

United States District Court,  
N.D. Illinois, Eastern Division.

**GOSS INTERNATIONAL AMERICAS, INC,**  
Plaintiff.

v.

**GRAPHIC MANAGEMENT ASSOCIATE, INC.; Muller Martini Corp.; Muller Martini  
Druckverarbeitungs-Systeme AG; Muller Martini Marketing AG; Grapha-Holdings AG,**  
Defendants.

**June 11, 2008.**

William G. Schopf, Jr., Bradley Paul Nelson, Lindsay Erin Wilson Gowin, Louis C. Szura, Marcus D. Fruchter, Todd H. Flaming, Schopf & Weiss LLP, Chicago, IL, Cary S. Kappel, Leslye B. Davidson, Davidson, Davidson & Kappel, LLC, New York, NY, for Plaintiff.

Keith V. Rockey, Avani C. Macaluso, Kathleen Ann Lyons, Matthew L. Depreter, Rockey, Depke, Lyon Kitzinger LLC, Maurice E. Teixeira, Wallstein Wagner & Rockey, LTD., Chicago, IL, for Defendants.

### ***MEMORANDUM AND ORDER***

**BLANCHE M. MANNING, District Judge.**

In this case, plaintiff, Goss International Americas, Inc. ("Goss") alleges that the defendants infringed U.S. Patent No. 6,082,724 ("the '724 patent") directed to a collating machine used in the assemblage of newspapers. The parties requested a claim construction hearing pursuant to *Markman v. Westview Instruments, Inc.*, 52 F.3d 967 (Fed.Cir.1995), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996) ("Markman hearing"), which this court referred to the magistrate judge. The magistrate judge held the Markman hearing and issued its report and recommendation ("R & R") on the construction of the claims at issue. The defendants timely objected to the R & R pursuant to 28 U.S.C. s. 636(b)(1) and Fed.R.Civ.P. 72. Those objections are now before the court.

#### **I. Facts**

The '724 patent is entitled "Variable Speed Signature Collating Apparatus" and is directed to a collating machine, which is frequently used in the assembly of newspapers to ensure, through sensors contained in the apparatus, the proper and correct positioning of the various sections (i.e., a sports section, a home section, a business section, etc.). The claims of the '724 patent currently at issue in these objections are 1, 13, 17, 20 and 24.

#### **II. Standard of Review**

The defendants contend that because claim construction is an issue of law, the magistrate judge's

determinations must be reviewed de novo. In re Gabapentin Patent Litigation, 503 F.3d 1254, 1259 (Fed.Cir.2007) (citations omitted). The plaintiffs, however, assert that because the defendants argue that the magistrate judge erred in how she applied well-settled law to the facts of the case, Judge Valdez's conclusions should be reviewed only for "clear error ."

Under Fed.R.Civ.P. 72, the determination of whether this court performs its review under a clear error or de novo standard is based on whether the issue decided is dispositive. This case was referred to the magistrate judge to conduct a *Markman* hearing under 28 U.S.C s. 636(b)(3), which allows the magistrate judge to perform "such additional duties as are not inconsistent with the Constitution and laws of the United States." The magistrate interpreted this reference to require the issuance of a report and recommendation ("R & R") pursuant to s. 636(b)(1)(B), objections to which require de novo review by this court. Given the fact that claim construction is likely dispositive of Goss's claims of infringement, this court will review the magistrate judge's R & R de novo. *See* 12 Fed. Prac. & Proc. Civ.2d s. 3068.2 ("Rule 72 is thus in keeping with the legislative intent [of 28 U.S.C. s. 636]: at the very least, the eight motions listed in the statute will be governed by the procedures and de novo review of Rule 72(b), and these procedures should also apply to any other pretrial matters or other 'additional duties' that, in a particular case, may be 'dispositive of a claim or defense of a party.' "). *See also* Shuffle Master v. Vendingdata, No. 2:04-CV-01373-BESLRL, 2007 WL 674290, at (D.Nev. Feb.28, 2007) (noting that the court was compelled to review de novo the magistrate judge's R & R on a *Markman* hearing pursuant to 28 U.S.C. s. 636(b) and that "[t]his standard is consistent with that which is applied in the [de novo] review of claim constructions made pursuant to [the *Markman* decision].") (citations omitted).

### III. Analysis

#### A. Relevant Law

As noted by the Federal Circuit, "[a]n infringement analysis entails two steps. The first step is determining the meaning and scope of the patent claims asserted to be infringed. The second step is comparing the properly construed claims to the device accused of infringing." *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 970-71 (Fed.Cir.1995), *aff'd*, 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). Further, as noted by the Federal Circuit:

the words of a claim "are generally given their ordinary and customary meaning." We have made clear, moreover, that the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention....

*Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed.Cir.2005) (internal citations omitted). In construing a claim, the court should look to three sources: the claim, the specification, and the prosecution history. *Markman*, 52 F.3d at 979-80. However, "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.' " *Phillips*, 415 F.3d at 1315 (citation omitted). *See also* *Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings*, 370 F.3d 1354, 1360 (Fed.Cir.2004) ("In most cases, the best source for discerning the proper context of claim terms is the patent specification wherein the patent applicant describes the invention.").

Courts may, in addition to the intrinsic evidence noted above (i.e., the claim, specification and prosecution history), also "rely on extrinsic evidence, which 'consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises.' " *Phillips*, 415 F.3d at 1317 (citation omitted). However, extrinsic evidence is "less significant" than intrinsic evidence

when construing a claim. *Id.*

With these principles in mind, the court will proceed with its review of the construction of the disputed claims.

