

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF VIRGINIA
ROANOKE DIVISION

DE TECHNOLOGIES, INC.,)	
)	
Plaintiff,)	Civil Action No. 7:04CV00628
)	
v.)	<u>MEMORANDUM OPINION</u>
)	
DELL, INC.,)	By: Hon. Glen E. Conrad
)	United States District Judge
Defendant.)	

DE Technologies, Inc. (“DE”) brought this patent infringement action against Dell, Inc. (“Dell”), alleging that Dell implements the technology described and claimed by DE in U.S. Patent No. 6,460,020 (“the ‘020 Patent”) and U.S. Patent No. 6,845,364 (“the ‘364 Patent”). The case is currently before the court on Dell’s motion for partial summary judgment of invalidity as to Claims 13-15 and 17 of the ‘020 Patent. The parties have briefed their positions, and the court held a hearing on April 27, 2006. For the following reasons, the court will grant Dell’s motion to dismiss Claims 13-15 and 17 for indefiniteness.

BACKGROUND

The patent at issue in this case relates to a transaction system for facilitating computer-to-computer commercial transactions by integrating certain functions to enable international purchases of goods over the Internet. The court held a Markman hearing on November 9 and 10, 2005. At the hearing, the court granted both parties a longer period of time to develop their arguments on Claims 13-15 and 17. After the hearing, DE filed a brief in support of its proposed construction of Claim 13 of the ‘020 Patent. Dell filed a motion for partial summary judgment of invalidity as to Claims 13-15 and 17. Dell has alleged that the means-plus-

functions claimed by DE in Claims 13-15 and 17 do not disclose corresponding structures, and that the means-plus-function terms are therefore indefinite.

DISCUSSION

I. Standard of Review

The law presumes that a patent is valid, based on the theory that the Patent and Trademark Office, represented by “examiners who are assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art,” issued the patent correctly. Ultra-Tex Surfaces, Inc. v. Hill Bros. Chem. Co., 204 F.3d 1360, 1367 (Fed. Cir. 2000). Invalidity of a patent must therefore be proven by clear and convincing evidence. Intel Corp. v. VIA Techs., Inc., 319 F.3d 1357, 1366 (Fed. Cir. 2003). The issue of whether a patent is indefinite for failure to disclose a corresponding structure is a question of law. Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., 412 F.3d 1291, 1298 (Fed. Cir. 2005). An award of summary judgment is appropriate when “the pleadings, depositions, answers to interrogatories, and admissions on file, together with the affidavits, if any, show that there is no genuine issue of material fact and that the moving party is entitled to judgment as a matter of law.” Fed. R. Civ. P. 56.

II. Legal Principles Governing Construction of Means-Plus-Function Limitations¹

Means-plus-function limitations are defined in 35 U.S.C. § 112, ¶ 6:

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.

¹DE and Dell do not dispute that the terms in Claims 13-15 and 17 are means-plus-function terms.

35 U.S.C. § 112, ¶ 6 (2000). If the word “means” is used in a claim element, in combination with a function, the court must presume that § 112, ¶ 6 applies unless the claim recites a sufficient structure to perform the function. Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1257 (Fed. Cir. 1999). If the word “means” is not used, the presumption is that a claim falls outside of § 112, ¶ 6, although that presumption is defeated if an element relies on functional terms, rather than structure, to perform a function. Id.

There are two steps in construing a means-plus-function: first, the function must be determined; then, the corresponding structure as described in the specification must be identified. Medtronic, Inc., v. Advanced Cardiovascular Sys., Inc., 248 F.3d 1303, 1311 (Fed. Cir. 2001). A structure in the specification is a “corresponding structure” if “the specification or prosecution history clearly links or associates that structure to the function recited in the claim.” Id. This means that the structure must be “necessary” to perform the function. Omega Eng’g, Inc. v. Raytek Corp., 334 F.3d 1314, 1322 (Fed. Cir. 2003). This does not mean that the corresponding structure must include all things necessary for the claimed invention to work, but “it must include all structure that actually performs the recited function.” Default Proof, 412 F.3d at 1298. If there are multiple embodiments in the specification to correspond to the claimed function, the claim element should be read to include each of the embodiments. Micro Chem., 194 F.3d at 1258 (internal citation omitted). If no corresponding structure is disclosed, the scope of the claim cannot be defined and the claim is indefinite. See Default Proof, 412 F.3d at 1298.

