

## TRAINING EXAMPLES

### *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. § 112 and for Treatment of Related Issues in Patent Applications, 76 FR 7,162 (Feb. 9, 2011)*

<b>I. EXAMPLES OF DEFINITE AND INDEFINITE CLAIM LANGUAGE UNDER 35 U.S.C. § 112, ¶2</b>	<b>1</b>
A. Functional claim language	1
B. Relative terminology ( <i>e.g.</i> , terms of degree, subjective terms)	3
C. Numerical ranges and amounts	10
D. Antecedent basis	11
E. Terms of art	11
F. Breadth is not indefiniteness	12
G. Correspondence between specification and claims	13
<b>II. EXAMPLES OF CLAIM TERMS OTHER THAN “MEANS FOR” THAT MAY INVOKE 35 U.S.C. § 112, ¶ 6</b>	<b>13</b>
A. “Mechanism”	13
B. “Member”	16
C. “Element”	18
D. “Circuit”/”Circuitry”	19
E. “Detector”	20
F. “Assembly”	21
<b>III. EXAMPLES OF CLAIM LIMITATIONS THAT INVOKE 35 U.S.C. § 112, ¶¶ 6 EVALUATED FOR COMPLIANCE WITH 35 U.S.C. § 112, ¶¶ 2</b>	<b>21</b>
A. Examples illustrating when an indefiniteness rejection is appropriate	22
B. Examples illustrating when an indefiniteness rejection is <u>not</u> appropriate	27
<b>IV. EXAMPLES OF RELATED ISSUES UNDER 35 U.S.C. § 112, ¶1</b>	<b>33</b>
A. Lack of written description support for broad claim limitations	33
B. Lack of enablement for full scope of broad claim	37
C. Written description support for claims covering only one of several problems disclosed or covering only one of several solutions disclosed for the same problem	39
D. “Single means”-type claims	41

## I. EXAMPLES OF DEFINITE AND INDEFINITE CLAIM LANGUAGE UNDER 35 U.S.C. § 112, ¶2

The following examples are provided to support the concepts set forth in the *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 Fed. Reg. 7,162 (Feb. 9, 2011) (the 2011 Supplementary Guidelines). The examples are drawn from case law and, together with the 2011 Supplementary Guidelines, supplement the guidance provided in the MPEP on specific topics related to issues under 35 U.S.C. § 112, ¶2 (§ 112, ¶2) and highlight some of the areas in which questions of definiteness commonly arise: functional claim language, terms of degree, subjective terms, the mixed claiming of an apparatus and method within a single claim, numerical ranges and amounts, antecedent basis, terms of art, broad claims, and correspondence between specification and claims.

### A. Functional claim language

#### 1. *United Carbon Co. v. Binney & Smith Co.*, 317 U.S. 228, 55 USPQ 381 (1942)

*Representative Claim (U.S. Patent No. 1,889,429):*

1. Substantially pure carbon black in the form of commercially uniform, comparatively small, rounded, smooth aggregates having a **spongy or porous** interior.

*Background:* The particles of carbon black in its original form are extremely fine and dispersible, causing clouds of dust when handled. One use for carbon black is as a binder in automobile tires. The claimed invention relates to carbon black in aggregated form to address the problem of carbon-black dust. The assignee of the patent asserted that the “product consists of carbon black aggregates formed without the use of any binder, sufficiently hard and flowable to prevent the formation of dust, yet sufficiently friable and dispersible for use as a component in the manufacture of rubber and other products.”

*Analysis/Conclusion:* The Court analyzed the terms “spongy” and “porous” as functional terms and determined that they are synonymous relating “to the density and gas content of aggregates of carbon black.” The Court also determined that “substantially pure” refers “to freedom from binders,” “‘commercially uniform’ means only the degree of uniformity demanded by buyers,” and “‘comparatively small’ is not shown to add anything to the claims, for nowhere are we advised what standard is intended for comparisons.” The Court stated that “[s]o read, the claims are but inaccurate suggestions of the functions of the product....” The Court explained that while the sponginess or porosity contributes to the friability (*i.e.*, dispersibility into dust) of aggregates of carbon black, “[t]he correct degree of friability can be ascertained only by testing the performance of the product in actual processes of manufacture of products of which carbon black is a component.” The Court stated, “The statutory requirement of particularity and distinctness in claims is met only when they clearly distinguish what is claimed from what went before in the art and clearly circumscribe what is foreclosed from future enterprise. ... An invention must be capable of accurate definition, and it must be accurately defined, to be patentable.” Accordingly, the Court found the claims indefinite.

See MPEP 2173.05(g).

## 2. *In re Swinehart*, 439 F.2d 210, 169 USPQ 226 (CCPA 1971)

*Representative Claim (U.S. Application Serial No. 314,952, filed October 9, 1963):*

24. A new composition of matter, ***transparent to infrared rays*** and resistant to thermal shock, the same being a solidified melt of two components present in proportion approximately eutectic, one of said components being BaF<sub>2</sub> and the other being CaF<sub>2</sub>.

*Analysis/Conclusion:* The court found the functional claim language “transparent to infrared rays” not indefinite under § 112, ¶2. The court determined that the record established that prior art compositions were substantially opaque to infrared rays and that applicants produced a composition which is substantially transparent to such rays. The court also determined that “the figures reproduced in the specification indicate that the degree of transparency varies depending on such factors as the conditions employed in producing the crystal, the thickness of the crystal and the particular wave length of the radiation transmitted,” but that “in all cases a substantial amount of infrared radiation is transmitted.” Thus, the court did not read the disclosure as suggesting that the claim covered only certain degrees of transparency and determined that the limits of the claim when read in light of that disclosure were sufficiently clear.

See MPEP 2173.05(g).

## 3. *Halliburton Energy Services, Inc., v. M-I LLC*, 514 F.3d 1244, 85 USPQ2d 1654 (Fed. Cir. 2008)

*Representative Claim (U.S. Patent No. 6,887,832):*

1. A method for conducting a drilling operation in a subterranean formation using a ***fragile gel*** drilling fluid comprising:

- (a) an invert emulsion base;
- (b) one or more thinners;
- (c) one or more emulsifiers; and
- (d) one or more weighting agents, wherein said operation includes running casing in a borehole.

*Analysis/Conclusion:* Although the term “fragile gel” appears only in the preamble, the claimed drilling fluid was interpreted as being limited to a “fragile gel” because during prosecution the claims were distinguished from prior art fluids by stating, for example, that the claims were “limited to” a “fragile gel” drilling fluid. Two functional definitions were proposed for the term “fragile gel”: (1) the ability of the fluid to transition quickly from gel to liquid, and (2) the ability of the fluid to suspend drill cuttings at rest (*i.e.*, the fluid is being defined “by what it does rather than what it is”). The court held that the term “fragile gel” is not sufficiently definite if construed in accordance with the first definition because a person of ordinary skill in the art could not determine how quickly the gel must transition to a liquid when force is applied and how quickly it must return to a gel when the force is removed, and is not sufficiently definite if construed in accordance with the second definition because nothing in the record suggests what degree of such capability is sufficient. Thus, the court held that the term “fragile gel” is indefinite under § 112, ¶2 because it is ambiguous as to the requisite degree of the fragileness of the gel, the ability of the gel to suspend drill cuttings (*i.e.*, gel strength), and/or some combination of the two.

See MPEP 2173.05(g).

**B. Relative terminology (e.g., terms of degree, subjective terms)**

**1. *In re Marosi*, 710 F.2d 799, 218 USPQ 289 (Fed. Cir. 1983)**

*Representative Claim (U.S. Application Serial No. 45,175, filed June 4, 1979):*

18. A process for the manufacture of a nitrogen-containing crystalline metal silicate having a zeolite structure which comprises:

adding a metal oxide, metal hydroxide, metal sulfate, metal nitrate or hydrated metal oxide and a silicon dioxide source that is essentially free of alkali metal to a 5 to 90% strength aqueous solution of hexamethylenediamine to form a mixture that is essentially free of alkali metal;

stirring the mixture to form a homogeneous gel; and thereafter heating the gel to form the crystalline metal silicate; wherein said metal is selected from the group consisting of aluminum, boron, arsenic, antimony, vanadium, iron and chromium, and

whereby said crystalline metal silicate is essentially free of alkali metal.

*Background:* The claimed invention pertains to the synthesis of zeolites without alkali metal in the reaction mixture. The parties agreed that “the prior art syntheses of zeolitic compounds required, as an essential ingredient, alkali metal compounds,” yet, at the same time, “that there are minute but, nevertheless, measurable quantities of alkali metal (however undesired) in the reagents utilized in [the claimed] synthesis.”

*Analysis/Conclusion:* The court found the claim language “essentially free of alkali metal” not indefinite under § 112, ¶2. The court determined that the disclosure “provided a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine whether a process uses a silicon dioxide source ‘essentially free of alkali metal’ to make a reaction mixture ‘essentially free of alkali metal’ to produce a zeolitic compound ‘essentially free of alkali metal.’” The court was “persuaded that such a person would draw the line between unavoidable impurities in starting materials and essential ingredients.”

See MPEP 2173.05(b).

**2. *Seattle Box Co., Inc. v. Indus. Crating & Packing, Inc.*, 731 F.2d 818, 221 USPQ 568 (Fed. Cir. 1984)**

*Representative Claim (U.S. Patent No. Re. 30,373):*

1. A shipping bundle formed of a plurality of lengths of pipe of a common size, comprising:

a base formed of a first plurality of transverse sleepers located in spaced-apart parallel arrangement;

a tier of pipe lengths resting on said base, adjacent pipe lengths of said tier being separated by blocks in transverse series, each block having opposed concavities substantially embracing the curved sides of said adjacent pipe lengths;

each of said series of blocks being located to stand on one of said sleepers and being of a height substantially equal to or greater than the thickness of the tier of pipe lengths;

a second plurality of sleepers, each traversing said pipe tier in overlying alignment with a sleeper of said first plurality, the sleepers of said second plurality being supported on the series of separating blocks; and

a bundling strap tightly encircling each sleeper of said first plurality, the separating blocks resting thereon, and the respective overlying sleeper.

*Background:* The claimed invention relates to packaging oil pipes, where a tier of pipes are placed across parallel wooden “sleeper” beams, and wooden spacer blocks ensure that adjacent pipes remain separated. To prevent the weight of the upper pipes from crushing the lower pipes, the spacer blocks are made with a height at least equal to the pipe’s diameter such that they absorb most of the weight of the overhead load.

*Analysis/Conclusion:* The court found the claim language “substantially equal to” not indefinite under § 112, ¶2. The court stated, “Definiteness problems often arise when words of degree are used in a claim. That some claim language may not be precise, however, does not automatically render a claim invalid. When a word of degree is used the district court must determine whether the patent’s specification provides some standard for measuring that degree.” In this case, the trial court found that an expert would know the limitations of the claims because the specification clearly sets forth, for example, that the divider blocks are intended to absorb the weight of overhead loads.

See MPEP 2173.05(b).

### **3. *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1 USPQ2d 1081 (Fed. Cir. 1986)**

*Representative Claim (U.S. Patent No. Re. 30,867):*

1. In a wheel chair having a seat portion, a front leg portion, and a rear wheel assembly, the improvement wherein said front leg portion is so dimensioned as to be insertable through the space between the doorframe of an automobile and one of the seats thereof whereby said front leg is placed in support relation to the automobile and will support the seat portion from the automobile in the course of subsequent movement of the wheel chair into the automobile, and the retractor means for assisting the attendant in retracting said rear wheel assembly upwardly independently of any change in the position of the front leg portion with respect to the seat portion while the front leg portion is supported on the automobile and to a position which clears the space beneath the rear end of the chair and permits the chair seat portion and retracted rear wheel assembly to be swung over and set upon said automobile seat.

*Analysis/Conclusion:* The court found the claim language “so dimensioned” not indefinite under § 112, ¶2. The court stated while “[i]t is undisputed that the claims require that one desiring to build and use a travel chair must measure the space between the selected automobile’s doorframe and its seat and then dimension the front legs of the travel chair so they will fit in that particular space in that particular automobile,” witnesses skilled in the art testified “that one of ordinary skill in the art would easily have been able to determine the appropriate dimensions.” The court explained “[t]he phrase ‘so dimensioned’ is as accurate as the subject matter permits, automobiles being of various sizes” and that compliance with the definiteness requirement “does not require that all possible lengths corresponding to the spaces in hundreds of different automobiles be listed” so long as “those of ordinary skill in the art realized that the dimensions could be easily obtained.”

See MPEP 2173.05(b).

**4. Exxon Research and Eng'g Co. v. United States, 265 F.3d 1371, 60 USPQ2D 1272 (Fed. Cir. 2001)**

*Representative Claim (U.S. Patent No. 5,348,982 (“the ’892 patent”)):*

1. A method for optimally operating a large diameter three phase (gas, liquid, solid) slurry bubble column having a diameter greater than 15 cm for Fischer-Tropsch synthesis over a supported cobalt catalyst in which solid particles are fluidized in the liquid phase by bubbles of the gas phase, comprising:

(a) injecting the gas phase into said column at an average gas velocity along said column,  $U_g > 2$  cm/sec, such that the flow regime is in the **substantial absence of slug flow**;

(b) fluidizing the solid supported cobalt catalyst particles of average diameter,  $d_p > 5 \mu\text{m}$ , to the height,  $H > 3\text{m}$ , of the expanded liquid in the column by operating with a catalyst settling velocity,  $U_s$ , and dispersion coefficient,  $D$ , such that

$$0.5 (U_s - U_L) \leq \frac{D}{H}, \text{ where } H > 3 \text{ m}$$

where

$$U_s = \frac{1}{18} d_p^2 \frac{\rho_s - \rho_l}{\mu} g f(C_p), \text{ where } d_p > 5 \mu\text{m}$$

and

(c) maintaining plug flow in said column by operating with a gas phase velocity,  $U_g$ , expanded liquid height,  $H$ , and dispersion coefficient,  $D$ , such that

$$U_g \geq 0.2D/H, \text{ where } H > 3\text{m}, U_g > 2 \text{ cm/sec}$$

wherein

$\rho_s$  = effective density of the particles

$\rho_l$  = density of the liquid

$\mu$  = viscosity of the liquid

$f(C_p)$  = hindered settling function

= volume fraction of solids in the slurry (liquid plus solids)

$U_L$  = liquid velocity along the column

$H$  = height of the expanded liquid in said reactor

$g$  = gravitational constant

$d_p$  = diameter of particles

$m$  = meters.