## **B. "Control Means" of Claim 1**

The defendants first argue that the R & R incorrectly construed the "control means" clause of Claim 1, which reads as follows:

control means for varying the speed of operation of said variable speed motors in said plurality of article feeder means and the speed of operation of said variable speed motor in said conveyor drive means.

### ***1. Applicable law and magistrate judge's ruling***

The R & R acknowledged that both parties agreed that the clause is a means-plus function limitation subject to 35 U.S.C. s. 112, para. 6. Section 112, para. 6 states that:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

This paragraph "allow[s] the use of means expressions in patent claims without requiring the patentee to recite in the claims all possible structures that could be used as means in the claimed apparatus." *Med. Instrumentation and Diagnostics Corp. v. Elekta AB*, 344 F.3d 1205, 1211 (Fed.Cir.2003) (citation omitted). In other words, this portion of the patent statute allows an element to be defined by its function rather than its physical structure. However, "[t]he price that must be paid for use of that convenience is limitation of the claim to the means specified in the written description and equivalents thereof." *Id.*

Thus, the Federal Circuit recently held:

Once a court concludes that a claim limitation is a means-plus-function limitation, two steps of claim construction remain: 1) the court must first identify the function of the limitation; and 2) the court must then look to the specification and identify the corresponding structure for that function. If there is no structure in the specification corresponding to the means-plus-function limitation in the claims, the claim will be found invalid as indefinite.

*Biomedino, LLC v. Waters Technologies Corp.*, 490 F.3d 946, 950 (Fed.Cir.2007) (internal citations omitted). This is so because:

in order for a means-plus-function claim to be valid under s. 112, the corresponding structure of the limitation "must be disclosed in the written description in such a manner that one skilled in the art will know and understand what structure corresponds to the means limitation. Otherwise, one does not know what the claim means."

*Id.* (citations omitted). The parties agree that, pursuant to the first step, the magistrate judge correctly identified the function as "varying the speed of operation of said variable speed motors in said plurality of

article feeder means and the speed of operation of said variable speed in said conveyor drive means."

Under the second step, the court looks to the specification and identifies the corresponding structure for that function. "Under s. 112, para. 6, a court may not import ... structural limitations from the written description that are unnecessary to perform the claimed function." *Wenger Mfg., Inc. v. Coating Machinery Systems, Inc.*, 239 F.3d 1225, 1233 (Fed.Cir.2001) (citation omitted). *See also Unidynamics Corp. v. Automatic Products Intern. , Ltd.*, 157 F.3d 1311 (Fed.Cir.1998) ("Structure disclosed in the specification, however, is only a 'corresponding' structure to the claimed means under s. 112, para. 6 if the structure is clearly linked by the specification or the prosecution history to the function recited in the claim.") (citations omitted).

The magistrate judge agreed with Goss that the corresponding structure should be construed to include: "a main controller, preferably a microcomputer, and a plurality of sheet material feed controllers such as microcomputers, which are connected to the main controller and equivalents thereof." R & R at 14, No. 05-C-5622 (N.D.Ill. Aug. 28, 2007). The magistrate judge concluded that the structures identified by the defendants, including an algorithm to be performed by the main controller, were not necessary to carry out the function in claim 1. She pointed out that claim 12 supported her conclusion:

Claim 12 recites the following structure: An apparatus as set forth in claim 1 wherein said control means includes a main controller which controls the speed of operation of said variable speed motor in said conveyor drive means and a plurality of sheet material feeder controllers which are connected with one of said variable speed motors in one of said article feeder means and with said main controller.

Claim 12 thus adds support for Goss's proposed construction of the term 'control means' in claim 1. *See Medtronic Inc. v. Advanced Cardiovascular Sys., Inc.*, 248 F.3d 1303, 1313 (Fed.Cir.2001).

R & R at 14.

## ***2. This Court's Construction***

Based on the specification, this court agrees with the magistrate judge and finds two corresponding structures necessary to perform the recited function: a main controller and a plurality of sheet material feed controllers. FN1 In terms of the main controller, the patent specification explicitly states that the main controller "control[s] the speed of operation of the conveyor drive motor." '724 patent, col. 3, ll. 61-62. Indeed, the specification states:

FN1. The court notes that the '724 patent appears to use "sheet material *feeder* controller" and "sheet material *feed* controller" interchangeably. *See, e.g.*, '724 Patent, col. 4, ll. 65-66 (using the term, "sheet material feed controller"); col. 16, ll. 29-30 (using, in the claim language, the phrase, "sheet material feeder controllers"); col. 9, ll. 67-68 (using "sheet material feeder controllers").

The main controller 40 effects operation of the conveyor drive motor 44 to drive the pocket conveyor 46 (FIG.3) at a desired speed. '724 patent, col. 5, ll. 55-57. The speed of the conveyor drive motor 44 is determined in the main controller ... [and] enables the main controller to control the speed of operation of the conveyor drive motor 44 through the conveyor motor drive circuit 42. '724 patent, col. 3, ll. 59-63. Essentially, the main controller sends "electrical control signals" to the conveyor motor drive circuit, which in turn can vary the speed of the conveyor drive motor. *See, e.g.*, '724 patent, col. 3, ll. 10-15 (explaining

how the speed of the conveyor drive motor is regulated from the electrical control signals from the main controller).