The United States Court of Appeals for the Federal Circuit has specifically addressed means-plus-functions in which the disclosed structure is a computer. In WMS Gaming Inc. v.

Int'l Game Tech., 184 F.3d 1339 (Fed. Cir. 1999), the Federal Circuit considered the claim construction of means-plus-function terms. That case held that “[i]n 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.”² Id. at 1349. A corresponding structure must be a specific algorithm disclosed in the specification, rather than merely “an algorithm executed by a computer.” See Harris Corp. v. Ericsson, Inc. 417 F.3d 1241, 1253 (Fed. Cir. 2005).³ The Court held that “[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.” Id.

DE and Dell both recognize that the means-plus-functions in the ‘020 Patent fall under the algorithm rule of WMS Gaming and Harris. According to Dell, DE fails to include the necessary algorithms in the patent specification, and DE’s post-Markman brief and affidavit of its expert do not provide proper identification of the algorithms. DE argues that the ‘020 Patent has algorithms for each of the means-plus-function clauses of Claims 13-15 and 17.

A. Algorithm must be located in the specification

²An algorithm is defined as a “step-by-step process.” See State Street Bank & Trust Co. v. Signature Fin. Group, 149 F.3d 1368, 1374 (Fed. Cir. 1998).

³The opinion in Harris was published after the issuance of the ‘020 Patent on October 1, 2002. The court finds and concludes, however, that it was clear in 2002, several years after the Federal Circuit decided WMS Gaming, that in a means-plus-function where the disclosed structure is a computer, the corresponding structure is “the special purpose computer programmed to perform the disclosed algorithm.” See WMS Gaming, 184 F.3d at 1349.

The court believes that the issue of whether the corresponding structure for a computer-implemented means-plus-function can be described by sources outside of the specification is critical to the proper resolution of the pending motions. Paragraph 6 of 35 U.S.C. § 112 requires the algorithm to be disclosed by the specification. The Federal Circuit has instructed that:

The price that must be paid for the use of [means-plus-function claim drafting] is limitation of the claim to the means specified in the written description and equivalents thereof. If the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee has not paid that price but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification. Such is impermissible under the statute.

Medical Instrumentation and Diagnostics Corp. v. Elekta AB, 344 F.3d 1205, 1211 (Fed. Cir. 2003) (internal quotations omitted) (emphasis added).

1. *Role of testimony of one of skill in the art*

A patent specification must “clearly link” structure with a claimed function; this is the “quid pro quo” for allowing the patentee to make a claim using function terms. Medical Instrumentation, 344 F.3d at 1211. Whether this requirement is fulfilled must be measured by the knowledge of one of skill in the art, who must be able to determine that the specification adequately links the structure to the claimed function. Id.

However, this rule of interpretation does not relieve the patentee of the duty of fully describing the corresponding structure in the patent specification. The knowledge of one skilled in the art is not examined “apart from and unconnected to the disclosure of the patent.” Medical Instrumentation, 344 F.3d at 1212. In Default Proof Credit Card Systems, Inc. v. Home Depot U.S.A., 412 F.3d 1291 (Fed. Cir. 2005), the Federal Circuit found that the district court

