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Via e-mail: robert.bahr@uspto.gov

Mr. Robert Bahr
Deputy Commissioner for Patent Examination Policy
United States Patent and Trademark Office
P.O. Box 1450
Alexandra, VA 22313–1450

Re: Comments of the American Bar Association Section of Intellectual Property on Examination under Section 112(a)

Dear Deputy Commissioner Bahr:

The American Bar Association Section of Intellectual Property Law (“IPL Section”) appreciates the continued efforts by the United States Patent and Trademark Office (“USPTO”) to improve patent quality. To assist, the IPL Section formed a Patent Quality Task Force. This Task Force has two primary objectives: (1) to provide input in the form of real-life working examples to assist in the preparation of Office training materials; and (2) to help communicate best practices relating to these materials or other issues through an “Ask the Office” CLE series.

The views expressed herein are presented on behalf of the IPL Section. They have not been approved by the House of Delegates or the Board of Governors of the American Bar Association and, accordingly, should not be construed as representing the position of the Association.

In 2014 the IPL-Section provided examples directed to the application of Section 112 to functional claim language, particularly in the context of computer implemented inventions. Given that this area of law continues to develop and practitioners continue to struggle with the application of 112(a), the Task Force updated these examples and submit them for consideration by the Office. The Task Force thanks the USTPO for the opportunity to submit for consideration practical examples. These examples are not intended to suggest the USPTO increase the frequency of rejections under 112(a) or that the USPTO increase its scrutiny of applications under 112(a). They are intended to provide simple fact patterns from which to illustrate the considerations under current law.
The IPL Section also thanks the USPTO for its continued participation in the “Ask the Office” lecture series. This lecture series is an invaluable tool for sharing best practices with practitioners in a collaborative setting where members of the patent bar and leaders at the USPTO can openly discuss the shared responsibility for improving patent quality. We anticipate the training materials on examination of Section 112(a), along with any training materials promulgated by the USPTO, will be the basis of future “Ask the Office” CLE programs for the IPL Section.

The ABA is the leading national voluntary bar organization of the legal profession, having nearly 400,000 members. Its members come from each of the fifty states, the District of Columbia, and the U.S. territories. Membership includes attorneys in private practice, government service, corporate law departments, and public interest organizations, as well as legislators, law professors, law students, and non-lawyer associates in related fields. Particularly, the IPL Section is the world’s largest organization of intellectual property professionals, with approximately 20,000 members.

The IPL Section appreciates the efforts of the USPTO to improve patent quality by developing further training materials. The IPL Section shares this commitment to quality and hopes that the attached examples are of assistance to the Office in preparing training materials.

Very truly yours,

Donna Suchy
Section Chair
American Bar Association
Section of Intellectual Property Law
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I. Examples 1-4 Claims directed to a system with components having functional limitations

I. Example 1

A. Hypothetical Claim 1 (amended during prosecution)

1. A system comprising:

   an input facsimile telephony device configured to receive an input communication, convert the input communication to digital input packet data, and transmit the digital input packet data in a specific output order;

   an output facsimile telephony device configured to receive the digital input packet data, store the received digital input packet data in the specific output order, and convert the digital input packet data to an output communication based on the specific output order; and

   a packet-switched network configured to transmit the digital input packet data from the input facsimile telephony device to the output facsimile telephony device.

B. Specification

[Assume that, as of the filing date of this specification, in traditional telephony systems, both digital voice and digital data can be transmitted over circuit-switched networks, while only digital data can be transmitted over packet-switched networks.]

The specification describes telephony systems that allow for low-cost transmission of data over a packet-switched network, such as, for example, the Internet. The telephony system includes an input telephony device and an output telephony device, both of which are connected to a packet-switched network and a circuit-switched network. The input and output telephony devices are configured to transmit and receive digital data via a packet-switched network. Telephony devices, which are broadly understood to be any device that can communicate or receive communications over a communications network, can include, for example, wired telephone devices, wireless telephone devices, facsimile devices, pager devices, etc.

The specification sets out an input facsimile device as the only specific embodiment described. The input facsimile device receives an input document for facsimile transmission, scans the input document to produce scanned image data, converts the scanned image data into digital data packets, and transmits the digital data packets via a
packet-switched network. To scan the input document, the input facsimile device includes an optical scanning unit. To convert the scanned data into digital data, the input facsimile device includes an analog to digital (A/D) converter. The input facsimile device further includes a digital data packetizer to convert the digital data into digital data packets for transmission across a packet-switched network. The input facsimile device may store in one or more memory devices the digital data for subsequent transmission as digital data packets in a specific order such that the receiving or output facsimile device can compile the digital data packets and output a document that is a legible and understandable reproduction of the input document. When bandwidth becomes available, using an input/output (I/O) unit, the input facsimile device transmits the digital data in the specific order to the output facsimile device via the packet-switched network.

