

UNITED STATES DISTRICT COURT
 NORTHERN DISTRICT OF OHIO

 MITCHELL ELLIS PRODUCTS, INC.,

Plaintiff,

v.

AGRINOMIX LLC,

Defendant.

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CASE NO.: 1:17-CV-690

OPINION AND ORDER
 [Resolving Docs. [38](#), [40](#)]

JAMES S. GWIN, UNITED STATES DISTRICT JUDGE:

Plaintiff Mitchell Ellis Products, Inc. (“Ellis Products”) sues Defendant AgriNomix LLC (“AgriNomix”). Ellis Products claims that two of AgriNomix’s plant potting machines infringe United States Patent No. 8,950,583 (“’583 patent”).¹ The ’583 patent “relates to [plant] potting machines whereby the pots are moved along a conveyor so that a drilling operation can be performed on the soil within the pot.”²

With this opinion, the Court construes five terms relevant to the ’583 patent.

I. Background

Both parties sell automated potting machines to nurseries and other horticultural businesses. The machines have various configurations, but generally, a user places an empty pot on a conveyor belt, the machine fills the pot with soil, and the machine drills a hole in the soil to help the placement of a plant.

The ’583 patent teaches a new configuration for such a potting machine. The ’583 patent discloses two conveyors. The first conveyor moves the pots. The second conveyor, which is

¹ Doc. [1](#).

² Doc. [1-1](#) at col. 1:28-31.

perpendicular to the first conveyor, delivers soil to the pots.³ The soil drill is above the first conveyor.

The '583 patent positions a sensor “upstream” of the machine’s drill that senses when a pot is directly below the drill.⁴ With the help of this sensor, a “driving means” serves to move pots on the first conveyor.⁵ The first conveyor slowly accelerates from a starting location, reaches a maximum speed, slowly decelerates, and then stops at a location directly below the drill.⁶ The '583 patent teaches that the “driving means” is a “servomotor” that cooperates with the first conveyor, which moves in an “indexing manner.”⁷

The '583 patent makes thirteen claims. In this action, Plaintiff Ellis Products alleges that Defendant AgriNomix has violated every claim. Of these claims, claims 1, 12 and 13 are independent claims, while claims 2 through 10 are dependent claims. As dependent claims, these have the limitations described in the independent claims together with additional limitations described in each dependent claim.

The parties have agreed upon the meaning of a number of claim terms.⁸ The Court adopts the parties’ agreed construction and defines the terms consistent with the parties’ agreed upon construction.

The parties dispute the meaning of the five following terms: (1) “driving means”; (2) “a servomotor”; (3) “indexing manner”; (4) “entirely linear path”; and (5) “a belt having an upper surface suitable for receiving a pot.”

³ Id. at col. 4:30-34.

⁴ Id. at col. 4:66-67.

⁵ Id. at col. 5:13-17.

⁶ Id.

⁷ Id. at 6:22-23.

⁸ Doc. [38](#) at 13.

On July 19, 2017, the Court held a Markman claim construction hearing. The parties have also filed a joint claim construction and pre-hearing statement,⁹ as well as briefing on claim construction.¹⁰ After laying out the legal standards, the Court addresses each disputed term in turn.

II. Legal Standard

The construction of a patent, including terms of art used within its claims, is a question of law.¹¹ In resolving a claim of patent infringement, a court first determines the patent's meaning and scope.¹²

When interpreting a disputed claim term, the Court first looks to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification, and, if in evidence, the prosecution history.¹³ The intrinsic evidence gives the most significant guidance regarding the interpretation of disputed claim language.¹⁴

In *Phillips v. AWH Corp.*,¹⁵ the Federal Circuit reiterated the standards used to interpret patent claims. Among these, “the ‘bedrock principle’ of patent law [is] that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’”¹⁶ Thus, “the claims are ‘of primary importance’ in the effort to ascertain precisely what it is that is patented.”¹⁷

⁹ Doc. [83](#).

¹⁰ Docs. [38](#), [40](#), [48](#), [54](#).

¹¹ See *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 383-91 (1996).

¹² *Id.* at 390.

¹³ See *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996).

¹⁴ *Vitronics Corp. v. Conceptor, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

¹⁵ 415 F.3d 1303 (Fed. Cir. 2005).

¹⁶ *Id.* at 1312 (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)).

¹⁷ *Id.* (quoting *Merrill v. Yeomans*, 94 U.S. 568, 570 (1876)); see also *Renishaw PLC v. Marposs Societa' per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (“The claims define the scope of the right to exclude; the claim construction inquiry, therefore, begins and ends in all cases with the actual words of the claim.”).