The additional structure corresponding to the control means in Claim 1 is a plurality of sheet material feed controllers. While the speed of the conveyor and the article feeders are related, the sheet material feed controller effects the speed of the article feed motor. '724 patent, col. 5, ll. 60-63. The specification notes that the sheet material feed controller is "controllably connected to the main controller 40 through a communications network 82." '724 patent, col. 4-5, ll. 64-1. In turn, the sheet material feed controller is electrically connected to the feed motor through the feed motor drive circuit. '724 patent, col. 5, ll. 15-19. Similar to the main controller's interaction with the conveyor drive motor circuit, the sheet material feed controller controls the speed of the feed motor by sending "electrical control signals" to the feed motor drive circuit. *See* '724 patent, col. 5, ll. 27-30 ("The sheet material feed controller provides electrical control signals in a range from 0 volts to 10 volts to the feed motor drive circuit 84, which in turn, *controls the speed* of the feed motor 86.") (emphasis added). This construction is further supported in the specification:

The feed motor drive circuit 84 controls the speed of the feed motor 86 by providing pulse-width-modulated current to the feed motor 86 in response to the *control voltage signal provided by the sheet material feed controller*. '724 patent, col. 5, ll. 33-37.

Accordingly, the only structure necessary for controlling and adjusting the speed of the article feeders is the sheet material feed controller.

Moreover, as noted by the magistrate judge, dependent Claim 12 corroborates the court's construction. Claim 12 establishes a clear link between the corresponding structures and the function recited in the "control means" clause of Claim 1. Claim 12, which depends on Claim 1, states that the control means includes a main controller that controls the speed of the conveyor and a plurality of sheet material feed controllers, which are connected to a variable speed article feed motor. Having a dependent claim reciting the means for performing a recited function in an independent claim has been recognized to be an easy drafting technique to draw a clear link or association to a corresponding structure. *See Medtronic Inc.*, 248 F.3d at 1313 (noting that the structure recited for connecting adjacent elements in claim 7 of the patent in question, which depends on claim 1 of that same patent, clearly establishes a link to the corresponding structure for the 'means for connecting' in claim 1).

For these reasons, the court agrees with the magistrate judge's construction of "control means" in Claim 1.

### **3. The Defendants' Objections** FN2

FN2. The reasoning found in this section applies equally to the defendants' objection that a feed motor adjust function and an algorithm should be included in the construction of Claim 12.

The defendants argue that the magistrate judge's construction was too limited and should have included (1) a "feed motor adjust function" which checks for proper synchronization between the pockets on the conveyor and the feed drum, and/or (2) an algorithm (or computer program) for performing the function of the "control means" clause. FN3 The court finds these arguments unpersuasive.

FN3. The defendants' opening claim construction argument to the magistrate judge unsuccessfully attempted to read in all these various components into the control means clause of Claim 1. Yet, in its objections, the

defendants do not argue the same construction to this court; rather, they attempt to read in only a feed motor adjust function and/or algorithm.

In their opening brief, the defendants argue that the corresponding structure for Claim 1's control means includes the feed motor adjust function. The defendants point to the '724 patent specification to support their argument that the feed motor adjust function should be a corresponding structure for the control means recited in Claim 1:

When the error command signal indicates that the feed drum 93 (FIG.4) is lagging the pocket, the feed motor adjust function 122 (FIG.5) provides a feed motor command voltage equal to a 10 percent increase added to the base command voltage signal provided from the main controller 40, i.e., 110% of the base command voltage signal. As the base command voltage signal continuously changes, the feed motor command voltage is continuously adjusted to equal 100% of the base command voltage signal.

Defendants' Objections at 18-19; '724 patent, col. 12, ll. 13-19.

While the defendants note that "the feed motor adjust function 122 in the sheet material feed controllers 80 effects a variation in the operating speed of the feed motors 86," a complete reading of the specification demonstrates that the feed motor adjust function works, among other components, to ensure "synchronization" between the feed drum and article feeders. *See* '724 patent, col. 9-10, ll. 67-7 (noting that the feed motor adjust function is enacted in "the event that the feed motors 86 are not in *synchronism* with the conveyor drive motor 44") (emphasis added). The feed motor adjust function is not necessary for merely varying the speed of the feed motor, but rather for synchronizing the feed motor with the feed drum. According to the specification, the feed motor adjust function does not adjust the voltage signals sent to the feed motors without responses from the feeder sensor assemblies, which include a feed drum registration function that provides error command signals to synchronize the conveyor and article feeders. '724 patent, col. 10, ll. 4-7; col. 11, ll. 10-13; col. 12, ll. 13-19; col. 12, ll. 34-39. If no error signal is received, the feed motor adjust function simply provides the "base command voltage to the feed motor drive circuit." '724 patent, col. 10, ll. 55-57. In essence, without an error signal, the feed motor adjust function is unnecessary and nonfunctional. This indicates that the sheet material feed controller "varies the speed" of the article feeders irrespective of the feed motor adjust function, and does so by providing the necessary voltage signals. Thus, the feed motor adjust function is an additional feature and not a necessary component for the control means recited in Claim 1.

The defendants additionally contend that the feed motor adjust function contains, or is itself, an algorithm. According to the defendants, by virtue of including the feed motor adjust function as a corresponding structure, an algorithm must also be included. *See* Defendants' Objections at 24 ("the feed motor adjust and the algorithm *it includes* is that which changes or varies the speed of the motor"); Defendants' Objections at 18 ("[the feed motor adjust]-either an algorithm or an electronic circuit"). However, since the feed motor adjust function is not included in Claim 1's construction, the defendants' additional argument that an algorithm, whether a component of the feed motor adjust function, or the feed motor adjust function itself, is without merit. FN4

FN4. Indeed, the defendants' own brief stating that the "feeder motor adjust 122 ... may be [ ] a circuit" further supports this contention. Defendants' Objections at 6.