Upon receipt of the digital data, the output facsimile device stores the received digital data in one or more memory devices. When a sufficient number of digital data packets are received, the output facsimile device places the received digital data packets into an order corresponding to the specific order defined by the input facsimile device and converts the received digital data, based on the specific order, to image data for output as an intelligible reproduction of the document received by the input facsimile device. To convert the digital communication data into the output communication, the output facsimile device includes a digital to analog (D/A) converter. Optical scanning units, A/D and D/A converters, digital data packetizers, memory devices, and I/O devices are well-known in the art at the time of the invention. Figure 1 is a diagram of a packet-switch network configuration for facsimile image data. No other telephony devices are exemplified or illustrated in the figures or drawings.

C. Analysis of Hypothetical Claim 1 for compliance with § 112(a) – Written Description

The exemplary claim lacks sufficient written description. This is an amended claim; therefore, when evaluating the claim for support, one cannot rely on the claims themselves for written description support. See, e.g., MPEP 2163 (“It is now well accepted that a satisfactory description may be in the claims or any other portion of the originally filed specification. These early opinions did not address the quality or specificity of particularity that was required in the description, i.e., how much description is enough.”). The amended claim is directed to a system comprising three components, an input wireless
telephony device, an output wireless telephony device, and a packet-switched network. Each component is then further limited by a functional description.

The specification provides “telephony devices” generally and references that the term embodies wired and wireless telephone devices, facsimile devices, etc. However, generic claim language in the disclosure does not satisfy the written description requirement if it fails to support the scope of the genus claimed. See, e.g., Ariad Pharm., Inc. v. Eli Lilly & Co., 598 F.3d 1336, 1350 (Fed. Cir. 2010). When a claim is directed to a genus, the written description requirement can be satisfied through sufficient description of a “representative number of species” (i.e., the species that are described are representative of the entire genus). When the specification discloses only one species encompassed within a genus, a claim that genus has sufficient written description only if the disclosure “indicates that the patentee has invented species sufficient to constitute the gen[us].” See Enzo Biochem, 323 F.3d at 966.

The Federal Circuit has explained that a specification cannot always support expansive claim language and satisfy the requirements of 35 U.S.C. 112 “merely by clearly describing one embodiment of the thing claimed.” LizardTech v. Earth Resource Mapping, Inc., 424 F.3d 1336, 1346, 76 USPQ2d 1731, 1733 (Fed. Cir. 2005). It is unnecessary to spell out every detail of the invention in the specification; only 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. LizardTech, Inc. v. Earth Res. Mapping, Inc., 424 F.3d 1336, 1345 (Fed. Cir. 2005). The issue is whether a person skilled in the art would understand applicant to have invented, and been in possession of, the invention as broadly claimed. See, e.g., Noelle v. Lederman, 355 F.3d 1343, 1350 (Fed. Cir. 2004) (“[A] patentee of a biotechnological invention cannot necessarily claim a genus after only describing a limited number of species because there may be unpredictability in the results obtained from species other than those specifically enumerated.”).

In this example, the specification provides only a description of a single embodiment, facsimile devices. Facsimile devices cannot be said to be representative of the entire genus of telephony devices, which the specification describes as devices that operate over a communications network. Considered at the time of the invention, facsimile devices, wired telephone, wireless telephone and other telephony devices have different components and
Application of 35 U.S.C. § 112(a) to Functional Claims
American Bar Association Section of Intellectual Property Law Best Practice Guidance

different technological capabilities. Further, each have unique data and transmission requirements and technical problems, and an example directed to solving such problems for facsimile communication would not be representative of the other communication platforms. Therefore, the term “telephony device,” as used in the claim, is broader than that disclosed. A person skilled in the art would not understand the inventor to be in possession of telephony devices other than facsimile devices. Thus, the amendment should be rejected as lacking sufficient written description.

Further, while a packet-switched network is generally known to a person skilled in the art, a network configured “to transmit the digital input packet data from the input telephone device” is a functional limitation broader than the invention disclosed in the specification. The claim seeks to claim all systems carrying out the function to transmit the digital input packet data from the input telephone device to the output telephone device, but only describes the packet-switched network by function. The functional description of the network seeks to define the network by what it does rather than what it is in such a way that the term exceeds the invention described in the specification. The specification only describes such a network in the context of facsimile communications. Each type of telephony communication in the present invention presents unique technical challenges and the network configuration of the present invention that cannot be extrapolated from a single example of facsimile communications, and the network configuration in the context of facsimile communications cannot be considered representative of the network configuration for other telephony devices. Accordingly, the description of the network for facsimile communications would not lead to skilled in the art to conclude that the inventors were in possession of the full scope of packet-switched network for telephony devices.

