United States District Court,
E.D. Pennsylvania.

MOBA, B.V., Staalkat, B.V., and FPS Food Processing Systems,
Inc. Plaintiffs.
v.
DIAMOND AUTOMATON, INC,
Defendant.

March 4, 1999.

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MEMORANDUM

KAUFFMAN**, J.**

This is a patent case involving equipment and methods used to sort eggs. Moba, B.V., Staalkat, B.V., and FPS Food Processing Systems, Inc., (collectively, "Plaintiffs") brought the action pursuant to 28 U.S.C. s.s. 2201 & 2202 against Diamond Automation, Inc. ("Defendant") seeking a declaratory judgment that United States Patent Nos. 4,569,444 (the " '444 Patent"), 4,519,494 (the " '494 Patent"), 4,505,373 (the " '373 Patent"), and 4,519,505 (the " '505 Patent"), are invalid and, in any event, not infringed. Defendant, which owns the four patents in suit, filed a counterclaim for a declaratory judgment that the patents are valid and for a permanent injunction barring Plaintiffs' manufacture, use or sale of the patented inventions.

Now before the Court is the parties' request for an interpretation of certain disputed terms in the patent claims. The Court held a *Markman* Hearing on April 23 and 24, 1998. On the basis of that hearing, the parties' submissions, and the Court's reading of the disputed patents and their prosecution histories, the Court will construe the disputed claim language as set forth in this Memorandum and the accompanying Order.

I. THE '444 PATENT

The '444 Patent describes "an improved egg processing system which is capable of grading and classifying and subsequently separating and packaging eggs at one or more receiving stations in the apparatus according to their individual physical characteristics at a high speed of operation." '444 Patent, col.1, ln. 49-

53. The parties' dispute over the '444 Patent involves the interpretation of the following claim language:

A. the means for releasing eggs from the main egg-carrying conveyor;

B. the means for varying the position from which eggs are released; and

C. the "receiving means" into which the released eggs are dropped.

Each of these phrases is addressed below. FN1

FN1. The construction of the phrase "predetermined sequence" also was in dispute, but the Court construed this phrase in an earlier Memorandum. *See Moba v. Diamond,* No. 95-CV-2631 (E.D. Pa. filed Jan. 27, 1999). The Court will include its construction of the phrase in the Order that accompanies this Memorandum.

A. ***Means for Releasing Eggs***

1. Apparatus Claims 14, 33, 44, 67 and 76

The parties agree that the releasing means limitations in claims 14, 33, 44, 67, and 76 of the '444 Patent are written in "means-plus-function" form, which means that they describe the invention in terms of what it does, rather than in terms of its physical structure. *See* Warner-Jenkinson Co. v. Hilton Davis Chem. Co., 520 U.S. 17, ---, 117 S.Ct. 1040, 1048 (1997). Means-plus-function claims are expressly authorized by the Patent Act, FN2 which instructs that such claims "shall be construed to cover the corresponding structure [or] material described in the specification and equivalents thereof." 35 U.S.C. s. 112, para. 6. FN3 Section 112, para. 6 thus restricts claim limitations drafted in means-plus-function language to those structures or materials disclosed in the specification (and their equivalents) that perform the claimed function. Personalized Media Communications, LLC v. International Trade Comm'n, 161 F.3d 696, 703, 48 U.S.P.Q.2d 1880 (Fed.Cir.1998).

FN2. *See* 35 U.S.C. s. 112 ("An element in a claim ... may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof ....").

FN3. Although 35 U.S.C. s. 112, para. 6 does not explicitly so state, "structure and material go with means, acts go with steps.... [Paragraph 6] is implicated only when means plus function without definite structure are present, and that is similarly true with respect to steps, that the paragraph is implicated only when steps plus function without acts are present." O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582, 42 U.S.P.Q.2d 1777 (Fed.Cir.1997).

Claims 14, 33, 44, 67, and 76 contain a "releasing means" limitation relating to the release of eggs from the main conveyor of the egg processing system. The parties agree that the "releasing means" performs three functions: "(1) actuating selected egg-engaging elements on the main egg-carrying conveyor; (2) releasing eggs having the same physical characteristics from the main egg-carrying conveyor into a receiver; and (3) releasing eggs in a predetermined sequence based on characteristics of the eggs." FN4

FN4. Def.'s Mem. Defining Disputed Claim Terms at 31; Pls.' Post-Hearing *Markman* Mem. at 18 & n. 10.

The parties disagree about the identity of the "corresponding structure" linked or associated with these three functions. *See* 35 U.S.C. s. 112, para. 6; Kahn v. General Motors Corp., 135 F.3d 1472, 1476, 45 U.S.P.Q.2d 1608 (Fed.Cir.), *cert. denied,* 119 S.Ct. 177 (U.S.1998). To resolve this dispute, the Court must analyze the functions recited in the claim, and then identify the structure associated or linked to those functions. Kahn, 135 F.3d at 1476.

The specification describes an egg conveyor that "conveys the eggs in adjacent pairs to a plurality of egg packing stations where the eggs are separated and packaged in cartons ...." '444 Patent, col. 4, ln. 46-48. "[C]arriage assemblies ... are part of the egg conveyor." Id. col. 8, ln. 33-34. Mounted on each carriage assembly is the "means ... for releasing eggs ...," id. col. 1, ln. 64-67, which includes two structural components: "a pair of depending prongs or egg-engaging members," id. col. 8, ln. 37-40; and "extension bar[s] ... provided with an upper T-shaped portion," id. col. 8, ln 63-68. In operation, the latch pins of two comb-like bars engage the extension bars, causing the extension bars to rotate in a clockwise direction. Id. col. 9, ln. 52-57. The rotation causes the egg-engaging prongs "to move inward with respect to one another and close in an engaging relationship with the egg. In this manner, the egg is lifted ... by the prongs and conveyed to the receiving stations downstream on the machine." Id. col. 9, ln. 40-68.