*Background:* The court explained that “[a] slug is a large gas bubble that forms in a slurry bubble column reactor and extends across the full width of the column” and that “[i]t is understood in the art that slugs may adversely affect reactor performance and efficiency.”

*Analysis/Conclusion:* The court found the claim language “substantial absence of slug flow” not indefinite under § 112, ¶2. The court analyzed the claim language as a term of degree and looked to the patent’s specification to determine whether it provides some standard for measuring that degree.

Specifically, the court found that: “The ’892 patent specification teaches that slug flow should be avoided because it may interfere with reactor operations. It is for that reason that the claims require a substantial absence of slug flow, or substantially zero slug flow. One of skill in the art would understand from the specification that the reason slug flow should be avoided is that it may interfere with reactor efficiency. Whether there is a ‘substantial absence of slug flow’ therefore can be determined with reference to whether reactor efficiency is materially affected. If there is no slug flow or such minimal slug flow that the slug flow has no appreciable impact on reactor efficiency, then there is a ‘substantial absence of slug flow’ within the meaning of the claims. In this setting, as in others, mathematical precision is not required—only a reasonable degree of particularity and definiteness.”

See MPEP 2173.05(b).

**5. *Amgen, Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 65 USPQ2d 1385 (Fed. Cir. 2003)**

*Representative Claim (U.S. Patent No. 5,547,933):*

1. A non-naturally occurring erythropoietin glycoprotein product having the in vivo biological activity of causing bone marrow cells to increase production of reticulocytes and red blood cells and having **glycosylation which differs** from that of human urinary erythropoietin.

*Analysis/Conclusion:* At issue was whether the claim limitation “having glycosylation which differs from that of human urinary erythropoietin” is indefinite in view of the fact that the glycosylation of human urinary erythropoietin (uEPO) itself varies. The court determined that “one must know what the glycosylation of uEPO is with certainty before one can determine whether the claimed glycoprotein has a glycosylation different from that of uEPO.” Because the specification did not direct those of ordinary skill in the art to a standard by which the appropriate comparison could be made, the court held that the claims of the patent requiring “glycosylation which differs” invalid as indefinite under § 112, ¶2.

See MPEP 2173.05(b).

**6. *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 75 USPQ2d 1801 (Fed. Cir. 2005)**

*Representative Claim (U.S. Patent No. 6,014,137):*

1. In an electronic kiosk system having a plurality of interactive electronic kiosks for displaying information provided by a plurality of information providers, a method for defining custom interface screens customized for individual kiosks of said plurality and operable to make different assortments of said information available for display at different kiosks of said plurality, said method comprising the steps of:

providing a master database of information from said plurality of information providers, said master database referencing substantially all information content from said providers to be displayed on any of said plurality of kiosks;

providing a plurality of pre-defined interface screen element types, each element type defining a form of element available for presentation on said custom interface screens, wherein each said element type permits limited variation in its on-screen characteristics in conformity with a desired uniform and **aesthetically pleasing** look and feel for said interface screens on all kiosks of said kiosk system,

each element type having a plurality of attributes associated therewith, wherein each said element type and its associated attributes are subject to pre-defined constraints providing element characteristics in conformance with said uniform and aesthetically pleasing look and feel for said interface screens, and

wherein said plurality of pre-defined element types includes at least one pre-defined window type, at least one pre-defined button type, and at least one pre-defined multimedia type;

selecting a plurality of elements to be included in a custom interface screen under construction, said plurality of elements being selected from said plurality of pre-defined elements types, said plurality of selected elements including at least one button type;

assigning values to the attributes associated with each of said selected elements consistent with said pre-defined constraints, whereby the aggregate layout of said plurality of selected elements on said interface screen under construction will be aesthetically pleasing and functionally operable for effective delivery of information to a kiosk user;

selecting from said master database an assortment of information content deriving from selected ones of said information providers to define kiosk information content for an individual kiosk of said kiosk system;

associating said kiosk information content with at least a portion of said selected elements for said interface screen under construction; and

linking said at least one selected button type element to an action facilitating the viewing of at least portions of said kiosk information content by a kiosk user.

*Analysis/Conclusion:* The court determined that the phrase “aesthetically pleasing” is indefinite under § 112, ¶2 because “no objective definition identifying a standard for determining when an interface screen is ‘aesthetically pleasing’” was provided and that “[i]n the absence of a workable objective standard, ‘aesthetically pleasing’ ... is completely dependent on a person’s subjective opinion.” The court stated that “[t]he scope of claim language cannot depend solely on the unrestrained, subjective opinion of a particular individual purportedly practicing the invention” and that “[s]ome objective standard must be provided in order to allow the public to determine the scope of the claimed invention.” The court further stated, “A purely subjective construction of ‘aesthetically pleasing’ would not notify the public of the patentee’s right to exclude since the meaning of the claim language would depend on the unpredictable vagaries of any one person’s opinion of the aesthetics of interface screens. While beauty is in the eye of the beholder, a claim term, to be definite, requires an objective anchor.”

See MPEP 2173.05(b).

## **7. *Young v. Lumenis, Inc.*, 492 F.3d 1336, 83 USPQ2D 1191 (Fed. Cir. 2007)**

*Representative Claim (U.S. Patent 6,502,579):*

1. A feline onychectomy surgical method using a laser cutting instrument, the method comprising:
  - (a) forming a first circumferential incision in the epidermis near the edge of the unguis crest of the claw, thereby severing at least some of the epidermis from the unguis crest;
  - (b) applying cranial traction to the epidermis severed from the unguis crest to displace the distal edge of the epithelium cranially;
  - (c) incising the extensor tendon near its insertion on the unguis crest;
  - (d) incising the synovium of the PII-PIII joint;
  - (e) applying traction to the claw in the palmar direction for disarticulating the



- PII-PIII joint;
- (f) ablating the medial and lateral collateral ligaments;
- (g) incising the digital flexor tendon; and
- (h) incising the subcutaneous tissues of the pad of the second phalanx.

*Analysis/Conclusion:* The court found the claim language “near the edge of the ungal crest” not indefinite under § 112, ¶2. The court first considered the claim language itself and found that it “implies that an incision is made in the epidermis somewhere close to or at the edge of the ungal crest.” The court then referred to several portions of the specification and found that “it is consistent with that understanding of the term.” The court also found that Figure 2 provides a standard for measuring the meaning of the term “near” in that it “shows an example of such an incision ‘near’ the edge of the ungal crest” and “illustrates where the first incision is made in relation to the crest and phalanx.” The court therefore concluded that “[t]he claim language and the specification make clear that the term ‘near’ means close to or at the most distal edge of the ungal crest.”

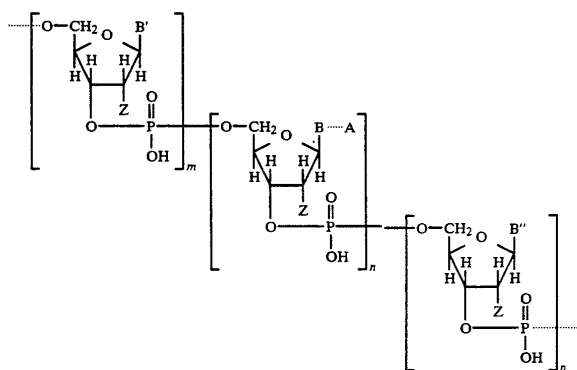
See MPEP 2173.05(b).

**8. *Enzo Biochem, Inc. v. Applera Corp.*, 599 F.3d 1325, 94 USPQ2d 1321 (Fed. Cir. 2010)**

*Representative Claim (U.S. Patent No. 5,328,824):*

1. A method of detecting the presence or absence of a nucleic acid in a sample which comprises the steps of:

- (a) contacting under hybridizable conditions said sample with at least one compound comprising the structure:



wherein each of B' and B'' represents a purine, 7-deazapurine, or pyrimidine moiety covalently bonded to the C<sup>1'</sup>-position of the sugar moiety, provided that whenever B' or B'' is purine or 7-deazapurine, the sugar moiety is attached at the N<sup>9</sup>-position of the purine or 7-deazapurine, and whenever B' or B'' is pyrimidine the sugar moiety is attached at the N<sup>1</sup>-position of the pyrimidine;

wherein B represents 7-deazapurine or pyrimidine moiety covalently bonded to the C<sup>1'</sup>-position of the sugar moiety, provided that whenever B is 7-deazapurine, the sugar moiety is attached at the N<sup>9</sup>-position of the 7-deazapurine, and whenever B is pyrimidine the sugar moiety is attached at the N<sup>1</sup>-position of the pyrimidine;

wherein A comprises at least three carbon atoms and represents at least one component of a signalling moiety capable of producing a detectable signal;

wherein B and A are covalently attached directly or indirectly through a linkage group, said linkage group ***not interfering substantially*** with the characteristic ability of said compound to hybridize with said nucleic acid or of A to be detected;

wherein if B is 7-deazapurine, A is attached to the 7-position thereof, and if B is pyrimidine, A is attached to the 5-position thereof;

wherein m, n and p are integers, provided that m and p are not simultaneously 0 and provided further n is never 0; and

wherein z represents H- or HO-; and

(b) detecting said compound or compounds so as to detect said nucleic acid.

*Background:* The court explained that the patent claims are directed to a compound in which a nitrogenous base “B” is covalently attached, either directly or through a “linkage group,” to a chemical moiety “A.” The court found that the “linkage group” is not recited in structural terms but, rather, functionally as “not interfering substantially” with hybridization.

*Analysis:* The court examined the intrinsic evidence (*i.e.*, the claims, specification and prosecution history) to determine whether a person of ordinary skill would understand when a linkage group “substantially” interferes with hybridization. The court determined that the claims themselves “provide at least some guidance as to how much interference will be tolerated” because “[a] dependent claim in both patents specifies that the linkage group has a particular structure (-CH=CH-CH<sub>2</sub>-NH-)” and “[a] person of ordinary skill would presume that a structure recited in a dependent claim will perform a function required of that structure in an independent claim.” The court also determined that “[t]he specification provides additional examples of suitable linkage groups, including some criteria for selecting them.” For example, the court explained that the specification provides that “[i]t is even more preferred that the chemical linkage group be derived from a primary amine, and have the structure -CH<sub>2</sub>-NH-, since such linkages are easily formed utilizing any of the well known amine modification reactions.” The court also determined that the specification teaches “that the polynucleotides’ ‘thermal denaturation profiles and hybridization properties’ can be used to measure the degree to which a linkage group interferes with hybridization.” Additionally, the court determined that the prosecution history was helpful because a declaration under 37 C.F.R. § 1.132, submitted during prosecution, listed eight specific linkage groups that were declared as not substantially interfering with hybridization or detection.

*Conclusion:* The court stated that “[b]ecause the intrinsic evidence here provides ‘a general guideline and examples sufficient to enable a person of ordinary skill in the art to determine [the scope of the claims],’” the claims were not indefinite under § 112, ¶2 “even though the construction of the term ‘not interfering substantially’ defines the term without reference to a precise numerical measurement.” The court further stated that “[w]hen deciding whether a particular linkage group is or is not ‘substantially’ interfering with hybridization, a person of ordinary skill would likely look to the thermal denaturation profiles and hybridization properties (including T<sub>m</sub>) of the modified nucleotide, to see whether they fall within the range of exemplary values disclosed in the intrinsic evidence.”

See MPEP 2173.05(b).

**9. *Hearing Components, Inc. v. Shure Inc.*, 600 F.3d 1357, 94 USPQ2d 1385 (Fed. Cir. 2010)**

*Representative Claim (U.S. Patent No. 5,401,920):*

1. For use in connection with a sound transmitting device of the type in which a housing contains a sound transmitting tube having a sound outlet port confronting the ear drum when said device is fitted within a user's ear canal,

a disposable wax guard for mounting over the sound outlet port to prevent cerumen from fouling said outlet port, said wax guard being ***readily installed and replaced by a user***, comprising a thin, flexible membrane that permits a user to position said guard over said outlet port, one side of said membrane being provided with a normally tacky and pressure-sensitive adhesive layer except in that portion adapted to overlie said outlet port, the portion of said guard overlying said outlet port being porous to sound and capable of wax entrapment.

*Analysis/Conclusion:* The court found the claim language “readily installed and replaced by a user” not indefinite under § 112, ¶2. The court determined that although “readily” does not refer to a mathematical measure of degree, the specification in this case supplies some standard for measuring the scope of the phrase. For example, the specification states that one of the advantages of the wax guard is that it “requires no tools for installation or removal.” The specification also states that “[i]t is simple to install, easy to remove, and convenient to replace, even for older persons.” The court determined that the language of those sentences in the specification closely tracks the language of the disputed claim term and, thus, the written description gives a clear example of a wax guard that is “readily installed and replaced by a user”: one that “is inexpensive and requires no tools for installation or removal.”

See MPEP 2173.05(b).