correctly refused to rely on expert statements not supported and contradicted by the intrinsic record, distinguishing the case from those in which the specifications disclosed some corresponding structure for the expert to use. Id. at 1302 (distinguishing S3 Inc. v. NVIDIA Corp., 259 F.3d 1364 (Fed. Cir. 2001); Amtel Corp. v. Info. Storage Devices, 198 F.3d 1374 (Fed. Cir. 1999)). In S3, the specification clearly identified the corresponding structure as a “selector,” a standard component well-known to those of skill in the art, and the Court found that those of skill in the art would recognize the type of selector illustrated in the specification. 259 F.3d at 1370-71. The Court therefore found that the patent was not indefinite. Id. at 1371. In Amtel, an expert testified that the disclosure in the specification of a “high voltage generator circuit,” in combination with the title of a technical article, was sufficient for one skilled in the art to determine the precise structure corresponding to the means limitation, and the Court therefore held that the patent was not indefinite. 198 F.3d at 1382. Although the text of the article was not included, the expert testified that the title of the article alone was enough to indicate the structure. Id. In both of these cases, the specifications disclosed the corresponding structure, and expert testimony merely elaborated on or supported the disclosure.

These cases demonstrate that the testimony of one of skill in the art cannot be substituted for the “total absence of structure from the specification;” the specification itself must provide the corresponding structure. See Default Proof, 412 F.3d at 1302. The Federal Circuit specifically set forth the appropriate inquiry for a court in Medical Instrumentation. In that case, the issue was whether software was properly disclosed as a corresponding structure for converting the format of images. 344 F.3d at 1212. The Court found the proper issue to be whether “one of skill in the art would have understood that [patent] disclosure to encompass

software for digital-to-digital conversion and been able to implement such a program, not simply whether one of skill in the art would have been able to write such a software program.” Id. The Court recognized that the issue was not whether one of skill in the art could implement a structure, but whether one would understand the specification to disclose the structure. Id. See also Touchcom, Inc. v. Dresser, Inc., 2005 WL 3307260 (E.D. Tex. 2005) (concluding “[t]hat one of skill in the art could create structure sufficient to perform a function is not the inquiry”).

In order for a corresponding structure to be adequately disclosed for a means-plus-function limitation, the structure must be found in the patent specification. This disclosure can be supported by expert testimony, and the specification is interpreted as read by one of skill in the art. Expert testimony standing alone is not sufficient to disclose a corresponding structure, however, and whether an expert could build a corresponding structure is irrelevant. Some structure must be disclosed in the specification, or the means-plus-function claim limitation lacks a corresponding structure and is indefinite.

2. *Role of prosecution history*

A similar principle applies to the use of prosecution history to define a corresponding structure. Reliance on the prosecution history of the patent for construction of a means-plus-function claim is appropriate only when the corresponding structure is disclosed in the specification. Use of the prosecution history is appropriate to bolster the corresponding structure disclosed in the patent, but cannot provide a corresponding structure outside of the specification.

A corresponding structure must be disclosed in the specification. See Harris Corp. v. Ericsson Inc., 417 F.3d 1241, 1253 (Fed. Cir. 2005) (“[a] computer-implemented means-plus-function term is limited to the corresponding structure disclosed in the specification and equivalents thereof”). In Overhead Door Corp. v. The Chamberlain Group, Inc., 194 F.3d 1261 (Fed. Cir. 1999), the Federal Circuit found that the term “switch means” covered two different types of corresponding structures. In doing so, the Court relied upon “[t]he differences in claim language, bolstered by the patentees’ statements during the reissue proceedings.” Id. at 1273. In that case, the issue was whether the corresponding structure “memory selection second switch means” encompassed a software-based embodiment. Id. at 1272. After discussing its analysis of Figure 3, that would be understood to include software operations, the Court found that statements made during the prosecution of the patent “further support a broader construction” of the term. Id.

The prosecution history of a patent should not be ignored when a court is construing means-plus-function limitations, but it is not sufficient in and of itself to provide a corresponding structure. As the Court used the prosecution history in Overhead Door, the prosecution history can support or bolster a corresponding structure disclosed in the specification. However, the specification must disclose the corresponding structure.