Located at each receiving station is a "movable frame." Id. col. 10, ln. 14-17, 31-33. Mounted on the movable frame are "solenoids ..., which activate plungers." FN5 Id. col. 10, ln. 14-17. "When the eggs arrive above the appropriate receiving station, the solenoids are selectively actuated ...." Id. col. 11, ln. 12-13. When actuated, the solenoids activate plungers, which engage the upper T-shaped portions of the extension bars, causing the extension bars to rotate in a counterclockwise direction. Id. col. 11, ln. 16-18. The rotation causes the egg-engaging prongs "to pivot outwardly with respect to one another.... The eggs are then released from the prongs ...." Id. col. 11, ln. 20-27.

FN5. A solenoid is "a coil of wire commonly in the form of a long cylinder that when carrying a current resembles a bar magnet so that a movable core is drawn into the coil when a current flows." Webster's New Collegiate Dictionary 1097 (1981).

In sum, the specification states that the solenoid-actuated plungers engage the upper T-shaped portion of the extension bars, which, when thus engaged, cause the egg-engaging prongs to open and release the eggs. The Court therefore concludes that the corresponding structure associated with "releasing means" are the solenoid-actuated plungers, as described in the Order filed with this Memorandum, and their structural equivalents.

Plaintiffs argue that the corresponding structures are: "(1) a central processing unit of a computer; (2) some structure for actuating the solenoids; (3) solenoids to actuate the plungers; (4) plungers to engage the T-sections of extension bars; and (5) extension bars including T-sections." FN6 Because the specification does not refer to a central processing unit of a computer or structure actuating the solenoids, however, the Court declines to find that these structures correspond to the "releasing means." Moreover, an artisan FN7 readily would understand that solenoids must communicate with those elements of the egg processing system that store the physical characteristics upon which egg grading and release are based. The Court also declines to find that "plungers to engage the T-sections of extension bars" and "extension bars including T-sections" are

among the corresponding structure because the releasable egg-engaging means includes as structure not only the egg-engaging prongs but also extension bars with T-sections, and identification of these elements as structure corresponding to the releasing means as Plaintiffs argue, therefore would be contrary to the specification description.

FN6. Pls.' Post-Hearing Markman Mem. at 18.

FN7. A patent is addressed to one of skill in the art. Wang Labs., Inc. v. Toshiba Corp., 993 F.2d 858, 866, 26 U.S.P.Q.2d 1767, 1774 (Fed.Cir.1993).

2. Method Claim 56

The parties dispute whether the "releasing means" limitation of method claim 56 is a means- or step-plus-function limitation subject to construction in accordance with 35 U.S.C. s. 112, para. 6. Claim 56 describes "[a] method of transferring eggs" from a conveyor to a receiving station, "which comprises the step[ ] of ... selectively releasing the eggs by moving a releasing means from above into the path of the conveyed eggs." FN8

FN8. '444 Patent, reexamination certificate B2 4,569,444, col. 8, ln. 55-56 (Ex. C to Def.'s Opp. to Pls.' Mot. for Summ. J.)

As discussed above, an element of a claim is a means- or step-plus-function limitation if it is "expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof." 35 U.S.C. s. 112, para. 6.FN9 Plaintiffs assert that the Court must give the same interpretation to the "releasing means" limitation in method claim 56 and the "releasing means" limitation in apparatus claims 14, 33, 44, 67 and 76.FN10 Defendant, on the other hand, asserts that claim 56 does not "include step plus function limitations," and therefore is not subject to construction in accordance 35 U.S.C. s. 112, para. 6.FN11

FN9. Title 35 U.S.C. s. 112, para. 6 thus refers to "means and steps, which must be supported by structure, material, or acts," and, as explained in note 3, *supra,* "structure and material go with means, acts go with steps." O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1582, 42 U.S.P.Q.2d 1777 (Fed.Cir.1997). In other words, a limitation must be construed in accordance with s. 112, para. 6 if it recites a "step" for performing a function without the recital of "acts," or if it recites a "means" for performing a function without the recital of "structure" or "material."

FN10. Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 20.

FN11. *See* Def.'s Mem. Summarizing Disputed Claim Terms at 10; Def.'s Reply Mem. Summarizing Disputed Claim Terms at 2.

Having reviewed the patent, the Court concludes that claim 56 does not describe any "specified function," and therefore is not a means- or step-plus-function limitation subject to construction in accordance 35 U.S.C. s. 112, para. 6.

B. ***Means for Varying the Position From Which Eggs are Released***

The '444 Patent describes an apparatus for conveying eggs to a receiving station where they are packaged. '444 Patent. The speed and position of the eggs at the moment they are released from the conveyor together determine the trajectory of the eggs upon their release. The trajectory, in turn, determines where the eggs land. By varying the speed of the conveyor belt and the location along the conveyor belt from which the eggs are released, the egg processing system can adjust the trajectory of the eggs so that the eggs properly land in the intended receiving station. Accordingly, the recitation of the apparatus for transferring eggs includes limitations regarding the "means for varying the position" from which eggs are released.FN12

FN12. *See, e.g.,* claims 14 & 67 (means "for varying the position" from which eggs are released "to compensate for changes in the forward drop trajectory of the eggs at different speeds ...."); claim 33 ("means ... for varying the position" from which eggs are released "according to the speed of [the] conveyor ...."); claims 44 & 76 ("means ... for varying the position" from which eggs are released "according to the speed of [the] conveyor to compensate for changes in the forward drop trajectory of the eggs at different speeds ....").

The "varying means" limitations are drafted in means-plus-function form, and as discussed above, are construed in accordance with 35 U.S.C. s. 112, para. 6, by first, ascertaining the function of the "means," and second, determining which structure or material disclosed in the specification "corresponds" to that function. The Court then construes the claim as limited to the corresponding structure and its equivalents.

