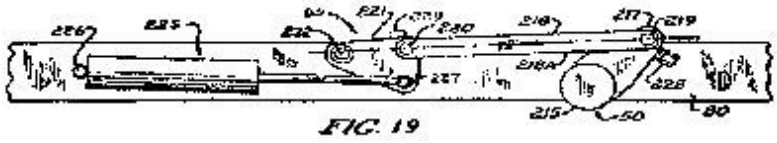


FIG. 19

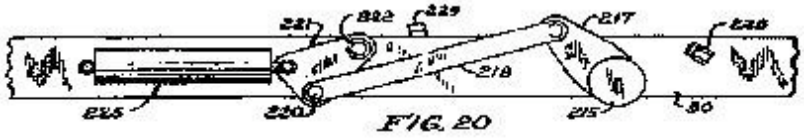


FIG. 20

Kinze asserts the structure disclosed in the specification that is necessary to perform the rotating function is the power swing linkage assembly 65 which includes crank arm 217 and hydraulic cylinder 225. Case contends the structures described in the specification which are necessary to perform the rotating function are the swing linkage assembly 65, which includes a circular plate 215, a crank arm 217 welded to the circular plate 215, a connecting link 218 which is pivotally connected at 219 to the crank arm 217 and pivotally connected at 220 to a link 221 which, in turn, is pivotally mounted at 222 to the carrier frame, a hydraulic cylinder generally 225 with its butt end pivotally connected at 226 to the carrier frame for horizontal movement about a vertical axis, and with its rod end pivotally connected at 227 to a link 221, a first stop member 228 welded to the top of the carrier frame to limit the clockwise rotation of the crank arm 217, and a second stop member 229 welded to the carrier frame and extending above the carrier frame to limit the counterclockwise rotation of the link.

The court concludes the following structures are necessary to perform the function of rotating the lift frame in the raised position between the transport position and use position about the second vertical axis: swing linkage assembly 65, which includes a circular plate 215, a crank arm 217 welded to the circular plate 215, a connecting link 218 which is pivotally connected at 219 to the crank arm 217 and pivotally connected at 220 to a link 221 which, in turn, is pivotally mounted at 222 to the carrier frame, a hydraulic cylinder generally 225 with its butt end pivotally connected at 226 to the carrier frame for horizontal movement about a vertical axis, and with its rod end pivotally connected at 227 to a link 221. Accordingly, the power swing means limitation covers each of these structures and their equivalents.

g. Characterizing clause

The final element of claim 22 the parties ask the court to construe is the characterizing clause, which provides the following with respect to the location of the second vertical axis of rotation:

... characterized in that said vertical axis of rotation of said lift frame is substantially on the center line of said implement and proximate the mid-point of said lift frame in its direction of elongation and is located forwardly of at least two of said ground support wheels of said carrier frame.

Col. 22, lines 16-21.

Kinze maintains the court should interpret this clause to give the terms included therein their plain meaning because nothing in either the specification or the prosecution history suggests a different meaning for these terms. Case asserts, on the other hand, that this clause should be construed to mean that the second vertical axis of rotation is located on the center line of the implement, at the midpoint of the lift frame in its direction of elongation and forward of, or closer to, the tongue means than at least two of the ground wheels. Case states the clause "substantially on the center line of said implement" as used in the phrase "said

vertical axis of rotation of said lift frame is substantially on the center line of said implement and proximate the mid-point of said lift frame in its direction of elongation," means there can be "only minor variation within reasonable manufacturing tolerances from a location of the axis which is exactly on the center line." Case asserts the specification and the prosecution history mandate such a construction. In support of this argument, Case cites to those same portions of the specification and prosecution history upon which it relied to assert the characterizing clause in claim 1 requires that the second vertical axis of rotation be on the center line of the implement.

The canons of claim construction dictate that the court first look to the language of the claim and give effect to the heavy presumption that the claim terms carry their ordinary and customary meaning. The terms of the characterizing clause for which the parties urge divergent meanings are the terms "substantially" and "proximate." The Federal Circuit has found the term "substantially" may be interpreted as a term of approximation or as a term of magnitude, i.e., not insubstantial. *Epcon Gas,* 279 F.3d at 1031. Where the term "substantially" is used as one of approximation, the term means "to a considerable degree," *id.,* or "largely but not wholly that which is specified." LNP Engineering Plastics, Inc. v. Miller Waste Mills, Inc., 275 F.3d 1347, 1354 (Fed.Cir.2001) (citing *Webster's Ninth New Collegiate Dictionary* 1176 (9th ed.1983) and Ecolab, Inc. v. Envirochem, Inc., 264 F.3d 1358, 1369 (Fed.Cir.2001) ("substantially uniform" means largely, but not wholly in the same form)). Thus, the ordinary and customary meaning for the term "substantially" as used in the phrase "substantially on the center line of said implement," requires that the second vertical axis of rotation be to a considerable degree, or largely but not wholly, on the center line of the implement. The term "proximate" means "very near" or "close." *Webster's Ninth New Collegiate Dictionary* 949 (9th ed.1983). The ordinary and customary meaning for the term as used in the phrase "proximate the mid-point of said lift frame in its direction of elongation" requires that the second vertical axis of rotation be very near or close to the mid-point of the lift frame in its direction of elongation.