### C. Numerical ranges and amounts

#### 1. *Honeywell Int’l, Inc. v. ITC*, 341 F.3d 1332, 65 USPQ2d 1023 (Fed. Cir. 2003)

*Representative Claim (U.S. Patent No. 5,630,976):*

1. A process for production of a drawn polyethylene terephthalate yarn which translates to a high tenacity dimensionally stable tire cord, comprising:

(A) extruding a molten melt-spinnable polyethylene terephthalate having an intrinsic viscosity of 0.8 or greater through a shaped extrusion orifice having a plurality of openings to form a molten spun yarn,

(B) solidifying the spun yarn gradually by passing the yarn through a solidification zone which comprises (a) a retarded cooling zone and (b) a cooling zone adjacent said retarded cooling zone wherein said yarn is rapidly cooled and solidified in a blown air atmosphere,

(C) withdrawing the solidified yarn at sufficient speed to form a crystalline, partially oriented yarn with a crystallinity of 3 to 13% and a ***melting point elevation of 2° to 10° C.***, and

(D) hot drawing the yarn to a total draw ratio between 1.5/1 and 2.5/1.

*Analysis/Conclusion:* At issue was the definiteness of the claim term “melting point elevation” (MPE). According to claim 1, the polyethylene terephthalate (PET) yarn produced by the claimed process must fall within the specified MPE range recited in step (C). The court determined that a sample of PET yarn must be prepared in order to measure the MPE and, depending upon which sample preparation method is used, the calculated MPE for a given sample can vary greatly. The court found that the intrinsic record fails to resolve the ambiguity with respect to a required sample preparation method because “[t]he claims, written description, and prosecution history do not mention the different sample

preparation methods or provide sufficient clues to discern which methods are acceptable.” The court held the claim indefinite under § 112, ¶2.

See MPEP 2173.05(c).

#### **D. Antecedent basis**

##### **1. *In re Skvorecz*, 580 F.3d 1262, 92 USPQ2d 1020 (Fed. Cir. 2009)**

*Representative Claims (U.S. Patent No. 5,996,948):*

1. A wire chafing stand comprising a first rim of wire steel which forms a closed geometrical configuration circumscribing a first surface area, and having at least two wire legs with each wire leg having two upright sections interconnected to one another in a configuration forming a base support for the stand to rest upon with each upright section extending upwardly from said base support to from an angle equal to or greater than 90 with respect to a horizontal plane through said base support and being affixed to the first rim adjacent one end thereof and further comprising a plurality of offsets located either in said upright sections of said wire legs or in said first rim for laterally displacing each wire leg relative to said first rim to facilitate the nesting of a multiplicity of stands into one another without significant wedging.

5. A wire chafing stand as defined in claim 1 wherein said plurality of offsets are welded to said wire legs at the separation of the upright sections into segments.

*Analysis/Conclusion:* The court determined that claim 5 would not be indefinite under § 112, ¶2 if the phrase “at the separation” in independent claim 1 were amended to “at a separation.” The figures as originally filed show as elements the upright sections of the wire legs forming segments. The court found “that the clause ‘welded to said wire legs at the separation’ does not require further antecedent basis in claim 1, for a person skilled in the field of the invention would understand the claim when viewed in the context of the specification.” The court noted that the BPAI conceded that the claim would be definite if it recited “at a separation.” The court therefore reversed the indefiniteness rejection subject to this potential amendment on remand to the USPTO.

See MPEP 2173.05(e).

#### **E. Terms of art**

##### **1. *Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 94 USPQ2D 1241 (Fed. Cir. 2010)**

*Representative Claim (U.S. Patent No. 7,000,125):*

1. A power control system comprising:  
a plurality of point-of-load (POL) regulators;  
at least one serial data bus operatively connecting said plurality of POL regulators; and  
a system controller connected to said at least one serial data bus and adapted to send and receive digital data to and from said plurality of POL regulators;  
wherein, programming, control and monitoring information is carried on said at least one serial data bus between said system controller and said plurality of POL regulators.

*Analysis:* The court determined that the intrinsic record supported the district court’s construction of the claim term “POL regulator” to mean: a “dc/dc switching voltage regulator designed to receive power from a voltage bus on a printed circuit board and adapted to power a portion of the devices on the board and to be placed near the one or more devices being powered as part of a distributed board-level power system.” The court held that, here, the term “POL regulator” was not indefinite because the intrinsic evidence of the patent supports that POL regulators are well known devices whose locations and functions relative to other components in the power system are understood by those of ordinary skill in the art. Thus, because a person having ordinary skill in the art would know where to place the POL regulator and how to use it, the court found the claim term “POL regulator” not indefinite under § 112, ¶2.

See MPEP 2173.02.

## **F. Breadth is not indefiniteness**

### **1. *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 92 USPQ2d 1865 (Fed. Cir. 2010)**

*Representative Claims (U.S. Patent No. 6,406,534):*

14. A very early setting, ultra high strength cement comprising:  
a hydraulic cement containing CaO,  $\{(C,K,N,M)_4(A,F,Mn,P,T,S)_3(cl,\bar{S})\}$  and a member selected from the group consisting of  $\{(C_{10}S_3,\bar{S}_3(f\ cl))\}$ ,  $C_5S_2\bar{S}$  and mixtures thereof.

17. The very early setting, ultra high strength cement of claim 14 and having a compressive strength greater than 3000 psi within approximately one hour following hydration.

*Background:* The specification refers to the formula  $(C,K,N,M)_4(A,F,Mn,P,T,S)_3(cl,\bar{S})$  as “crystal X.”

*Analysis:* The court found the recitation of “crystal X” in asserted claim 17 not indefinite under § 112, ¶2. It was determined at the trial court level that “the formula for crystal X is that of a solid solution, a crystalline compound in which various elements can substitute for one another at a particular site on the crystalline structure” and that arguably “over 5000 possible combinations can come out of this formula.” However, the Federal Circuit held that “a claim to a formula containing over 5000 possible combinations is not necessarily ambiguous if it sufficiently notifies the public of the scope of the claims” and that “[m]erely claiming broadly does not render a claim insolubly ambiguous, nor does it prevent the public from understanding the scope of the patent.” In this instance, the court found that “while the formula for crystal X is obviously complex, it is not necessarily indefinite” and explained how a member of the public would know whether a particular compound that was made would fit within the set of compounds described by the claims.

See MPEP 2173.04.

## **G. Correspondence between specification and claims**

### **1. *In re Cohn*, 438 F.2d 989, 169 USPQ 95 (CCPA 1971)**

*Representative Claim (appearing in application serial No. 281,049, filed May 16, 1963):*

1. The method of producing on a surface of aluminum a durable opaque finish comprising the steps of providing on the surface of the aluminum a porous oxide coating, then sealing said coating by treatment with a solution of an alkali silicate, and then treating the sealed surface with a corroding solution until the metallic appearance of the surface is supplanted by an opaque appearance.

*Analysis/Conclusion:* The court found the claim indefinite under § 112, ¶2. The court found the claim language inherently inconsistent with the summary of the description, definitions and examples set forth in the specification. In particular, the court stated, “As used and defined in the specification, and unmodified by other terminology, an ‘opaque finish’ is a flat-appearing finish which is not obtained when an alkali metal silicate is used as a sealant. Indeed, the latter sealant is said to produce a glazed or porcelain-like finish having a white coloring. The claims, on the other hand, specifically call for sealing the oxide surface with an alkali silicate in order to ultimately obtain an ‘opaque appearance.’” (emphasis added). The court further stated that “[n]o claim may be read apart from and independent of the supporting disclosure on which it is based,” and “[t]he result is an inexplicable inconsistency within each claim requiring that the rejection under 35 U.S.C. 112 on grounds of indefiniteness be sustained.”

See MPEP 2173.03.

## **II. EXAMPLES OF CLAIM TERMS OTHER THAN “MEANS FOR” THAT MAY INVOKE 35 U.S.C. § 112, ¶ 6**

The following examples are provided to support the concepts set forth in the *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 Fed. Reg. 7,162 (Feb. 9, 2011) (the 2011 Supplementary Guidelines). As set forth in the 2011 Supplementary Guidelines, the analysis of whether claim language invokes 35 U.S.C. § 112, sixth paragraph not only includes the evaluation of limitations using the terms “means for” and “step for,” but also the evaluation of other non-structural claim terms that may be used instead of “means for”. The following examples are illustrative of the factors the courts have taken into consideration when evaluating claim limitations that may invoke 35 U.S.C. § 112, sixth paragraph. The case examples are based upon either cases already cited in MPEP 2181 I or other relevant cases issued by the Court of Appeals for the Federal Circuit (CAFC), using the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

### **A. “Mechanism”**

#### **1. *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580 (Fed. Cir. 1996)**

U.S. Patent No. 4,674,501 (“the ’501 patent”)

The claimed subject matter is drawn to an endo-mechanical surgical instrument. The relevant claim language of independent claim 1 of the '501 patent is as follows:

“. . . , 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, . . . ”

*Issue:* Does the claim limitation “detent mechanism defining the conjoint rotation...” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “mechanism” is used, but it is modified by the term “detent,” which has both a non-structural functional meaning and a structural meaning. The expression of a claim element in functional terms alone is not sufficient to invoke 35 U.S.C. § 112, sixth paragraph; the claim element must be read in the context of the claim and in light of the specification to verify that the claim is not reciting specific structure. When viewed in context, the modifier “detent” has a structural meaning in this instance. Many devices take on the name of the function they perform. A detent mechanism in the present circumstances is such a term. The drafter’s usage of the term “detent mechanism” in the claim was indicative of a structural recitation and not a functional recitation. After using the claim term “detent mechanism” the drafter set forth the structure defining the detent mechanism in the claim. The drafter did not set forth any functional language in conjunction with the term “detent mechanism.” Therefore, the term “detent” served as a structural modifier of the non-structural term “mechanism” removing the limitation from treatment under 35 U.S.C. § 112, sixth paragraph.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with MPEP 2181 I 8<sup>th</sup> Ed. Rev. 6., Sept 2007 Pages 2100-235-36, and further in view of the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

## **2. *Welker Bearing Co., v. PHD, Inc.*, 550 F.3d 1090 (Fed. Cir. 2008)**

U.S. Patent Nos. 6,786,478 (“the ’478 patent”) and 6,913,254 (“the ’254 patent”)

The claimed subject matter is drawn to locating pins for insertion into a work piece to position and hold the work piece. The relevant claim language of independent claim 1 of the ’254 patent, which is representative of the claim language also used in the ’478 patent, is as follows:

“. . . at least one finger supported by said locating pin adjacent said distal end; said assembly characterized by a ***mechanism for moving*** said finger along a straight line into and out of said locating pin perpendicular to said axis A in response to said rectilinear movement of said locating pin.”

*Issue:* Does the claim limitation “mechanism for moving said” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “mechanism” is used, and not modified before or afterward by a structural term. The non-structural claim term “mechanism” is subsequently modified by the

functional language “for moving.” The structural term “said finger” does not modify or further define the term mechanism. Therefore, despite not using “means for” language, the limitation has invoked 35 U.S.C. § 112, sixth paragraph and should be treated accordingly. Generic terms “mechanism,” “means,” “element,” and “device,” typically do not connote sufficiently definite structure to avoid means-plus-function treatment. The meaning of “mechanism for moving said finger” in the context of the claim included little additional structure and is simply a substitute for the term “means for.” One of skill in the art would have no recourse but to turn to the specification to derive a structure for the “mechanism for moving said finger” limitation. Had applicant supplied structural context such as, a “finger displacement mechanism,” a “lateral projection/retraction mechanism,” or even a “clamping finger actuator,” then 35 U.S.C. § 112, sixth paragraph would not have been invoked.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is invoked.

The above analysis is in accordance with the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

### **3. *MIT v. Abacus Software*, 462 F.3d 1344 (Fed. Cir. 2006)**

U.S. Patent No. 4,500,919 (“the ’919 patent”)

The claimed subject matter relates to computer assisted color processing and editing systems for use in color printing. The relevant claim language of independent claim 1 of the ’919 patent is as follows:

“c. ***colorant selection mechanism for receiving*** said modified appearance signals and for selecting corresponding reproduction signals representing values of said reproducing colorants to produce in said medium a colorimetrically-matched reproduction.”

*Issue:* Does the claim limitation “colorant selection mechanism for receiving” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “mechanism” is used, and preceded by the non-structural modifier “colorant selection.” The term “colorant selection” is not defined as structure in the specification, has no dictionary definition connoting structure, and no known structural meaning in the art. The non-structural claim term “mechanism” is subsequently modified by the functional language “for receiving.” The non-structural claim term “mechanism” is not subsequently modified by any structural language limitations. Therefore, despite not using “means for” language, the limitation is considered to have invoked 35 U.S.C. § 112, sixth paragraph and should be treated accordingly. Generic terms such as “mechanism,” “means,” “element,” and “device,” typically do not connote sufficiently definite structure. Applicant’s usage of “mechanism” in the instant case is synonymous with “means.”

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is invoked.

The above analysis is in accordance with the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.



## B. “Member”

### 1. *Mas-Hamilton Group, v. LaGard, Inc.*, 156 F.3d 1206 (Fed. Cir. 1998)

United States Patent No. 5,307,656 (“the ’656 patent”)

The claimed subject matter is drawn to an electro-mechanical lock. The relevant claim language from claims 34 and 43 from the ’656 patent is as follows:

“ . . . a movable link member for holding the lever out of engagement with the cam surface before entry of a combination and for releasing the lever after entry of the combination; . . . ”

*Issue:* Does the claim limitation “member for holding . . . for releasing” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “member” is used, and preceded by a modifier “movable link” that does not clearly indicate that it is either a structural or non-structural modifier. The claim term “movable link member” is not defined as structure in the specification, has no dictionary definition connoting structure, and does not have a known structural meaning in the relevant art. Therefore, the “movable link” modifier is considered a non-structural modifier. The non-structural claim term “member” is subsequently modified by functional language that sets forth two functions: (1) “for holding the lever out of engagement with the cam surface before entry of a combination,” and (2) “for releasing the lever after entry of the combination.” Therefore, despite the lack of “means for” language, the limitation is considered to have invoked 35 U.S.C. § 112, sixth paragraph and should be treated accordingly. Further, no other terms in the claim exist that would impart structure to the “movable link member” to remove this limitation from 35 U.S.C. § 112, sixth paragraph.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is invoked.