The function of the "varying means" is not in dispute. The parties agree that the means must:

1. vary the position of the frame or 'release means' with respect to the receiving station ...;

2. vary the position according to the speed of the main egg-carrying conveyor ....; [and]

3. compensate for changes in the forward drop trajectory of the eggs at different conveyor speeds.FN13

FN13. Def.'s Mem. Defining Disputed Claim Terms at 42-43; *see* Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 21.

The parties' dispute pertains to the identity of the "corresponding structure" that performs this claimed function. *See* 35 U.S.C. s. 112, para. 6.

Defendant contends that the structures that correspond to this function are "a hydraulic cylinder and a reversible energizing motor." FN14 Plaintiffs assert that the hydraulic cylinder and reversible motor, alone, are insufficient to perform the claimed function of varying the position of egg release according to the speed of the main conveyor. They contend that the "complete" corresponding structure is "a pump, coupled by a hydraulic line to a valve which is connected by a coupling to another hydraulic line and hydraulic cylinder ...." FN15 To resolve this dispute, the Court considers the specification, which describes two embodiments

for carrying out the invention disclosed in the '444 Patent.

FN14. Def.'s Mem. Defining Disputed Claim Terms at 43; Def.'s Mem. Summarizing Disputed Claim Terms at 10.

FN15. Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 22; Pls.' Post-Hearing *Markman* Mem. at 19.

1. Figure 22

The first embodiment for carrying out the invention is illustrated in Fig. 22, which shows a movable frame that is coupled by certain specified mechanical elements (e.g., an extension rod, a compression spring, a stationary guide, circular collars) to a hydraulic cylinder which, in turn, is coupled by certain specified hydraulic elements (e.g., hydraulic pressure lines, a coupling, a valve, a pump) to the main drive motor for the egg conveyor. '444 Patent, col. 10, ln 19-30.

The specification discloses that the varying means in this embodiment operates as follows: When the speed of the egg conveyor increases, the flow of hydraulic fluid from the hydraulic pump causes the hydraulic cylinder to advance the movable frame "in a direction opposite to the direction of movement of the carriage assemblies to a position sufficient to compensate for the forward trajectory of eggs released at that particular speed." '444 Patent, col. 11, ln. 47-59. Conversely, when the speed of the egg conveyor decreases, the hydraulic cylinder moves the frame "in the opposite direction, i.e., in the same direction as the direction of movement of the carriage assemblies, to another position sufficient to compensate for the smaller forward drop trajectory of the eggs at a lower speed." Id., col. 11. ln. 62-68.

Having reviewed the specification, the Court concludes that the corresponding structure associated with the "varying means" in the embodiment illustrated in Fig. 22 is a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid.

2. Figure 30

The second embodiment for carrying out the invention is illustrated in Fig. 30, which shows a movable frame coupled by an elongated threaded shaft to a reversible motor and additionally coupled by a cable to a pulley connected to the speed control that controls the motor that drives the egg-carrying conveyor. '444 Patent, col. 12, ln. 64-67; col. 13, ln.3-6.

The specification discloses that the varying means in this embodiment operates as follows:

The position of [the movable frame] ... is adjusted by energizing [the reversible motor].... When the position of [the movable frame] is adjusted to the location corresponding to the particular speed at which the conveyor is to operate, [the cable] will be either wound or unwound on [the pulley], so as to rotate [the speed control] and adjust the speed of the drive motor for the conveyor.

'444 Patent, col. 13, ln. 7-12. The reversible motor thus affects the position of the movable frame, which in turn affects the speed of the conveyor. FN16 Having reviewed the specification, the Court finds that the corresponding structure associated with the "varying means" in the second embodiment, illustrated in Fig.

30, is a reversible motor.

FN16. Hence, the varying means in the embodiment does *not* cause a simultaneous, dynamic positioning of the movable frame in response to a change in conveyor speed. *See* Reexamination File History, Final Office Action of December 12, 1989, Paper No. 20 at p. 11 (Ex. I to Def.'s Opp. to Pls.' Mot. for Summ. J.) (noting that "[t]he apparatus is only 'synchronized at all speeds' in the sense that once an adjustment of the stepper motor (150) input control has been effected by the operator from a remote control console, the speed of the conveyor (92) is correspondingly adjusted through interconnection (151, 152, 153) to the relocation of the release means (121), so as to be 'synchronized' therewith").

C. *Receiving Means*

Each of the asserted claims of the '444 Patent recites a "receiving station" FN17 or "receiving means" FN18 into which eggs are released. The parties contest whether the recitations of "receiving station" or "receiving means" are subject to construction in accordance with 35 U.S.C. s. 112, para. 6. Defendant contends that 35 U.S.C. s. 112, para. 6 is inapplicable because the receiving station and receiving means are merely "the place where a recited function occurs." FN19 Plaintiffs contend that the function of the receiving means "is to receive eggs from the first conveyor and to help separate eggs into rows and to maintain accurate separation of the eggs into rows for delivery to the second conveyor." FN20

FN17. *See, e.g.,* claims 14, 33, 67, 76 ("an apparatus for delivering eggs to a receiving station"); claims 25, 56 ("a method of transferring eggs ... to a receiving station").

FN18. *See, e.g.,* claim 14 ("an apparatus for delivering eggs ... so as to release eggs ... into a receiving means at said receiving station."); claim 25 ("a method of transferring eggs ... comprising the steps of ... selectively releasing eggs ... into a receiving means at said receiving station ...."); claim 33 ("an apparatus for transferring eggs ... comprising ... means ... for selectively releasing eggs ... into a receiving means at said receiving station ...."), claim 76 ("an apparatus for delivering eggs to a receiving station ... comprising ... means for selectively releasing said eggs ... into the receiving means ....").

FN19. Def.'s Reply Mem. Defining Disputed Claim Terms at 18.

