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## Does Your Claim Conform to Means-Plus-Function Format under Section 112, Paragraph Six?: *0.1 Corp. v. Tekmar Co.*

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**DOES YOUR CLAIM CONFORM TO MEANS-PLUS-FUNCTION FORMAT UNDER SECTION 112, PARAGRAPH SIX?: O.I. CORP. V. TEKMAR CO.**

*Fidel D. Nwamu\**

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## I. INTRODUCTION

Patent law currently faces a plethora of issues regarding means-plus-function claims.<sup>1</sup> A particularly important issue concerns whether a patent claim falls within the means-plus-function format under 35 U.S.C. § 112, para. 6.<sup>2</sup> Construing a claim within this provision can be dispositive since courts have recently begun narrowing the coverage of claims under this statutory mandate.<sup>3</sup>

This Article examines whether a patent claim constitutes means-plus-function format under § 112, para. 6 by discussing *O.I. Corp v. Tekmar Co.*,<sup>4</sup> the United States Court of Appeals for the Federal Circuit's most recent interpretation concerning this issue. Beginning in 1996, the Federal Circuit addressed several means-plus-function form cases that culminated with *Tekmar* in 1997.<sup>5</sup> In that case, the court examined whether the term *passage* following a

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<sup>1</sup> See, e.g., *In re Donaldson Co.*, 16 F.3d 1189, 29 U.S.P.Q.2d (BNA) 1845 (Fed. Cir. 1994) (examining whether, during prosecution and infringement, means-plus-function claims must be construed to cover equivalent structures for accomplishing the recited function); *Valmont Indus., Inc. v. Reinke Mfg. Co.*, 983 F.2d 1039, 25 U.S.P.Q.2d (BNA) 1451 (Fed. Cir. 1993) (construing equivalence of means-plus-function claims under 35 U.S.C. § 112, para. 6 (1994)); see also *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 41 U.S.P.Q.2d (BNA) 1001 (Fed. Cir. 1996) (determining whether claim form constituted means-plus-function under § 112, para. 6).

Means-plus-function claims can define an invention's scope by function as opposed to structure. 35 U.S.C. § 112, para. 6 (1994). For a further discussion of claims, generally, and means-plus-function claims, specifically, see *infra* Parts II.B. and C., respectively.

<sup>2</sup> 35 U.S.C. § 112, para. 6 (1994).

<sup>3</sup> See *Johnston v. IVAC Corp.*, 885 F.2d 1574, 1580, 12 U.S.P.Q.2d (BNA) 1382, 1386 (Fed. Cir. 1989) (holding that § 112, para. 6 does not expand the scope of the claim but "operates to cut back on the types of means which could literally satisfy the claim language"); see also *Valmont Indus., Inc.*, 983 F.2d at 1042 (concluding that "for a means-plus-function limitation to read on an accused device, the accused device must employ means identical to or the equivalent of the structure, material or acts described in the patent specification. The accused device must also perform the identical function as specified in the claims").

Whether § 112, para. 6 applies is often dispositive because a claim's scope under that provision is less than that under regular claim construction principles. Rudolph P. Hofmann, Jr. & Edward P. Heller, III, *The Rosetta Stone for the Doctrines of Means-Plus-Function Patent Claims*, 23 RUTGERS COMPUTER & TECH. L.J. 227, 239 (1997).

<sup>4</sup> 115 F.3d 1576, 42 U.S.P.Q.2d (BNA) 1777 (Fed. Cir. 1997).

<sup>5</sup> *Tekmar*, 115 F.3d at 1576; *Cole*, 102 F.3d at 524; *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 40 U.S.P.Q.2d (BNA) 1619 (Fed. Cir. 1996); *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 39 U.S.P.Q.2d (BNA) 1783 (Fed. Cir. 1996); *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 19 U.S.P.Q.2d (BNA) 1367 (Fed. Cir. 1991); *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 220 U.S.P.Q. (BNA) 592 (Fed. Cir. 1983).

means-plus-function clause, was part of the means recited in that clause. Writing for the court, Judge Lourie opined that within the claim language, "means for passing the analyte slug through a *passage*," *passage* was not part of the means-plus-function recited and its scope can neither be construed under nor limited by § 112, para. 6.<sup>6</sup>

Part II of this Article introduces patent claims and discusses § 112, para. 6 and its legislative history, concluding with recent case law regarding the form of a means-plus-function claim. Part III provides the facts of *Tekmar*, while Part IV, as narrative analysis, discusses the Federal Circuit's reasoning in *Tekmar*. Part V critically analyzes the *Tekmar* holding, concluding that the court remained consistent with prior precedents. Finally, Part VI predicts that claim drafters will become wary of drafting means-plus-function claims. In addition, Part VI provides practical advice to claim drafters to help ensure that their claims are construed as intended, either within or beyond the statutory mandate of § 112, para. 6.

## II. BACKGROUND

Generally, patents confer on inventors certain exclusive rights.<sup>7</sup> Section 112, para. 1, however, mandates that a patent application must conclude with one or more claims defining the invention's boundaries.<sup>8</sup> This statutory provision provides some latitude by allowing "means-plus-function claims," that is, claims that define inventions by function rather than structure.<sup>9</sup> Further, § 112, para. six's legislative history reveals no impetus for its enactment.<sup>10</sup> Consequently, as recent Federal Circuit cases indicate, determining whether a claim format invokes § 112, para. 6 is no easy task.<sup>11</sup>

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<sup>6</sup> *Tekmar*, 115 F.3d at 1581 (emphasis added).

<sup>7</sup> See *infra* Part II.A.

<sup>8</sup> 35 U.S.C. § 112, para. 1 (1994). For a discussion of patent and claim requirements, see *infra* notes 16-19 and accompanying text.

<sup>9</sup> For a discussion of § 112, para. 6, see *infra* notes 20-27 and accompanying text.

<sup>10</sup> For a discussion of § 112, para. six's legislative history, see *infra* notes 28-33 and accompanying text.

<sup>11</sup> For a discussion of recent court cases regarding this issue, see *infra* Part II.E.

## A. PATENTS: GRANTING INVENTORS EXCLUSIVE RIGHTS

Patents confer on inventors “the right to exclude others from making, using, or selling the claimed invention.”<sup>12</sup> One criterion for obtaining a patent requires the inventor to sufficiently disclose the invention such that one skilled in the art regarding the invention can practice it.<sup>13</sup> In addition to sufficient disclosure, the application must conclude with one or more claims setting forth in words the parameters of the invention.<sup>14</sup> Hence, patent applications consist of two parts: (1) a disclosure portion, which includes specifications and diagrams, and (2) a claim section defining the invention’s boundaries.<sup>15</sup>

## B. CLAIMS: DEFINING AN INVENTION’S BOUNDARIES

Generally, claims “define . . . in words the boundaries of an invention. The[y] advise . . . the public what the invention is, so that the public can avoid infringing upon it.”<sup>16</sup> Beyond defining an invention, claims serve a twofold purpose, namely: (1) to ensure certain conditions of patentability are met,<sup>17</sup> and (2) to circum-

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<sup>12</sup> 1 DONALD S. CHISUM, PATENTS: A TREATISE ON THE LAW OF PATENTABILITY, VALIDITY AND INFRINGEMENT G1-8 (1998).

A patent only confers the right to exclude others from using, making or selling. *Id.* No affirmative right to use is necessarily granted, since such use may be blocked by other patents. *Id.*

<sup>13</sup> 35 U.S.C. § 112, para. 1 (1994).

<sup>14</sup> *Id.* § 112, para. 2 (stating that the application must conclude “with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention”); *see also* CHISUM, *supra* note 12, at G1-3 (describing the scope of a claim).

<sup>15</sup> Paul M. Janicke, *The Crisis in Patent Coverage: Defining Scope of an Invention by Function*, 8 HARV. J.L. & TECH. 155, 159 (1994) (citing 35 U.S.C. § 112, paras. 1-2 (1994)). The disclosure portion discloses the invention’s drawings, structures, and specifications. *Id.* Traditionally, the disclosure focuses on the invention’s preferred embodiment and has always been narrowly drafted. However, claims are broadly drafted to obtain as much coverage as possible. *Id.*

<sup>16</sup> CHISUM, *supra* note 12, § 801 n.1 (Supp. 1997) (citing *Magnesystems Inc. v. Nikken Inc.*, 34 U.S.P.Q.2d 1112, 1113 n.1 (C.D. Cal. 1994)); *see also* Janicke, *supra* note 15, at 159 (explaining that the claim is the portion of the patent application that defines what the invention covers).