The claims, however, should not be read in isolation, but “must be read in view of the specification, of which they are a part.”¹⁸ Thus, after considering the claim language, the Court must next look to the specifications.¹⁹ The specification is “always highly relevant to the claim construction analysis” and “is the single best guide to the meaning of a disputed term.”²⁰

The terms of a claim “are generally given their ordinary and customary meaning. . . . that the term[s] would have to a person of ordinary skill in the art in question at the time of the invention”²¹ Courts thus interpret claims through the eyes of a person having ordinary skill in the art or field of the invention. That person “is deemed to read the words used in the patent documents with an understanding of their meaning in the field, and to have knowledge of any special meaning and usage in the field.”²²

This Court may also consider other claims in the patent, both asserted and unasserted claims.²³ The usage of a term in one claim may shed light on the meaning of the same term in other claims. The claims “are part of ‘a fully integrated written instrument,’ consisting principally of a specification that concludes with the claims. For that reason, claims ‘must be read in view of the specification of which they are a part.’”²⁴ Courts should construe claim terms, when possible, “in a manner that renders the patent internally consistent.”²⁵

Courts also consider the patent’s prosecution history. “[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood

¹⁸ Phillips, 415 F.3d at 1315.

¹⁹ Vitronics Corp., 90 F.3d at 1582.

²⁰ Phillips, 415 F.3d at 1315.

²¹ Id. at 1312-13.

²² Id. at 1313.

²³ Id. at 1314.

²⁴ Id. at 1315 (quoting Markman, 52 F.3d at 978-79).

²⁵ Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1379-80 (Fed. Cir. 2001).

the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be.”²⁶

Reliance upon extrinsic evidence is improper where the public record—the claims, specifications, and file history—unambiguously defines the scope of the claims.²⁷ Thus, the Court looks to extrinsic evidence to assist in construing a patent claim only if the intrinsic evidence is ambiguous.

Means-Plus-Function Claim Terms

The parties agree that “driving means” should be construed as a means-plus-function claim term under [35 U.S.C. § 112, ¶ 6](#). Paragraph 6 provides that:

An element of 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.²⁸

With means-plus-function claims, courts first determine the claim term’s function, and then identify the structure necessary to perform that function.²⁹

Especially with regard to claims expressed in means-plus-function under § 112, ¶ 6, “the specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’”³⁰ The “quid pro quo for the convenience of employing § 112, ¶ 6” is that the patentee “has a duty to clearly link or associate structure to the claimed function.”³¹

²⁶ [Trading Techs. Intern., Inc. v. eSpeed, Inc.](#), 595 F.3d 1340, 1352 (Fed. Cir. 2010) (quoting [Phillips](#), 415 F.3d at 1318).

²⁷ [Vitronics Corp.](#), 90 F.3d at 1583.

²⁸ [35 U.S.C. § 112, ¶ 6](#).

²⁹ [Altiris, Inc. v. Symantec Corp.](#), 318 F.3d 1363, 1375 (Fed. Cir. 2003).

³⁰ [Phillips](#), 415 F.3d at 1315 (quoting [Vitronics Corp.](#), 90 F.3d at 1582).

³¹ [Budde](#), 250 F.3d at 1377.

III. Discussion

A. “Driving Means”

The parties dispute what interpretation the Court should give to “driving means.” In interpreting this means-plus-function term, the parties disagree over both the structure implicated and the function carried out.

Plaintiff Ellis Products asks the Court to construe “driving means” to mean “[a] servomotor (see below for definition) that is cooperative with the first conveyor for moving the first conveyor in an indexing manner such that the first conveyor temporarily stops at a location directly below the drill.”³²

Defendant AgriNomix responds that the term means “[a] servomotor and associated logic to provide continuous closed-loop control and correction of a position of a first conveyor.”³³

The parties’ definitions differ in two major ways. First, while Plaintiff Ellis Products defines the term’s function as indexed movement along the conveyor, Defendant AgriNomix limits the function to “closed-loop control and correction.” Second, although both parties agree that the term “driving means” implicates the servomotor structure, Defendant AgriNomix asserts that the term also implicates associated programmable logic.

In support of its positions, Plaintiff Ellis Products points to specification language: “[t]he driving means 20 is a servomotor that is cooperative with the first conveyor 14 for moving the first conveyor 14 in an indexing manner such that the first conveyor 14 temporarily stops at a location directly below the drill 18.”³⁴ Claim 1 itself closely mirrors this specification

³² Doc. [38](#) at 5.