FN20. Pls.' Mem. of Law Defining Disputed Claim Terms for the *Markman* Hearing at 27.

The Court agrees with Defendant that the language pertaining to a receiving station or receiving means does not set forth a "means ... for performing a specified function," 35 U.S.C. s. 112, para. 6, and consequently is not subject to construction in accordance with s. 112, para. 6. With one exception, the receiving station or receiving means is simply a place where a recited function or step occurs. The exception is the receiving means recited in claim 56, '444 Patent, col. 8, ln. 46-49, which reads:

a method of transferring eggs from a variable speed conveying means to a receiving station which comprises the step[ ] of ...

providing a plurality of egg *receiving means* each for receiving eggs of a particular characteristic at the receiving station disposed below the conveying means....

'444 Patent, claim 56, col. 8, ln. 39-42, 46-49 (emphasis added). A review of the prosecution history reveals that although the above-quoted language does not merely set forth the place where a recited function or step occurs, it is not a means-plus-function limitation.

The '444 Patent was reexamined twice. The first reexamination was requested on April 8, 1987, and reexamination certificate B1 4,569,444 was issued on August 9, 1988 (the "B1 Certificate").FN21 In the B1 Certificate, claim 56 recites: "providing a plurality of egg receiving means at the receiving station disposed below the conveying means." FN22 The second reexamination was requested on August 5, 1988 and February 25, 1990, and reexamination certificate B2 4,569,444 was issued November 26, 1991 (the "B2 Certificate").FN23 During the second reexamination, Defendant amended the claim to clarify that the eggs are released based on their physical characteristics.FN24 In the B2 Certificate, claim 56 recites: "providing a plurality of egg receiving means *each for receiving eggs of a particular characteristic* at the receiving station disposed below the conveying means." (amendment effected during the second reexamination in italics).FN25

FN21. B1 Certificate (Ex. B to Def.'s Opp. to Pls.' Mot. for Summ. J .)

FN22. B1 Certificate, col. 6, ln. 61-62. (Ex. B to Def.'s Opp. to Pls.' Mot. for Summ. J.)

FN23. B2 Certificate (Ex. C to Def.'s Opp. to Pls.' Mot. for Summ. J .).

FN24. *See* Reexam. Control No. 90/001573, Examiner Interview Summary Record, Paper No. 14, June 8, 1989 and Patent Owner's Amendment, June 15, 1989 at 10. (Exs. E & F to Def.'s Opp. to Pls.' Mot. for Summ. J.)

FN25. B2 Certificate, col. 8, ln. 46-49 (Ex. C to Def.'s Opp. to Pls .' Mot. for Summ. J.)

The prosecution history thus shows that the receiving means in claim 56 is not a "means ... for performing a specified function," but is simply a structure. As such, it is not subject to construction in accordance with 35 U.S.C. s. 112, para. 6. *See* Chiuminatta Concrete Concepts, Inc. v. Cardinal Indus., Inc., 145 F.3d 1303, 1308, 46 U.S.P.Q.2d 1752 (Fed.Cir.1998).

II. THE '494 PATENT

The '494 Patent, describes "an egg handling system" that includes "an apparatus for transferring eggs ... by a [high-speed] conveyor to a receiving station ... at which the eggs are collected and packaged," '494 Patent, col. 2, ln. 9-12, and then transferred to a second conveyor and carried away, id., col. 12, ln.64-68. The parties request the Court to interpret the following claim language:

A. the "predetermined sequence" in which eggs are released from the high-speed conveyor;

B. the "receiving means" into which the released eggs are dropped; and

C. the movement of released eggs "downwardly and away from" the high-speed conveyor and the receiving means.FN26

FN26. These phrases are found in independent claims 8, 28 and 34 and dependent claims 9-13, 15-18 and 31-33 (collectively, the "asserted claims of the '494 Patent").

Each of these phrases is addressed below.

A. *Predetermined Sequence*

The asserted claims of the '494 Patent include a limitation that eggs are released at a receiving station "in a predetermined sequence" or "in accordance with a predetermined requirement." FN27 The asserted claims of Defendant's '444 Patent also include a "predetermined sequence" limitation, and the Court construed this limitation in an earlier Memorandum. *See Moba v. Diamond,* No. 95-CV-2631, (E.D. Pa. filed Jan. 27, 1999).FN28

FN27. The '494 specification uses the phrase "predetermined sequence" in independent apparatus claims 8 and 34 and the phrase "predetermined requirement" in independent method claim 28 in similar contexts, and does not distinguish one phrase from the other. The Court therefore finds that the phrases "predetermined sequence" and "predetermined requirement" are synonymous.

FN28. *See supra* note 1.

The '494 Patent expressly incorporates the specification of the '444 Patent by reference, '494 Patent, col.3, ln 15-22, and identically discloses the "predetermined sequence" limitation in a preferred embodiment, *compare* '494 Patent, col. 5, ln. 62-col. 6, ln. 13 *with* '444 Patent, col. 13, ln. 23-43. Accordingly, the Court construes the "predetermined sequence" limitation in the '494 Patent as it construed the "predetermined sequence" limitation in the '444 Patent.

B. *Receiving Means*

The egg handling system described and claimed in the '494 Patent includes at least one rotatable, resilient receiving means, '494 Patent, col. 2, ln. 17-18, and each of the asserted claims recites a receiving means limitation. The parties agree that the receiving means limitation recited in independent apparatus claims 8 and 34 is a means-plus-function limitation subject to the requirements of 35 U .S.C. s. 112, para. 6. The parties disagree, however, about the receiving means' function and the corresponding structure.

Claim 8 defines "an apparatus for delivering eggs to a receiving station" that includes:

rotatable, resilient receiving cylinder means disposed at the receiving station, said receiving means being

adapted for rotational movement downwardly and away from said conveyor means for receiving eggs delivered by said conveyor means to said receiving station, said cylinder means having an axis substantially parallel to said first direction.