<sup>17</sup> *See* CHISUM, *supra* note 12, § 8.01 (noting that patents must meet certain conditions of patentability prior to issuance of a patent). These requirements include novelty, utility, and non-obviousness. *Id.* In addition, patents must meet the statutory bars and the disclosure requirement. *Id.*

scribe the invention for infringement purposes, that is, to determine whether there has been unauthorized acts violating rights conferred by the patent.<sup>18</sup> During infringement actions, courts initially evaluate the scope of the patent-in-suit prior to finding either infringement or non-infringement.<sup>19</sup> Hence, patent claim drafters utilize broadly worded claims in an attempt to secure a broad patent scope because such claims provide inventions with maximum protection.

#### C. MEANS-PLUS-FUNCTION CLAIMS: DEFINING SCOPE BY FUNCTION UNDER § 112, PARA. 6

In 1952, Congress enacted § 112, para. 6,<sup>20</sup> which states:

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.<sup>21</sup>

Essentially, an inventor may define an invention functionally rather than structurally, that is, by what it does rather than by what it is.<sup>22</sup> Such claims are usually referred to as “means-plus-function.”<sup>23</sup> Once a claim is defined in means-plus-function form, however, its scope is limited to particular structures or acts

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<sup>18</sup> *Id.*

<sup>19</sup> See *Autogiro Co. of Am. v. United States*, 384 F.2d 391, 399, 155 U.S.P.Q. (BNA) 697, 704 (Ct. Cl. 1967) (noting that patent infringement analysis involves two steps: (1) deriving meaning of claim, and (2) determining whether the claims read on the accused structure).

<sup>20</sup> Act of July 19, 1952, Pub. L. No. 82-593, 66 Stat. 792 (codified as amended at 35 U.S.C. § 112, para. 6 (1994)).

<sup>21</sup> 35 U.S.C. § 112, para. 6 (1994).

<sup>22</sup> *Id.*; see Janicke, *supra* note 15, at 156 (1994) (citing 4 DONALD S. CHISUM, PATENTS: A TREATISE ON THE LAW OF PATENTABILITY, VALIDITY AND INFRINGEMENT, § 18.03, ¶ 5 (1994); R. Carl Moy, *The Interpretation of Means Expressions During Prosecution*, 68 J. PAT. & TRADEMARK OFF. SOC'Y 246 (1986)).

<sup>23</sup> Although § 112, para. 6 claims are usually referred to as “means-plus-function,” it is specifically the claim elements that are in means-plus-function format.

disclosed within the patent application's disclosure section and equivalents thereof.<sup>24</sup>

Since the enactment of § 112, para. 6, claim drafters have widely utilized its provision, believing that means-plus-function claims provide broad coverage.<sup>25</sup> Courts, however, after perpetuating this belief for years, have recently begun narrowing the scope of means-plus-function claims.<sup>26</sup> Patentees are now attempting to preclude application of § 112, para. 6, while alleged infringers advocate its application during infringement proceedings.<sup>27</sup> Courts now face the uphill task of deciding whether previously drafted claims are within the means-plus-function form under § 112, para. 6.

#### D. LEGISLATIVE HISTORY: SEARCHING FOR AN IMPETUS FOR ENACTING § 112, PARA. 6

Section 112, para. six's legislative history reveals little or no impetus for enacting the provision.<sup>28</sup> In *Halliburton Oil Well Cementing Co. v. Walker*, the United States Supreme Court held that combination claims cannot have means-plus-function language used as an "exact point of novelty."<sup>29</sup> Although there is wide-

<sup>24</sup> 35 U.S.C. § 112 (1994).

<sup>25</sup> See Janicke, *supra* note 15, at 156-57 (noting that attorneys drafting patent applications included "expression of one or more elements of a combination patent claim in terms of 'means for' accomplishing a stated function").

<sup>26</sup> See *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934, 4 U.S.P.Q.2d (BNA) 1737, 1739 (Fed. Cir. 1987) (stating that § 112, para. 6 precludes the "possibility that any and every means which performs the function specified in the claim *literally* satisfies that limitation"); see also *Hofmann & Heller*, *supra* note 3, at 234 (criticizing the narrow definition of scope under the statute).

<sup>27</sup> See, e.g., *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 19 U.S.P.Q.2d (BNA) 1367 (Fed. Cir. 1991) (involving patentee advocating inapplicability of last paragraph of § 112 to apparent means-plus-function element).

<sup>28</sup> See generally, S. REP. NO. 1979, at 1 (1952), *reprinted in* 1952 U.S.C.C.A.N. 2394, 2394-2428. The revision notes within the appendix, however, state that "a new paragraph relating to functional claims is added." 1952 U.S.C.C.A.N. at 2412.

<sup>29</sup> 329 U.S. 1, 9 n.7 (1946). In *Halliburton*, Justice Black, writing for the Court proscribed the use of functional language for claiming an invention. The Court invalidated the patent-in-suit involving a device for determining how far oil was from the ground in a well using echoes projected into the well. The patent-in-suit accomplished this function using a mechanical tuning fork, while the defendant's device utilized an electrical filter device. The representative claim at issue read as follows:

In an apparatus for determining the location of an obstruction in a well having therein a string of assembled tubing sections interconnected with each



spread agreement that § 112, para. 6 was intended to overrule *Halliburton*,<sup>30</sup> some commentators disagree.

For instance, two patent attorneys, Rudolph Hofmann, Jr. and Edward Heller, III, assert that this reason is perhaps an oversimplification since "it merely describes what precipitated the statute rather than the reason for the substance of the statute itself."<sup>31</sup> They explain that the drafters merely revised the then-existing functional claim doctrines for codification.<sup>32</sup> They further note that claims "setting forth a principle, force, function, or effect were called functional claims."<sup>33</sup> Because of the dearth of legislative history, courts have little or no available guidance regarding what constitutes a means-plus-function claim.

other by coupling collars, means communicating with said well for creating a pressure impulse in said well, echo receiving means including a pressure responsive device exposed to said well for receiving pressure impulses from the well and for measuring the lapse of time between the creation of the impulse and the arrival at said receiving means of the echo from said obstruction, and means associated with said pressure responsive device for tuning said receiving means to the frequency of echoes from the tubing collars of said tubing sections to clearly distinguish the echoes from said couplings from each other.

*Id.*

The defendant asserted indefiniteness of the patentee's claim, which recited "means . . . for tuning said receiving means to the frequency of echoes . . ." while the patentee argued that the defendant's electrical device constituted an infringement because it accomplished the same function using a different means. The Court held the invention indefinite because "they do not describe the invention but use 'conveniently functional language at the exact point of novelty'" *Id.* at 8.

<sup>30</sup> See Janicke, *supra* note 15, at 165 (acknowledging that Congress' attempt in § 112, para. 6 to address *Halliburton* was a step in the right direction).

The *Halliburton* Court mischaracterized the "point of novelty" in the patentee's invention. Rudolph Hofmann, Jr. and Edward Heller, III point out that, although the patentee combined functional language with old elements in a combination claim, the novelty was the combination of functional language and elements as a whole. Hofmann & Heller, *supra* note 3, at 270-71.

<sup>31</sup> Hofmann & Heller, *supra* note 3, at 243.

<sup>32</sup> See *id.* at 243-44 (noting that cases concerning "nonstatutory subject matter" and related functional doctrines were responsible for today's means-plus-function codification). According to one doctrine, to preserve the validity of functional claims, the claims were construed to cover devices set forth in the specification. *Id.*

<sup>33</sup> *Id.* at 245 (citing [1] WILLIAM C. ROBINSON, THE LAW OF PATENTS FOR USEFUL INVENTIONS § 133, at 190 (1890)).

For extensive discussions regarding the origins of functional claims, see Hofmann & Heller, *supra* note 3, at 252-59.

E. RECENT CASE LAW: DECIDING WHAT CLAIM FORM ATTRACTS  
COVERAGE UNDER § 112, PARA. 6

In the last three years, the United States Court of Appeals for the Federal Circuit has decided several cases relating to means-plus-function form issues. Prior to 1990, however, the Federal Circuit rarely addressed the issue of what claim format attracted coverage under § 112, para. 6.

1. *Raytheon Co. v. Roper Corp.*<sup>34</sup> *Raytheon Co. v. Roper Corp.*, decided in 1983, involved the question of whether the patentee's claim was enabled under § 112, para. 1 rather than under § 112, para. 6.<sup>35</sup> *Raytheon* involved a dispute over claim one of the patent-in-suit, which concerned a common cavity oven capable of conventional thermal cooking, microwave cooking, and self-cleaning.<sup>36</sup> Claim one utilized functional language in reciting resolution of a problem known as autoignition present in prior art.<sup>37</sup>

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<sup>34</sup> 724 F.2d 951, 220 U.S.P.Q. (BNA) 592 (Fed. Cir. 1983).