Nor is the court persuaded by the defendants' contention that Figure 6 is the algorithm that should be included in the feed motor adjust function. Defendants' Reply in Support of their Objections at 10. This argument is inconsistent with the specification disclosures, which clearly notes that the feed motor adjust function is just *one component* in Figure 6's flowchart. See ' 724 patent, col. 10-14 ("In step 212 (FIG.6), the base command voltage signal provided by the main controller 40 (FIG.5) is adjusted by the feed motor adjust function 122 to compensate for the angle error when it is outside the tolerance range."). Nevertheless, the defendants maintain that the entire flowchart embodied in Figure 6 is the algorithm that is incorporated in the feed motor adjust function. Defendants' Reply in Support of their Objections at 10. The defendants' assertion that Figure 6 in its entirety is the algorithm embodied by the feed motor adjust would defy the specification. This is illogical because the feed motor adjust simply cannot include all of Figure 6's components if the specification only associates the feed motor adjust function to one of several elements that comprise Figure 6. Accordingly, the defendants' attempt to characterize Figure 6 as the algorithm for the feed motor adjust function is unconvincing.

In their reply brief, the defendants alternatively argue that controllers, as used in the '724 patent, are microcomputers which are useless unless they are programmed to execute an algorithm. Defendants' Reply in Support of their Objections at 11. Pursuant to this argument, the defendants suggest that an algorithm must be included in the corresponding structure determined by the magistrate judge apart from whether a feed motor adjust function is included. *Id.* ("microprocessors or computer which the Magistrate Judge concluded was the corresponding structure ... is nothing more than a computer ... [which] is useless without an algorithm to control its function"). In essence, the defendants contend that microcomputers, such as the main controller and sheet material feed controllers, must be programmed with an algorithm to function properly.

In support of their argument, the defendants cite Federal Circuit precedent to indicate that an algorithm is a mandatory part of a computer-implemented means-plus-function clause. *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed.Cir.1999); *Harris Corp. v. Ericsson Inc.*, 417 F.3d 1241, 1253 (Fed.Cir.2005). The defendants point to specific language in *WMS Gaming, Inc.* and *Harris Corp.* to suggest that a controller, such as a sheet material feeder controller, is useless without an algorithm to execute. Defendants' Reply in Support of their Objections at 11. See also *WMS Gaming, Inc.*, 184 F.3d at 1349 ("In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm."); *Harris Corp.*, 417 F.3d at 1253 ("A computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof, and the corresponding structure is the algorithm.").

As an initial matter, the court finds the defendants' reliance on these cases misplaced, as they are distinguishable. In *WMS Gaming Inc.*, 184 F.3d at 1347-48, the parties stipulated that the corresponding structure was a microcomputer *controlled by an algorithm*. The district court construed the means-plus limitation to a general "algorithm executed by a computer." *Id.* at 1348. On appeal, the court held that the algorithm portion of the corresponding structure should have been limited to the algorithm disclosed in the specification. *Id.*

The situation before this court contains key factual distinctions. In this case, there was no stipulation that the corresponding structure was a microprocessor controlled by an algorithm. To the contrary, the parties dispute whether the control means includes an algorithm at all. Moreover, unlike the ' 724 patent, the patent

in *WMS Gaming Inc.* did not disclose the use of digital control signals for proper operation of the invention. Ultimately, since the parties stipulated as to the existence of an algorithm, *WMS Gaming Inc.* provides little guidance in this case.

For similar reasons, the defendants' reliance on *Harris Corp. v. Ericsson, Inc.*, is also inapposite. In *Harris Corp.*, 417 F.3d at 1250, the parties again agreed that the algorithm was part of the corresponding structure. *See id.* ("Ericsson and Harris effectively acknowledge on appeal that the corresponding structure of a microprocessor-implemented function is not only the microprocessor, but also the algorithm implemented by the microprocessor."). The parties disputed what the algorithm was, not whether it was in fact required. *Id.* Moreover, in *Harris Corp.*, the specification expressly referred to a "data recovery *algorithm*" and a first and second processor to execute the steps in that algorithm. *Id.* at 1254 (emphasis added). Further, the patent stated that the processors implemented the mathematical equation disclosed in the specification. *Id.*

In contrast, as already noted, the parties in this case dispute whether an algorithm is even part of the corresponding structure. Furthermore, unlike *Harris Corp.* where the specification clearly linked an algorithm and equations with processors, the '724 patent specification does not explicitly reference an algorithm or processors that function to execute various steps in a defined algorithm. The facts of the *Harris Corp.* case are distinguishable simply because the issue was what constituted the algorithm, not whether it was part of the corresponding structure.FN5

FN5. Nor is the court persuaded by the defendants' supplemental citations to *Aristocrat Technologies, Inc. v. International Game Technology*, 521 F.3d 1328 (Fed.Cir.2008) and *Finisar Corp. v. The DirecTV Group, Inc.*, Nos. 2007-1023 and 1024, 523 F.3d 1323, 2008 WL 1757675 (Fed.Cir. Apr.18, 2008). These cases raise no new legal considerations related to the algorithm issue and are distinguishable for reasons similar to *WMS Gaming* and *Harris Corp.* In *Aristocrat*, the specification disclosed "any standard microprocessor base gaming machine [with] appropriate programming" for the claimed control means. However, the patent failed to specify the exact programming or algorithm that the gaming machine required to function. The court held that without a specific algorithm to implement, the "appropriate programming" requirement remained unsatisfied, and relying on a general algorithm without more rendered the patent invalid. *Aristocrat*, 521 F.3d at 1334-38. In *Finisar*, the court stated that "for computer-implemented means-plus-function claims where the disclosed structure is a computer programmed to implement an algorithm, 'the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.' " *Finisar*, Nos.2007-1023 and 2007-1024, 2008 WL 1757675, at \*15 (citation omitted).