The court must now review the specification and the prosecution history to determine whether either includes evidence that Kinze intended for these terms to have a meaning distinct from their ordinary meaning. Turning to the specification, the court notes it does indicate the preferred embodiment of the invention is one in which the second vertical axis of rotation is on the center line of the implement and in a position which allows for symmetry (i.e., substantially equal weight) on the left and right sides of the center line of the implement. The specification also clearly states that:

[h]aving thus disclosed in detail a preferred embodiment of the invention, persons skilled in the art will be able to modify certain of the structure which has been illustrated or to substantiate equivalent elements for those disclosed while continuing to practice all principles of the invention. It is thus intended that all such modifications and substitutions be covered as they are embraced within the spirit and scope of the appended claims.

Col. 18, lines 36-43.

The court's reading of the specification as a whole leaves it unable to conclude that Kinze intended to impart to this clause of claim 22 a meaning which ignores the terms "substantially" and "proximate" which are explicitly included therein.

The court also finds that Kinze did not disavow during the patent prosecution any location of the second vertical axis of rotation other than that on the center line of the implement and at the midpoint of the lift frame. Claim 22 of the '168 patent FN5 as initially presented to the PTO stated that the second vertical axis of rotation was "characterized in that said vertical axis of rotation of said lift frame is on the center line of said implement and located forwardly of at least two of said ground support wheels of said carrier frame." The Examiner rejected this claim under 35 U.S.C. s. 103 as being obvious and therefore unpatentable in light of the Rettig patent in view of Agric. The Examiner stated, "Agric discloses mounting the axis of

rotation of a forwardly folding frame forwardly of the ground support wheels of the carrier frame. In view of Agric, it would have been obvious to one of ordinary skill in the art to mount the ground wheels of the carrier frame of Rettig et al. in the manner taught by Agric to permit a wider wheel base on the carrier frame of Rettig et al." CP 000836. In response to this rejection, Kinze amended claim 22 to provide the second vertical axis of rotation is "characterized in that said vertical axis of rotation of said lift frame is *substantially* on the center line of said implement and *proximate the mid-point of said lift frame in its direction of elongation and is* located forwardly of at least two of said ground support wheels of said carrier frame." CP 00847. Kinze made the following argument in favor of the patentability of claim 22 as amended:

FN5. Claim 22 of the '168 patent initially was submitted by Kinze as claim 21. Through the amendment process, however, claim 21 became what is now claim 22.

Turning now to claim 2[2], it is an independent claim and has also been amended to overcome the objections raised by the Examiner to recite that the vertical axis of rotation of the lift frame is substantiallyon the center line of the implement and proximate the mid-point of the lift frame in its direction of elongation. The claim also provides that the swing axis of the lift frame is located forwardly of the support wheels of the carrier frame. This maintains tongue weight on the tractor hitch in all positions. In Rettig, the pivot axis 50 for the implements is behind the main wheel axle. As discussed above, none of the references teach or suggest an implement of the type defined in the claim wherein a center frame section is raised and rotated between transport and use positions by moving it about an axis located approximately in the center of the transverse mid-point of the frame, and also located forwardly of the ground support wheels on the carrier frame. Such a structure equalizes draft forces about the pivot axis in the use position, and maintains uniform weight distribution in both the use and transport positions. Both of the cited references require substantial pivot structure sufficient to cantilever a complete implement (at least, a multiple-unit structure and frame) in the transport position. By uniformly distributing the weight about a central pivot axis in all operative positions, the present invention overcomes many of the structural problems and inherent costs of the implements disclosed in Rettig and Pratt and minimizes the transport width irrespective of the number of the lateral dimension of the planter in the use configuration.
CP 00860. Kinze amended claim 22 on two subsequent occasions to overcome objections unrelated to the location of the second vertical axis of rotation. The court is unable to conclude based on the prosecution history of claim 22 that Kinze expressly disavowed any meaning of the clause at issue other than one which provides the second vertical axis of rotation is characterized in that it is *on* the center line of said implement and *on* the mid-point of said lift frame in its direction of elongation of the implement. Such an interpretation would be contrary to the well-established rules of claim interpretation and is unwarranted in this case. *See* Omega Eng'g, 334 F.3d at 1324 (holding doctrine of prosecution disclaimer inoperable absent clear evidence that patentee intended to disavow a particular meaning of claim term).

III. CONCLUSION

The court has construed the disputed claims 1 and 22 of the '168 patent as set forth herein according to the law of claim construction promulgated by the Federal Circuit.

IT IS SO ORDERED.

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