<sup>35</sup> *Id.* at 953. *Raytheon* asserted that Roper's patent was invalid for lack of enablement under 35 U.S.C. § 112, para. 1 because it lacked the functionality as claimed. *Id.* at 956.

Roper's patent concerned a "common cavity" oven capable of conventional thermal cooking, microwave cooking, and self-cleaning capability, despite the fact that these three modes are not totally compatible. This incompatibility resulted in a problem prevalent in prior art, known as autoignition where excess air needed to flush smoke caused volatile products of self-cleaning to combust. *Id.* at 953.

<sup>36</sup> *Id.*

<sup>37</sup> *Id.* at 957. Claim five of Roper's patent indicated resolution of the autoignition problem present in prior art. Specifically, claim five provided:

In a combined microwave-thermal range, the combination comprising a frame having walls defining a rectangular oven cavity and a lower space of conforming shape, a door enclosing and sealing the front surface of the cavity against passage of air and microwave energy, a thermal element in the cavity, control means for operation of the thermal element within a normal temperature range for food preparation and at a high temperature level for a self-cleaning mode, the walls of the cavity being insulated, the bottom wall of the cavity having an inlet opening, means defining a cavity air vent at the top of the cavity, a microwave power supply having a housing including a magnetron and blower, the blower having a blower inlet and arranged to draw in cooling air for discharge under slight pressure to the magnetron, a waveguide having an inlet connected to the magnetron and extending under the bottom wall of the cavity to terminate at an outlet, means for connecting the outlet of the waveguide to the inlet opening of the cavity for conduction of microwave energy into the cavity, the waveguide being open to passage of cooling air from the magnetron so at least a portion of the pressurized air from the blower and magnetron passes through the waveguide and into the

Despite the functional language, the district court read claim one as covering *a means* for resolving the autoignition problem.<sup>38</sup> Agreeing with the lower court's interpretation of claim one, the Federal Circuit stated that although "the functional language is introduced by 'so that,' we must read the phrase as the equivalent of one specifying . . . 'means for continuing convection during autoignition.'"<sup>39</sup> Hence, the court recognized, consistent with current Patent and Trademark Office (PTO) guidelines, that functional language can be equivalent to the traditional "means for" phrase usually utilized by claim drafters.<sup>40</sup>

*Raytheon* did not address whether § 112, para. 6 was applicable. Nonetheless, *Raytheon* remains noteworthy because the court observed that a claim need not utilize traditional means-plus-function language to be construed as such.<sup>41</sup>

2. *Laitram Corp. v. Rexnord, Inc.*<sup>42</sup> Almost a decade later, the Federal Circuit, in *Laitram Corp. v. Rexnord, Inc.*, addressed whether § 112, para. 6 remains applicable where a means-plus-function element recites some structure.<sup>43</sup> The means-plus-function element of the patent-in-suit claimed a conveyor belt composed of a plurality of plastic modules which are pivotally connected at their link ends.<sup>44</sup> Specifically, the element claimed a:

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cavity for ventilating the cavity when the magnetron and blower are turned on, the blower inlet being located at a level below the bottom wall of the cavity so that when the blower and magnetron are turned off and the thermal element is turned on and air is thermally convected through the blower inlet, magnetron, and waveguide into the cavity for final exit through the cavity air vent at the top thereof, the air passage through the blower, magnetron and waveguide being sufficiently constricted so that the air is convected in the self-cleaning mode at a level below that which is capable of producing an explosive reaction with the products of thermal decomposition.

*Id.* at 954.

<sup>38</sup> *Id.* at 955.

<sup>39</sup> *Raytheon*, 724 F.2d at 957.

<sup>40</sup> For a discussion of PTO guidelines, see *infra* Part II.F.

<sup>41</sup> *Raytheon*, 724 F.2d at 957.

<sup>42</sup> 939 F.2d 1533, 19 U.S.P.Q.2d (BNA) 1367 (Fed. Cir. 1991).

<sup>43</sup> *Id.*

<sup>44</sup> *Id.* at 1534-35. *Laitram's* invention claimed a modular plastic conveyor belt with a raised rib construction, such that containers can be smoothly transferred using a transfer comb between the head and tail ends of a conveyor. *Id.*

means for joining said pluralities [of link ends] to one another so that the axes of said holes of said first plurality are arranged coaxially, the axes of said holes of said second plurality are arranged coaxially and the axes of respective holes of both pluralities of link ends are substantially parallel.<sup>45</sup>

The patentee argued that, because the above claim recited some structure, § 112, para. 6 was inapplicable.<sup>46</sup> Judge Nies disagreed, stating that “recitation of some structure in a means-plus-function element does not preclude the applicability of [§ 112, para. 6].”<sup>47</sup> The suggestion was that reciting some structure, commonly done

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<sup>45</sup> *Id.* at 1535. According to the patent’s specification, the means for joining a plurality of link ends is described as follows:

Each of the link-like elements is formed of a pair of like link end sections 21 joined by at least one intermediate or connecting section 22 having a generally rectangular cross section with a greater depth (or height) than width. Thus all link-like elements have substantially identical lengths (i.e. the distance between the extremities of each pair of joined link ends). All of the link-like elements of a module are joined as a unit by at least one and preferably a pair of spaced cross-members 24 formed integrally with connecting sections 22 to form a rigid structure. . . . Cross members 24 function to maintain the link-like elements in parallel relation so that the surfaces of end sections 21 are kept parallel and pivot holes 26 aligned, thereby minimizing bending stresses across pivot pin 28.

Thus, the link ends are first connected by elongated bars to form link elements, and these link elements are connected by cross members. This combination of structure joins the pluralities of link ends. (emphasis omitted).

*Id.* at 1536.

<sup>46</sup> *Id.* at 1535.

<sup>47</sup> *Id.* at 1536 (citing *Jonsson v. Stanley Works*, 903 F.2d 812, 819, 14 U.S.P.Q.2d (BNA) 1863, 1869 (Fed. Cir. 1990) and *Data Line Corp. v. Micro Technologies, Inc.*, 813 F.2d 1196, 1201, 1 U.S.P.Q.2d (BNA) 2052, 2055 (Fed. Cir. 1987)).

The court observed that without § 112, para. 6, functional claim language would be indefinite. “While the use of means-plus-function language in a claim is clearly permissible by reason of [§ 112, para. 6], a means clause does not cover every means for performing the specified function.” *Id.* at 1536.

Section 112, para. 6, according to the court, “rules out the possibility that any and every means which performs the function specified in the claim (*literally*) satisfies that limitation. While encompassing equivalents of those means disclosed in the specification, the provision, nevertheless, acts as a restriction on the literal satisfaction of a claim limitation.” *Id.* (quoting *Pennwalt Corp. v. Durand-Wayland, Inc.*, 833 F.2d 931, 934, 4 U.S.P.Q.2d (BNA) 1737, 1739 (Fed. Cir. 1987)).

by many practitioners, will not preclude applicability of § 112, para. 6.<sup>48</sup>

Moreover, Judge Nies noted that, in the present case, the structural description in the means-plus-function clause served to specify the function of the means clause, stating that “the recited structure tells only what the means-for-joining does, not what it is structurally.”<sup>49</sup> Concluding that the district court erred in failing to apply § 112, para. 6, Judge Nies held that § 112, para. 6 was not inapplicable merely because some means in the accused device performed the stated function.<sup>50</sup>

3. *Greenberg v. Ethicon Endo-Surgery, Inc.*<sup>51</sup> Again, the Federal Circuit considered, in *Greenberg v. Ethicon Endo-Surgery, Inc.*, whether the functional claim language *detent mechanism* triggered § 112, para. 6.<sup>52</sup> The patentee, Dr. Greenberg, brought an infringement action against Ethicon for allegedly infringing claim one of his patent no. 4,676,501 (hereinafter ‘501 patent’).<sup>53</sup> Claim one of the ‘501 patent was for a surgical instrument, and recited the following:

A surgical instrument comprising a pair of axially matable and relatively slidable shafts . . . , a pair of handle members pivotally attached to each other and arranged scissor-like for manipulation by one hand . . . ,

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<sup>48</sup> Janicke, *supra* note 15, at 186.

<sup>49</sup> The district court essentially disagreed with this argument and declined the invitation to apply § 112, para. 6. *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1536, 19 U.S.P.Q.2d (BNA) 1367, 1369 (Fed. Cir. 1991). The lower court held § 112, para. 6 to be inapplicable because the means plus function language of the claimed element included a recital of structure. *Id.* at 1535 (citing *Rexnord*, 15 U.S.P.Q.2d (BNA) at 1170). Thus, the court did not compare, as required by § 112, para. 6, the accused device with the structure disclosed in ‘949’s specification to determine equivalency. *Id.*

<sup>50</sup> See *id.* at 1536 (concluding that “[t]he district court, therefore, erred, as a matter of law, by not interpreting subparagraph 2 of claim 21 in accordance with [§ 112, para. 6] and in holding that this limitation was met merely because there was some means in the accused device that performed the stated function”).