B. The algorithm requirement

Harris “restricts computer-implemented means-plus-function terms to the algorithm disclosed in the specification.” Harris, 417 F.3d at 1253. This is due to the fact that “[a] general purpose computer, or microprocessor, programmed to carry out an algorithm creates a

new machine, because a general purpose computer in effect becomes a special purpose computer once it is programmed to perform particular functions pursuant to instructions from program software.” WMS Gaming Inc. v. Int’l Game Tech., 184 F.3d 1339, 1348 (Fed. Cir. 1999). The Federal Circuit has defined an algorithm as a “step-by-step process.” State Street Bank & Trust Co. v. Signature Fin. Group, Inc., 149 F.3d 1368, 1374 (Fed. Cir. 1998) (internal citation omitted).

The ability of one skilled in the art to link software as a corresponding structure to the recited function is not sufficient to fulfill the algorithm requirement. In WMS Gaming, the Federal Circuit overruled the district court’s finding that the corresponding structure disclosed in the specification was “an algorithm executed by a computer.” 184 F.3d at 1348. The Court rejected the possibility that the lack of disclosure meant that “the limitation reads on any means for performing the recited function.” Id. Instead, the Court found that the corresponding structure was the microprocessor programmed to perform the algorithm illustrated by a figure in the patent. Id. at 1349. Although the district court’s construction clearly recognized the use of a computer, the Federal Circuit found that the structure had to include the specific algorithm disclosed in the specification.

District courts that have addressed the algorithm rule since the Federal Circuit decided WMS Gaming and Harris have interpreted those decisions to require the disclosure of an algorithm in the specification, rather than the mere mention of “software.” For example, the United States District Court for the Eastern District of Texas found that the corresponding structure “a microprocessor running a procedure call that sets aside resources, such as a memory area,” did not set forth an algorithm. Gobeli Research Ltd. v. Apple Computer Inc., 384 F.

Supp. 2d 1016 (E.D. Tex. 2005). The same court found that a corresponding structure, for which the patent stated a particular brand of device for which the software could be downloaded, did not disclose an algorithm in the specification. See Touchcom, Inc. v. Dresser, Inc., 2005 WL 3307260 (E.D. Tex. 2005). Even more specifically, the United States District Court for the Eastern District of Delaware found that the use of the term “software” as a corresponding structure was insufficient, as the software “must either be specifically described or identified as ‘software’ known to those of skill in the art.” McKesson Info. v. Trizetto Group, Inc., 2005 WL 2290191 (D. Del. 2005) (ordering the plaintiff to supplement its claim construction by identifying the parts of the specification that disclosed correspondence between the software and the function or where it is disclosed that the algorithm is known to those of skill in the art).

The Federal Circuit specifically addressed means-plus-functions in which the disclosed structure is a computer in WMS Gaming and Harris, finding that the specification must disclose a specific algorithm as a corresponding structure. DE argues that earlier cases seem to impose more lenient requirements for describing the corresponding structure of a means-plus-function term. The court recognizes that these earlier cases were not overruled by WMS Gaming and Harris. See Fed. Cir. R. 35 (“only the court en banc may overrule a binding precedent”). Most are distinguishable, however, and WMS Gaming and Harris are the most recent decisions from the Federal Circuit dealing specifically with computer-implemented means-plus-functions. This court is therefore constrained to follow the instruction of the Federal Circuit, requiring an algorithm to be disclosed in the specification as a corresponding structure.

III. Construction of Means-Plus-Function Terms

Claim 13 of the '020 Patent claims:

A system for carrying out an international commercial transaction over a network of computers, the system comprising:
means for running a transaction program so as to integrate components including:

- (a) means for determining a language in which to view catalogue information on products;
- (b) means for determining a currency in which to obtain price information;
- (c) means for receiving a selection of a product to be purchased and a product to be purchased and a destination for shipping such product to be purchased;
- (d) means for accessing at least one local or remote database for
 - (i) price information for the product to be purchased; and
 - (ii) a product code for an international goods classification system pertinent to such product; and
 - (iii) international shipping information related to an origination point of such product and said destination;
- (e) means for calculating costs involved in moving such product to said destination based upon said destination and such product;
- (f) means for receiving an order for such product thereby triggering an electronic process for confirming existence of available funds; and
- (g) upon confirmation of availability of said funds, means for generating an electronic record, such record including the content of a commercial invoice, to facilitate passage of such product to said destination.