II. Example 2

A. Hypothetical Claim 2 (amended during prosecution)

2. A system comprising:
   
   an input facsimile telephony device configured to receive an input image communication, convert the input image communication to digital input packet data, and transmit the digital input packet data in an output order;

   an output facsimile telephony device configured to receive the digital input packet data, store the received digital input packet data in the output
order, and convert the digital input packet data to an output image communication; and

a packet-switched network configured to transmit the digital input packet data from the input facsimile telephony device to the output facsimile telephony device.

B. Specification

Same as specification as Example 1.

C. Analysis of Hypothetical Claim 2 for compliance with § 112(a) – Written Description

The exemplary claim lacks sufficient written description. This is an amended claim; therefore, when evaluating the claim for support, one cannot rely on the claims themselves for written description support. See, e.g., MPEP 2163 (“It is now well accepted that a satisfactory description may be in the claims or any other portion of the originally filed specification. These early opinions did not address the quality or specificity of particularity that was required in the description, i.e., how much description is enough.”). The amended claim is directed to a system comprising three general components, an input telephony device, an output telephony device, and a packet-switched network. Each component is then further limited by a functional description.

The specification describes a general category of “telephony devices” that includes the specific embodiments of wired and wireless telephone devices, facsimile devices, etc. The specification discloses an embodiment of the species of facsimile devices that receive input image data. Facsimile devices cannot be said to be representative of the entire genus of telephony devices, which the specification describes as devices that operate over a communications network. Considered at the time of the invention, facsimile devices, wired telephone, wireless telephone and other telephony devices have different components and different technological capabilities. Further, at the time of the invention, only facsimile devices were known to be capable of receiving input image data for transmission to another, similar device. Thus, each have unique data and transmission requirements and technical problems, and an example directed to solving such problems for facsimile communication would not be representative of the other communication platforms. Therefore, the term “telephony device,” is broader than that disclosed. However, the additional claim language requiring that the “input telephony device is configured to receive input image data” and
the “output telephony device is configured to . . . convert the digital input packet data to an output image communication” impose limitations that narrow the claim scope to the telephony devices that transmit image data, in a manner that is analogous to the facsimile embodiment disclosed in the specification. A person of ordinary skill in the art would therefore understand the patent applicant to be in possession of the telephony devices so configured.

However, while a packet-switched network is generally known to a person skilled in the art, a network configured “to transmit the digital input packet data from the input telephone device” is broader than the invention disclosed in the specification. The claim seeks to claim all systems carrying out the function to transmit the digital input packet data from the input telephone device to the output telephone device, but only describes the packet-switched network by function. The functional description of the network seeks to define the network by what it does rather than what it is in such a way that the term exceeds the invention described in the specification. The specification only describes such a network in the context of facsimile communications. Each type of telephony communication in the present invention presents unique technical challenges. The network configuration of all telephony devices cannot be extrapolated from a single example of facsimile communications, and the network configuration in the context of facsimile communications cannot be considered representative of the network configuration for other telephony devices. Accordingly, the description of the network for facsimile communications would not lead a person skilled in the art to conclude that the inventors were in possession of a packet-switched network for telephony devices.

III. Example 3

A. Hypothetical Claim 3 (amended during prosecution)

3. A system comprising:

   an input facsimile telephone device configured to receive an input communication, convert the input communication to digital input packet data, and transmit the digital input packet data in a specific output order;

   an output facsimile telephone device configured to receive the digital input packet data, store the received digital input packet data in the specific output order, and convert the digital input packet data to an output communication based on the specific output order; and
a packet-switched network configured to transmit the digital input packet data from the input facsimile telephone device to the output facsimile telephone device.

B. Specification

Same as specification as Example 1.

C. Analysis of Hypothetical Claim 3 for compliance with § 112(a) – Written Description

The exemplary claim lacks sufficient written description. This is an amended claim; therefore, when evaluating the claim for support, one cannot rely on the claims themselves for written description support. See, e.g., MPEP 2163 (“It is now well accepted that a satisfactory description may be in the claims or any other portion of the originally filed specification. These early opinions did not address the quality or specificity of particularity that was required in the description, i.e., how much description is enough.”).