The court also found that the doctrine of claim differentiation presents no barrier to reading a limitation from the specification into a means-plus-function claim. *Id.* This holds true even when the means-plus-function claim is an independent claim, and some other dependent claim discloses this limitation. *Id.*

<sup>51</sup> 91 F.3d 1580, 39 U.S.P.Q.2d (BNA) 1783 (Fed. Cir. 1996).

<sup>52</sup> *Id.*

<sup>53</sup> *Id.* at 1581.

and said one handle having a cooperating *detent mechanism defining the conjoint rotation of said shafts in predetermined intervals . . .*<sup>54</sup>

The lower court found the term *detent mechanism* in claim one equivalent to a means for performing the specified function, and consequently construed claim one under § 112, para. 6.<sup>55</sup>

After dismissing several factors on which the lower court had relied, the Federal Circuit, *per* Judge Bryson, held that because the *detent mechanism* set forth no means for performing the specified

<sup>54</sup> *Id.* at 1581-82 (emphasis changed). Claim one reads as follows:

A surgical instrument comprising a pair of axially matable and relatively slidable shafts each having at their distal ends cooperating working tools, a sleeve mounted adjacent the proximal end of said shafts, one of said shafts being fixedly attached to said sleeve for conjoint movement therewith, the other of said shafts extending freely through said sleeve and being exposed at its proximal end, a pair of handle members pivotally attached to each other and arranged scissor-like for manipulation by one hand, one of said handles being attached to said sleeve for conjoint axial movement and relative free rotary movement therewith, said sleeve and said one handle being arranged so that said sleeve is manipulatable by a finger of the same hand simultaneous with the manipulation of said handle, a radially enlarged wheel on said sleeve and said wheel and said one handle having a cooperating *detent mechanism defining the conjoint rotation of said shafts in predetermined intervals*, said other handle being universally attached to the exposed proximal end of said freely extending shaft, said shafts being caused to reciprocate relative to each other on manipulation of said handle members and to rotate about their common axis by manipulation of said sleeve, whereby said tools may be operated and moved into selected rotary positions relative to the axis of said shafts.

*Id.*

<sup>55</sup> *Id.* at 1582-84. Relying on several factors, the lower court concluded that, although the conventional preface “means for” usually used to invoke § 112, para. 6 was not used, the language employed here—“*detent mechanism defining the conjoint rotation of said shafts*”—was nevertheless subject to § 112, para. 6. *Id.* at 1583.

First, the district court reasoned that because claim one failed to describe a particular structure but rather described any structure that performed a detent function, “*detent mechanism*” invoked § 112, para. 6. *Id.*

Second, the district court looked to the dictionary meaning of detent, which is defined as “a device for positioning and holding one mechanical part in relation to another”. *Id.* This meaning was expressed in functional terms and was similar to the definition provided by Dr. Greenberg’s expert—“[a]ny device for positioning and holding one mechanical part in relation to another so that the device can be released by force applied to one of the parts”. *Id.*

Third, the court noted that because the invention’s summary “twice used ‘detent means’ when referring to the detent that defined the rotation of the shafts at predetermined intervals,” the term “*detent mechanism*” must be synonymous with “*detent means*.” *Id.*

function, it failed to trigger § 112, para. 6. Judge Bryson espoused several rationales for this finding. First, addressing the lower court's argument, he noted that a claim element defining a particular mechanism in functional terms (*detent mechanism*) does not necessarily convert the element into a means-plus-function element.<sup>56</sup> So long as the functional term is reasonably well understood in the art as referring to the mechanism's structure, § 112, para. 6 is not invoked.<sup>57</sup>

Second, Judge Bryson further commented on the drafter's intent to trigger § 112, para. 6. It is unclear, however, to what extent such intent influenced the court's decision. By implication, Judge Bryson concluded that claim one's drafter had no intent to trigger § 112, para. 6.<sup>58</sup> According to Judge Bryson:

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<sup>56</sup> *Id.* The court reasoned that many devices such as "filter," "brake," "clamp," "screwdriver" or "lock" take their names from the functions they perform. *Id.* Even in the present case, the court indicated that several of the devices at issue—i.e., "graspers," "cutters," "suture applicators"—were described by their functions. *Id.*

*Cf.* Janicke, *supra* note 15, at 192 (asserting that "courts must realize that many words commonly thought of as denoting 'structure' are really just as 'functional' as a means-for expression, and should be treated the same way in determining patent scope"). According to Professor Janicke, objects like adder circuits and screwdrivers are known and identified functionally. *Id.*

<sup>57</sup> *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1550, 1583, 39 U.S.P.Q.2d (BNA) 1783, 1786 (Fed. Cir. 1996). According to Judge Bryson, the term "detent" has a reasonably well understood meaning in the art. *Id.* He observed that, although defined in functional terms, dictionary definitions of "detent" make clear that it denotes a type of device generally understood in the mechanical arts. *Id.* (citing RANDOM HOUSE UNABRIDGED DICTIONARY 541 (2d ed. 1993) ("a mechanism that temporarily keeps one part in a certain position relative to that of another, and can be released by applying force to one of the parts.")). He further pointed out that although "detent" does not involve one definite structure, the same could be said for other structures such as "clamps" or "containers". *Id.* at 1583.

Contrary to the lower court's assertion, Judge Bryson stated that "detent mechanism" in the '501 patent is not synonymous with "detent means" simply because the patent replaced "detent mechanism" with "detent means" on two occasions in the invention's summary. *Id.* The court reasoned that "the drafter of the application that matured into the '501 patent appears to have been enamored of the word 'means,' as the word is used repeatedly in the summary of the invention." *Id.* at 1583-84. Judge Bryson further observed that the specification revealed that "detent mechanism" was a shorthand way of denoting important structural elements of the invention. *Id.* at 1584. He reasoned, "each of those elements is subsequently described in detail, without the use of the term 'means,' in the 'description of the invention' portion of the specification, and each is subsequently claimed, again without the use of the term 'means,' in claim 1 of the patent." *Id.*

<sup>58</sup> *Id.* at 1584. This issue was addressed because the district court cited *Interspiro* as being directly on point. *Id.* (citing *Interspiro USA Inc. v. Figgie Int'l, Inc.*, 815 F. Supp. 1488, 27 U.S.P.Q.2d (BNA) 1321 (D. Del. 1993), *aff'd*, 18 F.3d 927, 30 U.S.P.Q.2d (BNA) 1070 (Fed. Cir. 1994)). The claim element in *Interspiro* raised the issue of whether a presumption

The question then is whether, in the selection of claim language, the patentee must be taken to have exercised [the means-plus-function] option. . . . We do not mean to suggest that [§ 112, para. 6] is triggered only if the claim uses the word “means.” . . . Nonetheless, the use of the term “means” has come to be so closely associated with “means-plus-function” claiming that it is fair to say that the use of the term “means” (particularly as used in the phrase “means for”) generally invokes [§ 112, para. 6] and that the use of a different formulation generally does not.<sup>59</sup>

4. *York Products, Inc. v. Central Tractor Farm & Family Ctr.*<sup>60</sup> *York Products* implicated claim thirty-two, which, despite having used the word “means,” recited no function. The patentee, York Products, alleged that Central Tractor Farm & Family Center (Central Tractor) infringed claim thirty-two of its patent entitled “Vehicle Cargo Bed Liner.”<sup>61</sup> The patent claimed a liner with protective ridges that fit inside the cargo bed of a pickup truck, preventing goods from shifting and damaging the pickup’s body wall.<sup>62</sup>

After a finding of no infringement, the district court granted a motion for judgment as a matter of law in favor of Central Tractor, the alleged infringers.<sup>63</sup> On appeal, Judge Rader of the Federal

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attached to the word “means” used by the claim drafter. In *Interspiro*, the claim’s element at issue was: “detent means . . . for moving and maintaining [the] moveable member”. *Id.*

Judge Bryson disagreed that *Interspiro* was directly on point. *Id.* “While the language in the *Interspiro* case was in classic ‘means-plus-function’ format, the language in Dr. Greenberg’s patent was not.” *Id.* He then discussed the presumptions attached to use of the term “means” in a claim. *Id.*

<sup>59</sup> *Id.* at 1584.

<sup>60</sup> 99 F.3d 1568, 40 U.S.P.Q.2d (BNA) 1619 (Fed. Cir. 1996).

<sup>61</sup> *Id.* at 1570.