In the court's claim construction Memorandum Opinion, the court construed the term "running a transaction program on a computer system so as to integrate processes," as "running a single transaction program which utilizes and communicates with such additional programs, databases, and systems as are necessary to enable the transaction program to integrate the recited processes (a) through (h) into one functional system for carrying out international commercial transactions." DE Tech., Inc. v. Dell, Inc., 2006 WL 335608 (W.D. Va. 2006). Claim terms must be construed consistently throughout claims of the same patent. See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001). The court therefore concludes that the

function for the means-plus-function term, “means for running a transaction program so as to integrate components [(a) through (g)],” is “running a single transaction program which utilizes and communicates with such additional programs, databases, and systems as are necessary to enable the transaction program to integrate the recited processes (a) through (g) into one functional system for carrying out international commercial transactions.”

The court concludes that the specification does not disclose a corresponding structure including an algorithm for this function, and that Claim 13 is therefore indefinite and invalid. The specification for the ‘020 Patent and included figures do describe processes involved in the type of international transactions claimed by the patent. However, no part of the specification discloses the steps that must be performed by the transaction program to integrate the recited processes. Based on this conclusion, the court finds it unnecessary to reach the issue of whether corresponding structures and algorithms are disclosed for individual functions of means-plus-function limitations (a) through (g).

DE proposes that the ‘020 Patent claims link the functions to software, because the only way the transaction could be carried out “over a network of computers,” or by “running a transaction program,” is through software. See DE Br. in Opp’n 9. Disclosure of “computers” or “software,” however, is not sufficient to satisfy the algorithm rule.⁴ The court must therefore

⁴Even if DE’s argument is correct that reference to a “computer” or “software” is sufficient, the court concludes that no corresponding structure is disclosed by the patent. In Medical Instrumentation and Diagnostics Corp. v. Elekta AB, 344 F.3d 1205 (Fed. Cir. 2003), the Federal Circuit stated in dicta that there “would be no need for a disclosure of the specific program code if software were linked to the converting function and one skilled in the art would know the kind of program to use.” 344 F.3d at 1214. As DE states, however, the novelty of the ‘020 claimed invention “resides in the concept of integrating the various functions of the means clauses into a cohesive system.” DE Br. in Opp’n 13. Although DE’s expert, Michael Shamos, claims that “[i]ntegration of data from data processing components is straightforward and

determine whether DE sufficiently disclosed an algorithm, or step-by-step process, for integrating the recited processes in the specification.

The affidavit submitted by DE's expert states that:

Integration of data from data processing components is straightforward and thoroughly understood in the art. Data is obtained by conventional means from said components over transmission lines ... The structure associated with the means of claim 13 is adequately described in the specification and is even flowcharted in Fig. 1 of the Patent. Therefore, the transaction, which need do no more than invoke other subsystems and integrate their outputs, is fully specified.

Shamos Aff. 4, Nov. 21, 2005. DE proposes that the algorithm embodying the function at issue is: "one or more computers, or one or more computers connected via a network to one or more computers, and structural equivalents thereof." DE Br. in Opp'n Ex. B at 1. DE also observes that one of ordinary skill in the technology could conclude that the '020 Patent uses software to embody the means-plus-function clauses of the patent, and that linking software to a means-plus-function clause is all that is required if a person of ordinary skill in the art could identify or create software to perform the function. See DE Br. in Opp'n 13.