Id. at col. 9, ln. 1-7. Claim 34 also defines "an apparatus for delivering eggs to a receiving station" and recites the receiving means limitation in similar language, but also includes a requirement that the means is adapted to move eggs "downwardly and away" from the main conveyor, "so as to move the eggs in a direction substantially perpendicular" to the conveyor. Id. at col. 13, ln. 20-col. 14, ln. 4.

According to the plain language of the claims, the receiving means performs the following functions: (1) receiving eggs delivered by the main egg-carrying conveyor; (2) rotating the eggs downward and away from the conveyor; and, for claim 34 only, (3) moving eggs in a direction perpendicular to the conveyor. FN29 These functions are linked to the following corresponding structure: (1) two rotatable resilient cylindrical brushes; (2) a single rotatable resilient cylindrical brush; (3) a resilient foam member; (4) a resilient inflatable member; and (5) any other resilient member. Id. at col 4, ln. 59-61; col. 6, ln. 14, 52-53.

FN29. Plaintiffs argue that the receiving means performs two functions: (1) "to help separate eggs into rows;" and (2) "to maintain accurate separation of the eggs into rows for delivery to the second conveyor." (Pls.' Mem. Defining Disputed Claim Terms for the *Markman* Hearing at 36.) Neither function is recited by claim 8 or 34.

The Court now turns to independent method claim 28. The parties disagree about whether the claim recites the receiving means limitation in means-plus-function form. Claim 28 recites a method of transferring eggs by a conveyor to a receiving station, and includes the step of "positioning a receiving means below the first conveyor means so as to receive therein and deliver to a common member the eggs released from the parallel spaced-apart rows of the first conveyor means." Id. at col. 12, ln. 17-21. An artisan would understand that the phrase "a receiving means" in this step is a generic description of structure or material and is not set forth in any part by the function it performs. The Court therefore concludes that the receiving means limitation in claim 28 is not expressed in means-plus-function form, and its construction therefore is not limited to "the corresponding structure disclosed in the specification, and equivalents thereof." 35 U.S.C. s. 112, para. 6.

C. *Downwardly and Away From*

The asserted claims of the '494 Patent include a limitation requiring that the eggs are released "downwardly and away from" the overhead conveyor. FN30 Plaintiffs argue that this limitation requires that the eggs are transported "to a point below the receiving means." FN31 The asserted claims of the '494 Patent also include a limitation requiring that eggs are released "downwardly and away from" the receiving means.FN32 Plaintiffs argue that this limitation requires that "the eggs be moved to a level lower than the level at which it [*sic*] left the receiving means." FN33

FN30. Claim 8, for example, describes an apparatus that includes "means disposed at the receiving station ... being adapted for rotational movement downwardly and away from said conveyor means ...."'494 Patent, col. 9, ln. 1-5.

FN31. Pls.' Mem. Defining Disputed Claims for the *Markman* Hearing at 32.

FN32. Claim 8, for example, describes an apparatus that includes "support means, disposed below said receiving means, for guiding eggs delivered to said receiving means downwardly and away from said receiving means ...."'494 Patent, col. 9, ln. 8-10.

FN33. Pls.' Mem. Defining Disputed Claims for the *Markman* Hearing at 33.

Because an artisan would understand that an egg cannot be entirely below the receiving means, the Court rejects Plaintiffs' construction of the "downwardly and away from" limitations. The specification, referring to Fig. 3, provides, in pertinent part:

the uppermost surface 45 [of support member 42] is disposed beneath and slightly spaced from the peripheral edges of the forward most bristles of cylinders 39 in order to maintain contact between cylinders 39 and the eggs guided along member 42 onto conveyor 43. This surface may, if desired, be curved in a direction substantially in conformance with that of the forward most cylinder.

Id. at col. 5, ln. 28-35. Upon reading the specification, an artisan would conclude that an egg cannot be at a point or level completely below the receiving means because: (a) the cylinders are resilient and composed of compliant material; (b) the guide surface is slightly spaced from the edge of the cylinders; (c) the guide surface may be curved to conform with the cylinder; and (d) the eggs maintain contact with both the cylinder and the guide surface.

III. THE '373 PATENT

A. ***Background***

The '373 Patent, entitled "Egg Transfer System," describes and claims "an apparatus and method by which eggs are transferred from a candling station through a weighing station and on to conveying means for delivery to egg packers disposed downstream thereof." '373 Patent, col. 1, ln. 9-13. The parties dispute the proper construction of method claim 35 and dependent claims 37, 39 and 40 (collectively, the "asserted claims of the '373 Patent").

One objective of the '373 Patent is "to provide an egg lifting system" that transfers eggs from a holding station onto a conveyor by "lift[ing] an egg upwardly and in a direction away from a holding station." Id. at col. 4, ln. 46-48. To accomplish this objective, claim 35 of the '373 Patent claims "a method of transferring eggs," which includes two steps: (1) "lifting the eggs from the holding station from the underside thereof and rotating the eggs upwardly with respect thereto"; and (2) "reciprocally moving the lifted eggs away from the holding station." Id. at col. 17, ln. 13-17. The parties dispute the proper construction of the phrases "rotate the eggs upwardly" and "reciprocally moving lifted eggs."

1. "Rotating the Eggs Upwardly"

Plaintiffs propose that the Court interpret the phrase "rotating the eggs upwardly" to require that "the lifting movement includes a rotational portion which requires circular movement around a fixed point." FN34

Defendant objects to this proposed interpretation. It argues that "claim 35 contains no requirement that the rotating step be about a fixed axis," and notes that the ordinary definition of "rotate" is to turn about a center or axis, which may be fixed *or* moving.FN35 Plaintiffs do not dispute that the ordinary meaning of "rotate" does not require the axis to be fixed, but argue that the specification of the '373 patent "clearly requires that the rotational movement be about *an axis* ... which *does not move* during the rotation of the lifting means." FN36 Defendant responds that Plaintiffs' construction improperly restricts the scope of the claim to what is shown in a preferred embodiment.FN37

FN34. Pls.' Request for Claim Interpretation at 6.