In contrast, in the instant case, the '724 patent did not explicitly call for "appropriate programming," or an algorithm and did not disclose a computer programmed to implement an algorithm. Instead, the '724 specification discusses only a controller and clearly notes the possible use of electrical and digital control signals for performing the function recited in the '724 patent's control means. In other words, the specification contained no requirement that these sheet material feed controllers needed an algorithm to function properly. As such, *Aristocrat* and *Finisar* are inapposite.

Aside from distinguishing the cases relied upon by the defendants, the court also finds the defendants' argument unpersuasive for two additional reasons. First, in this case, while the specification indeed states that the sheet material feed controller can be a microcomputer, '724 patent, col. 4, ll. 64-66 ("... sheet material feed controller, such as a microcomputer."), the disclosures of the specification demonstrate that controllers can also function through circuitry and voltage signals. For instance, the specification states that "the sheet material feed controller 80 provides electrical control signals in a range from 0 to 10 volts to the

feed motor drive circuit, which, in turn, controls the speed of the feed motor." '724 patent, col. 5, ll. 27-29. Moreover, "[o]ther embodiments of the sheet material feed controller may use different electrical control signals, such as digital control." '724 patent, col. 5, ll. 37-39. Similarly, the main controller also provides electrical control signals and sends command signal voltage. '724 patent, col. 3, ll. 10-11; '724 patent, col. 10, ll. 33-34. Contrary to the defendants' contention, the language of the specification suggests that a controller in the context of the '724 patent does not require an algorithm. Indeed, nowhere in the specification is an algorithm disclosed as a required component of the sheet material feed controllers. Nor is there, contrary to the defendants' argument, any explicit reference in the specification to FIG. 6 as an algorithm for the controller to execute.

Second, even assuming controllers, as used in the '724 patent, are limited to microcomputers requiring an algorithm to control their function, the defendants fail to point out what, if any, algorithm the main controller requires to function properly. The patent specification suggests that both controllers (i.e. the main controller and the sheet material feeder controller) can be microcomputers, yet the defendants only argue that the sheet material feed controllers require an algorithm. Defendants' Reply in Support of their Objections at 11 (asserting that a microprocessor is "absolutely useless without an algorithm or program to control its function"); *see also* '724 patent, col. 2, ll. 62-63 (stating that the main controller can be a microcomputer); col. 4, ll. 64-66 (stating that the sheet material feed controller can be a microcomputer). If the defendants' argument were true-that microcomputers need to be programmed with an algorithm to function properly-it should apply equally to the main controller. However, the specification does not disclose or reference any algorithm for a main controller to execute. Under the defendants' theory, absent an algorithm, the main controller should not even function. Yet a person of ordinary skill in the art would recognize that the main controller operates properly without any algorithm. The defendants' failure to point to an algorithm associated with the main controller corroborates the notion that controllers in the '724 patent are not limited to algorithms, but can indeed function through other means, such as circuitry and digital signals.

As such, the court overrules the defendants' objections to the magistrate judge's construction of the control means clause of Claim 1.

### **C. "Control Means" of Claim 13**

The defendants also argue that the R & R incorrectly construed the "control means" clause of Claim 13, which states:

control means for controlling operation of said plurality of article feeder means as a function of output signals from said receiving location sensor means and said feeder sensor means, said control means varies the speed of operation of said variable speed motor in one of said article feed means in response to one of said feeder sensor means of said plurality of feeder sensor means and said receiving location sensor means in said plurality of receiving location sensor means providing output signals indicative of a relationship between one of said receiving location and one of said article feeder means other than the desired relationship.

#### ***1. Magistrate judge's ruling***

The magistrate judge held that Claim 13's control means was a means plus function limitation subject to s. 112, para. 6. The magistrate judge determined that the function recited in Claim 13 was:

controlling the operation of said plurality of article feeder means as a function of output signals from said receiving location sensor means; varying the speed of operation of said variable speed motor in one of said article feed means in response to a feeder sensor and a receiving location sensor; and providing output signals indicative of a relationship between one of said receiving locations and one of said article feeder means other than a desired relationship.

R & R at 16-17. The magistrate judge agreed with Goss and determined that the corresponding structure necessary to perform the claimed function was "a plurality of sheet material feeder controllers, such as a microcomputer, and equivalents thereof." R & R at 17. She then concluded that the specification disclosures and dependent claim 17 supported such a determination. *Id.* ("Aside from the description of the structure contained in the specification, the Court finds persuasive the recitation of structure found in claim 17, which depends on claim 13, and is consistent with Goss's proposed construction. *See Medtronic, Inc.*, 248 F.3d at 1313."). In their objection to this court, the defendants contend that in addition to the structures identified by the magistrate judge, the control means clause of Claim 13 should also include the feed motor adjust function and an algorithm.

## ***2. This Court's Construction***

This court agrees with the magistrate judge's conclusions to the extent that the corresponding structure for the control means recited in Claim 13 includes "a plurality of sheet material feeder controllers, such as a microcomputer, and equivalents thereof." However, as argued by the defendants, this court also finds that the feed motor adjust function should be included within the construction of the sheet material feed controllers.