The court finds and concludes that the '020 Patent specification fails to disclose sufficient structure for integrating the recited components of Claim 13. The specification describes the processes that are ultimately integrated, and Figure 1 provides a diagram showing

thoroughly understood in the art," this claim is contradicted by DE's assertion that the novelty of the invention is in the concept of integrating the functions into a cohesive system. See Shamos Aff. 4, Nov. 21, 2005. Furthermore, as noted by the District Court for the District of Delaware in McKesson Info. v. Trizetto Group, Inc., 2005 WL 2290191 (Fed. Cir. 2005), Medical Instrumentation, in combination with Harris, requires that "software" must at least be identified as "'software' known to those of skill in the art" in the specification. Id. (citing Medical Instrumentation, 344 F.3d at 1211-12; Harris, 417 F.3d at 1253) (ruling that the plaintiff must supplement its claim construction by identifying where the specification "disclosed (or otherwise inferred)" that the algorithm is known to those of skill in the art).

the sequence of these processes. DE fails to identify, however, any portion of the written specification that discloses the steps for integrating the processes.⁵ DE does not even attempt to identify a specific algorithm for the transaction program to integrate the recited processes, instead relying upon the premise that it is enough to “link” software to the function.⁶ As discussed above, more is required of a corresponding structure for a computer-implemented means-plus-function term. DE claims that the novelty of the claimed invention is in the integration of processes, but nowhere in the specification is there an explanation of the steps by which the processes are integrated.

The court has concluded that WMS Gaming and Harris require the specification to disclose an algorithm as the corresponding structure for a means-plus-function term. In addition, the court has concluded that support for such an algorithm can be found outside the specification, in expert testimony or the prosecution history, but that these sources alone cannot supply a corresponding structure. DE cites to the provisional patent application as part of the prosecution history of the ‘020 Patent, claiming that it includes specific software routines. Any such routines in the provisional application are not sufficient to supply a corresponding structure, as outside material alone cannot provide structure.⁷ Even if there is material in the

⁵The court believes that the innovation of the ‘020 Patent is the integration of processes. Even DE’s expert failed to explain how the integration process takes place, much less how that process is disclosed in the specification.

⁶DE has not attempted to cite any portion of the specification that purportedly provides the requisite structure, other than to note that the transaction program utilizes software to execute processes, and instead continuously references the provisional patent application as a source wherein the required algorithm can be found. However, as stated above, such outside references are not permitted unless some structure is disclosed in the specification.

⁷Even if DE’s legal argument is correct, and structure may be set forth in some source independent of the specification, the court notes that there has been no evidence to support the

provisional application to support an algorithm, there is no algorithm disclosed in the specification to support. Similarly, DE's claims that one could build the type of program described cannot provide structure without the disclosure of some algorithm in the specification. Expert testimony cannot be used to create an algorithm that is not disclosed in the specification. As no algorithms are disclosed in the specification for the means-plus-function terms of Claim 13, and dependent Claims 14, 15, and 17, the court finds that these claims are indefinite.

CONCLUSION

The court concludes by clear and convincing evidence as a matter of law that Claims 13-15 and 17 of the '020 Patent are indefinite, and that the defendant is entitled to partial summary judgment. The '020 Patent does not include sufficient structure for performing the function "running a single transaction program which utilizes and communicates with such additional programs, databases, and systems as are necessary to enable the transaction program to integrate the recited processes (a) through (g) into one functional system for carrying out international commercial transactions." No corresponding structure is described in the specification, and

notion that the provisional application describes how the integration of functions takes place as implemented. The affidavit of DE's expert does not cite to any part of the provisional application that discloses an algorithm for the function, "running a single transaction program which utilizes and communicates with such additional programs, databases, and systems as are necessary to enable the transaction program to integrate the recited processes (a) through (g) into one functional system for carrying out international commercial transactions." The court therefore finds it unnecessary to reach the issue of whether the provisional patent application is part of the prosecution history of the '020 Patent.

such a structure cannot be provided by expert testimony or the provisional patent application alone. For the reasons stated, Claims 13-15 and 17 of the '020 Patent are indefinite as a matter of law, and invalid. The defendant's motion for partial summary judgment will be granted.

The Clerk is directed to send certified copies of this Memorandum Opinion and the accompanying Order to all counsel of record.

ENTER: This 10th day of May, 2006.

/s/ Glen E. Conrad

United States District Judge