FN35. Def.'s Mem. Summarizing Disputed Claim Terms at 7; *see* Webster's Third New International Dictionary 1976 (Philip Babcock Gove ed., 1986) (hereinafter "Webster's") (defining "rotate," def. *vi* 1); Academic Press Dictionary of Science and Technology, 1883 (Christopher Morris, ed., 1992) (defining "rotation," def. Mechanics 1).

FN36. Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 31; Pls.' Post-Hearing *Markman* Mem. at 25.

FN37. Def.'s Mem. Summarizing Disputed Claim Terms at 7.

2. "Reciprocally Moving the Lifted Eggs"

Plaintiffs propose that the Court interpret the phrase "reciprocally moving the lifted eggs" to require that "the eggs are lifted from the holding stations to the main conveyor by movement of the eggs in two distinct planes perpendicular to one another." FN38 Defendant contends that the phrase should be interpreted in accordance with its ordinary meaning FN39 and argues that "nowhere in claim 35 is there any language requiring movement of the eggs either in 'two distinct planes' or in planes that are 'perpendicular to one another." ' FN40 Plaintiffs do not dispute that the ordinary meaning of "reciprocate" does not require movement in perpendicular or distinct planes, but they argue that the specification of the '373 patent gives the term "additional special meaning." FN41 Defendant again responds that Plaintiffs' interpretation improperly restricts the scope of the claim to what is shown in a preferred embodiment.FN42

FN38. Pls.' Request for Claim Interpretation at 6.

FN39. The ordinary definition of "reciprocate" is "to move forward and backward alternately, usually in a straight line." Webster's 1895 (defining "reciprocate," def. *vi* 2).

FN40. Def.'s Mem. Defining Disputed Claim Terms at 24-25; Def.'s Reply Mem. Defining Disputed Claim Terms at 27.

FN41. Pls.' Mem. Defining Disputed Claim Terms at 32.

FN42. Def.'s Mem. Summarizing Disputed Claim Terms at 7.

B. ***Analysis***

The specification does not use the terms "rotating" or "reciprocally" in an uncommon way. In the preferred embodiment, however

a lifting means ... lifts the egg upwardly and away from the second holding station. The lifting means is rotationally and reciprocally movable with respect to the second holding station with the rotational movement being about an axis generally parallel to the line formed between the holding stations and weighing station.

'373 Patent, col. 2, ln. 29-38. Because the axis runs parallel to the line formed between the holding stations and weighing station, the lifting means cannot move in the manner described in the preferred embodiment unless the rotational movement is perpendicular to the reciprocal movement.

Nevertheless, "particular embodiments and examples appearing in the specification will not generally be read into the claims." Constant v. Advanced Micro-Devices, Inc., 848 F.2d 1560, 1571, 7 U.S.P.Q.2d 1057, 1064 (Fed.Cir.1988); *see also* Laitram Corp. v. Cambridge Wire Cloth Co., 863 F.2d 855, 865, 9 U.S.P.Q.2d 1289, 1299 (Fed.Cir.1988) ("References to a preferred embodiment, such as those often present in a specification, are not claim limitations ."). And here, the specification provides no basis for reading the particular limitations of the preferred embodiment into claim 35. On the contrary, the specification expressly states that "other variations and modifications will be apparent to those skilled in the art." *Id*. at col. 9, ln. 54-55.

In addition to arguing that the Court should limit claim 35 to the preferred embodiment, Plaintiffs ask the Court to read claims 10 and 24 and the claims depending therefrom into claim 35.FN43 Because claims 10 and 24 are narrower than claim 35, however, the Court declines to do so. *See* D.M.I., Inc. v. Deere & Co., 755 F.2d 1570, 1574, 225 U.S.P.Q. 236, 239 (Fed.Cir.1985) ("Where some claims are broad and others narrow, the narrow claim limitations cannot be read into the broad whether to avoid invalidity or to escape infringement.").

FN43. Claim 10 recites, in pertinent part, "lifting the eggs from the holding station ... and rotating the eggs upwardly with respect thereto about an axis generally parallel to a line formed by said candling, weighing and holding stations." '373 Pat., col. 12, ln. 29-33. Claim 11, depending from claim 10, recites "said step of lifting the eggs from the holding station ... further includes the step of reciprocally moving the lifted eggs away from the holding station." *Id*. at col. 12, ln. 48-53.

Claim 24 recites, in pertinent part, "rotary drive means including a drive member coupled to said lifting member for rotationally driving said member about an axis generally parallel to the longitudinal dimension of said egg holding means." *Id*. at col. 14, ln. 52-55. Claim 27, depending from claim 24 through claim 25, recites "a reciprocating drive means coupled to said lifting member for reciprocally moving said lifting member toward and away from said egg holding means." *Id*. at col. 15, ln. 26-29.

For the above reasons, the Court will construe the terms "rotating" and "reciprocally" as used in claim 35 in accordance with their ordinary meanings. FN44

FN44. The ordinary meanings of "rotating" and "reciprocally" are not in dispute. *See* Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 30-31.

IV. THE '505 PATENT

The '505 Patent, entitled "Egg Transfer System," is a continuation-in-part patent of the '373 Patent. It describes and claims an apparatus and method "for advancing eggs from a candling station through a plurality of weighing stations in an egg grading apparatus." '505 Patent, col. 2, ln. 32-35, ln. 59-62. Independent method claim 24 of the '505 Patent recites "a method for advancing a plurality of rows of eggs from a candling station through a plurality of weighing stations in an egg grading apparatus," which comprises the following steps:

conveying eggs from said candling station to elongated guide means disposed adjacent to said candling station,

continuously advancing said eggs on said guide means through said weighing stations,

simultaneously with said step of advancing, weighing said eggs at said weighing stations,

guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations,

guiding further eggs to said plurality of holding stations, and

lifting said eggs simultaneously from said holding stations and said plurality of longitudinally spaced-apart locations.