³³ Doc. [40](#) at 3.

³⁴ Doc. [1-1](#) at col. 6:22-26.

language.³⁵ Plaintiff argues that Defendant AgriNomix reads “logic,” “closed-loop control,” and “correction” into the claim terms without any support in the claims or specifications language.

Function of “Driving Means”

As to the function of “driving means,” the Court agrees with Plaintiff Ellis Products that the patent does not define the term’s function as “closed-loop control and correction.” In its briefing, AgriNomix cites extrinsic evidence to justify its proposed construction.³⁶ With a means-plus-function claim term, however, “[t]he court must construe the function . . . to include the limitations contained in the claim language, and only those limitations.”³⁷ AgriNomix’s proposed functional phrases “continuous closed-loop control” and “correction of a position” are absent from the ’583 Patent’s claims or specification. Therefore, the Court declines to limit the “driving means” function with these phrases.

But Plaintiff Ellis Products’s proposed construction of the driving means function is likewise too broad. “It is equally improper to broaden the scope of the claimed function by ignoring clear limitations in the claim language.”³⁸

Ellis Products argues that the driving means’ function is “moving the first conveyor in an indexing manner such that the first conveyor temporarily stops at a location directly below the drill.”³⁹ In support, Ellis Products points to the Patent Trial and Appeal Board’s (PTAB) decision denying inter partes review of the patent.⁴⁰ In that decision, the PTAB construed the “driving

³⁵ Id. at cols. 11:53-67, 12:1-4 (“1. A potting apparatus comprising . . . a driving means cooperative with said first conveyor for moving said first conveyor in an indexing manner such that said first conveyor temporarily stops at a location directly below said drill.”).

³⁶ Doc. [40](#) at 12-13.

³⁷ *In re Aoyama*, 656 F.3d 1293, 1296-97 (Fed. Cir. 2011) (quoting *Cardiac Pacemakers, Inc. v. St. Jude Med., Inc.*, 296 F.3d 1106, 1113 (Fed. Cir. 2002)); see also *Cardiac Pacemakers*, 296 F.3d at 1113 (“It is improper to narrow the scope of the function beyond the claim language.”).

³⁸ *Cardiac Pacemakers*, 296 F.3d at 1113.

³⁹ Doc. [38](#) at 5.

⁴⁰ Doc. [81](#) at 2.

means” function as “moving said first conveyor in an indexing manner.”⁴¹ Although Ellis Products’ proposed language comports with the PTAB’s construction, this Court owes no deference to the PTAB’s broad claim construction.⁴²

The ’583 patent’s specifications language limits the driving means’ function to a certain pattern of movement. An acceleration-deceleration pattern is central to the ’583 patent’s teaching:

[T]he movement of the conveyor 14 is important in order to allow the various pots to be placed on the surface of the conveyor without the need for fixtures or other retaining devices. If the conveyor 14 is abruptly started and accelerated, or abruptly stopped, there is a possibility of the pot toppling on the conveyor. As such, it is necessary to control the rate at which the conveyor accelerates and decelerates during the movement between the various stations along the conveyor. . . . [T]he speed of the conveyor belt slowly increases from the initial start position, reaches a maximum speed between the start and stop positions, and then slowly decelerates toward the stop position. . . . As such, the present invention avoids any possible toppling of the pots. Additionally, this approach eliminates the need for the use of pot holders on the conveyor belt.⁴³

Accordingly, the function of the driving means is not only to move the first conveyor in an indexing manner, but also to follow an acceleration-deceleration pattern.⁴⁴

Structure of “Driving Means”

As to the structure implicated by “driving means,” the Court agrees with Defendant AgriNomix that the term includes the “associated logic,” in addition to the servomotor. The

⁴¹ Doc. [81-1](#) at 8.

⁴² [Malibu Boats, LLC v. Nautique Boat Co., Inc.](#), 122 F. Supp.3d 722, 728 (E.D. Tenn. 2015); see also [Pragmatus AV, LLC v. Yahoo! Inc.](#), No. C-13-1176 EMC, 2014 WL 1922081, at *4 (N.D. Cal. May 13, 2014) (noting that in inter partes review, the PTAB is mandated to accord claim terms their broadest possible construction).

⁴³ Doc. [1-1](#) at cols. 10:61-67, 11:1-11; see also *id.* at col. 7:47-55 (“It has been found that a rapid acceleration of the first conveyor 14 between its various stops could potentially cause a toppling of the pot 22. In order to avoid this problem, the servomotor serves to drive the first conveyor 14 such that the first conveyor 14 ramps up its speed slowly toward another stop position and then decelerates slowly toward another stop position. As such, the first conveyor 14 is able to rapidly transfer the various pots 22 between the various stations without the risk of the toppling of the pots.”).