The amended claim is directed to a system comprising three general components, an input telephone device, an output telephone device, and a packet-switched network. Each component is then further limited by a functional description. The specification describes a general category of telephony devices that includes the specific embodiments of wired and wireless telephone devices, facsimile devices, etc.

The Federal Circuit has explained that a specification cannot always support expansive claim language and satisfy the requirements of 35 U.S.C. 112 “merely by clearly describing one embodiment of the thing claimed.” *LizardTech v. Earth Resource Mapping, Inc.*, 424 F.3d 1336, 1346, 76 USPQ2d 1731, 1733 (Fed. Cir. 2005). It is unnecessary to spell out every detail of the invention in the specification; only 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. *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005). The issue is whether a person skilled in the art would understand applicant to have invented, and been in possession of, the invention as broadly claimed. See, e.g., *Noelle v. Lederman*, 355 F.3d 1343, 1350 (Fed. Cir. 2004) (“[A] patentee of a biotechnological invention cannot necessarily claim a genus after only describing a limited number of species because there may be unpredictability in the results obtained from species other than those specifically enumerated.”).
The claim lacks written description for “telephone devices,” which was added by amendment. In this example, the specification provides only an example of facsimile devices. Facsimile devices cannot be said to be representative of other species within the genus of telephony devices, such as “telephone devices.” The doctrine of inherency cannot be used to satisfy the written description requirement. When an explicit limitation in a claim “is not present in the written description whose benefit is sought it must be shown that a person of ordinary skill would have understood, at the time the patent application was filed, that the description requires that limitation.” Hyatt v. Boone, 146 F.3d 1348, 1353, 47 USPQ2d 1128, 1131 (Fed. Cir. 1998). “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” In re Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted). At the time of filing the specification, it was not well-known in the art that telephones convert voice data to digital packet data that can be transmitted over a packet-switched network in such a way as to be capable of outputting an intelligible reproduction of the input voice data. Here, again, the claimed function of the “telephone device” exceeds that described in the specification. Specifically, only the facsimile devices are described as being capable of converting communication data to/from digital data. Thus, the amendment should be rejected as lacking sufficient written description. See LizardTech, Inc. v. Earth Resource Mapping, Inc., 424 F.3d 1336, 76 USPQ2d 1724 (Fed. Cir. 2005).

Further, while the specification discloses a genus of “telephony devices” that includes the species of “wired telephone devices” and “wireless telephone devices”, the claim term “telephone device” is not limited by “wired” or “wireless” and therefore is broader than the specification as filed. A person skilled in the art would not understand the inventor to be in possession of telephone devices other than wired or wireless telephone devices. Thus, the amendment should be rejected as lacking sufficient written description.

Further, while a packet-switched network is generally known to a person skilled in the art, a network configured “to transmit the digital input packet data from the input telephone device” is broader than the invention disclosed in the specification. The claim
seeks to claim all systems carrying out the function to transmit the digital input packet data from the input telephone device to the output telephone device, but only describes the packed-switched network by function. The functional description of the network seeks to define the network by what it does rather than what it is in such a way that the term exceeds the invention described in the specification. The specification only describes such a network in the context of facsimile communications. Each type of telephony communication in the present invention presents unique technical challenges and the network configuration of the present invention that cannot be extrapolated from a single example of facsimile communication. Accordingly, the description of the network for facsimile communications would not lead to skilled in the art to conclude that the inventors were in possession of the a packet-switched network for wired and wireless telephone devices.

D. Variations that Satisfy the Written Description Requirement

Assuming that the specification provides sufficient structure to perform the recited function for the packet-switched network in the context of facsimile devices, the following claim captures would satisfy Section 112(a):

Hypothetical Claim 4:

4. A system comprising:

   an input facsimile device configured to receive an input communication, convert the input communication to digital input packet data, and transmit the digital input packet data in a specific output order;

   an output facsimile device configured to receive the digital input packet data, store the received digital input packet data in the specific output order, and convert the digital input packet data to an output communication based on the specific output order; and

   a packet-switched network configured to transmit the digital input packet data from the input facsimile device to the output facsimile device.
II. Examples 5-7 for Computer-Implemented Inventions

I. Examples 5-7

A. Hypothetical Claims

5. An information processing apparatus for performing image recognition comprising:
   - means for capturing an image of an object;
   - means for analyzing the pixel values of the captured image;
   - means for determining that the image includes a predetermined object when the image includes predetermined pixel values corresponding to the predetermined object; and
   - means for, when the image is determined to include the predetermined object, wirelessly transmitting the image to a mobile terminal associated with the predetermined object.