'505 Patent, col. 13, ln. 33-54. The parties' disagreement largely centers on the guiding steps.FN45 They disagree about the proper construction of the terms "holding station" and "spaced-apart locations," and about whether eggs are temporarily stored in a holding station after each guiding step, and whether the guiding steps require "transfer by lifting." In addition, the parties disagree about the proper construction of the term "elongated guide means."

FN45. The "guiding steps" are:
-> "guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means,"
-> guiding the eggs "to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations," and
-> "guiding further eggs to said plurality of holding stations ."

A. ***Holding Station and Spaced-Apart Locations***

Plaintiffs argue that "holding stations and spaced-apart locations must be interpreted as structures located at two separate and distinct positions from which eggs are lifted." FN46 Neither the claim, the specification,

nor the prosecution history supports a construction that requires the "holding station" or the "spaced-apart locations" to be physical structures. The claim does not use the terms "holding station" and "spaced-apart locations" in an uncommon way,FN47 the specification indicates that the inventor intended the terms to be spatial references,FN48 and the prosecution history confirms that the examiner understood that the phrase "holding station" refers to a first location from which eggs are lifted simultaneously with eggs at a second downstream location.FN49 The Court therefore declines to adopt Plaintiffs' proposed construction of the terms "holding station" and "spaced apart locations."

FN46. Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 39.

FN47. The ordinary meaning of the term "station" is "the place or position in which something or someone stands or is assigned to stand or remain." Webster's at 1861 (defining "station," def. 2). The most relevant definition of the term "holding" as applied to dynamic systems such as a system for continuously transferring eggs is "maintaining position." Id. at 1078 (defining "hold," def. vi .a). The ordinary meaning of the term "location" is "a position or site occupied or available for occupancy." Id. at 1128 (defining "location," def. 2.a).

FN48. The specification describes the advancement of the eggs with language such as: the eggs are fed "into the holding stations"; advancing bars engage the eggs "in the holding stations"; and the eggs are moved "into pick-up positions." '505 Patent, col. 5, ln. 58-68.

FN49. In rejecting dependent claim 28, later incorporated, *inter alia,* in amended and allowed claim 24, the examiner commented "[t]he claim requires eggs to be advanced from the egg holding stations to a second location spaced from the egg holding stations.... It appears that Applicant intended to claim the transfer of eggs from the eggs holding station to a subsequent downstream second location and, upon a subsequent egg arriving at the egg holding station, the lifting means simultaneously engages both eggs in the egg holding means and the second location." Application No. 06/452,451, Examiner's Communication, Paper No. 3, mailed May 31, 1984 at 2-3.

Instead, the Court interprets the term "holding station" to mean a first location in space to which an egg is moved and at which the egg may maintain position until it is lifted simultaneously with an egg at a "spaced-apart location." The Court interprets the term "spaced-apart locations" to mean a second location downstream from and substantially horizontally co-planar with the "holding station."

B. ***Manner in Which Eggs Are Transferred***

Plaintiffs request the Court to construe the guiding steps in claim 24 to require "(1) transfer by *lifting* of eggs to holding stations; (2) transfer by *lifting* of eggs from the holding station to the spaced-apart locations; and (3) transfer by *lifting* of more eggs to the holding stations." FN50 In addition, they "request the Court to find specifically that travel of eggs between the 'holding stations' and the 'spaced-apart locations' is not via conveyor belt or other physically connected pathway but rather by 'picking and placing." ' FN51 The Court declines to impose a "lifting" or "picking and placing" requirement on claim 24.

FN50. Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 39.

FN51. Pls.' Resp. to Def.'s Mem. Defining Disputed Claim Terms at 4.

Although the specification discloses a preferred embodiment in which eggs are advanced by a "pick and place" mechanism, the specification provides no basis for reading the particular limitations of the preferred embodiment into claim 24. On the contrary, the specification expressly states that "other variations and modifications will be apparent to those skilled in the art." '505 Pat., col. 8, ln. 67-68. As discussed above,FN52 unless the specification provides some basis for reading the particular limitations of the preferred embodiment into the claim, references to the embodiment are not claim limitations. *See* Laitram, 863 F.2d at 865, 9 U.S.P.Q.2d at 1299.

FN52. *See supra* Part III.B.

Plaintiffs also argue that "use of the term 'holding station' requires that the eggs be held or temporarily stored at the holding station" after each guiding step.FN53 Again, Plaintiffs' argument finds no support in the claim language, the specification, or the prosecution history. The Court therefore construes the guiding steps in claim 24 in accordance with the plain meaning of their language:

FN53. Pls.' Mem. of Law Defining Disputed Claim Terms for the *Markman* Hearing at 52.

-> "guiding said eggs from said weighing stations first to a plurality of egg holding stations located downstream of said guide means" means carrying eggs to holding stations.
-> "and then to a plurality of locations longitudinally spaced-apart from and substantially horizontally co-planar with said holding stations," means carrying eggs from the holding stations to the spaced-apart locations.

-> "guiding further eggs to said plurality of holding stations," means carrying more eggs to the holding stations.

C. *The Elongated Guide Means*

Claim 24 recites a step of "conveying eggs ... to elongated guide means. " '505 Patent, col. 13, ln. 37-38. Plaintiffs argue that this limitation is recited in means-plus-function form and therefore should be interpreted in accordance with 35 U.S.C. s. 112, para. 6. But the claim recites no function linked to the "elongated guide means" limitation. The Court therefore rejects Plaintiffs' argument and construes "elongated guide means" in accordance with its ordinary meaning: any structural guide that is elongated.