<sup>62</sup> *Id.* at 1569. The liner’s sidewall consists of protective ridges that align on opposite sides of the liner to create slots for inserting a wooden board that locks the load in place. This feature prevents the load from moving during transit. *Id.*

<sup>63</sup> *Id.* at 1571. The primary issue in *York Products* involved claim interpretation regarding claim 32, and whether the liner’s ridge members extended over most of the entire height of the sidewall portions. *Id.* at 1572. The district court construed claim 32 as requiring “the ridge member [to] extend from near the bottom of the sidewall to near the top of the sidewall.” *Id.* at 1574.



Circuit interpreted claim thirty-two to determine applicability of § 112, para. 6. Claim thirty-two recited the following:

A protective liner for a cargo bed of a vehicle, said protective liner allowing a structure positioned in the trunk cargo bed to be supported . . . [by] upwardly extending liner sidewall portions . . . and *means formed on the upwardly extending liner sidewall portions including a plurality of spaced apart, vertically extending ridge members protruding from the liner sidewall portions and forming load locks . . . having a depth sufficient to anchor a structure positioned . . . in the cargo bed.*<sup>64</sup>

Citing the *Greenberg* opinion, Judge Rader began by noting that use of the term *means* triggers a presumption that the inventor intended to invoke the statutory mandates for means-plus-function clauses.<sup>65</sup> Nonetheless, the Judge stated that mere incantation of the word *means* in a clause reciting predominant structure cannot

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<sup>64</sup> *Id.* at 1573-74 (emphasis added). Claim 32, unabridged, reads as follows:

A protective liner for a cargo bed of a vehicle, said protective liner allowing a structure positioned in the trunk cargo bed to be supported and affixed in position in the vehicle cargo bed, including: a liner floor portion having elevated portions formed thereupon to conform to wheel wells protruding from the cargo bed floor; upwardly extending liner sidewall portions extending upwardly from opposite sides of the liner floor portion an upwardly extending liner frontwall portion extending upwardly from a front end of the liner floor portion; and

*means formed on the upwardly extending liner sidewall portions including a plurality of spaced apart, vertically extending ridge members protruding from the liner side wall portions and forming load locks in gaps separating adjacent ones of the ridge members, said load locks having a depth sufficient to anchor a structure positioned and supported in the cargo bed.*

*Id.*

<sup>65</sup> *York Prods.*, 99 F.3d at 1574 (citing *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1584, 39 U.S.P.Q.2d (BNA) 1783, 1787 (Fed. Cir. 1996)). For a discussion of *Greenberg*, see *supra* Part II.E.3.

In addition, because claim 32 used certain means-plus-function language, the court had to determine the applicability of § 112, para. 6. See *York Prods.*, 99 F.3d at 1574 (stating that, in determining whether to apply the statutory procedures of § 112, para. 6, the use of the word "means" triggers a presumption that the inventor used the term to invoke the statutory mandates for means-plus-function clauses).

evoke § 112, para. 6.<sup>66</sup> Conversely, “[t]he recitation of some structure in a means-plus-function element does not preclude applicability of [§ 112, para. 6].”<sup>67</sup>

Applying these guidelines, Judge Rader found § 112, para. 6 inapplicable to claim thirty-two. According to him, the statutory mandate was inapplicable for two reasons. First, although claim thirty-two began with the word *means*, a detailed recitation of structure immediately followed. For instance, claim thirty-two not only makes express reference to *ridge members*, but also describes structural language about the gaps between ridge members and depth of load locks.<sup>68</sup>

Second, the claim language neither indicates function nor links *means* to a particular function. Rather, claim thirty-two, in language suggestive of structure, states that “‘means’ protrud[e]’ from the liner sidewall portions and form . . . load locks.”<sup>69</sup> In finding § 112, para. 6 inapplicable, Judge Rader opined that: “[w]ithout an identified function, the term ‘means’ . . . cannot invoke [§ 112, para. 6]. Without a ‘means’ sufficiently connected to a recited function, the presumption in use of the word *means* does not attach.”<sup>70</sup>

5. *Cole v. Kimberly-Clark Corp.*<sup>71</sup> Several months later, in *Cole v. Kimberly-Clark Corp.*, the Federal Circuit addressed whether “perforation means . . . for tearing,” as used within the patentee’s claim, was in means-plus-function format.<sup>72</sup> The patentee, Shelley K. Cole (Cole), sued Kimberly-Clark Corporation (K-C) for allegedly

<sup>66</sup> *Id.* (citing *AMP, Inc. v. Fujitsu Microelectronics, Inc.*, 853 F. Supp. 808, 820-21, 31 U.S.P.Q.2d (BNA) 1705, 1712 (D. Pa. 1994) (holding that despite use of the term “means,” claims were not means-plus-function)); *Waterloo Furniture Components, Ltd. v. Haworth, Inc.*, 798 F. Supp. 489, 494, 25 U.S.P.Q.2d (BNA) 1138, 1142 (N.D. Ill. 1992) (holding “that the use of the word ‘means’ in a claim does not as a matter of law refer to an element expressed in means-plus-function form”).

<sup>67</sup> *Id.* (quoting *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1536, 19 U.S.P.Q.2d (BNA) 1367, 1369 (Fed. Cir. 1991)).

<sup>68</sup> Claim 32 refers to ridge members that function as anchors for load locks. *Id.*

<sup>69</sup> *Id.* at 1574 (alterations in original).

<sup>70</sup> *York Prods.*, 99 F.3d at 1574.

<sup>71</sup> 102 F.3d 524, 41 U.S.P.Q.2d (BNA) 1001 (Fed. Cir. 1996).

<sup>72</sup> *Id.* at 526. See also *Unidynamics Corp. v. Automatic Prods. Ltd.*, 157 F.3d 1311, 48 U.S.P.Q.2d (BNA) 1099 (Fed. Cir. 1998) (examining whether “spring means tending to keep the door closed” falls within the ambit of § 112, para. 6); see *infra* note 128 and accompanying text (discussing *Cole v. Kimberly-Clark Corp.*).

infringing her patent pertaining to disposable training diapers for children. Among other features, the patent claimed a training diaper with easily torn sides, that is, perforations, so that a soiled diaper can be removed without pulling over the legs.<sup>73</sup> Cole's claim was as follows: "*Perforation means* extending from the leg band means to the waist band means through the outer impermeable layer means *for tearing* the outer impermeable layer means for removing the training brief in case of accident . . . ."<sup>74</sup>

Initially, the court articulated its guideline for invoking § 112, para. 6 by stating that "the alleged means-plus-function claim element must not recite a definite structure which performs the described function."<sup>75</sup> Following its articulation of this guideline, the court then noted that the conventional way for invoking § 112, para. 6 was not dispositive as to whether it was triggered.<sup>76</sup> According to the court, resort must be made to the patent and its prosecution history in determining whether § 112, para. 6 is triggered.<sup>77</sup>

Prior to examining the prosecution history of the patent-in-suit, the court analyzed the claim in question. First, the court observed that *perforation means* fails to satisfy the statute because it describes the structure supporting the tearing function.<sup>78</sup> Moreover, the court disapproved of not only the recital of a "structure that supports the tearing function but also its location [that is,] extending from the leg band to waist band) and [its] extent (extending through the outer impermeable layer)."<sup>79</sup>

Finally, the court stated that the word *means* following a structural phrase within a claim element does not diminish the

<sup>73</sup> *Id.* at 526-27.

<sup>74</sup> *Id.* (emphasis added).

<sup>75</sup> *Id.* at 531.

<sup>76</sup> *Id.* According to the court, patent drafters conventionally invoke § 112, para. 6 by using only the words "means for" followed by function. *Id.* Further, the court stated that:

Merely because a named element of a patent claim is followed by the word 'means,' however, does not automatically make that element a 'means-plus-function' element under [§ 112, para. 6]. The converse is also true; merely because an element does *not* include the word 'means' does not automatically prevent the element from being construed as a mean-plus-function element.

*Id.* (emphasis added).

<sup>77</sup> *Kimberly-Clark*, 102 F.3d at 531.

<sup>78</sup> *Id.*

<sup>79</sup> *Id.*

precise structural character of the claim.<sup>80</sup> In the present case, the drafter's addition of the word *means* after *perforation* did not magically transform the element into a means-plus-function claim.<sup>81</sup>

In examining the patent-in-suit's prosecution history, the court further concluded that *perforation means* is not a means-plus-function element.<sup>82</sup> Based on both prosecution history and on a finding that the alleged means-plus-function element recited definite structure that performed the described function, the Federal Circuit found § 112, para. 6 inapplicable.<sup>83</sup>

To the contrary, Judge Rader asserted in his dissent that use of the word *means* creates at least a "presumption in favor" of applying § 112, para. 6.<sup>84</sup> While acknowledging that a *perforation means* recites some structure, he disagreed that this fact was sufficient to negate the import of the word *means*.<sup>85</sup> Hence, Judge Rader would honor the presumption and interpret this claim under § 112, para. 6.<sup>86</sup> Because reasonable minds differ as to how much structure triggers § 112, para. 6, this issue remains undecided.<sup>87</sup>

<sup>80</sup> *Id.*

<sup>81</sup> *Id.*

<sup>82</sup> *Id.* at 532. The court also considered the effect of prosecution history on construction of "perforation means" in the claim in question. In the response to the first office action, Cole had distinguished prior art, stating that "the stitched seams can not be readily torn apart in the Roberts patent . . ." The stitched seams in Roberts are designed to be readily torn apart by 'grabbing the chain stitch and pulling same which disassociated edges 18 and 19.'" *Id.* at 531.