6. An information processing apparatus for performing image recognition comprising:
   - a capturing unit for capturing an image of an object;
   - an analyzing unit for analyzing the pixel values of the captured image;
   - a determining unit for determining that the image includes a predetermined object when the image includes predetermined pixel values corresponding to the predetermined object; and
   - a transmitting unit for, when the image is determined to include the predetermined object, wirelessly transmitting the image to a mobile terminal associated with the predetermined object.

7. A method for performing image recognition comprising the steps of:
   - step for capturing an image of an object;
   - analyzing the pixel values of the captured image;
   - step for determining that the image includes a predetermined object when the image includes predetermined pixel values corresponding to the predetermined object, wherein when the image is determined to include the predetermined object, wirelessly transmitting the image to a mobile terminal associated with the predetermined object.
B. Specification

A block diagram of the general functional units of the information processing apparatus according to exemplary embodiments is described with reference to Figure 1. Figure 1 shows that the information processing device includes a capturing unit 101, that captures an image of an object; an analyzing unit 102, that analyzes the pixel values of the captured image; a determining unit 103, that determines that the image includes a predetermined object when the image includes predetermined pixel values corresponding to the predetermined object; and a transmitting unit 104 for, when the image is determined to include the predetermined object, wirelessly transmitting the image to a mobile terminal associated with the predetermined object.

Next, a method or flowchart for carrying out a process of performing image recognition is shown on Figure 2. The method shows in step 201 that pixel values of a captured image are compared to predetermined pixel values stored for a plurality of users (predetermined objects) stored in the database. In step 202 when there is a match between the pixel values of the image and the predetermined pixel values of one of the users, it is determined that the image includes the user. In step 203, the image is then automatically wirelessly transmitted to a mobile terminal of the user based on pre-stored mobile terminal contact information stored in the database.

C. Analysis of Hypothetical Claim 5-7 for compliance with § 112(a) – Written Description

Both claims 5 and 6 fail to comply with the written description requirement of 35 U.S.C. §112(a). If a claim limitation invokes 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, para. 6, it must be interpreted to cover the corresponding structure, materials, or acts in the specification and “equivalents thereof.” A means- (or step-) plus- function claim limitation is adequately described under 35 U.S.C. 112(a) or pre-AIA 35 U.S.C. 112, para. 1, if: (1) The written description adequately links or associates adequately described particular structure, material, or acts to the function recited in a means- (or step-) plus-function claim limitation; or (2) it is clear based on the facts of the application that one skilled in the art would have known what structure, material, or acts perform the function recited in a means- (or step-) plus- function limitation. In this case, only generic “units” are shown as part of the information processing apparatus. Additionally, even assuming that a computer or CPU is inherent for achieving any of the shown “units”, the flowchart of Fig. 2
does not provide a complete algorithm corresponding to the claims because the step for analyzing the pixel values of the image is not shown as part of the process. For a computer-implemented means-plus-function claim limitation invoking 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph, a general purpose computer is usually only sufficient as the corresponding structure for performing a general computing function (e.g., “means for storing data”), but the corresponding structure for performing a specific function is required to be more than simply a general purpose computer or microprocessor. In In re Katz Interactive Call Processing Patent Litigation, 639 F.3d 1303, 1316, 97 USPQ2d 1737, 1747 (Fed. Cir. 2011). To claim a means for performing a specific computer-implemented function and then to disclose only a general purpose computer as the structure designed to perform that function amounts to pure functional claiming. Aristocrat Techs. Australia Pty Ltd. v. Int’l Game Tech., 521 F.3d 1328 at 1333, 86 USPQ2d at 1239. In this instance, the structure corresponding to a 35 U.S.C. 112(f) or pre-AIA 35 U.S.C. 112, sixth paragraph claim limitation for a computer-implemented function must include the algorithm needed to transform the general purpose computer or microprocessor disclosed in the specification. Aristocrat, 521 F.3d at 1333, 86 USPQ2d at 1239; Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1340, 86 USPQ2d 1609, 1623 (Fed. Cir. 2008); WMS Gaming, Inc. v. Int’l Game Tech., 184 F.3d 1339, 1349, 51 USPQ2d 1385, 1391 (Fed. Cir. 1999). The corresponding structure is not simply a general purpose computer by itself but the special purpose computer as programmed to perform the disclosed algorithm. Aristocrat, 521 F.3d at 1333, 86 USPQ2d at 1239. Thus, the specification must sufficiently disclose an algorithm to transform a general purpose microprocessor to the special purpose computer. See Aristocrat, 521 F.3d at 1338, 86 USPQ2d at 1241.