V. CONCLUSION

Specific construction of the disputed claims is set forth in the Order that accompanies this Memorandum.

ORDER

AND NOW, this 4th day of March, 1999, upon consideration of the joint request by all parties in the above-captioned action for interpretation of certain claim language in dispute, and after a two-day Markman Hearing and reviewing the parties' briefs and supporting materials, it is hereby

ORDERED that the claim language in dispute shall be construed as follows:

I. U.S. Patent No. 4,569,444

A. The phrase "predetermined sequence" is defined as follows:
1. In claims 14-16, 19-22, 33-35, 38, 41-43, 67-69, 72, 74 and 76, the phrase "predetermined sequence" means:

"the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released."

2. In claims 25-28, and 56, the phrase "predetermined sequence" means:

the order in which eggs are released from the egg-carrying conveyor so that each released egg not only drops into the receiving station for the egg's particular grade but also effects an equal distribution of released eggs across the width of the receiving station, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released.

3. In claim 44, 45 and 48-51, the phrase "predetermined sequence" means:

"the order in which eggs are released from the egg-carrying conveyor so that each released egg not only drops into the receiving station for the egg's particular grade but also drops into a different channel than an adjacently conveyed egg is dropped when adjacently conveyed eggs have substantially the same physical characteristics, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released."

4. In claims 54 and 55, the phrase "predetermined sequence" means:

"the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being defined before the eggs arrive at the locations from which they are released."

B. The phrase "means for releasing eggs" is defined as follows:

1. solenoid-actuated plungers, the solenoids for which communicate with the elements of the egg-processing system that determine the physical characteristics of the eggs through shared access to a memory device, such as a random access memory associated with a central processor unit; or

2. a structural equivalent of (1), which performs the following functions: (a) actuating selected egg-engaging elements on the main egg-carrying conveyor; (b) releasing eggs having the same physical characteristics from the main egg-carrying conveyor into a receiver; and (c) releasing eggs in a predetermined sequence based on characteristics of the eggs.

C. The phrase "releasing means" in claim 56 is defined as follows:

a generic structure that releases eggs from the prongs of the egg-engaging means upon being moved from above into the path of the conveyed eggs.

D. The phrase "means for varying the position from which eggs are released" is defined as follows:

1. In claims 14, 25, 44, 67 and 79 the phrase "means for varying the position from which eggs are released" means:

a. "a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid;" or

b. a structural equivalent of (a) which performs the following three functions: (i) varying the position of the frame with respect to the receiving station; (ii) varying the frame position according to the speed of the main egg-carrying conveyor; and (iii) compensating for changes in the drop trajectory of the eggs at different conveyor speeds.

2. In claims 33, 54 and 56 the phrase "means for varying the position from which eggs are released" means:

a. "a hydraulic cylinder together with the following associated hydraulic elements: a hydraulic pump, hydraulic lines, valves and couplings and hydraulic fluid" or a reversible motor; or

b. a structural equivalent of (a) which performs the following two functions: (i) varying the position of the frame with respect to the receiving station; and (ii) varying the frame position according to the speed of the main egg-carrying conveyor.

c. the "means for varying the position from which eggs are released" must be connected to the movable frame and must change the position at which eggs are released concurrently with a change in conveyor speed; operator intervention is permissible.

E. The phrase "receiving means" is defined as follows:

1. In all asserted claims except claim 56, the phrase "receiving means" refers to the location at which a recited function occurs.

2. In claim 56, the phrase "receiving means" refers to a generic structure into which eggs from the main egg-carrying conveyor are dropped.

II. U.S. Patent No. 4,519,494

A. The phrase "predetermined sequence" is defined as follows:
"the order in which eggs are released from the egg-carrying conveyor so that each released egg drops into the receiving station for the egg's particular grade, the order being based on the stored physical characteristics of the eggs and defined before the eggs arrive at the locations from which they are released."

B. The phrase "receiving means" is defined as follows:

1. In claims 8-13, 15-18, and 34 the phrase "receiving means" means:

a. two rotatable resilient cylindrical brushes; or a single rotatable resilient cylindrical brush; or a resilient foam member; or a resilient inflatable member; or any other resilient member, or

b. a structural equivalent of (a) which performs the following functions: (i) receiving eggs delivered by the main egg-carrying conveyor; (ii) rotationally moving the eggs downwardly and away from the conveyor; and, for claim 34 only, (iii) moving eggs in a direction perpendicular to the main conveyor.

2. In claims 28 and 31-33 the phrase "receiving means" refers to a generic structure into which eggs from the main egg-carrying conveyor are dropped.

C. The phrase " downwardly and away from" is defined as follows:

1. the receiving means must be rotated downwardly (i.e., toward the ground) and be rotated away from the main egg-carrying conveyor from which the eggs are released.

2. the eggs which are received by the receiving means must be guided downwardly (i.e., toward the ground) and also be guided away from the receiving means.

III. U.S. Patent No. 4,505,373

A. The term "rotating the eggs upwardly" is defined as follows:
turning about an axis; the axis may be fixed or moving.

B. The phrase "reciprocally moving the lifted eggs" is defined as follows:

moving forward and backward alternately, usually in a straight line.

IV. U.S. Patent No. 4,519,505

A. The phrase "holding station" is defined as follows:
"a first location in space to which an egg is moved and at which the egg may maintain position until the egg is lifted simultaneously with an egg at a 'spaced-apart location." '

B. The phrase "spaced-apart location" is defined as follows:

"a second location downstream from and substantially horizontally co-planar with the 'holding station." '

C. The phrase "guiding steps" is defined as follows:

1. "carrying eggs to holding stations;"

2. "carrying eggs from the holding stations to the spaced-apart locations;" and

3. "carrying more eggs to the holding stations."

D. The phrase "elongated guide means" is defined as follows:

"any structural guide which is elongated."

E.D.Pa.,1999.
Moba, B.V. v. Diamond Automaton, Inc.

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