The above analysis is in accordance with MPEP 2181 I 8<sup>th</sup> Ed. Rev. 6., Sept 2007 Pages 2100-236, and further in view of the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

### 2. *CCS Fitness, Inc., v. Brunswick Corp.*, 288 F.3d 1359 (Fed. Cir. 2002)

U.S. Patent Nos. 5,924,962 (“the ’962 patent”); 5,938,567 (“the ’567 patent”); and 5,683,333 (“the ’333 patent”)

The claimed subject matter is drawn to stationary cardio-vascular exercise devices. Claim 9 of the ’962 patent sets forth the relevant claim language, which is representative of the claim language also used in the ’567 and ’333 patents, as follows:

9. An apparatus for exercising comprising:  
a frame having a base portion adapted to be supported by a floor; first and second reciprocating members, each reciprocating member having a first and a second end, a portion of said first and second reciprocating members being adapted for substantially linear motion;

a coupling member having (i) a pulley supported by said frame defining a pivot axis, and (ii) means for attaching said second ends of said first and second reciprocating members to said pulley so that rotation of said pulley results in orbital movement of said second ends of said first and second reciprocating members about said pivot axis while a portion of each of said first and second reciprocating members distal said second end of each first and second reciprocating members move in a reciprocating pattern; and

first and second pivotal linkage assemblies operatively connected with a respective first and second reciprocating member at a location intermediate the first and second ends of said reciprocating member for orienting the bottom of the feet of the user of the apparatus so that each foot of the user follows a substantially elliptical path during operation of the apparatus.

*Issue:* Does the claim limitation “reciprocating member . . . adapted for substantially linear motion” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “member” is used, and preceded by a non-structural modifier “reciprocating.” The claim term “reciprocating” is descriptive of a function and does not impart any specific structure. The non-structural claim term “member” is subsequently modified by several structural language limitations. The claim term “reciprocating member” is claimed, *inter alia*, as having a first and second end with the second end of each reciprocating member structure being attached to a pulley, and both reciprocating members being operatively connected to a pivotal linkage assembly. These multiple claim recitations that impart structure onto the claim term “reciprocating member” indicate that the limitation should not be interpreted under 35 U.S.C. § 112, sixth paragraph.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

### **3. *Al-Site Corp., v. VSI Int’l, Inc.*, 174 F.3d 1308 (Fed. Cir. 1999)**

U.S. Patent Nos. 5,144,345 (“the ’345 patent”) & 5,260,726 (“the ’726 patent”)

The claimed subject matter relates to retail displays for eyeglasses. Claim 1 of the ’345 patent and claim 1 of the ’726 patent both set forth the following relevant claim language:

“an eyeglass hanger member for mounting a pair of eyeglasses . . . ; said eyeglass hanger member made from flat sheet material and having an upper edge, a lower edge and a width dimension, the width dimension of said hanger member being greater than the width of the bridge; . . .”

*Issue:* Does the claim limitation “eyeglass hanger member” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “member” is used, and preceded by a non-structural intended use modifier “eyeglass hanger.” The non-structural claim term “member” is subsequently modified by several structural language limitations. The claim term “eyeglass hanging member” is claimed, *inter alia*, as having an upper edge, a lower edge and a width dimension. These multiple claim recitations

that impart structure onto the claim term “eyeglass hanger member” remove the limitation from 35 U.S.C. § 112, sixth paragraph.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with MPEP 2181 I 8<sup>th</sup> Ed. Rev. 6., Sept 2007 Pages 2100-236, and further in view of the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

### C. “Element”

#### 1. *Mas-Hamilton Group, v. LaGard, Inc.*, 156 F.3d 1206 (Fed. Cir. 1998)

United States Patent No. 5,307,656 (“the ’656 patent”)

The claimed subject matter is drawn to an electro-mechanical lock. The relevant claim language from claim 3 of the ’656 patent is as follows:

“. . . a substantially non-resilient lever moving element for moving the lever from its disengaged position for engaging the protrusion of the lever with the cam surface on the cam wheel so that the rotation of the cam wheel thereafter in the given direction changes the locking mechanism from the locked condition to the unlocked condition; . . . .”

*Issue:* Does the claim limitation “lever moving element for moving” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The non-structural term “element” is used, and preceded by a modifier “lever moving” that does not clearly indicate that it is either a structural or non-structural modifier. The claim term “lever moving element” is descriptive of the function and does not impart any specific structure. The claim term “lever moving element” is not defined as structure in the specification, has no dictionary definition connoting structure, and does not have a known structural meaning in the relevant art. Therefore, the “lever moving” modifier is considered a non-structural modifier. The non-structural claim term “element” is subsequently modified by only functional language, and there is no structure recited in the limitation that would remove it from application of 35 U.S.C. § 112, sixth paragraph. Therefore, despite the lack of “means for” language, the limitation is considered to have invoked 35 U.S.C. § 112, sixth paragraph and should be treated accordingly.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is invoked.

The above analysis is in accordance with MPEP 2181 I 8<sup>th</sup> Ed. Rev. 6., Sept 2007 Pages 2100-236, and further in view of the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

## D. “Circuit”/“Circuitry”

### 1. *Linear Tech. Corp., v. Impala Linear Corp.*, 379 F.3d 1311 (Fed. Cir. 2004)

U.S. Patent No. 5,481,178 (“the ’178 patent”)

The claimed subject matter is drawn to a control circuit for maintaining high efficiency over broad current ranges in a switching regulator circuit. The relevant claim language from claim 1 of the ’178 patent is as follows:

1. A circuit for controlling a switching voltage regulator . . . the control circuit comprising:  
**a first circuit for monitoring** a signal from the output terminal to generate a first feedback signal;  
**a second circuit for generating** a first control signal during a first state of circuit operation, the first control signal being responsive to the first feedback signal to vary the duty cycle of the switching transistors to maintain the output terminal at the regulated voltage; and  
**a third circuit for generating** a second control signal during a second state of circuit operation to cause both switching transistors to be simultaneously OFF for a period of time if a sensed condition of the regulator indicates that the current supplied to the load falls below a threshold . . . .

*Issue:* Do the claim limitations “circuit for monitoring” and “circuit for generating” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitations do not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The term “circuit” by itself, connotes structure, is defined as structure in dictionaries and has known structural meaning in the art. The claim term “circuit” is subsequently modified by functional language describing the circuit’s operation. The presence of the term “circuit” conveys to one of ordinary skill in the relevant art sufficient detail to connote structure. Combined with the absence of any “means for” language, the “circuit” limitations are not means-plus-function limitations subject to 35 U.S.C. § 112, sixth paragraph treatment.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

### 2. *MIT v. Abacus Software*, 462 F.3d 1344 (Fed. Cir. 2006)

U.S. Patent No. 4,500,919 (“the ’919 patent”)

The claimed subject matter relates to computer assisted color processing and editing systems for use in color printing. The relevant claim language of independent claim 1 of the ’919 patent is as follows:

“b. display means connected to the scanner for receiving the appearance signals and **aesthetic correction circuitry for** interactively introducing aesthetically desired alterations into said appearance signals to produce modified appearance signals;”

*Issue:* Does the claim limitation “aesthetic correction circuitry for” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. The term “circuitry” by itself, connotes structure, is defined as structure in dictionaries and has known structural meaning in the art. The presence of a structural term combined with the absence of any “means for” language indicates that 35 U.S.C. § 112, sixth paragraph is not invoked.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

## **E. “Detector”**

### **1. *Personalized Media Commc’ns, LLC, v. ITC*, 161 F.3d 696 (Fed. Cir. 1998)**

United States Patent 5,335,277 (“the ’277 patent”)

The claimed subject matter relates to an integrated system for communicating programming, *e.g.* electronically transmitted entertain, instruct or inform, including television, radio, broadcast print, etc. The relevant claim language of independent claim 44 of the ’277 patent is as follows:

“ . . . a ***digital detector*** operatively connected to a mass medium receiver ***for detecting digital information*** in a mass medium transmission and transferring some of said detected information to a processor; . . . ”

*Issue:* Does the claim limitation “digital detector” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. To one of ordinary skill in the relevant art, the term “detector” connotes or describes in general a structure. The claim term “digital detector” is subsequently modified by the functional language “for detecting.” The fact that the term “detector” does not suggest a precise physical structure would not result in 35 U.S.C. § 112, sixth paragraph being invoked. The claim term “detector” is understood in the relevant prior art and defined in dictionaries as having a well known meaning in the electrical arts connotative of structure. Further, just because the claim term “detector” is a name for structure drawn from the function it performs, should not result in treatment under 35 U.S.C. 112, sixth paragraph. Therefore the term “detector” is structural and not a nonce word or a verbal construct that is not recognized as the name of structure and simply a substitute for the term “means for.” Accordingly, the presence of a structural term combined with the absence of any “means for” language indicates that 35 U.S.C. § 112, sixth paragraph is not invoked.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with MPEP 2181 I 8<sup>th</sup> Ed. Rev. 6., Sept 2007 Pages 2100-236, and further in view of the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

## F. “Assembly”

### 1. *Lighting World, Inc., v. Birchwood Lighting*, 382 F.3d 1354 (Fed. Cir. 2004)

U.S. Patent No. 5,448,460 (“the ’460 patent”) and U.S. Patent No. 5,221,139 (“the ’139 patent”)

The claimed subject matter relates to a fluorescent light fixture. The relevant claim language of independent claim 1 of the ’460 patent is as follows:

“c) a connector assembly for connecting each pair of adjacent support members, said connector assembly being pivotally connected to said pair of adjacent support members;...”

*Issue:* Does the claim limitation “connector assembly for connecting” invoke 35 U.S.C. § 112, sixth paragraph?

*Analysis:* The claim limitation does not use “means for” language to invoke 35 U.S.C. § 112, sixth paragraph. It is unclear whether the term “assembly” by itself connotes or describes structure. The term “assembly,” however, is preceded by the modifier “connector,” which does connote or describe in general a connective structure. The claim term “connector assembly” is subsequently modified by the functional language “for connecting.” The fact that the term “connector assembly” does not suggest a particular structure would not result in 35 U.S.C. § 112, sixth paragraph being invoked. Further, the specification discloses a “connector assembly” as a structure, the prior art and dictionaries indicate that the term “connector assembly” refers to a device that takes its name from the function it performs. Therefore the term “connector assembly” is structural and not a nonce word or a verbal construct that is not recognized as the name of structure and simply a substitute for the term “means for.” Accordingly, the presence of a structural term combined with the absence of any “means for” language indicates that 35 U.S.C. § 112, sixth paragraph is not invoked.

*Conclusion:* 35 U.S.C. § 112, sixth paragraph is not invoked.

The above analysis is in accordance with the analytical framework of the 2011 Supplementary Guidelines to determine whether a limitation invokes 35 U.S.C. § 112, sixth paragraph.

## III. EXAMPLES OF CLAIM LIMITATIONS THAT INVOKE 35 U.S.C. § 112, ¶ 6 EVALUATED FOR COMPLIANCE WITH 35 U.S.C. § 112, ¶ 2

The following examples are provided to support the concepts set forth in the *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 Fed. Reg. 7,162 (Feb. 9, 2011) (the 2011 Supplementary Guidelines). As noted in the 2011 Supplementary Guidelines, once the examiner determines that a claim limitation is a limitation that should be treated under 35 U.S.C. § 112, ¶ 6 (§ 112, ¶ 6), the examiner should next review the written description of the specification from the perspective of one of ordinary skill in the art to determine whether the corresponding structure, material or acts that perform the claimed function is disclosed. An indefiniteness rejection under 35 U.S.C. § 112, ¶ 2 (§ 112, ¶ 2), is appropriate if the written description fails to link or associate the corresponding structure, material or acts to the claimed function, or if there is no disclosure (or insufficient disclosure) of corresponding structure, material or acts for the claimed function. The following examples are drawn from case law of the U.S. Court of Appeals for the Federal Circuit (CAFC) and are illustrative of current Office policy as set forth in

MPEP 2181 II – IV 8<sup>th</sup> Ed. Rev. 6., Sept 2007 and Memorandum from John Love, Deputy Commissioner for Patent Examination Policy to the Examining Corps, entitled, “Rejections under 35 U.S.C. 112, second paragraph, when examining means (or step) plus function claim limitations under 35 U.S.C. 112, sixth paragraph” (Sept. 2, 2008).

**A. Examples illustrating when an indefiniteness rejection is appropriate**

**1. *Biomedino, LLC, v. Waters Tech. Corp.*, 490 F.3d 946 (Fed. Cir. 2007)**

U.S. Pat. No. 6,602,502 (“the ’502 patent”)

The claimed subject matter is drawn to a method and apparatus for medical testing. The relevant claim language is set forth in claim 40 as follows:

“A closed regeneration device . . . comprising . . . for separating a molecule . . . a first valve selectively connecting said first reagent in fluid communication with said molecule bound . . . a second reagent, a second valve selectively connecting said second reagent in fluid communication with . . . to return said binding species to a regenerated condition, and **control means for automatically operating valves.**”

The written description of the specification supports this means-plus-function recitation with the following disclosure which when describing Figure 6 of the ’502 patent states, “The entire process of regenerating the antibody may be controlled automatically by known differential pressure, valving and control equipment.” ’502 patent, col.11 ll.55-58. Figure 6 depicts a box labeled “Control.”