In addition, the court concluded that a "perforation means . . . for tearing" was equivalent to "perforations" after considering the dictionary meaning of "perforations." *Id.* Thus, the Federal Circuit believed that Cole surrendered stitched seams when she distinguished perforations from stitched seams. *Id.* at 532.

<sup>83</sup> *Kimberly-Clark*, 102 F.3d at 532.

<sup>84</sup> *Id.* at 533.

<sup>85</sup> *Id.* (citing *Laitram Corp. v. Rexnord, Inc.*, 939 F.2d 1533, 1536, 19 U.S.P.Q.2d (BNA) 1367, 1369 (Fed. Cir. 1991)).

<sup>86</sup> *Id.*

<sup>87</sup> *Hofmann & Heller, supra note 3*, at 239-40 (stating that "reasonable minds differ as to how much structural recitation will or will not trigger the application of the last paragraph").

## F. THE UNITED STATES PATENT AND TRADEMARK OFFICE GUIDELINES

In 1994, the Federal Circuit's decision in *In re Donaldson Co.*<sup>88</sup> ended a protracted battle between the United States Patent and Trademark Office (PTO) and the Federal Circuit over the application of § 112, para. 6.<sup>89</sup> Responding to *In re Donaldson*, the PTO promulgated guidelines for triggering § 112, para. 6.<sup>90</sup> To invoke § 112, para six's statutory mandate, the guidelines essentially require that claims set forth, at least in part, the function they perform, rather than a specific structure.<sup>91</sup> For instance, the following examples would suffice to invoke § 112, para. 6:

<sup>88</sup> 16 F.3d 1189, 29 U.S.P.Q.2d (BNA) 1845 (Fed. Cir. 1994) (en banc) (holding that during both prosecution and infringement, § 112, para. 6 covers only equivalent structures for accomplishing the disclosed function in a means-plus-function element).

<sup>89</sup> CHISUM, *supra* note 16, § 11.03, ¶ [1][c][v] & n.61 (citing Sam Silverberg, *The Patent and Trademark Office Clashes with the Federal Circuit Over Means Plus Function*, 74 J. PAT. & TRADEMARK OFF. SOC'Y 675 (1992) and Kenneth R. Adamo, *Do the Means Justify the End - A Matter of Bond, Bowles, The Office and 35 U.S.C. § 112, Paragraph 6*, 74 J. PAT. & TRADEMARK OFF. SOC'Y 566 (1992)).

Prior to *Donaldson*, the PTO had a long-standing practice of reading means-plus-function elements to cover every and all means for performing the element's function. *See Donaldson*, 16 F.3d at 1194 (expounding that "the fact that the PTO may have failed to adhere to a statutory mandate over an extended period of time does not justify its continuing to do so . . . [§ 112, para 6] facially covers every situation involving the interpretation of means-plus-function language, and the [PTO] Commissioner's attempts to create an ambiguity in [§ 112, para. 6] where none exists are to no avail").

<sup>90</sup> 1162 Off. Gaz. Pat. Office 59 (1994); Manual of Patent Examining Procedure (MPEP) § 2181 (West 1998).

<sup>91</sup> MPEP § 2181 sets forth the following guideline:

**LANGUAGE FALLING WITHIN 35 U.S.C. 112, SIXTH PARAGRAPH**

Although the use of the term "means," particularly "means for," generally invokes 35 U.S.C. [§ 112, para. 6.] and the use of a different formulation generally does not, there is no particular language that must appear in a claim in order for it to fall within the scope of [35 U.S.C. § 112, para. 6.] However, it must be clear that the element in the claim is set forth at least in part, by the function it performs as opposed to the specific structure, material, or acts that perform the function.

*Id.*

Further, the rules indicate that where it is unclear whether a claim falls within para. 6, a rejection under § 112, para. 2 may be appropriate. *Id.*

- (1) a jet driving device so constructed and located on the rotor as to drive the rotor . . . ,<sup>92</sup>
- (2) "printing means" and "means for printing" which would have the same connotations;<sup>93</sup>
- (3) force generating means adapted to provide . . . ;<sup>94</sup>
- (4) call cost register means, including a digital display for providing a substantially instantaneous display for . . . ;<sup>95</sup>
- (5) reducing the coefficient of friction of the resulting film . . . ,<sup>96</sup> and
- (6) raising the pH of the resultant pulp to about 5.0 to precipitate . . . .<sup>97</sup>

Consequently, PTO guidelines indicate that a claim's format controls whether § 112, para. 6 applies and irrespective of the drafter's intent. For instance, when a drafter utilizes functional language within a claim element without intent to invoke § 112, para. 6, the claim element will be construed as mean-plus-function clause.<sup>98</sup>

### III. FACTS: *O.I. CORP. V. TEKMAR CO.*<sup>99</sup>

The patentee, O.I. Corporation (O.I.) sued Tekmar Company (Tekmar) for infringing its patent concerning an apparatus and

<sup>92</sup> *Id.* (explaining that the word "means" is unnecessary) ("The term 'device' coupled with a function is a proper definition of structure in accordance with the last paragraph of § 112. The addition of the words 'jet driving' to the term 'device' merely renders the latter more definite and specific.") (citing *Ex parte Stanley*, 121 U.S.P.Q. (BNA) 621 (Bd. App. 1958)).

<sup>93</sup> *Id.* (stating that "the terms 'plate' and 'wing,' as modifiers for the structureless term 'means,' specify no function to be performed, and do not fall under the last paragraph of 35 U.S.C. [§] 112") (citing *Ex parte Klumb*, 159 U.S.P.Q. (BNA) 694 (Bd. App. 1967)).

<sup>94</sup> 1162 Off. Gaz. Pat. Office 59 (1994); Manual of Patent Examining Procedure (MPEP) § 2181 (West 1998) (citing *De Graffenreid v. United States*, 20 Ct. Cl. 458, 16 U.S.P.Q.2d (BNA) 1321 (Ct. Cl. 1990)).

<sup>95</sup> MPEP § 2181 (citing *Intellicall, Inc. v. Phonometrics, Inc.*, 952 F.2d 1384, 21 U.S.P.Q.2d (BNA) 1383 (Fed. Cir. 1992)).

<sup>96</sup> *Id.* (citing *Application of Roberts*, 470 F.2d 1399, 176 U.S.P.Q. (BNA) 313 (C.C.P.A. 1973)).

<sup>97</sup> *Id.* (citing *Ex parte Zimmerley*, 153 U.S.P.Q. (BNA) 367 (Bd. App. 1966)).

<sup>98</sup> Jeffrey N. Costakos & Walter E. Zimmerman, *Do Your Claims Mean What You Meant?*, 1 MARQ. INTELL. PROP. L. REV. 109, 114 (1997).

<sup>99</sup> 115 F.3d 1576, 42 U.S.P.Q.2d (BNA) 1777 (Fed. Cir. 1997).

method for removing water vapor from a gas sample (analyte slug).<sup>100</sup> Apparatus claim seventeen is representative of the claims at issue, and recites in pertinent part:

An apparatus for removing water vapor from an analyte slug passing between a sparge vessel, trap and analytical instrument, comprising:

(a) first *means for passing* the analyte slug through a *passage* heated to a first temperature higher than ambient, as the analyte slug passes from the sparge vessel to the trap; and

(b) second *means for passing* the analyte slug through the *passage* that is air cooled to a second temperature below said first temperature but not below ambient, as the analyte slug passes from the trap to the analytical instrument.<sup>101</sup>

O.I. alleged that Tekmar's devices were similar and that they infringed its patented *passage* recited in claim seventeen.<sup>102</sup> Although O.I.'s patent covers non-smooth-walled or non-cylindrical

<sup>100</sup> *Id.* Two patents, the '557 and '380 patents, were actually in suit, the '380 patent being a division of the '557 patent, and were for apparatus and method claims, respectively. For purposes of this Article, the apparatus claims are relevant. *Id.*

The apparatus removes water vapor from a sample gas that will be analyzed in a gas chromatograph. The sample gas is passed into a sparge where an inert gas stream purges both contaminant and gas vapor as it flows through. The combination stream of contaminant, water, and gas referred to as "analyte slug" then advances to a trap via a temperature-controlled passage in a water management device. *Id.*

The trap is heated and a gas stream flows through it in the opposite direction, desorbing the concentrated contaminants. *Id.* Subsequently, the stream flows back to a gas chromatograph via the temperature-controlled passage, this time at a lower temperature. Once the gas reaches the chromatograph, measurements of the contaminants are carried out. *Id.*

<sup>101</sup> *Id.* at 1579 (emphasis added). Method claim nine was also at issue and disclosed:

A method for removing water vapor from an analyte slug passing between a sparge vessel, trap and gas chromatograph, comprising the steps of:

(a) passing the analyte slug through a passage heated to a first temperature higher than ambient, as the analyte slug passes from the sparge vessel to the trap; and

(b) passing the analyte slug through the passage that is air cooled to a second temperature below said first temperature but not below ambient, as the analyte slug passes from the trap to the gas chromatograph.