The specification establishes a clear link from the feed motor adjust and the sheet material feed controller to the function recited in the claim. For instance, in the event that the feed motors and conveyor drive motors are not in sync, or not in the desired orientation, the specification states that, "the feed motor adjust function 122 in the sheet material feeder controllers 80 effects a variation in the operating speed of the feed motors 85 so that the feeder sensor assemblies 103 in each of the sheet material article feeders indicates that" the pockets and sheet feeder are synchronized. '724 patent, col. 9-10, ll. 67-7. The sensor assemblies in the receiving locations and sheet material feeders provide signals that determine how the feed motor adjust function will alter the feed motors. *See* '724 patent, col. 10-11, ll. 35-9 (discussing how the pocket sensors, while utilizing the feed motor position sensors to determine the operating speed of the feed motors, are used to determine whether the pocket target is within the operative range for proper orientation); col. 10, ll. 435-38 ("The feed motor position sensor 88 provides signals indicative of the rotational position of" the feed motor output); col. 6, ll. 58-61 ("Each time the feed motor 86 (FIG.4) completes a full revolution, i.e. the counter counts 10,000 pulses, the counter ... of the sheet material feed controller 80 resets to zero."); col. 11, ll. 5-9 (noting that when the pocket sensor is triggered prior to the feeder reaching a zero position, then there is lag and the sheet material will be fed late; and when it is triggered after the feeder passes zero, then the feeder is leading and the sheet material will be fed early).

When the sensor indicates a lag, the feed motor adjust function increases the base command voltage signal sent to the feed motor, which increases the feed motor speed. '724 patent, col. 12, ll. 13-19. Conversely, when the feeder is leading, the feed motor adjust function will decrease the base command voltage signal, which slows the feed motor until the desired orientation is achieved. '724 patent, col. 12, ll. 34-43. Thus, the specification expressly indicates that the feed motor adjust directly varies the speed of the feed motor in response to feeder and receiving sensors as provided in the control means clause of Claim 13.

Correspondingly, the claim language is consistent with the specification in that it recites control means for varying the feed motor "in response to" the output signals from the receiving location and feeder sensors, which indicate the relationship between a receiving location and an article feeder. '724 patent, col. 16, ll. 56-67. Unlike in Claim 1, Claim 13 provides a clear link to the behavior of the feed motor adjust function as described in the patent specification. The specification disclosures demonstrate that the feed motor adjust function requires, at the least, sensor signals to meaningfully effectuate a variation in the operating speed of the feed motor. These signals are essential for the feed motor adjust function to either increase or decrease the base command voltage signal. When looking at Claim 13, the language recites feeder sensors, receiving location sensors, and critically, control means that vary the feed motor speed in response to sensor output signals indicating an unsynchronized or undesired orientation between the feeder and pockets. This matches the specification disclosure and establishes a clear link.

Despite agreeing with the defendants that a feed motor adjust should be included in the corresponding structure of Claim 13, this court is not persuaded by the defendants' additional argument that an algorithm must also be included in the "control means" of Claim 13. There is no explicit reference that the feed motor adjust function is, or includes, an algorithm. As stated earlier in Section III.B.3, the patent specification only discusses the use of electric control signals, voltage signals, or digital control signals. There is no indication that a programmable algorithm is incorporated in the structure of the feed motor adjust function. In fact, according to an embodiment in the specification, the feed motor adjust function merely acts in response to signals indicating a lag or lead. '724 patent, col. 12, ll. 13-19; col. 12, ll. 34-43. Depending on this signal, the feed motor adjust function increases or decreases the base command voltage signal that are used to operate the feed motors. *Id.* Thus, as already noted, the feed motor adjust function is not or does not include an algorithm.

#### **D. "Sheet Material Feed Controllers" of Claims 17, 20 and 24**

The defendants suggest that Claims 17 FN6, 20 FN7 and 24 FN8 were incorrectly construed because the magistrate judge excluded the feed motor adjust function and/or an algorithm from each. The court will address the defendants' objections as it relates to each of these claims.

FN6. Claim 17 states:

an apparatus set forth in claim 13 wherein each of said article feeder means operates at a selected speed in a range of speeds and said conveyor drive means operates at a selected speed within a range of speeds, said control means includes means for varying the speed of operation of each of one of said article feeder means of said plurality of article feeder means.

FN7. In relevant part, Claim 20 states:

control means for operating said motors in said article feeder means at a first speed to feed sheet material articles to said sheet material receiving locations during movement of said sheet material receiving locations by said conveyor drive means, said control means including feed adjust means for changing the relationship of a first one of said article feeder means of said plurality of article feeder means relative to other article feeder means of said plurality of article feeder means during operation of said motors in said plurality of article feeder means at the first speed, said feed adjust means including means for changing the operating speed of said motor in said first one of said article feeder means from the first speed to a second speed while

the motors in said plurality of article feeder means other than said first one of said article feeder means continue to operate at the first speed and for changing the operating speed of said motor in said first one of said article feeder means from the second speed back to the first speed while the motors in said plurality of article feeder means other than said first one of said plurality of article feeder means continue to operate at the first speed.

FN8. In relevant part, Claim 24 states:

control means for operating said motors in said article feeder means at a first speed to feed sheet material articles to said sheet material receiving locations during movement of said sheet material receiving locations by said conveyor drive means, said control means includes a main controller which is connected with said motor in said conveyor drive means and controls the operation of said motor in said conveyor drive means, and a plurality of sheet material feed controllers which are connected with said main controller and with one of said motors in one of said article feeder means and with one of said feeder sensor means, each of said sheet material feed controllers being operable to control the operation of one of said motors in one of said article feeder means.