*Issue:* Does the depiction of a box labeled “control” in combination with the disclosure that the claimed control means may be controlled automatically by known differential pressure, valving and control equipment satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The only reference in the specification to support the means-plus-function limitation is a box labeled “Control” in Figure 6 and a statement that the regeneration process of the invention may be controlled automatically by known differential pressure, valving and control equipment. Therefore, by disclosing only that unspecified equipment may be used to control the valves, no corresponding structure capable of performing that function is disclosed. The inquiry is not whether one of skill in the art would be capable of implementing a structure, but whether or not one of ordinary skill in the art would understand that the specification discloses the corresponding structure. The bare statement that known techniques or methods can be used is not a disclosure of structure. The fact that one of ordinary skill in the art could envision various types of equipment capable of automatically operating valves does not change the fact that the disclosure provides nothing to suggest a structure for the claimed control means. Accordingly, the failure to disclose a structure corresponding to the “control means” for performing the recited function renders the claim indefinite.

*Conclusion:* The claim is indefinite under § 112, ¶ 2 because the disclosure only provides a statement that known techniques or methods can be used to achieve the claimed function and does not disclose the necessary corresponding structure.

**2. *Aristocrat Techs. Australia Pty Ltd, v. Int'l Game Tech.*, 521 F.3d 1328 (Fed. Cir. 2008)**

U.S. Patent No. 6,093,102 (“the ’102 patent”)

The claimed subject matter is drawn to a gaming machine, *e.g.* Slot machine. All the claims are at issue with the relevant claim language of independent claim 1 as follows:

“ . . . **game control means arranged to control** images displayed on the display means, the game control means. . . ”

The written description of the specification supports this means-plus-function recitation with the following disclosure:

“In the following detailed description, the methodology of the embodiments will be described and it is to be understood that it is within the capabilities of the non-inventive worker in the art to introduce the methodology on any standard microprocessor base gaming machine by means of appropriate programming.” ’102 patent, col. 2, l. 65-col. 3 l. 5.

*Issue:* Does the disclosure of only a standard microprocessor-based gaming machine with “appropriate programming” satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The only reference in the specification to support the means-plus-function limitation of a “game control means” is a standard microprocessor-based gaming machine with “appropriate programming.” The specification contains no guidance to determine the meaning of “standard microprocessor” or “appropriate programming.” By merely stating that a standard microprocessor is the structure without more is insufficient to satisfy the requirements of the statute. The absence of any specific algorithm for performing the recited function or any step-by-step process for performing the claimed functions of controlling images on the slot machine video screen does not satisfy § 112, ¶ 6. Patentee needs to disclose an algorithm that transforms a general purpose computer to a special purpose computer programmed to perform the disclosed algorithm. The disclosure of any microprocessor with appropriate programming to perform the functions, in support of the means-plus-function limitations of that claim constitutes pure functional claiming, which is contrary to the statute. Accordingly, the failure to disclose a structure corresponding to the “control means” for performing the recited function renders the claim indefinite.

*Conclusion:* The claim is indefinite under § 112, ¶ 2 because the disclosure only provides a statement that known techniques or methods can be used to program a general purpose computer to achieve the claimed function and does not disclose corresponding structure, which in this case requires the disclosure of a special purpose computer, an algorithm, a specific software program etc.



**3. *Blackboard, Inc., v. Desire2Learn Inc.*, 574 F.3d 1371 (Fed. Cir. 2009)**

U.S. Patent No. 6,988,138 (“the ’138 patent”)

The claimed subject matter is drawn to a system and methods for implementing education online. All the claims are at issue with the relevant claim language of independent claim 1 as follows:

“. . . ***means for assigning*** a level of access to and control of each data file based on a user of the system's predetermined role in a course; . . .”

Corresponding structure is disclosed in the specification as follows:

“Access control manager 151 creates an access control list (ACM) for one or more subsystems in response to a request from a subsystem to have its resources protected through adherence to an ACM. Education support system 100 provides multiple levels of access restrictions to enable different types of users to effectively interact with the system (e.g. access web pages, upload or download files, view grade information) while preserving confidentiality of information.” ’138 patent, col. 9, ll. 37-45.

*Issue:* Does the disclosure of an access control manager (ACM) provide support for the “means for assigning” limitation of claim 1 to satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The description of the ACM does not describe a structure. Instead the ACM disclosure is simply an abstraction that describes the function of controlling access to course materials, which is performed by an undefined component of the system. The ACM is essentially a “black box” that performs a recited function. The specification is devoid of any structure that the ACM utilizes to perform the “assigning” function. The relevant disclosure regarding the ACM only describes an outcome, and not a means for achieving that outcome. Failure to describe the corresponding structure, by which the ACM creates an access control list, captures all possible means for achieving that end, *i.e.* pure functional claim language. The fact that one of ordinary skill could carry out the recited function in a variety of ways is precisely why claims written in “means-plus-function” form must disclose a particular structure that is used to perform the recited function. Accordingly, the failure to disclose a structure corresponding to the “means for assigning” renders the claim indefinite.

*Conclusion:* The claim is indefinite under § 112, ¶ 2 because the disclosure only provides a restatement of the function and the intended outcome of the function and does not disclose the necessary corresponding structure.

**4. *Finisar Corp. v. The DirecTV Group, Inc.*, 523 F.3d 1323 (Fed. Cir. 2008)**

U.S. Patent No. 5,404,505 (“the ’505 patent”)

The claimed subject matter is drawn to a satellite based information broadcasting system which provides a large number of subscribers access to broadcast information. The relevant claim language of independent claim 1 is as follows:

“ . . . a set of one or more computer memory devices on which is stored an information database; **database editing means**, coupled to said one or more computer memory devices, for generating a hierarchically arranged set of indices for referencing data in said information database, including distinct indices for referencing distinct portions thereof, and for embed-ding said indices in said information database . . . ”

Corresponding structure is disclosed in the specification as follows:

“As shown in FIG. 1, the program supplier station 102 includes the aforementioned database 112, which is typically stored on a large number of high density magnetic disk devices. The program editing software 132 on the central program supplier station 102 tags all the information in the database 112 with indices (each of which contains a packet ID plus additional information) so as to form a single hierarchical structure that encompasses the entire information database. More specifically, software 132 (executed by CPU 130) generates a hierarchical set of indices referencing all the data in the information database 112 and embeds those indices in the information database.” ’505 patent, ll. 28-40

*Issue:* Does the disclosure of “software” that generates data for the information database, provide the support needed for the “database editing means” limitation of claim 1 to satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The ’505 patent discloses minimal information about the structure corresponding to this claim term other than “software” that generates data for the information database, which is merely a restatement of the function. For a computer-implemented means-plus-function claim limitation where the disclosed structure is a computer programmed to implement an algorithm, the patent must disclose, at least to the satisfaction of one of ordinary skill in the art, enough of an algorithm to provide sufficient structure under § 112, ¶ 6. Patentee may express that algorithm in any understandable terms including as a mathematical formula, in prose, flow chart, or in any other manner that provides sufficient structure. Simply reciting “software” without providing any detail about the means to accomplish the function is insufficient under the statute. By not providing any corresponding structure other than stating “software executed by a CPU,” one of skill in the art simply cannot perceive the metes and bounds of the invention, as the disclosure does not meet the minimal disclosure requirements to make the claims definite. Accordingly, the failure to disclose a structure corresponding to the “means for assigning” renders the claim indefinite.

*Conclusion:* The claim is indefinite under § 112, ¶ 2 because the disclosure only provides the disclosure of “software” without providing some detail about the means to accomplish the function is not enough to disclose the necessary corresponding structure as required by statute.

**5. *In re Katz Interactive Call Processing Patent Litig. v. American Airlines, Inc.*, 97 U.S.P.Q.2D 1737 (Fed. Cir. 2011)**

U.S. Patent No. 5,815,551 (“the ’551 patent”)

The claimed subject matter is drawn a Telephonic-interface statistical analysis system. The relevant claim language of independent claim 21 is as follows:

**“processing means . . . for receiving customer number data entered by a caller and for storing the customer number data . . . and based on a condition coupling an incoming call to the operator terminal, the processing means visually displaying the customer number data”;**

The written description of the specification discloses the following in support of the noted means-plus-function recitation of claim 21:

“The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.” ’551 patent, col. 2 ll. 11 – 21

“The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. . . . The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers' individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below. Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. . . . On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals T1-Tn) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.” ’551 patent, col. 4 l. 35 – col. 5 l. 52

*Issue:* Does the disclosure of what only amounts to a general purpose computer satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The issue is whether one of ordinary skill in the relevant art would understand the written description itself to disclose sufficient structure to support the processing means for conditionally coupling calls. The specification need only disclose sufficient structure to perform the function to one of ordinary skill in the relevant art and clearly link or associate structure to the claimed function. The specification of the patent discloses only a general purpose processor and not an algorithm that the processor would use to perform the recited function. Specifically, the ’551 patent, does not disclose an algorithm that corresponds to the “based on a condition coupling an incoming call to the operator terminal” function. Computers can be programmed to conditionally couple calls in many ways. Without any disclosure as to the way the invention conditionally couples calls, the public is left to guess whether the claims cover only coupling based on particular system conditions, such as

the availability of an operator, or are broad enough to cover any coupling in conjunction with an if-then statement in source code. Katz's claims therefore fail to fulfill the “public notice function” of § 112, ¶ 2 of “particularly pointing out and distinctly claiming” the invention. By claiming a processor programmed to perform a specialized function without disclosing the internal structure of that processor in the form of an algorithm, the means-plus-function limitation of that claim constitutes pure functional claiming, which is contrary to the statute. Accordingly, the failure to disclose a structure corresponding to the processing means for coupling a call to the operator terminal based upon a condition renders the claim indefinite.

*Conclusion:* The claim is indefinite under § 112, ¶ 2 because the disclosure only provides a statement that known techniques or methods can be used to program a general purpose computer to achieve the specific function and does not disclose corresponding structure, which in this case requires the disclosure of a special purpose computer, an algorithm, a specific software program, etc.

## **B. Examples illustrating when an indefiniteness rejection is not appropriate**

### **1. *Wenger Mfg, Inc., v. Coating Machinery Sys., Inc.*, 239 F.3d 1225 (Fed. Cir. 2001)**

U.S. Patent 5,100,683 (“the ’683 patent”)

The claimed subject matter is drawn to a method and apparatus for coating and drying food products. The relevant claim language at issue of independent claim 1 is as follows:

“ . . . means for selectively inclining said reel with said inlet elevated relative to said outlet; *air circulating means* associated with said dryer housing *for circulating air through said reel*, . . . ”

Claim 3. An apparatus for coating and drying a food product as set forth in claim 2 including means for exhausting a first portion of said air received in said plenum and *re-circulating* a second portion of said air back into the interior of said reel.

The written description of the specification supports the means-plus-function recitation of claim 1 as noted below:

“The specification discloses the function of “circulating” in the context of drawing air through the reel in order to dry the food product, and discloses “recirculation” as a separate function involving the return of a portion of the drying air back into the reel. In the summary of the invention, the specification states that “the reel is rotatable and permits the circulation of drying air there-through.” ’683 patent, col. 1, ll. 56-58. The specification further states that “the product is presented as a tumbling bed which is agitated as it passes through the reel with drying air circulated there around.” Id. at col. 1, l. 67 to col. 2, l. 1. In the next paragraph, the specification then explains that “in preferred forms,” the housing is configured “to draw additional air through the openings at each end of the reel whereby both fresh and re-circulating air is introduced into the reel.” Id. at col. 2, ll. 4, 11-14. Later, in describing the preferred embodiment, the specification states that the circulating component 22 and exhaust fan 122 create “positive air flow,” which causes the air to flow “in a substantially closed circuit through the housing.” Id. at col. 5, ll. 30-33. In the preferred embodiment, after the air is drawn from the interior of the reel into the housing, air may either be exhausted from the housing or returned back to the reel for recirculation.” *Wenger* at 1234-35.

*Issue:* Does the disclosure that supports the claimed air circulation means also have to disclose and link to a corresponding structure that re-circulates air to properly support the claimed function in accordance with the requirements of § 112, ¶ 6 and avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The expressly claimed function for the relevant means-plus-function limitation is the circulation of air and NOT the *recirculation* of air through the reel. The multiple recitations of structure in the specification that link to the function of circulating air through the reel meet the requirement of § 112, ¶ 6 to disclose corresponding structure. Thus, these relevant portions of the specification support the conclusion that the “air circulation means” should not be limited to structure capable of performing the un-recited function of recirculation. Claim 3 recites a separate and distinct function (*i.e.*, “re-circulating”), which is not recited in claim 1. Accordingly, the “air circulation means” of claim 1 should be limited to structure for performing the recited function of circulating air, and not include structure that performs the additional function of recirculation, as it is expressly recited in dependent claim 3 and thus not found in claim 1.

*Conclusion:* The claim is definite under § 112, ¶ 2 because the disclosure provides support for a corresponding structure that circulates air. To require a corresponding structure to re-circulate the air would be improper because that function is not expressly recited in the means-plus-function limitation, is not linked to the means for circulating air, and would impermissibly import a limitation from claim 3 into claim 1.

## **2. *In re Dossel*, 115 F.3d 942 (Fed. Cir. 1997)**

U.S. Patent Application Serial No. 07/543,600 application (the '600 application), now U.S. Patent 5,885,215 (“the '215 patent”)

The claimed subject matter is drawn to a method of reconstructing the spatial current distribution in a biological object, *i.e.* the generation of medical images of a patient. The relevant claim language of independent issued claim 1 (Claim 8 on appeal) is as follows:

“ . . . and ***means for reconstructing*** the current distributions of the volume elements which are situated on said surfaces on the basis of said measured values.”