In this case, it is presumed that “means for analyzing the pixel values of the captured image” is not a general computing function, and therefore it needs to be included in the flowchart or algorithm of Fig. 2 to transform the general purpose computer or microprocessor disclosed in the specification to a special purpose computer. Therefore, the specification does not provide a disclosure of the computer and algorithm in sufficient detail to demonstrate to one of ordinary skill in the art that the inventor possessed the invention including how to program the disclosed computer to perform all of the claimed functions.

Similarly, claim 7 lacks written description. Claim 7 recites two “step[s] for” limitations, which generally invokes § 112(f). Greenberg v. Ethicon Endo-Surgery, Inc., 91
F.3d 1580, 1583, 39 USPQ2d 1783, 1785 (Fed.Cir.1996) (“Claim drafters conventionally use the preface ‘means for’ (or ‘step for’) when they intend to invoke [§ 112, ¶ 6].”) If, however, the limitations include sufficient steps for performing the recited functions, then the steps will still not invoke § 112(f). O.I. Corp. v. Tekmar Co. Inc., 115 F.3d 1576, 1583, 42 USPQ2d 1777, 1782 (Fed.Cir.1997). Here, the first limitation recites, “step for capturing an image of an object.” The function is capturing, but there is no act recited of performing the function. Therefore, this limitation invokes § 112(f). The specification does not contain any acts for performing the capturing function, therefore the claim lacks written description, is not enabled, and is indefinite.

The second “step for” limitation recites, “step for determining that the image includes a predetermined object when the image includes predetermined pixel values corresponding to the predetermined object....” The function here, “determining,” has no corresponding acts. The specification, however, discloses,

The method shows in step 201 that pixel values of a captured image are compared to predetermined pixel values stored for a plurality of users (predetermined objects) stored in the database. In step 202 when there is a match between the pixel values of the image and the predetermined pixel values of one of the users, it is determined that the image includes the user.

(Emphasis added). This discloses the act of comparing, which corresponds with the function of determining. The comparison provides sufficient written description for the “step for determining” therefore the limitation has sufficient written description. As to enablement, the person of ordinary skill in the art, likely a programmer with a bachelor’s degree in computer science or electrical engineering, would understand how to compare two pixel values, and therefore the specification need not contain a detailed disclosure of how to do that to meet the requirements of § 112. Zoltek Corp. v. United States, 815 F.3d 1302, 1308 (Fed. Cir. 2016). Therefore, the “step for determining” meets the requirements of § 112.

D. Variations that Meet the Written Description Requirement

i. Alternative Specification

A block diagram of the functional units of the information providing device according to exemplary embodiments is described with reference to Figure 1. Figure 1 shows that the information processing device includes a capturing unit 101, that captures an image of an object; an analyzing unit 102, that analyzes the pixel values of the captured image; a determining unit 103, that determines determining that the image includes a
predetermined object when the image includes predetermined pixel values corresponding to the predetermined object; and a transmitting unit 104 for, when the image is determined to include the predetermined object, wirelessly transmitting the image to a mobile terminal associated with the predetermined object.

A hardware description of the information providing device according to exemplary embodiments is described with reference to Figure 2. In Figure 2, the information processing apparatus includes a digital camera 201 which is configured to capture an image. The digital camera may be made up of a digital image sensor as known in the art, such as a CCD sensor or a CMOS sensor. The digital camera 101 provides the capturing unit 101 shown in Figure 1.

Figure 2 further shows a CPU 202 which performs the certain processes described below. The CPU 202 provides the analyzing unit 102 and the determining unit 103 shown in Figure 1. The process data and instructions may be stored in memory X02. These processes and instructions may also be stored on a storage medium disk X04 such as a hard drive (HDD) or portable storage medium or may be stored remotely. Further, the claimed advancements are not limited by the form of the computer-readable media on which the instructions of the inventive process are stored. For example, the instructions may be stored on CDs, DVDs, in FLASH memory, RAM, ROM, PROM, EPROM, EEPROM, hard disk or any other information processing device with which the information processing apparatus communicates, such as a server or computer.

Further, the claimed advancements may be provided as a utility application, background daemon, or component of an operating system, or combination thereof, executing in conjunction with CPU X00 and an operating system such as Microsoft Windows 7, UNIX, Solaris, LINUX, Apple MAC-OS and other systems known to those skilled in the art.