⁴⁴ The Court notes that this acceleration-deceleration pattern is similarly present in Claim 13: “a driving means for moving said first conveyor from another location to said location directly below said drill in a pattern which slowly accelerates up from said another location and which slowly decelerates toward said location directly below said drill and for having a maximum speed between the location.” *Id.* at col. 13:26-31.

patent recognizes that associated logic programming must work alongside the servomotor to drive the first conveyor. The patent's specifications comment on this need: "The servomotor is suitably programmable by automatic controls in the housing 48 to control the braking and pattern of movement of the first conveyor 14."⁴⁵

Plaintiff Ellis Products counters that programmable logic is simply the invention's preferred embodiment.⁴⁶ Plaintiff points to the following specification language:

A control panel 70 is located adjacent to the motor 68 so as to control the operation of the various motors associated with the apparatus of the present invention. The control panel 70 can be a suitable control panel for programmable logic control of the various servomotors and other motors associated with system of the present invention.⁴⁷

Plaintiff argues that the phrase "can be" indicates that the programmable logic is optional. This interpretation is wrong. Housing the logic programming in the control panel is optional, not the logic programming itself. The term "driving means" implicates associated logic.

Accordingly, the Court construes "driving means" to mean "a servomotor and associated logic that moves first conveyor in an indexing manner such that the first conveyor slowly accelerates from a start location, reaches a maximum speed, slowly decelerates toward a location directly below the drill, and temporarily stops at a location directly below the drill."

B. "A servomotor"

The parties' proposed constructions of "servomotor" are similar; their differences are minor. Predictably, Plaintiff Ellis Products seeks a more open-ended construction. Plaintiff says "servomotor" means "a servomechanism that may consist of several devices which control or

⁴⁵ Id. at col. 7:31-33.

⁴⁶ Doc. [48](#) at 2.

⁴⁷ Doc. [1-1](#) at cols. 8:64-67, 9:1-2.

regulate speed/position of a load. More specifically, it is a closed-loop servomechanism that uses position feedback to control its motion and final position.”⁴⁸

Defendant AgriNomix responds that “servomotor” means “a servomechanism comprising a motor that uses error-sensing feedback from an encoder to correct a rotational position of a rotor of the motor. More specifically, it is a closed-loop servomechanism that uses continuous position feedback to control and correct the motion and final position of the rotor.”⁴⁹

The ’583 patent itself provides limited guidance. The specifications merely state that the servomotor serves to “control” the first conveyor belt’s movement.⁵⁰ Because the patent’s claim language, specifications, and prosecution history do not give meaning to “servomotor,” the Court and the parties agree that the Court must consult extrinsic evidence.⁵¹ Here, the Court looks to industry handbooks that a person of ordinary skill in the art taught by the ’583 patent would consult.⁵²

Industry handbooks generally describe a “servomotor” as a servomechanism that continually measures an object’s position and detects errors with a feedback device to automatically correct the object’s position. For example, both parties cite to a handbook published by Baldor Electric Company, an electric motor designer and manufacturer.⁵³ The handbook describes a servomotor as the following:

a system of devices for controlling some item (load). The item (load) which is controlled (regulated) can be controlled in any manner, i.e. position, direction, speed. The speed or position is controlled in relation to a reference (command

⁴⁸ Doc. [38](#) at 6.

⁴⁹ Doc. [40](#) at 11-12.

⁵⁰ See Doc. [1-1](#) at col. 7:30-33 (“[T]he first conveyor 14 is driven by a servomotor. The servomotor is suitably programmable by automatic controls in the house 48 to control the braking and pattern of movement of the first conveyor 14.”); *id.* at col. 10:46-48 (“The servomotor 108 is connected by a shaft 109 to the driven pulley 111 so as to cause the controlled movement of the belt 102.”).

⁵¹ See [Phillips, 415 F.3d at 1317-18](#) (instructing courts to consider extrinsic evidence, like learned treatises and dictionaries, when intrinsic evidence does not make claim language’s meaning clear).

⁵² See [Belden Wire & Cable Co. v. Cable Design Techs. Corp., 35 F. App’x 905, 908-09 \(Fed. Cir. 2002\)](#) (utilizing materials handbooks as extrinsic evidence to define meaning of patent terms).