The written description of the specification supports this means-plus-function recitation with the following disclosure:

“A reconstruction unit 11 reconstructs the density of the impressed current at the individual voxels  $V_i$  ( $1 \dots i \dots s$ , where  $s$  is the number of voxels on the marked surface) from the measuring values of the magnetic flux density at the various pixels at each time the same instant. Known algorithms can be used for this purpose.” ‘215 patent, col. 4, ll. 5-11.

*Issue:* Does the disclosure of specific equations to perform the function of reconstruction coupled with the disclosure that “known algorithms can be used” to solve those equations satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The specification does not directly state that a computer or computer code is used to implement the function of reconstruction but the written description combined with the claims disclose a device that receives digital data words from a memory and data input from a user. The specification describes how the device then computes, from the received data, a current distribution by mathematical operations including a matrix inversion or pseudo inversion, and then outputs the result to a display. One of ordinary skill in the medical imaging art knows that computers are used to generate images for display by mathematically processing data, and the written description discloses specific equations to perform the function of reconstruction. While the written description does not disclose exactly what mathematical algorithm can be used to solve the equations, it does state that “known algorithms” can be used to solve standard equations which are known in the art. Therefore, under these circumstances, the disclosure satisfies the requirements of § 112, ¶ 2.

*Conclusion:* The claim is definite under § 112, ¶ 2 because the disclosure provides sufficient structure that is clearly linked to the function of reconstruction so that one of ordinary skill in the relevant art would understand the written description to disclose corresponding structure as required by § 112, ¶ 6.

See MPEP 2181 II 8<sup>th</sup> Ed. Rev. 6., Sept 2007 Pages 2100-238-39.

See also *Aristocrat Techs. Australia Pty Ltd, v. Int’l Game Tech.*, 521 F.3d 1328, 1335-36 (Fed. Cir. 2008) (distinguishing the facts in *Dossel*). The court stated that the application in *Dossel* provided the particular equation by which the relationship between the values of magnetic flux density and current density could be described in matrix form and that it described in great detail the components of that equation. The court clarified what it meant regarding “known algorithms,” stating that “[f]rom the context and from reviewing the application, it is clear that the *Dossel* court used the term ‘algorithm’ in a narrow sense, referring to particular well-known mathematical operations that could be used to solve the equations disclosed in the application,” and that “the *Dossel* case provides an example of an extremely detailed disclosure of all information necessary to perform the function, except for basic mathematical techniques that would be known to any person skilled in the pertinent art.”

### **3. *All Voice Computing PLC v. Nuance Commc’ns, Inc.*, 504 F.3d 1236 (Fed. Cir. 2007)**

U.S. Patent No. 5,799,273 (“the ’273 patent”)

The claimed subject matter is drawn a data processing of output from a speech recognition engine. The relevant claim language of independent claim 60 is as follows:

“ . . . **output means for out-putting** the recognized words into at least any one of the plurality of different computer-related applications to allow processing of the recognized words as input text; . . . ”

The written description of the specification discloses the following in support of the means-plus-function recitation of claim 60:

“The speech recognition interface application 12 receives the recognized word at the head of the alternative list shown in FIG. 3 and outputs the word using the dynamic data exchange (“DDE”) protocol in the Windows operating system.” ’273 Patent col.7 ll.3-7.

*Issue:* Does the disclosure that supports the claimed means for outputting also have to disclose and link to a corresponding structure that must alternately output data to a plurality of different word processing or other application programs to satisfy the requirements of § 112, ¶ 6 and avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The expressly claimed function for the relevant means-plus-function limitation is the outputting of data to a word processing program and NOT the function of outputting data alternatively to a plurality of word processing programs. Although the output means must be capable of outputting data to more than one program, the claim does not suggest the requirement that the means do so alternately. The disclosure in general indicates that the invention is capable of outputting data to more than one program, *e.g.* Word®, Word Perfect® etc., but to read this portion of the disclosure into the “means for outputting” function of the means-plus-function limitation is improper. Removing the extra functional limitation of “alternately” the specification does contain structure corresponding to the “output means” clause of claim 60. The ’273 Patent col.7 ll.3-7 and figure 3 discloses a dynamic data exchange (DDE) protocol that performs and link the function to sufficient corresponding structure to one of ordinary skill in the relevant art. With the proper parameters of the claim now established, one of ordinary skill in the relevant art would understand the bounds of the claim when read in light of the specification. Accordingly, claim 60 is definite.

*Conclusion:* The claim is definite under § 112, ¶ 2 because the disclosure provides support for a corresponding structure that outputs the data, and links the output function to a known corresponding structure. Requiring the corresponding structure to “alternatively” output data to a plurality of programs would be misconstruing the disclosure and improperly importing into the means-plus-function claim limitation a function that is not expressly set forth in claim.

#### **4. *Telecordia Techs., Inc., v. Cisco Systems, Inc.*, 612 F.3d 1365 (Fed. Cir. 2010)**

U.S. Patent Nos. 4,835,763 (“the ’763 patent”)

The claimed subject matter is drawn to a communications network this is self-healing. The relevant claim language of independent claim 1 is as follows:

“... ***monitoring means***, associated with the first ring and the second ring, ***for evaluating*** the integrity of the multiplexed subrate communications on the first ring and the second ring, respectively . . .”

The written description of the specification in addition to several “black boxes” in the drawings, discloses the following in support of the means-plus-function recitation of claim 1:

“Each node continuously monitors and evaluates the integrity of the multiplexed subrate signals arriving at the node. Illustratively, this could be accomplished by detecting the absence of a carrier signal in an analog signal environment, or the lack of any incoming signal in a digital environment. When node 1 recognizes major line fault 122 in ring 100, controller 118 inserts an error signal onto the six subrate channels. This could illustratively be accomplished by inserting a string of 1’s on each channel in a digital environment. Node 4 performs the identical activity by similarly placing an error signal on the six subrate channels of ring 101. After these two relatively simple procedures take place, the ring network otherwise operates normally.” ’763 patent col. 3, ll. 4-17.

*Issue:* Does the disclosure that each node has two controllers that monitor and evaluate the integrity of the signals arriving at the node support the “means for monitoring” means-plus-function limitation and link it to sufficient corresponding structure to satisfy the requirements of § 112, ¶ 6 and avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The specification only has to disclose sufficient structure to perform the function to the level of one of ordinary skill in the relevant art and clearly link or associate structure to the claimed function. The question is not whether one of skill in the art would be capable of implementing a structure to perform the function, but whether that person would understand the written description itself to disclose such a structure. The function of “monitoring” is disclosed as occurring continuously at each node to evaluate the integrity of the substrate signals. The specification states that controllers are associated with the nodes to generate error signals. Therefore one of ordinary skill in the art would appreciate that the controller must monitor the signal for errors. The corresponding structure for the function is thus the circuitry at a controller that determines if a defect exists with the multiplexed substrate communications. Therefore, despite the existence of “black boxes” in the drawings, controllers and their circuitry are the structure associated with the function of the monitoring means and one of ordinary artisan would understand the written description to clearly link or associate the controller with the claimed function. Therefore, the specification along with the figures shows sufficient structure to define the means-plus-function limitation to one of ordinary skill in the relevant art. The written description discloses sufficient structure to support the “means for monitoring” function and clearly links the corresponding structure to the means-plus-function limitation.

*Conclusion:* The claim is definite under § 112, ¶ 2 because the disclosure provides support for a corresponding structure and links it to the means for monitoring limitation. The specification states the nodes have controllers and selectors, which must monitor the incoming signals for errors; otherwise, the controller would not be able to insert error signals onto the substrate channels. Thus one of ordinary skill would appreciate that the monitoring function is clearly linked or associated with the controller, which is the corresponding structure.

**5. *In re Katz Interactive Call Processing Patent Litig. v. American Airlines, Inc.*, 97 U.S.P.Q.2D 1737 (Fed. Cir. 2011)<sup>1</sup>**

U.S. Patent No. 5,815,551 (“the ’551 patent”)

The claimed subject matter is drawn to a telephonic-interface statistical analysis system. The relevant claim language of independent claim 14 is as follows:

---

<sup>1</sup> The issue as to whether or not a general purpose computer disclosure is sufficient to support the means-plus-function limitations in this case is still before the District Court on remand from the CAFC for further claim construction and consideration in accordance with the CAFC opinion. This example is a simplified illustration of the CAFC holding that a general purpose computer disclosure can support a means-plus-function limitation drawn to a function that a general purpose computer is known to perform.



“ . . . generator structure selectively coupled to the interface structure and the record memory for providing computer generated numbers to the individual callers and storing the computer generated numbers in the record memory . . . ”

The written description of the specification discloses the following in support of the noted means-plus-function recitation of claim 14:

“The system of the present invention may qualify an entitled set of callers, then receive answer data in the course of the call and develop identification or designation data, sequence data and statistical data. The system may then provide data cells for storing individual data while assigning confirmable identifications to the entitled set. From the set, a subset is defined. That is, in accordance with various formats, acquired data is processed in statistical relationship, or in relation to applied external data to accomplish such functional operating formats as an auction sale, a contest, a lottery, a poll, a merchandising operation, a game, and so on.” ’551 patent, col. 2 ll. 11 – 21

“The processing systems P1-Pn are similar, therefore, only the processing system P1 is shown in any detail. . . . The interface 20 provides the connection of the fifty lines to a switch 21 which is in turn coupled to fifty function units, or processors PR1-PRn. As indicated above, multiple function units, or processors, are described in the disclosed embodiment to facilitate the explanation. Of course, non-parallel techniques and multiplexed operations might well be employed as alternatives. For a similar reason, as disclosed herein, each of the processors PR1-PRn includes memory cells for each of the callers’ individual data. Development and compilation of data in such cells according to various operating formats is described below. In the disclosed embodiment, the processors PR1-PRn are connected collectively to the command computer terminal CT (incorporating a CRT display), the interface terminal IT, and the printer PR. Note that the CRT display serves to visually display data regarding select subsets as explained in detail below. Exemplary detailed structures for the processors PR1-PRn are described below; however, in general, the units may comprise a microcomputer, for example, programmed as suggested above and as disclosed in detail below to accomplish specific operating formats. . . . On the qualification and designation of callers, the system enters a data accumulation phase during which digital data (formatted at one of the telephone terminals T1-Tn) is processed by one of the processors PR1-PRn. In general, the processing evolves a subset (at least one caller) the members of which may be verified and confirmed.” ’551 patent, col. 4 l. 35 – col. 5 l. 52

*Issue:* Does the disclosure of only “a general purpose computer” satisfy the corresponding structure, material or acts requirement of § 112, ¶ 6 to avoid an indefiniteness rejection?

*Analysis:* The claim limitation invokes § 112, ¶ 6, therefore the next step in the analysis is to determine if the specification discloses the corresponding structure, material, or acts in accordance with § 112, ¶ 6. The issue is whether one of ordinary skill in the relevant art would understand the written description itself to disclose sufficient structure for storing data. The specification need only disclose sufficient structure to perform the function to one of ordinary skill in the relevant art and clearly link or associate structure to the claimed function. The specification sets forth processing systems that consist of a general purpose computer with memory to store individual caller data. As the function of storing data, in this instance, is not a specific function that requires a specific program or algorithm, it need not be performed by a special purpose computer. The function of storing data can be performed by any general purpose computer without special programming. As such, the means-plus-function limitation of storing data does not run afoul of the rule against purely functional claiming, because the function is co-extensive with the structure as disclosed, *i.e.*, a general purpose computer.

*Conclusion:* The claim is definite under § 112, ¶ 2 because the disclosure provides sufficient structure that is clearly linked to the function of storing data, that is, a general purpose computer with memory. Therefore, one of ordinary skill in the relevant art would understand the written description discloses corresponding structure as required by § 112, ¶ 6.

#### **IV. EXAMPLES OF RELATED ISSUES UNDER 35 U.S.C. § 112, ¶1**

The following examples are provided to support the concepts set forth in the *Supplementary Examination Guidelines for Determining Compliance with 35 U.S.C. 112 and for Treatment of Related Issues in Patent Applications*, 76 Fed. Reg. 7,162 (Feb. 9, 2011) (the 2011 Supplementary Guidelines). As noted in the 2011 Supplementary Guidelines, the boundaries of the scope of a claim may be unclear when the claim employs functional language, such as when the claim merely recites a description of a problem to be solved or a function or result achieved by the invention. Further, functional claim limitations may render the claim broad when the claim covers all means or methods of performing a function, resolving a problem, or achieving a result. Like all claim limitations, functional claim limitations must be adequately supported by the written description and must be commensurate in scope with the scope of the enabling disclosure, both of which are required by 35 U.S.C. § 112, ¶1 (§ 112, ¶1). To satisfy the written description requirement, the specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. Specifically, the specification must describe the claimed invention in a manner understandable to a person of ordinary skill in the art and show that the inventor actually invented the claimed invention. To satisfy the enablement requirement of § 112, ¶1, the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without “undue experimentation.” The following examples are drawn from case law of the U.S. Court of Appeals for the Federal Circuit (CAFC) and are illustrative of current Office policy regarding the written description requirement and enablement requirement under § 112, ¶1 as set forth in MPEP §§ 2161-2164.08(c) and Sections I-II of the 2011 Supplementary Guidelines.