The hardware elements in order to achieve the information processing apparatus may be realized by various processing circuitry elements, known to those skilled in the art. For example, CPU X00 may be a Xenon or Core processor from Intel of America or an Opteron processor from AMD of America, or may be other processor types that would be recognized by one of ordinary skill in the art. Alternatively, the CPU X00 may be implemented on an FPGA, ASIC, PLD or using discrete logic circuits, as one of ordinary skill in the art would recognize. Further, CPU X00 may be implemented as multiple
processors cooperatively working in parallel to perform the instructions of the inventive processes described above.

The device in Figure 2 also includes a network controller/interface 203, such as an Intel Ethernet PRO network interface card from Intel Corporation of America, for interfacing with network 210. As can be appreciated, the network 210 can be a public network, such as the Internet, or a private network such as an LAN or WAN network, or any combination thereof and can also include PSTN or ISDN sub-networks. The network 210 can also be wired, such as an Ethernet network, or can be wireless such as a cellular network including EDGE, 3G and 4G wireless cellular systems. The wireless network can also be WiFi, Bluetooth, or any other wireless form of communication that is known. The network controller/interface 203 provides the transmitting unit 104 shown in Figure 1.

Next, an algorithm for carrying out a process of performing image recognition is shown on Figure 3. Next, Figure 3 illustrates an exemplary algorithmic flowchart for performing the image recognition process according to one aspect of the present disclosure. The hardware description above, exemplified by the structure example shown in Fig. 2, constitutes or includes specialized corresponding structure that is programmed or configured to perform the algorithm shown in Fig. 3. For example, the algorithm shown in Fig. 3 may be completely performed by the circuitry included in the single device shown in Fig. 2.

The method shows in step 301 that an image is captured by the image capturing unit. In step 302, the analyzing unit analyzes the pixel values in the captured image. This step is performed according to the method of facial recognition known as the Adjacent Pixel Intensity Difference Quantization (APIDQ) Histogram, the specific sub-steps of which are shown in Fig. 5 and described in detail below.

In step 303, the pixel values of a captured image are compared to predetermined pixel values stored for a plurality of users (predetermined objects) stored in the database. In step 303 when there is a match between the pixel values of the image and the predetermined pixel values of one of the users, it is determined that the image includes the user. In step 304, the image is then automatically wirelessly transmitted by the transmitting unit to a mobile terminal of the user based on pre-stored mobile terminal contact information stored in the database.
a. Analysis of Hypothetical Claims 5-7 for compliance with § 112(a) – Written Description in view of the Alternative Specification

Claims 5–7 comply with the written description requirement of 35 U.S.C. §112(a). In this case, the structure and acts corresponding to the claimed “steps,” “means,” and “units” are clearly shown on Fig. 2 and described in the alternative specification. Additionally, the method of Fig. 3 provides an algorithm corresponding to the claims, and the step for analyzing the pixel values of the image are shown as part of the process. In this case, it is presumed that the description of the analyzing step 302 in Fig. 3 being a facial recognition technique according to the Adjacent Pixel Intensity Difference Quantization (APIDQ) Histogram (which is then further described in detail in Fig. 5) makes it clear to a person of ordinary skill in the art how to program the general computer to perform this specialized function, and therefore transform the general computer to a special purpose computer. Therefore, the specification does provide a disclosure of the computer and algorithm in sufficient detail to demonstrate to one of ordinary skill in the art that the inventor possessed the invention including how to program the disclosed computer to perform all of the claimed functions.
III. Examples 8 - 9 directed to Computer-Implemented Apparatus

A. Hypothetical Claims 8 and 9

8. (Currently Amended) An information processing apparatus comprising:
   a an octa-core processor configured to:
     receive a high definition video from a broadcast media source;
     encode the high definition video according to an encoding algorithm; and
     output the encoded high definition video as streaming media with a delay
     time of no greater than X seconds from the time that the original high definition video was
     received.

9. (Currently Amended) An information processing apparatus comprising:
   a an octa-core processor configured to:
     receive a high definition video from a broadcast media source;
     encode the high definition video according to an encoding algorithm of Figure 2; and
     output the encoded high definition video as streaming media with a delay
     time of no greater than X seconds from the time that the original high definition video was
     received.

B. Specification

A hardware description of the information providing device according to a first
embodiment is described with reference to Figure 1. In Figure 1, the information
processing apparatus includes a processor 101 which receives a broadcasted video from the
set top box 102. The processor 101 is configured to encode the video according to the
encoding algorithm described in the specification, and to output the encoded video as
streaming video over network interface 103.