⁵³ Doc. [38](#) at 7; Doc. [40](#) at 12.

signal), as long as the proper feedback device (error detection device) is used. The feedback and command signals are compared, and the corrections made. Thus, the definition of a servo system is, that it consists of several devices which control of regulate speed/position of a load.⁵⁴

Guided by the Baldor handbook, the Court finds that a servomotor primarily performs two tasks. First, a servomotor sends a command to the motor to perform a function (e.g., speed) on a load (here, the motor's rotor). Second, the servomotor uses an error-sensing device, such as an encoder, to monitor and send feedback information regarding the load's function. If the servomotor detects deviation from the command, the servomotor makes a correction. The Court's interpretation more closely follows AgriNomix's proposed construction.

Plaintiff Ellis Products argues that Defendant AgriNomix's proposed construction adds improper limitations. Ellis Products says that the words "error," "encoder," and "rotor" are never mentioned in the '583 patent.⁵⁵ Similarly, Ellis Products says that phrases like "error-sensing feedback" and "encoder" are absent from extrinsic evidence like the Baldor handbook.

Plaintiff Ellis Products' arguments regarding the servomotor lose.

Because interpretation of the "servomotor" term requires consulting extrinsic evidence, it is irrelevant whether a particular word or phrase appears in the patent itself. Ellis Products' own proposed construction uses terms—"closed loop" and "feedback," for example—that do not appear in the patent's specifications.

Furthermore, extrinsic evidence like the Baldor handbook explicitly references error-sensing feedback. The Baldor handbook says the following:

As power is applied onto the servo motor, the load begins to move speed and position changes. As the load moves, so does some other "device" move. The other "device" is either a tachometer, resolver, or encoder (providing a signal which is "sent back" to the controller). This "feedback" signal is informing the

⁵⁴ Baldor Electric Company, Servo Control Facts: A Handbook Explaining the Basics of Motion, located at <http://www.baldor.com/Shared/manuals/1205-394.pdf>.

⁵⁵ Doc. 48 at 3.

positioning controller whether the motor is doing to proper job. The positioning controller looks at this feedback signal and determines if the load is being moved properly by the servo motor; and if not, then the controller makes appropriate corrections.

The Baldor handbook thus contradicts Ellis Products' argument. The handbook expressly states that a servomotor's components include a device, such as an encoder, to detect errors and give feedback.⁵⁶

The Court finds that extrinsic evidence adequately supports Defendant AgriNomix's proposed construction. Therefore, the Court construes the term "servomotor" to mean "a servomechanism comprising a motor that uses error-sensing feedback from an encoder to correct the motor rotor's rotational position. More specifically, it is a closed-loop servomechanism that uses continuous position feedback to control and correct the rotor's motion and final position."

C. "Indexing manner"

Plaintiff Ellis Products asks the Court to construe "indexing manner" to mean "[t]he process of moving an object a predetermined distance."⁵⁷ Defendant AgriNomix responds that the term means "[t]he process of starting and stopping in precise intervals at precise locations."⁵⁸ Thus, the difference between the two parties' construction appears to be whether the machine indexes a pot's movement in terms of a single location (i.e., directly below the drill) or multiple locations.

Plaintiff Ellis Products says that the '583 Patent's claims and specification language supports its construction. Claim 1 describes "a driving means cooperative with said first conveyor for moving such said first conveyor in an indexing manner such that said first conveyor

⁵⁶ This inclusion is not unique to Baldor. For example, SIEMENS's servomotor handbook describes an "integrated encoder system" as a main feature of its servomotors. See SIEMENS, Motion Control Servo Motors, located at <http://www.industry.usa.siemens.com/drives/us/en/electric-drives/maturing-siemens-drives/masterdrives-from-siemens-industry/documents/drv-masterdrives-mc-catalog-da-65-3.pdf>.

⁵⁷ Doc. [38](#) at 8.

⁵⁸ Doc. [40](#) at 4-5.

temporarily stops at a location directly below said drill.”⁵⁹ Likewise, the Patent’s brief summary indicates that the indexing solely relates to the drill station: “The present invention is also a process for potting that comprises the steps of . . . indexing the first conveyor so as to move the soil-introduced pot to a location directly below a drill”⁶⁰

Defendant AgriNomix argues that its construction is correct because the ’583 Patent calls for pots to stop at multiple locations along the conveyor.⁶¹ Specifically, AgriNomix states that the conveyor transports pots to a location for soil delivery, then a location for sweeping off excess soil, and finally a location for the soil drilling.⁶² Accordingly, AgriNomix argues that the conveyor indexes in relation to these multiple locations.