##### **A. Lack of written description support for broad claim limitations**

###### **1. *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 76 USPQ2d 1724 (Fed. Cir. 2005)**

*Representative Claim (U.S. Patent No. 5,710,835):*

21. A method for selectively viewing areas of an image at multiple resolutions in a computer having a primary memory for data processing and a secondary memory for data storage, the method comprising the steps of:

storing a complete set of image data array  $I(x,y)$  representing said image in a first secondary memory of said computer;

defining a plurality of discrete tile image data  $T_{ij}(x,y)$  subsets, where said complete set of image data  $I(x,y)$  is formed by superposition of said discrete tile image data  $T_{ij}(x,y)$ ;

performing one or more discrete wavelet transformation (DWT)-based compression processes on each said tile image data  $T_{ij}(x,y)$  in a selected sequence to output each said discrete tile image data  $T_{ij}(x,y)$  as a succession of DWT coefficients in a succession of subband sets, where one subband of each set is a low-resolution representation of said discrete tile image data  $T_{ij}(x,y)$  to form a sequence of low-resolution representations of said image data array  $I(x,y)$  to selected resolutions;

selecting a viewing set of said image data array  $I(x,y)$  to be viewed at a desired resolution:

determining a viewing subset of said DWT wavelet coefficients that support said viewing set of said image data at said desired resolution; and  
forming from said subset of said DWT wavelet coefficients a computer display of said viewing set of said image data at said desired resolution.

*Background:* The invention relates to wavelet transforms, which allow for compression of digital images with very little loss of information and, in particular, a process for creating a seamless discrete wavelet transform (DWT).

*Issue:* Is claim 21, which covers all ways of performing DWT-based compression processes that lead to a seamless DWT, invalid under § 112, ¶1?

*Analysis:* The court noted that claim 21 “is directed to creating a seamless array of DWT coefficients generically,” whereas the specification “is directed at describing a particular method for creating a seamless DWT”—*i.e.*, by maintaining updated sums of DWT coefficients. Unlike claim 1, which includes the step of maintaining updated sums, claim 21 does not contain limitations as to how the seamless DWT is accomplished. The court stated, “The trouble with allowing claim 21 to cover all ways of performing DWT-based compression processes that lead to a seamless DWT is that there is no support for such a broad claim in the specification. The specification provides only a single way of creating a seamless DWT, which is by maintaining updated sums of DWT coefficients. There is no evidence that the specification contemplates a more generic way of creating a seamless array of DWT coefficients.” The court explained that while “it is unnecessary to spell out every detail of the invention in the specification ... enough must be included to convince a person of skill in the art that the inventor possessed the invention and to enable such a person to make and use the invention without undue experimentation.”

*Conclusion:* In this case, the court found that the written description and enablement requirements of § 112, ¶1 were not met because “[a]fter reading the patent, a person of skill in the art would not understand how to make a seamless DWT generically and would not understand [patentee] to have invented a method for making a seamless DWT, except by ‘maintaining updating sums of DWT coefficients.’”

## **2. *ICU Med., Inc. v. Alaris Med. Sys., Inc.*, 558 F.3d 1368, 90 USPQ2d 1072 (Fed. Cir. 2009)**

*Representative Claim (U.S. Patent No. 6,572,592):*

35. A needleless connector valve comprising:  
a body including a wall structure defining an internal cavity having a proximal end and a distal end, said proximal end having an opening sufficiently large to receive a delivery end of a medical implement, the opening being adapted to receive fluid through said delivery end; and  
a seal which is adapted to be moved distally in the cavity into an axially compressed state upon insertion of the delivery end of the medical implement into said opening, said seal moving proximally in the cavity and returning to an axially decompressed state upon removal of said medical implement from said opening, said seal substantially completely filling said opening and presenting a generally flush surface across said proximal end of said cavity of said body when said seal is in the decompressed position, said seal having a tubular, corrugated, imperforate wall accommodating axial compression of said seal, and said seal having a preslit orifice at the proximal end of the seal, said

orifice being closed to prevent fluid from flowing through said seal when said seal is in said opening, and said orifice being open to allow fluid to flow through said seal when said seal is in the compressed state.

*Background:* The court characterized the invention as “a medical valve that receives fluid from a medical implement (e.g., a syringe) without the use of an external needle. The medical implement compresses a seal on the valve to create a fluid pathway from the medical implement through the valve and into a patient’s IV line.” The asserted claims of the patents fell into three categories: the “spike claims,” directed to a medical valve comprising a body, a spike, and a seal; the “spikeless claims,” directed to a medical valve comprising a body and a seal; and the “tube claims,” directed to a medical valve comprising a body, a seal, and a tube. The court referred to the second set of claims as the “spikeless claims” not because they exclude a medical valve with a spike but because “these claims do not include a spike limitation—i.e., they do not require a spike.” The court noted that “the asserted spikeless claims were not filed with the original application; rather they were added years later during prosecution.”

*Issue:* Is claim 35, which is representative of the “spikeless claims” covering medical valves that operate with a spike and those that operate without a spike, invalid for lacking written description?

*Analysis:* The court interpreted the “spikeless claims” as being broader than the “spike claims” because the “spikeless claims” “refer to medical valves generically—covering those valves that operate with a spike and those that operate without a spike.” The court noted, however, that “the specification describes only medical valves with spikes.” The court rejected the patentee’s argument “that the figures and descriptions that include spikes somehow demonstrate that the inventor possessed a medical valve that operated without a spike.” Rather, the court determined that “[b]ased on this disclosure, a person of skill in the art would not understand the inventor ... to have invented a spikeless medical valve.”

Specifically, patentee argued “that a person of ordinary skill in the art would recognize that the specification discloses a preslit (or precut) seal that would permit fluid transmission without the piercing of a spike.” The court disagreed, explaining that “[i]n this preslit trampoline seal embodiment, compression of the preslit seal by a medical implement opens the slit to create a fluid pathway and decompression of the seal upon removal of the medical implement closes the seal” and that “[t]he specification describes the preslit seal as facilitating piercing and re-sealing, rather than as eliminating the need for piercing.” Additionally, the court explained that “[t]he fact that compression of a preslit seal would allow an opening for fluid transmission does not answer the question of whether the claimed invention nevertheless requires a spike capable of piercing the seal in preslit embodiments” and that “[i]t is not enough that it would have been obvious to a person of ordinary skill that a preslit trampoline seal could be used without a spike.” Thus, the court determined that there was no disclosure in the patent specification describing a spikeless valve with a preslit trampoline seal.

*Conclusion:* The court held the spikeless claims invalid for non-compliance with the written description requirement of § 112, ¶1.

**3. Centocor Ortho Biotech, Inc. vs. Abbott Labs., \_\_\_ F. 3d \_\_\_, 2011 U.S. App. LEXIS 3514; 97 USPQ2d 1870 (Fed. Cir. 2011)**

*Representative Claims (U.S. Patent No. 7,070,775 (“the ’775 patent”)):*

1. An isolated recombinant anti-TNF- $\alpha$  antibody or antigen-binding fragment thereof, said antibody or antigen-binding fragment comprising a human constant region, wherein said antibody or antigen binding fragment (i) competitively inhibits binding of A2 (ATCC Accession No. PTA-7045) to human TNF- $\alpha$ , and (ii) binds to a neutralizing epitope of human TNF- $\alpha$  *in vivo* with an affinity of at least  $1 \times 10^8$  liter/mole, measured as an association constant ( $K_a$ ), as determined by Scatchard analysis.
2. The antibody or antigen-binding fragment of claim 1, wherein the antibody or antigen-binding fragment comprises a human constant region and a human variable region.

*Background:* The '775 patent discloses pharmaceutical antibodies used to treat arthritis. Specifically the '775 patent discloses technology involving antibodies to human tumor necrosis factor  $\alpha$  ("TNF- $\alpha$ "). Overproduction of TNF- $\alpha$  can lead to various autoimmune conditions, including arthritis. Although TNF- $\alpha$  antibodies have the potential to reduce the harmful activity caused by excess TNF- $\alpha$ , the human body does not typically make antibodies to human TNF- $\alpha$ . The '775 patent discloses mouse-human chimeric antibodies to human TNF- $\alpha$ . The chimeric antibody consists of a mouse variable region and a human constant region. The chimeric antibody is needed because human patients frequently have immunological reactions when treated with antibodies produced in mice or other non-human species. The human immune system recognizes foreign proteins as such and attacks them. By engineering a chimeric antibody, it looks more human, and tricks the human immune system to prevent this undesirable immune response. Given these therapeutic limitations of the known TNF- $\alpha$  antibodies, the '775 patent's chimeric anti-TNF- $\alpha$  antibody is disclosed as having (1) high affinity, (2) neutralizing activity, (3) binding at a specific epitope on human TNF- $\alpha$ , and (4) reduced immunogenicity. The scope of claim 1 includes both chimeric and human antibodies, whereas claim 2 is limited to human antibodies.

*Issue:* Does the disclosure of a human-mouse chimeric antibody characterized by specific results obtained support a claim to a human antibody with the same specific results obtained?

*Analysis:* The court analyzed whether or not the disclosure of the '775 patent provides adequate written description for the claimed human antibody. Claim 2 sets forth that a fully-human antibody possesses the same results-obtained properties as the disclosed chimeric antibody, *i.e.*, high affinity, neutralizing activity and binding at a specific epitope. The court held that the '775 patent provided little support for a high affinity, neutralizing, TNF- $\alpha$  specific antibody that is purely human. Instead, the court found that the overwhelming majority of the '775 patent only described a mouse antibody and a single chimeric antibody with the claimed results-obtained properties. The court further explained that while the specification discloses the sequence to the human TNF- $\alpha$  protein, possession of the protein alone does not demonstrate possession of the claimed antibodies.

In some cases, the written description for certain antibody claims may be satisfied by disclosing a well-characterized antigen. This reasoning applies to the disclosure of newly characterized antigens where creation of the claimed antibodies is routine. In this case, human TNF- $\alpha$  protein and antibodies to TNF- $\alpha$  were known. However, at the time the application leading to the '775 patent was filed, it was not possible to create the claimed fully-human antibodies with the

results-obtained properties using known, contemporaneous, conventional technology. Therefore, the specification failed to adequately describe the fully-human antibodies with the claimed results-obtained properties to one of ordinary skill in the art given the state of the art at the time of filing. The court concluded that the claims to “fully-human antibodies merely recite a description of the problem to be solved while claiming all solutions to it.” Thus, the broad, results-obtained claiming of a class of purely human antibodies is not supported by the specification because it does not describe a single human antibody that satisfies the claim limitations. The ’775 patent did not show constructive possession of the claimed invention and thus the written description requirement of § 112, ¶1 was not satisfied.

*Conclusion:* The claims are invalid under § 112, ¶1 because they do not comply with the written description requirement.

## **B. Lack of enablement for full scope of broad claim**

### **1. *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 68 USPQ2d 1280 (Fed. Cir. 2003)**

*Representative Claims (U.S. Patent No. 5,066,549 (“the ’549 patent”)):*

1. A ferrous base ferritic strip continuously hot dip coated with a coating metal, comprising:  
the strip including at least about 6% by weight chromium,  
the coating metal including aluminum or aluminum alloys,  
the coating layer on the strip being substantially free of uncoated areas and formed without a thick brittle Fe-Al alloy inner layer,  
the coating layer being tightly adherent to the strip and resistant to crazing or flaking during bending.
3. The strip of claim 1 wherein the aluminum coating metal contains up to about 10% by weight silicon.

*Background:* The ’549 patent claims are directed to hot-dip aluminum-coated stainless steel. The court explained that “[h]ot-dip aluminum-coated steel is produced by passing heated steel strips through molten aluminum; however, it is challenging to get the aluminum to adhere or ‘wet’ well onto the steel” and that “[t]he inventors of the patents in suit solved the wetting problem by maintaining the steel strip in a hydrogen atmosphere prior to entry into the aluminum coating bath.” The specification includes statements regarding the amount of silicon in the aluminum coating with respect to the coating metal’s ability to wet well and, as the court explained, the specification states that “Type 1 aluminum containing ‘about 10%’ silicon contains too much silicon and does not achieve that goal” but “Type 2 or nearly pure aluminum does and is therefore preferred.” The ’549 patent issued from a continuation application, which sought and issued with broader claims than its parent patent.

*Issue:* Is the full scope of the asserted claims of the ’549 patent as covering steel strips containing either a Type 1 or a Type 2 aluminum coating enabled?

*Analysis:* The court interpreted the asserted independent claims as reading on steel strips containing either a Type 1 or a Type 2 aluminum coating. This is because the asserted independent claims do not contain any express limitations regarding the amount of silicon in the aluminum coating, while the corresponding dependent claims specify the further limitation that the aluminum coating contain up to

about 10% silicon (*i.e.*, Type 1 silicon). The court also interpreted the claims as requiring that the coating wet well. The court stated that “[t]he specification undoubtedly enables the invention [with Type 2 aluminum], as it clearly describes how to make and use such strips with Type 2 aluminum, and there is no question that the resulting strips are well-wetted.” However, the court concluded that the specification is inadequate to enable making and using a steel strip containing a Type 1 aluminum coating with the claimed wetting attributes, “primarily because [the specification] expressly teaches against it.” The court stated that “[w]orse than being silent as to that aspect of the invention, the specification clearly and strongly warns that such an embodiment would not wet well” and, in particular, that “silicon content above 0.5% in the aluminum coating causes coating problems.” The court stated, “Such a statement discourages experimentation with coatings having more than 0.5% silicon, undue or otherwise. It tells the public that higher amounts of silicon will not work.” The court further explained that “the specification’s teaching is itself evidence that at least a significant amount of experimentation would have been necessary to practice the claimed invention utilizing Type 1 aluminum,” and concluded that “the specification does not enable a significant portion of the subject matter encompassed by the contested claims of the ’549 patent.”

*Conclusion:* The court held the asserted claims **invalid** for non-compliance with the enablement requirement of § 112, ¶1.

## **2. *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 85 USPQ2d 1826 (Fed. Cir. 2007)**

*Representative Claim (U.S. Patent No. 6,425,825 (“the ’825 patent”)):*

1. A system comprising:
  - a source of a first video image signal representative of a plurality of background images of which at least two of which are comprised of at least one common predetermined character function therewithin having a recognizable video presentation within the background images;
  - a source of a user image signal representative of a user image;
  - means for selecting one predetermined character functions as a selected predetermined character function within the respective background images;
  - means for mapping the user image to the selected predetermined character function;
  - apparatus for providing an integrated video output wherein the user image appears integrated into the respective background images in place of the respective recognizable video presentation for the selected character function responsive to the mapping of the selected predetermined character function to the user image signal.