*Id.*

<sup>102</sup> *Id.* at 1580. Similar allegations were made regarding claim nine.

tubing as *passages* for passing analyte slugs from a sparge vessel to a trap, Tekmar's patent utilizes smooth-walled and cylindrical tubing structures.<sup>103</sup>

The District Court of the Southern District of Texas, construing claim seventeen, granted Tekmar's motion for summary judgment of non-infringement.<sup>104</sup> In particular, the court read the term *passage* within claim seventeen's means-plus-function clause.<sup>105</sup> Consequently, the term *passage* was limited to those structures disclosed in O.I.'s specification or their equivalents thereof as mandated under the statute.<sup>106</sup> Because Tekmar's smooth or cylindrical passage structure was not the equivalent of structures disclosed in O.I.'s specification, and since O.I. had specifically excluded smooth or cylindrical structures, the court found no infringement.<sup>107</sup>

#### IV. NARRATIVE ANALYSIS

On appeal, the Federal Circuit, *per* Judge Lourie, reversed the district court's holding.<sup>108</sup> As a preliminary matter, Judge Lourie, citing both *Greenberg* and *Kimberly-Clark*, noted § 112, para. 6 was applicable to claim seventeen's means-plus-function clauses, since both clauses recited "means for passing" an analyte slug, without disclosing definite structure for accomplishing the means.<sup>109</sup> He

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<sup>103</sup> *Id.*

<sup>104</sup> *Tekmar*, 115 F.3d at 1580.

<sup>105</sup> *Id.*

<sup>106</sup> *Id.*

<sup>107</sup> *Id.* The court observed that "the patented 'passage' specifically excludes non-smooth and noncylindrical devices from the host of structures it references, whereas the corresponding component of the accused device is structurally smooth and cylindrical." *Id.*

<sup>108</sup> *Id.* O.I. argued that "passage" was not part of the means recited in claim 17's means-plus-function language and should neither be construed under, nor limited under § 112, para. 6. *Id.* To the contrary, Tekmar asserts that "passage" in claim 17 is required for passing the analyte slug and is therefore part of the means-plus-function clause. Moreover, Tekmar argues that that "passage" excludes smooth-walled tubing. *Id.* Tekmar further refers to the written description, which states that prior art tubing is generally smooth-walled and discloses non-smooth-walled tubing for swirling the analyte slug. *Id.*

<sup>109</sup> *Id.* (citing *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 531, 41 U.S.P.Q.2d (BNA) 1001, 1006 (Fed. Cir. 1996) (stating that "to invoke [§ 112, para.] 6, a means-plus-function limitation must not recite definite structure for performing the described function") and *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1584, 39 U.S.P.Q.2d (BNA) 1783, 1787 (Fed. Cir. 1996) (stating that "use of the phrase 'means for' generally invokes [§ 112,



nevertheless found the statutory provision inapplicable to *passage* because it was not part of claim seventeen's means-plus-function clause.<sup>110</sup> In so holding, Judge Lourie initially scrutinized claim seventeen's recited function, namely: "passing the analyte slug through a *passage*."<sup>111</sup> He observed the absence of structure for carrying out the passing function, that is, claim seventeen recites no structure for passing the analyte slug through the water management device.<sup>112</sup>

Next, Judge Lourie addressed whether *passage* was a means for carrying out this function. According to Judge Lourie, *passage* accomplishes no passing function but rather channels the analyte slug during passing.<sup>113</sup> He further observed that, " 'passage' is the place where the function occurs not the structure that accomplishes it."<sup>114</sup>

In addition, Judge Lourie pointed out that although the specification disclosed no structure for performing the function, it did indicate the structure's location.<sup>115</sup> Notwithstanding the applicability of § 112, para. 6 to claim seventeen's means-plus-function clause, Judge Lourie concluded the statutory provision was inapplicable to the word *passage* in claim seventeen because *passage* was not "a part of the recited 'means . . . for performing a specified function.'"<sup>116</sup>

## V. CRITICAL ANALYSIS

While commentators have criticized the Federal Circuit for its discordant opinions regarding when § 112, para. 6 is triggered,<sup>117</sup>

para.] 6").

For a discussion of *Kimberly-Clark*, see *supra* Part II.E.5.

For a further discussion of *Greenberg*, see *supra* Part II.E.3.

<sup>110</sup> *Tekmar*, 115 F.3d at 1581.

<sup>111</sup> *Id.* The analyte slug consists of gas, contaminants and water vapor. *Id.*

<sup>112</sup> *Id.*

<sup>113</sup> *Id.*

<sup>114</sup> *Id.*

<sup>115</sup> *Id.* The court observed that the water management device is between the trap and sparge vessel, and that the device is apparently known to those skilled in the art. *Id.*

<sup>116</sup> *Tekmar*, 115 F.3d at 1581.

<sup>117</sup> Jeffrey R. Kuester & Daniel J. Santos, *What Does "Means" Mean?* (visited Feb. 6, 1998) <<http://www.tkhr.com/articles/mnsmean.html>> (maintaining that "the various manners in which [the question of whether [§ 112, para. 6] is invoked] has been addressed and the failures in some cases to distinguish prior decisions have created quagmires of uncertainties

the court in *Tekmar* nonetheless remained consistent with its precedents. Moreover, it correctly decided the case.<sup>118</sup> *Tekmar* is concordant with the proposition that use of the term *means* triggers a presumption that the inventor used this term to invoke § 112, para. 6.<sup>119</sup> In other words, use of the term *means* for generally reflects the drafter's intent to invoke § 112, para. 6, while use of a different formulation does not.<sup>120</sup> Thus, claim seventeen in *Tekmar*, having utilized *means for* in the phrase "means for passing the analyte slug through a passage" became entitled to this presumption.<sup>121</sup>

In addition, this presumption is reconcilable with the court's statement in *Kimberly-Clark* that "[m]erely because a named element of a patent claim is followed by the word 'means' . . . , does not automatically make that element a 'means-plus-function' element under [§ 112, para. 6]."<sup>122</sup> The means-plus-function presumption is rebuttable whenever the term *means* is used.<sup>123</sup> On the other hand, *Kimberly-Clark* prevents finding a claim as means-plus-function merely because the word *means* is utilized. The court's statement in *Kimberly-Clark* does not preclude the presumption from attaching, but does prevent a finding of means-plus-function format absent an examination of whether the claim recites structure or function.<sup>124</sup>

*Tekmar* also remains consistent with the holding that § 112,

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in the areas of claim drafting and claim interpretation"); Hofmann & Heller, *supra* note 3, at 239 (stating that courts have provided "a lack of clear guidance as to what constitutes a means-plus-function limitation to trigger application of the last paragraph").

<sup>118</sup> See *supra* Parts III and IV (analyzing *Tekmar*).

<sup>119</sup> See Kuester & Santos, *supra* note 117, at 6 (concluding that "since the [Tekmar claim] referred to 'means for passing', . . . this language invoked [§ 112, para. 6]").

<sup>120</sup> See *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1584, 39 U.S.P.Q.2d (BNA) 1783, 1786 (Fed. Cir. 1996) (using non-conventional "means-plus-function" language in combination with no other element being in "means-plus-function" form and no other evidence reflecting intent to claim in that fashion results in a failure to invoke § 112, para. 6).

<sup>121</sup> Kuester & Santos, *supra* note 117, at 6. For a discussion of *Tekmar*, see *supra* Parts III and IV.

<sup>122</sup> *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 531, 41 U.S.P.Q.2d (BNA) 1001, 1006 (Fed. Cir. 1996).

<sup>123</sup> Kuester & Santos, *supra* note 117 (recognizing that under *York*, the *Greenberg* presumption can be rebutted).