Although close, Plaintiff Ellis Products has the better argument.

Defendant AgriNomix misses the mark when it argues that the conveyor starts and stops at multiple locations. While AgriNomix correctly identifies the various processes that take place on the conveyor belt, AgriNomix inaccurately describes how pots move down the conveyor. Nowhere in the patent’s claims or specification does it say that pots stop at different locations along the conveyor. Rather, as detailed at the Markman hearing, the conveyor continuously moves until a pot stops directly under the drill.⁶³ Trailing pots may stop, but such stops are unnecessary to accomplish the pot filling and are unnecessary to level the soil at the top of the pot.

⁵⁹ Doc. [1-1](#) at col. 12:1-4.

⁶⁰ Id. at col. 5:21-26.

⁶¹ Doc. [40](#) at 5 (stating that the patent’s claims “call[] for the pots to stop at different locations on the first conveyor after they are placed on the loading end”).

⁶² Id.

⁶³ Specification language related to the patented machine’s acceleration and deceleration shows that the conveyor only stops once: “[I]t is necessary to control the rate at which the conveyor accelerates and decelerates during the movement between the various stations along the conveyor. FIG. 5 shows that the speed of the conveyor belt slowly increases from the initial start position, reaches a maximum speed between the start and stop positions, and then slowly decelerates toward the stop position.” Doc. [1-1](#) at cols. 10:66-67, 11:1-5. The patent specifies an “initial start position” and “the stop position”; it does not describe intervening stops.

While the patent teaches that the conveyor moves to multiple locations, the patent does not index movement in relation to multiple locations. The indexing only occurs in relation to the drilling location. After teaching that the conveyor is “suitably indexed so that the various pots 22 can be stopped at a location of a particular operation,” the patent specifies that the soil drilling is that particular operation: “As such, as can be seen in FIG. 1, the pot 22 is stopped temporarily in a location below the drill 18.”⁶⁴

The Patent’s descriptions of the sensor controlling the conveyor’s indexed movement further supports Plaintiff’s proposed construction. According to the specifications, “[a] sensor means is positioned upstream of the drill for sensing when the pot is directly below the drill.”⁶⁵ Specifically, “[w]hen the electronic eye or limit switch senses that the pot 86 is in a position below the drill 18, the conveyor 14 will position the pot below the drill and will stop temporarily so that the drilling operation can be completed.”⁶⁶

The ’583 patent teaches only one sensor, the drill-associated sensor. With only this one sensor, the conveyor could only index in relation to the drill station; additional sensors would be necessary to index in relation to the soil delivery or sweeping locations. The conveyor moves in an indexing manner based solely on the drill station, not the soil delivery location or the sweeping location.

Descriptions of the conveyor’s acceleration and deceleration also show that the patented machine only indexes in relation to the drill. The specification states the following:

The step of indexing includes increasing the speed of movement of the first conveyor from the stop position such that a maximum speed occurs at another location away from the stop position and decreasing the speed of the movement of the first conveyor from the another location until the conveyor stops at the location directly below the drill.”⁶⁷

⁶⁴ Id. at col. 7:41-43.

⁶⁵ Id. at col. 4:66-67.

⁶⁶ Id. at col. 10:14-17.

⁶⁷ Id. at col. 5:30-35.

Although the conveyor moves across various locations, the conveyor only indexes with respect to a single location, directly below the drill.⁶⁸

The Court, however, declines to use Plaintiff Ellis Products' proposed "distance" language. The Court was unable to find any language in the Patent describing the conveyor moving a "predetermined distance." Rather, the Patent repeatedly teaches that the conveyor moves to a specific location: directly below the drill.

The Court therefore construes "indexing manner" to mean "the process of moving an object to a precise location."

D. "Entirely linear path"

Plaintiff Ellis Products suggests that an "entirely linear path" is "a linear path of travel extending from a leading end to a discharge end."⁶⁹ Defendant AgriNomix proposes that the term means "a path extending in a straight line along a plane and devoid of any deviations along the entirety of the path."⁷⁰ The Court agrees with Defendant AgriNomix's construction for two reasons.

First, the patent prosecution history supports AgriNomix's proposed construction. The phrase "entirely linear path" was not in the claim language that Plaintiff Ellis Products originally submitted to the U.S. Patent and Trademark Office ("PTO"). The original claim language placed

⁶⁸ The Court acknowledges that some of the patent's specification language raises questions as to what exactly the patented machine indexes. In support of its multiple-locations construction, AgriNomix points to the following language: "the servomotor associated with the first conveyor 14 has a unique drive in which the conveyor 14 is suitably indexed so that the various pots 22 can be stopped at a location of a particular operation." Doc. [1-1](#) at col. 7:38-41.