*Background:* The ’825 patent is directed to integrating a user audio signal or visual image into a pre-existing video game or movie. The asserted patent claims were interpreted as including both video games and movies, and the issue was whether the movie embodiment (*i.e.*, substitution or integration of user images in movies) was enabled. The court explained that the patent specification describes the “‘integration’ or ‘substitution’ as being performed by an ‘Intercept Adapter Interface System’ (IAIS)” and that, in a video game system, the IAIS functions to reconfigure signals corresponding to character functions by substituting the user image for the predefined character image.

*Issue:* Is the full scope of the asserted claims of the ’825 patent as covering both movies and video games enabled?

*Analysis:* The court stated that “[b]ecause the asserted claims are broad enough to cover both movies and video games, the patents must enable both embodiments” and that “[e]ven if the claims are enabled with respect to video games—an issue we need not decide—the claims are not enabled if the patents do not also enable for movies.” The court determined that the asserted claims “provide for the ‘integration’ or ‘substitution’ of a visual or audio ‘user image’ in place of a ‘pre-defined character image’ or ‘character function’ within a ‘presentation’ such as a motion picture,” but determined that the patent specification does not teach how the substitution and integration of a user image would be accomplished in movies. The court agreed with the district court that the patent does not teach how the IAIS would perform such necessary steps in movies because “[m]ovies do not have easily separable character functions, as video games do, and the patent does not explain how the IAIS either selects the character functions to be substituted for a user image or intercepts signals in order to effectuate the substitution.” Further, the court noted that the accused infringers’ “two experts explained that one skilled in the art would not be able to take the teachings regarding video games and apply them to movies” because “movies and video games are technically different” and that “the analysis techniques described in the specification for identifying character functions or intercepting character signals have no relevance to movies.”

*Conclusion:* The court held the asserted claims **invalid** for non-compliance with the enablement requirement of § 112, ¶1.

### **C. Written description support for claims covering only one of several problems disclosed or covering only one of several solutions disclosed for the same problem**

#### **1. *Revolution Eyewear, Inc. v. Aspex Eyewear, Inc.*, 563 F.3d 1358, 90 USPQ2d 1733 (Fed. Cir. 2009)**

*Representative Claim (U.S. Patent No. RE37,545 (“the ’545 patent”)):*

22. An eyeglass device comprising:

a primary spectacle frame for supporting primary lenses therein and having two side portion extensions extending rearwardly therefrom and having a front side, a rear side, a top side, and a rear end, each of said rear ends pivotally coupling a leg configured to conform to a user at a distal end thereof, each of said extensions of said primary spectacle frame further having a projection attached to each of said rear sides, and a pair of first magnetic members respectively secured in said projections, said first magnetic members capable of engaging second magnetic members of an auxiliary spectacle frame so that lenses of an auxiliary spectacle frame are located in front of said primary lenses.

*Background:* The disclosure of the ’545 patent identifies two deficiencies at the time of the invention in the relevant spectacle frame art: (1) stability issues with regard to the attachment of auxiliary frames when in use; and (2) decreased strength of the primary frames when magnetic elements are embedded into the primary frame. The stability issue is due to the fact that when auxiliary lenses are attached to the frames by magnetic materials only, the auxiliary lenses more easily move downward relative to the frames and disengage from the frames when in use during exercise. ’545 patent col.1 ll.26-32. The ’545 invention addresses the stability issue by using an auxiliary frame that includes a top mounting mechanical interface between the primary and auxiliary frame. *Id.* col.2 ll.49-56. The decreased strength problem is due to the design of the prior art frames, where the magnetic materials are embedded in the frames, by excavating four or more cavities in a frame. *Id.* col.1 ll.33-37. In the ’545 invention, magnetic members are supported by projections located at the rear/side portions of



both the primary frame and the auxiliary frame. *Id.* col.2 ll.36-38, ll.43-44. Because the magnetic members are not embedded in the frame structure, they do not compromise the structural strength of the frame. *Id.* col.3 ll.24-26. Therefore the '545 patent discloses and identifies two known problems in the art and presents solutions for each problem.

*Issue:* Does a disclosure that addresses two problems known in the art provide adequate written description support for a claim that only sets forth limitations addressing one of the two known problems in the prior art?

*Analysis:* Claim 22 is directed only to the primary frame with the magnetic structure that solves the known problem of structural frame weakness when magnetic elements are embedded into the frame. The claim does not set forth an auxiliary frame with a top mounting design to address the known stability problem exhibited by auxiliary frames in the art. Thus, claim 22, only embodies a solution to one of the two problems disclosed. Claim 22 complies with the written description requirement, because when a specification presents two different problems in the prior art, it is unnecessary that each and every claim in the patent address both problems. An applicant may frame their claims to address just one of the disclosed problems or several of the disclosed problems. The written description requirement will be satisfied as to each claim as long as the description conveys that the inventor was in possession of the invention recited in that claim. Therefore, claim 22 drawn to only a primary frame with magnetic elements is adequately supported by the disclosure to satisfy the written description requirement of 35 U.S.C. § 112, ¶1. (Furthermore it is noted that Figure 3 of the '545 patent does disclose each and every element of a primary frame as claimed in claim 22, and does not include the auxiliary frame.)

*Conclusion:* The claim is compliant with the written description requirement. When a specification sets out two or more different problems present in the prior art, it is unnecessary for each and every claim in the patent to address all of the disclosed problems.

## **2. *Crown Packaging Tech., Inc. v. Ball Metal Bev. Container Corp.*, 635 F.3d 1273, 98 USPQ2d 1244, (Fed. Cir. 2011)**

*Representative Claims:*

- *U.S. Patent No. 6,848,875 (the '875 patent):* The '875 patent discloses the structure of beverage cans and discloses and claims methods of making beverage cans. Claim 52 of the '875 patent is directed to a method of seaming a can end with an increased slope of a chuck wall and not with a reduced width reinforcing bead.
- *U.S. Patent No. 6,935,826 (the '826 patent):* The '826 patent is a continuation of the '875 patent. The '826 patent discloses methods of making beverage cans and the structure of beverage cans and claims a can end before it is seamed to a can body. Claim 14 of the '826 patent is directed to a can end that only sets forth the limitations of a can end with an increased slope of a chuck wall and not the limitations of a reduced width reinforcing bead.

*Summary of the Relevant Disclosure:* The common specification of the '875 patent and the '826 patent discusses two deficiencies in the relevant beverage can art: (1) reducing metal usage for the manufacture of cans in the can ends, and (2) reducing scuffing to the can end wall. The reduction of metal usage during the can manufacturing process is the disclosure at issue. (NOTE: A can end is the end of a beverage can from which a user will drink. A can body is the cylindrical body of the can and

the end opposite the drinking end of the can). The reduction of metal waste is disclosed as being achieved in two ways (both related to the design of the can end): (1) by increasing the slope a vertical portion of the inside wall (the chuck wall) of the can end from approximately parallel relative to the wall of the can body when sealed to a significant slope; and (2) by reducing width of the reinforcing bead (a circumferential channel/lip that runs along edge of the can end that will be sealed to the can body).

*Issue:* If a disclosure describes two different solutions to a problem known in the art, is there written description support for a claim setting forth limitations directed to only one of the solutions?

*Analysis:* The claims are directed only to the metal saving solution of using a sloped chuck wall. The claims are not drafted as broad genus claims nor as functional claims describing the desired result of saving metal. The disclosure does not teach that the metal savings can only be achieved by combining both solutions of a sloped chuck wall with a reduced width reinforcing bead. For example, the specification provides several tabular examples that only vary the chuck wall angle and do not reduce the width of the reinforcing bead. The specification does tie the scuffing problem to the reduced width of the reinforcing bead, but does not do the same when disclosing the two solutions for saving metal. The fact that the drawings in the specification all show a chuck drive outside the reinforcing bead (and hence only disclosing the reduced width bead embodiment), does not compel the conclusion that the written description is so narrowly tailored as to preclude the patentee from claiming an embodiment that only utilizes the sloped chuck wall solution. The specification supports the asserted claims that achieve metal savings by varying the slope of the chuck wall alone.

An applicant may frame their claims to address just one of the disclosed problems or several of the disclosed problems. The written description requirement will be satisfied as to each claim as long as the description conveys that the inventor was in possession of the invention recited in that claim. Here, the specification provides two clearly described solutions to the problem of improving metal usage: modifying the slope of the wall and limiting the width of the reinforcing bead. It does not matter that both solutions relate to the same problem. The relevant case law indicates that it is a false premise that if the problems addressed by the invention are related, then a claim addressing only one of the problems is invalid for lack of sufficient written description. Therefore, one of ordinary skill in the relevant art would appreciate that the two metal saving solutions do not necessarily both have to be used to achieve the solution of saving metal. Accordingly, the claims drawn only to an increased slope of a chuck wall are adequately supported by the disclosure to satisfy the written description requirement of § 112, ¶1.

*Conclusion:* The claims are compliant with the written description requirement. When a specification sets out more than one solution to the same problem present in the prior art, it is not necessary for each and every claim to include all the solutions to the same problem.

#### **D. “Single means”-type claims**

##### **1. *In Re Hyatt*, 708 F.2d 712, 218 USPQ 195 (Fed. Cir. 1983)**

*Representative Claim (U.S. Application No. 754,660):*

35. A Fourier transform processor for generating Fourier transformed incremental output signals in response to incremental input signals, said Fourier transform processor comprising incremental means

for incrementally generating the Fourier transformed incremental output signals in response to the incremental input signals.

*Issue:* Does an apparatus claim that sets forth a single means-plus-function limitation with only additional claim language descriptive of the means-plus-function limitation comply with the enablement requirement of § 112, ¶1?

*Analysis:* The claimed subject matter is drawn to an apparatus for processing signals. The body of the claim at issue consists of a single limitation drafted in a means plus function format with additional claim language that appears to be solely descriptive of the means plus function limitation. In order for a claim limitation drafted in a means plus function format to be interpreted under 35 USC 112, ¶6, the limitation must be “[a]n element in a claim for a combination.” When a means plus function limitation in a claim is not recited in combination with another limitation, the claim is considered a “single means claim”—*i.e.*, “a claim drafted in ‘means-plus-function’ format yet reciting only a single element instead of a combination.” A “single-means-claim” does not comply with the enablement requirement of § 112, ¶1 because it would embrace every conceivable structure for performing the function, while the specification at most only states those structures known to the inventor.

The language of claim 35, “incremental means for incrementally generating” invokes § 112, ¶6, but does not fully comply with all of the requirements of § 112, ¶6, specifically the combination requirement. The remaining claim language in the body of the claim “the Fourier transformed incremental output signals in response to the incremental input signals” is merely descriptive of the means. The preamble does not provide an additional limitation to the claimed invention to satisfy the combination requirement of § 112, ¶6. Therefore, claim 35 is a single means claim. Accordingly, a rejection of claim 35 under § 112, ¶1 is appropriate, based on non-compliance with the enablement requirement.

*Conclusion:* Claim 35 is subject to rejection under § 112, ¶1 because it does not comply with the enablement requirement, as it is a single means claim and does not recite a means-plus-function limitation as an element in a claim for a combination in accordance with § 112, ¶6.

For further information on single means claims, see MPEP §§ 2164.08(a) and 2181 V. MPEP § 2181 V states “*Donaldson* does not affect the holding of *In re Hyatt*, 708 F.2d 712, 218 USPQ 195 (Fed. Cir. 1983) to the effect that a single means claim does not comply with the enablement requirement of 35 U.S.C. 112, first paragraph. As *Donaldson* applies only to an interpretation of a limitation drafted to correspond to 35 U.S.C. 112, sixth paragraph, which by its terms is limited to ‘an element in a claim to a combination,’ it [*Donaldson*] does not affect a limitation in a claim which is not directed to a combination.”)

## **2. *Fiers v. Revel*, 984 F.2d 1164, 25 USPQ2d 1601 (Fed. Cir. 1993)**

*Interference Count:*

A DNA which consists essentially of a DNA which codes for a human fibroblast interferon-beta polypeptide.

*Background:* In a three-way interference proceeding involving Sugano, Fiers, and Revel, the Board had awarded priority to Sugano. The Board had found that Fiers had not proved conception of the

invention prior to his British filing date because despite evidence of an enabling disclosure, Fiers had not actually isolated and sequenced a DNA coding for human fibroblast interferon-beta polypeptide ( $\beta$ -IF). Similarly, the Board had determined that Revel was not entitled to rely on the filing date of his Israeli application because it did not contain a complete written description of a DNA coding for  $\beta$ -IF. Sugano's Japanese application, however, disclosed the complete nucleotide sequence of a DNA coding for  $\beta$ -IF and a method for isolating that DNA.

*Analysis/Conclusion:* The issue before the court was whether the Board properly granted priority to Sugano. The Federal Circuit affirmed the Board's decision. The count did not actually recite a single means, and there was no issue concerning intent to invoke § 112, ¶6. However, the court analogized the count to a single means claim "[b]ecause the count at issue purports to cover all DNAs that code for  $\beta$ -IF." Thus, like an actual single means claim, the count in Fiers fails to comply with § 112, ¶1. Here, the court explained that the claim failed to comply with the written description requirement of § 112, ¶1. This is because the claim purports to cover all DNAs that are "means" of coding for the recited polypeptide, when the supporting written description can at best disclose certain specific DNA "means." With regard to Revel's application, the court stated that "[c]laiming all DNA's that achieve a result without defining what means will do so is not in compliance with the description requirement; it is an attempt to preempt the future before it has arrived."