<sup>124</sup> See *Kimberly-Clark*, 102 F.3d at 531 (determining whether § 112, para. 6 was triggered by examining, among other factors, the patent-in-suit's prosecution history).

para. 6 applies, provided that the means-plus-function element recites no structure for performing the disclosed function. Since claim seventeen in *Tekmar* discloses no structure performing the passing function, § 112, para. 6 is applicable.<sup>125</sup> Moreover, the word *passage* provides no structure for accomplishing the recited function because *passage* does not prompt the passing function.<sup>126</sup> *Tekmar* is particularly important in this respect because it requires that for recited structure (for example, *passage*) to preclude application of § 112, para. 6, it must describe or relate to the means responsible for carrying out the disclosed function.<sup>127</sup> The Federal Circuit, however, has left two issues unresolved. First, it is unclear what degree of structure is sufficiently definite to preclude application of § 112, para. 6.<sup>128</sup> Second, it is unclear how significant the drafter's intent is in determining whether § 112, para. 6 is applicable.<sup>129</sup>

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<sup>125</sup> See Kuester & Santos, *supra* note 117 (noting that in the *Tekmar* claim, "no structure was given for the means").

<sup>126</sup> *O.I. Corp. v. Tekmar Co.*, 115 F.3d 1576, 1580-81, 42 U.S.P.Q.2d (BNA) 1777, 1780 (Fed. Cir. 1997) (commenting that while "the passage may act upon the slug by channeling it while it is passed, it is not the means that causes the passing").

<sup>127</sup> *Id.*

<sup>128</sup> See ROBERT C. FABER, *LANDIS ON MECHANICS OF PATENT CLAIM DRAFTING* § 34, III-60 (4th ed. 1998) (citing *Kimberly-Clark* for finding that "perforation means" was not under § 112, para. 6 because "it recited a definite structure"). Cf. *Kimberly-Clark*, 102 F.3d at 533 (Rader, J., dissenting) (arguing that the word "perforation" provides insufficient structure "to negate the import of the very next word 'means'"). But see Hofmann & Heller, *supra* note 3, at 239 (maintaining that the Federal Circuit in *Kimberly-Clark* resolved the question of whether § 112, para. 6 applies to means-plus-function claims when the claim's statement of function recites some structure).

In September 1998, the Federal Circuit examined the interrelationship between the recitation of structure and the recitation of the word "means" within a patent claim. In *Unidynamics*, the court held that the claim language "spring means tending to keep the door closed" was a means-plus-function expression within the purview of § 112, para. 6. *Unidynamics Corp. v. Automatic Prods. Ltd.*, 157 F.3d 1311, 1319, 48 U.S.P.Q.2d (BNA) 1099, 1101 (Fed. Cir. 1998).

The claim at issue was directed to a vending machine door, specifically, to "a means tending to keep the door closed." The lower court held that this language was insufficient to invoke § 112, para. 6 because the structural word "spring" was recited. The Federal Circuit disagreed. According to the court, the claim drafter had intended to invoke § 112, para. 6 in utilizing the word "means." Although the claim language employed the structural term "spring," the intent to invoke § 112, para. 6 remained unaffected. *Id.* at 1319.

<sup>129</sup> See Hofmann & Heller, *supra* note 3, at n.43 (maintaining that the *Greenberg* court "muddled the analysis" by examining "whether the patentee intended to claim in means-plus-function format").

## VI. IMPACT

Because the Federal Circuit recently began narrowing the scope of means-plus-function claims, practitioners will become more cautious regarding the use of such claims.<sup>130</sup> While the Federal Circuit's opinions within this sphere have been fairly consistent, some discrepancies remain.<sup>131</sup> *Tekmar* provides additional guidance for both litigators and patent drafters on avoiding pitfalls related to means-plus-function claims.<sup>132</sup>

As a general rule, claim wording should be kept to a minimum. More specifically, when drafting broad generic claims, the following should prevent such claims from being misconstrued as means-plus-function claims: (1) Avoiding use of functional terms in claim elements, however, when functional terms, particularly those defining mechanisms, must be used, the functional terms should be well-known in the art,<sup>133</sup> and (2) avoiding use of the word *means*, particularly when utilized in the clause *means for*.<sup>134</sup>

To demonstrate intent to invoke § 112, para. 6, one suggestion involves drafting two sets of claims, one clearly using means-plus-function format and the other utilizing a regular claim format.<sup>135</sup> This will demonstrate both an intent to invoke, and preclude applicability of § 112, para. 6, respectively.<sup>136</sup> This approach is best where clients are willing to expend funds necessary to draft additional claims and no flat fees are involved, since drafting

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<sup>130</sup> Kuester & Santos, *supra* note 117 (advocating that patent practitioners use "extreme caution" when drafting means-plus-function claims).

<sup>131</sup> *See id.* (maintaining that "York follows the holding in *Greenberg* but that it appears that the holding in *Cole* is not consistent with the holding in *York*").

<sup>132</sup> *See supra* note 126 and accompanying text (discussing how application of § 112, para. 6 may be precluded). For a narrative analysis of *Tekmar*, see *supra* Part IV.

<sup>133</sup> *See Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583-84, 39 U.S.P.Q.2d (BNA) 1783, 1788 (Fed. Cir. 1996) (describing use of non-conventional "means-plus-function" language).

<sup>134</sup> *See FABER, supra* note 128, § 34, at III-62 (asserting that "[t]he presence of the word 'means' triggers a presumption that the inventor meant to invoke § 112, [para.] 6").

<sup>135</sup> Kuester & Santos, *supra* note 117 (suggesting that "[i]t is probably wise to draft a set of claims which clearly do not use the means-plus-function format and a set of claims which do use the means-plus-function format").

<sup>136</sup> Although it remains unclear how important intent is, it is probably one factor considered in determining applicability of § 112, para. 6. *See* Kuester & Santos, *supra* note 117 (maintaining *Greenberg* illustrates "evidence of such intent is very relevant in determining whether [§ 112, para. 6] has been triggered").

additional claims necessarily involves more time.<sup>137</sup>

Other than drafting two sets of claims, the following should invoke § 112, para. 6: (1) claim drafters should recite the traditional *means for* clause immediately followed by function<sup>138</sup> because “[o]ther words lead to ambiguity and the need for a court to decide;”<sup>139</sup> (2) drafters should either avoid using modifiers before the term *means* or ensure that such modifiers are functional;<sup>140</sup> (3) drafters should reflect intent to invoke § 112, para. 6 throughout prosecution;<sup>141</sup> and (4) most importantly, claim elements should always recite little or no structure unless they are clearly functional.<sup>142</sup> In this regard, claim drafters typically follow means-plus-function language with the term *comprising*, which may recite a structural nature of the undisclosed means. Care should be taken to avoid such recitations of structure.<sup>143</sup>

With these few rules, claim drafters may ensure their claims are construed as originally intended, either within or beyond the statutory provisions of § 112, para. 6.

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<sup>137</sup> Additional filing fees will inevitably also be involved. See Patent, Trademarks, and Copyright, 37 C.F.R. § 1.16(b)-(d) (1998) (listing fees for filing multiple claims). Filing fees depend on both the nature and number of claims involved. Based on the author's personal experience, some clients are unwilling to pay for costs required to file additional claims.

<sup>138</sup> See FABER, *supra* note 128, § 34, at III-61 (stating that “[t]o be sure you are under § 112, [para. 6], use the pure ‘means for’ ”).

<sup>139</sup> *Id.* However, using only the words “means for” is not dispositive. According to the *Kimberly-Clark* court, the patent and its prosecution history should be considered. *Cole v. Kimberly-Clark Corp.*, 102 F.3d 524, 531, 41 U.S.P.Q.2d (BNA) 1001, 1006 (Fed. Cir. 1996).

<sup>140</sup> See Kuester & Santos, *supra* note 117 (suggesting that “structural adjectives should never be placed in front of the word ‘means’ ”).

<sup>141</sup> See *Kimberly-Clark*, 102 F.3d at 531-32 (evaluating the patent-in-suit's prosecution history to determine whether § 112, para. 6 was triggered).

<sup>142</sup> *Id.* at 530-31 (finding claim element was not means-plus-function because the claim defined structure (“perforation means”) for tearing).

<sup>143</sup> See *id.* at 531 (stating that “[a]n element with such a detailed recitation of its structure as opposed to its function cannot meet the requirements of the statute”). For a discussion of *Kimberly-Clark*, see *supra* Part II.E.5. See also *York Prods., Inc. v. Central Tractor Farm & Family Ctr.*, 99 F.3d 1568, 1574, 40 U.S.P.Q.2d (BNA) 1619, 1623-24 (Fed. Cir. 1996) (defining structural elements for load locks). For a discussion of *York Products*, see *supra* Part II.E.4.