Likewise, the specification states that "[t]he first conveyor 14 will move in an indexed manner so as to bring the empty pot to a soil delivery channel so that the soil can be introduced from the second conveyor 16 into the pot." Id. at col. 9:27-30. The patent also states, "the first conveyor 14 is able to rapidly transfer the various pots 22 between the various stations without the risk of the toppling of the pots." Id. at col. 7: 53-55.

Nevertheless, as discussed above, while the patent teaches that the conveyor moves to multiple locations, the patent does not index movement in relation to multiple locations.

⁶⁹ Doc. [38](#) at 9.

⁷⁰ Doc. [40](#) at 6.

no limitation on the shape or contour of the first conveyor, meaning that the conveyor could be straight or circular.⁷¹

Partly because of this omission, the PTO Examiner rejected Ellis Products' original claim language.⁷² The PTO Examiner commented that U.S. Patent No. 6,594,949 ("the '949 patent"), another Ellis Products patent, anticipated the original claim language.⁷³ The '949 patent described a potting apparatus with a circular first conveyor belt upon which pots were placed and indexed for soil delivery and drilling.

In response to the PTO's rejection, Plaintiff Ellis Products amended the '583 patent's claims. Ellis Products specified that the first conveyor "follow[s] an entirely linear path from said loading end to said discharge end."⁷⁴ In remarks submitted with the amendments, Ellis Products stressed that the '583 Patent's entirely straight conveyor distinguished it from the '949 patent:

Applicant respectfully contends that independent Claim [1] is now patentably distinguishable from the prior art Ellis patent. In the Ellis patent, it can be seen that the conveyor is a circular conveyor. . . . As such, the Ellis patent will suffer from the problems associated with the prior art in that the application of the rotation forces to the conveyor create a centrifugal force which causes the soil to become uneven with the pot or soil to be flung from the pot. Independent Claim [1] distinguishes the present invention from the prior art ['949] patent by . . . indicat[ing] that the first conveyor follows 'an entirely linear path. . . .'⁷⁵

The PTO Examiner was similarly explicit about the conveyor's straight path in his Notice of Allowability, which accepted Ellis Products' amendments to the patent. The PTO Examiner observed that the first conveyor now "follow[ed] an entirely linear path (i.e., a straight line path devoid of any curves) from said loading end to said discharge end."⁷⁶

⁷¹ See Doc. [41-1](#) at 26-30.

⁷² Doc. [41-2](#) at 4.

⁷³ Id. at 5.

⁷⁴ Doc. [41-3](#) at 9-10.

⁷⁵ Id. at 12.

⁷⁶ Doc. [41-4](#) at 6.

Ellis Products' proposed construction would contradict this patent prosecution history. A "linear path of travel," the construction proposed by Ellis Products, could mean a conveyor made up of multiple lines. The lines could join together in curved shapes, permitting circular conveyors. The possibility of a rounded conveyor is exactly what prompted the PTO Examiner to require amendments to the original claim language. The patent prosecution history demonstrates that "entirely linear path" means a straight line, without deviations.

Second, only Defendant AgriNomix's proposed construction gives meaning to the claim term "entirely." "A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so."⁷⁷ AgriNomix's interpretation gives meaning to "entirely": the path is completely straight, without any deviations.

Ellis Products' proposed construction would read the term "entirely" out of the patent. Under Ellis Products' interpretation, an "entirely linear path" is merely a "linear path of travel extending from a leading end to a discharge end." With this construction, the "linear path" could consist of multiple lines that deviate from a single straight path. But then what purpose would the term "entirely" serve? It would be superfluous. The only way to give meaning to the word "entirely" is to interpret the path as completely straight.

The first conveyor is not a just a linear path made up of one or more straight lines. Rather, as indicated by the word "entirely," the first conveyor's linearity exists for the entirety of the conveyor.

The Court therefore construes the term "entirely linear path" to mean "a path extending in a straight line and devoid of any deviations along the entirety of that path."

⁷⁷ [Merck & Co., Inc. v. Teva Pharmaceuticals USA, Inc.](#), 395 F.3d 1364, 1372 (Fed. Cir. 2005); see also [Brunswick Corp. v. United States](#), 34 Fed. Cl. 532, 572 (Fed. Cl. 1995).

E. “A belt having an upper surface suitable for receiving a pot”

Finally, the parties argue over the meaning of the term “a belt.” Their argument centers on whether the term means a single belt or multiple belts.