## **1. Claim 17**

Dependent Claim 17 recites control means for varying the speed of the sheet article feeders to include a plurality of sheet material feed controllers. The magistrate judge determined that the reference to "sheet material feed controllers" in this claim should be construed to mean "a plurality of controllers, such as microcomputers, each controlling the operation of one of the article feeder means." R & R at 18. Moreover, the magistrate judge held that a feed motor adjust function and an algorithm were not a necessary part of the construction for "sheet material feed controllers." *Id.* The defendants contend that the magistrate judge should have included the feed motor adjust function and an algorithm in Claim 17's construction of the sheet material feed controller.

This court agrees with the magistrate judge to the extent that Claim 17's reference to sheet material feed controllers should be construed to mean, "a plurality of controllers, such as microcomputers, each controlling the operation of one of the article feeder means." However, because Claim 17 depends on Claim 13, the construction of the sheet material feed controllers should also include the feed motor adjust function as discussed in section III.C .2. Nevertheless, for the reasons stated earlier, an algorithm shall not be included in the construction of the feed motor adjust function. *See supra* Section III.B.3 and III.C.2 (discussing why an algorithm should not be read into the feed motor adjust function).

## **2. Claim 20**

The disputed portion in Claim 20 calls for control means for operating an article feeder at a different speed than another article feeder to include "feed adjust means." The magistrate judge determined that Claim 20's disputed language explicitly referenced the feed motor adjust function and should be construed to mean "a plurality of sheet material feed controllers, such as microcomputers, at least one of which includes a feed adjust function, and equivalents thereof." R & R at 19. The magistrate judge rejected the defendants' argument that the corresponding structure included a main controller because the claim did not require varying the speed of a conveyor. *Id.* Moreover, the magistrate judge determined that an algorithm was not a

necessary part of the corresponding structure to perform the recited function. *Id.* The defendants nevertheless maintain that an algorithm must be part of the construction of the "feed motor adjust function" found in Claim 20.

While this court agrees that Claim 20 clearly recites feed adjust means, the construction of the feed motor adjust function does not include an algorithm for the reasons previously discussed. Claim 20's control means shall be construed to mean, "a plurality of sheet material feeder controllers, such as microcomputers, at least one of which includes a feed adjust function, and equivalents thereof."

### 3. Claim 24

Claim 24 claims control means for operating the speed of the article feeders in relation to the movement of the sheet material receiving locations on the conveyor. Claim 24 further states that this control means includes a main controller to control the conveyor drive and a plurality of sheet material controller to control the operation of the article feeders. Moreover, the claim states that these sheet material feed controllers are each connected with the main controller, feeder sensors, and article feed motors.

The magistrate judge determined that while the phrase "means" was utilized, this claim recited sufficient structure to perform the stated function and should not be treated as a means-plus function limitation under s. 112, para. 6. Furthermore, the magistrate judge rejected the defendants' argument that the feed motor adjust function and an algorithm should be read into the structure for operating the article feeders. *Id.* at 18-19.

The defendants raise two objections in relation to Claim 24. The defendants first argue that Claim 24's construction should include the feed motor adjust function and an algorithm. For the reasons stated in section III.B.3, the feed motor adjust function should not be read into Claim 24. Critically, the specification notes that the feed motor adjust function operates to ensure synchronization between the conveyor and article feeders through the use of feeder sensors, receiving location sensors, and error signaling. Alone, the sheet material feeder controller can operate to "control[ ] the speed" of the feed motors by providing "control voltage signals." '724 patent, col. 5, ll. 33-37. The feed motor adjust function adjusts these signals to *synchronize* the pockets on the conveyor and feed drum in the article feeders through use of receiving location sensors and feeder sensors. '724 patent, col. 9-10, ll. 67-7. These additional sensor components and their relationship to one another are notably absent from Claim 24; including the feed motor adjust function in such circumstances would be meaningless. *See supra* Section III.B.3 (explaining that without such additional components, the feed motor adjust function is unnecessary and virtually useless). This court agrees with Goss that the feed motor adjust function is unnecessary to vary the speed of the sheet material feeders in this claim. Moreover, for the reasons expressed earlier in Section B.3 and C.2, an algorithm should not be construed into the construction of Claim 24.

The defendants' second objection states that Claim 24 should be treated as a means-plus function limitation, which in turn would cover corresponding structures and equivalents thereof. The court disagrees. Claim 24 should not be treated as a means-plus function claim limitation because sufficient structure is referenced in the claim itself. While the phrase "means" is used in the claim language, the presumption that s. 112, para. 6 applies has been rebutted. *Altiris, Inc. v. Symantec*, 318 F.3d 1363, 1375 (Fed.Cir.2003). The structures necessary to perform the recited function are adequately disclosed in the claim itself. The claim language defines the necessary components for the control means to "include a main controller" connected to and operating the conveyor motor, and "a plurality of sheet material feed controllers, which are connected [to a]

main controller, a motor in [one of the article feeders], and [feeder sensor means]." '724 patent, col. 20, ll. 19-27. The claim further states that the sheet material feeder controllers operate to control the article feed motors. '724 patent, col. 20, ll. 27-30. To a person having ordinary skill in the art, these are all the structures necessary to "operate [ ] said motor in said article feeder means at a first speed to feed sheet material articles to said sheet material receiving locations by said conveyor drive means." '724 patent, col. 20, ll. 15-20. Further inquiry beyond the claim language itself is not necessary. Thus, the presumption is rebutted and s. 112, para. 6 is inapplicable.