Despite having used a single belt in all its drawings and arguably in all its written descriptions, Plaintiff Ellis Products says that “a belt” means one or more belts.⁷⁸ First, Ellis Products points to Claims 1, 12 and 13, which state the potting machine “compris[es] a first conveyor being a belt.”⁷⁹ Ellis Products argues that “comprise” is an inclusive, open-ended term that leaves open the possibility of additional belts.⁸⁰ Second, Ellis Products says that, in the context of patent claims, the term “a” signifies “one or more.”⁸¹ Third, Ellis Products argues that it is improper to read limitations from depictions in a patent’s arguably preferred embodiments.⁸²

The Court agrees that “comprising” is an inclusive, open-ended term that means “including but not limited to.”⁸³ The Court also agrees that “a” generally refers to “one or more.” And the Court agrees that it is usually improper to limit a patent because of an embodiment. Nevertheless, the Court agrees with AgriNomix that an exception to these general rules is warranted here.

Consulting a patent’s preferred embodiment is permissible when there is a “clear indication in the intrinsic record that the patentee intended the claim to be so limited.”⁸⁴ The intrinsic record here indicates that Plaintiff Ellis Products acquiesced to limiting the term “being a belt” to the patent’s preferred embodiments: a single conveyor belt.

⁷⁸ Doc. [38](#) at 11-12.

⁷⁹ Doc. [1-1](#) at col. 11:54-55.

⁸⁰ Doc. [38](#) at 11 (citing [Genentech, Inc. v. Chiron Corp.](#), 112 F.3d 495, 501 (Fed. Cir. 1997)).

⁸¹ Id. at 12.

⁸² Id. (citing [Agfa Corp. v. Creo Prods. Inc.](#), 451 F.3d 1366, 1376-77 (Fed. Cir. 2006)).

⁸³ See [CIAS, Inc. v. Alliance Gaming Corp.](#), 504 F.3d 1356, 1360 (Fed. Cir. 2007); see also [Georgia-Pacific Corp. v. United States Gypsum Co.](#), 195 F.3d 1322, 1327-28 (Fed. Cir. 1999).

⁸⁴ [Libel-Flansheim Co. v. Medrad, Inc.](#), 358 F.3d 898, 913 (Fed. Cir. 2004).

The phrase “being a belt” was not in the claim language originally submitted by Plaintiff Ellis Products to the PTO.⁸⁵ Plaintiff also did not include the language in the amendments it offered in response to the PTO Examiner’s rejection of Plaintiff’s original application. Instead, the PTO Examiner added the phrase “being a belt” so as “to correspond with the embodiment of the first conveyor supported in the disclosure.”⁸⁶

The PTO Examiner told Plaintiff Ellis Products that Ellis Products could contest the addition of “being a belt” to the patent.⁸⁷ Ellis Products declined to object. In so doing, Ellis Products accepted the amended language. Because the PTO Examiner added “being a belt” so as to correspond with the patent’s embodiments, it is appropriate to use the preferred embodiments to ascertain the meaning of the phrase. The patent’s prosecution history is a clear enough indication that Ellis Products intended the claim to be limited by the preferred embodiment of the belt.

All of the embodiments of the ’583 Patent’s first conveyor depict a single belt, not multiple belts. Moreover, the patent’s written descriptions repeatedly refer to the first conveyor belt as “the belt,” not “a” belt.⁸⁸

Accordingly, the Court construes “a belt having an upper surface suitable for receiving a pot” to mean “a single belt, which is capable of receiving and supporting a pot.”

⁸⁵ The original application’s first claim stated, “A potting apparatus comprising: a first conveyor suitable for receiving a pot thereon” Doc. [41-1](#) at 26.

⁸⁶ Doc. [41-4](#) at 4.

⁸⁷ *Id.*

⁸⁸ See, e.g., Doc. [1-1](#) at col. 8:42-46 (“In FIG. 2, it can be seen that the conveyor 14 is a linear belt-type conveyor that extends from a loading end 60 to a discharge end 62. The conveyor belt 64 is mounted on a series of idlers positioned on a frame 66. As such, the frame 66, along with the conveyor belt 64, establishes the linear path of travel of the conveyor belt 64.”).

IV. Conclusion

For the foregoing reasons, the Court interprets the disputed '583 patent claim terms as described above.

IT IS SO ORDERED.

Dated: August 7, 2017

s/ James S. Gwin
JAMES S. GWIN
UNITED STATES DISTRICT JUDGE