In sum, while the feed motor adjust function should be construed as part of the sheet material feed controller in Claim 17, this court finds that an algorithm should not be included. Moreover, in Claim 20, this court finds that an algorithm is not a necessary structure and shall not be included in the construction of the control means limitation. Finally, neither a feed motor adjust nor an algorithm shall be read into the construction of the control means in Claim 24. Additionally, this court finds that Claim 24 recites sufficient structure to rebut the presumption that the claim should be treated as a means-plus function limitation.

### **E. "Conveyor" clause**

The defendants next argue that the "conveyor" clause of Claims 1, 13, 20, and 24 was incorrectly construed. The clause, as used identically in the aforementioned claims, states:

A conveyor having a plurality of sheet material receiving locations.

#### **1. *Applicable law and magistrate judge's ruling***

When the term "means" is not used to describe a limitation, it is presumed that s. 112, para. 6 does not govern. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed.Cir.2002). Nevertheless, the presumption can be rebutted, and s. 112, s. 6 can still be invoked, by demonstrating that the claim fails to recite a sufficiently definite structure, or a sufficiently definite structure to perform a recited function. *Id.*

The magistrate judge agreed with Goss that the disputed limitation recited sufficient structure and did not invoke s. 112, para. 6. The magistrate judge further concluded that this term should be construed according to its ordinary meaning, as "an apparatus that carries materials from place to place." R & R at 10.

#### **2. *This Court's Construction***

This court agrees with the magistrate judge and finds that the presumption has not been rebutted because the disputed claim element-"a conveyor having a plurality of sheet material receiving locations"-recites sufficient structure. "Receiving locations," as used in Claim 13, is referenced in other claim elements that the defendants do not dispute. Specifically, article feeders along the conveyors feed "sheet material articles to said receiving locations ." '724 patent, col. 16, ll. 38-40. These receiving locations are the exact structure referenced in the disputed term, "conveyors having a plurality of article sheet material *receiving locations*." This suggests that the term is structural rather than functional. As Goss suggests, when the disputed limitation is read in context of the rest of the claim, the article feeders feed articles to "receiving locations" on the conveyor. '724 patent, col. 14, ll. 52-54; col. 16; ll. 38-40; col. 18, ll. 9-11; col. 19; ll. 29-31. Accordingly, the reference to a "conveyor having a plurality of sheet material receiving locations" in the same claim highlights the same structure, and not a function.

Moreover, the specification states that "the pocket conveyor 46 of the conveyor assembly has a plurality of

interconnected pockets *or sheet material receiving locations* 60 ...." '724 patent, col. 4, ll. 1-3 (emphasis added). In Figure 3, item number 46 and 60 show these interconnected pockets, or sheet material receiving locations, dispersed along a conveyor assembly. Moreover, Figure 4 and 7 also illustrate item 60, a pocket or sheet material receiving location. Thus, the language, "sheet material receiving locations" in the disputed claim is definite and structural.

The prosecution history also demonstrates that "receiving locations" refers to structure and is commonly understood in the art. In the June 16, 1998, Office Action referenced by Goss, the Examiner cited prior art rendering the '724 patent obvious. The Examiner explained that this prior art disclosed, among other things, "multiple receiving locations." USPTO Office Action at 3 (June 16, 1998) (citing Bank et al., Bale et al., and Colston et al. as prior art). The Examiner's conclusion demonstrates that contrary to the defendants' assertion, the term has a definite understanding in the art and refers to a recognized structure.

### ***3. The Defendants' Objection***

The defendants assert that the magistrate judge failed to consider the clause in its entirety and simply interpreted the term "conveyor."

This court disagrees. The R & R acknowledged the defendants' argument that the term, in its entirety, was purely functional. The R & R explicitly stated:

GMA contends that the term "conveyor having a plurality of sheet material receiving locations" does not suggest any particular structure, but instead is entirely functional. According to GMA, the term "conveyor" merely describes a function of moving something from one place to another, and *when read together* with the phrase "sheet material" receiving locations," which refers to a location as opposed to a structure, it should be considered a means-plus-function term. R & R at 9-10 (emphasis added).

This suggests that the R & R recognized the defendants' objection in the context of the entire claim element.FN9

FN9. The R & R later rejects the defendants' argument finding that the term is not purely functional. R & R at 10.

This court also finds no merit in the defendants' arguments that the disputed term should be treated as a means-plus function and does not reference any definite structure, remains undefined, and is purely functional. As referenced in section E.2 above, "a conveyor having a plurality of sheet material receiving locations," references a definite structure commonly understood in the art. The claim language, specification, and prosecution history amply supports this understanding.

Ultimately, the defendants fail to adequately justify and sustain its assertion that the disputed term is purely functional, lacks definite structure, and should be treated as a means-plus function claim under s. 112, para. 6. The defendants merely make conclusory assertions that the term describes an undefined space or location without referencing any supporting evidence.

Thus, the court gives the claimed limitation its ordinary meaning according to one having ordinary skill in the art at the time of invention. The term is construed to mean, "an apparatus that carries materials from

place to place which contains multiple positions where sheet material is fed."

#### **IV. Conclusion**

For the reasons stated herein, the defendants' objections to the magistrate judge's ruling [194-1] are sustained in part and overruled in part.

N.D.Ill.,2008.

Goss Intern. Americas, Inc. v. Graphic Management Associate, Inc.

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