According to a second embodiment, the broadcasted video received from set top box
102 is high definition (HD) video, and the processor 101 is an octa core processor which has
eight processing cores which can operate simultaneously. Figure 2 provides a general
algorithmic flowchart for encoding the video. The examples demonstrate that, in tests
combining the octa core processor and an exemplary encoding algorithm, it was possible to
output the encoded high definition video as streaming media with a delay time of no greater
than X seconds from the time that the original high definition video was received.
C. Analysis of Hypothetical Claims 8-10 for compliance with § 112(a) – Written Description

Claim 8 fails to meet the written description requirement. Claim 9 meets the written description requirement. Claim 8 provides for a general processor configured to receive, encode and output high definition video as streaming media with a functional limitation that the streaming media have a “delay time of no greater than X seconds from the time that the original high definition video was received.” The functional limitation thereof characterizes the objective to achieve by the processor and encoding algorithm but does not define by their structure or identifying characteristics all processors and all algorithms that achieve this objective. Claim 8 and 9 are therefore directed to a genus – a class of embodiments (combinations of processors and encoding algorithms) to achieve the desired result. The specification further notes the criticality of the combination of the processor and algorithm to achieve the objective of streaming in X seconds in providing data that a specific combination of the octa core processor and encoding algorithm achieve the targeted delay time. Accordingly, whether Claim 8 meets the written description requirement is assessed whether the disclosed octa core processor and encoding algorithm of Figure 2 is representative of the full breadth of the claimed genus (all processors and all encoding algorithms). One of ordinary skill in the art would recognize that the processor is not critical to achieve a delay time of no greater than X seconds. The person of skill in the art would recognize that any number of known processors would have the speed and capability to achieve the desired result. The specifically disclosed octa core processor is therefore representative of all processors contemplated as the claimed invention. However, one of ordinary skill in the art could not “visualize or recognize” all encoding algorithms that may achieve the desired result of streaming with a delay time of no greater than X seconds. Accordingly, Claim 8 lacks written description. These claims are not limited to the encoding algorithm that is essential to the invention and exceed the scope of the written description. Claim 9 meets the written description requirement because the general algorithmic flowchart in Figure 2 is sufficient to demonstrate to a person of skill in the art that the inventors were in possession of a general processor and claimed encoding algorithm to achieve the objective of streaming video within the claimed time delay.

D. Variations that Meet the Written Description Requirement

8. An information processing apparatus comprising:
an octa core processor configured to:

- receive a high definition video from a broadcast media source;
- output the encoded high definition video as streaming media;

an algorithmic means for encoding the processor such that the delay time of
the streaming media is no greater than X seconds from the time that the original
high definition video was received.

By invoking 112(f) in the claim language “algorithmic means”, the claim is limited to
the disclosed algorithm and any equivalents thereto and would comply with 112(a).
IV. Examples 10-11 directed to Computer Implemented Method
   A. Hypothetical Claim 10 (amended during prosecution)

   10. A computer-implemented method for ordering information, comprising:
       identifying, with a processor, a first remote database comprising data entries
       concerning an individual;

       sorting, with the processor, the data entries based on a merge sort.

   B. Specification

       In an embodiment, a database or other like data structure is stored on a data
       storage medium and includes financial data for individuals. The financial data may be
       arranged by various parameters, such as name, identifier, account value, and the like. A
       computer system, including at least one processor, is programmed and/or configured to
       manipulate and sort the entries in the database in various ways known to those skilled in
       the art. As an example, the specification describes searching the database for a parameter
       by iterating through each entry and comparing it to a specified string.

   C. Analysis of Hypothetical Claim 10 for compliance with § 112(a) – Written
      Description

       Claim 10 fails to meet the written description requirement of 35 U.S.C. § 112(a). The claim was originally directed to a processor configured to sort entries in a
       database, and then amended during prosecution to specify that a “merge sort” is used to
       sort the entries. While both the written description and the originally-filed claim discloses
       sorting the data entries, and one skilled in the art may be able to implement a sorting
       algorithm, there is no support for the specific way the sorting is done (i.e., via a merge
       sorting algorithm). Simply noting that the data entries can be sorted does not sufficiently
       describe that the inventors had in their possession a method that used a merge sort
       algorithm. As such, the claim lacks written description because the specification, claims,
       and drawings, as filed, lack a description of a merge sort. Although information which is
       well known in the art need not be described in detail in the specification, it must still be
       described. See, e.g., Hybritech, Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1379-80,
       231 USPQ 81, 90 (Fed. Cir. 1986). The fact that methods of sorting entities are well known
       in the art, including merge sorts, does not remove the requirement that sorting entities
       must be described under the written description requirement.

   D. Variations that Meet the Written Description Requirement
11. A computer-implemented method for ordering information, comprising:
   identifying, with a processor, a first remote database comprising data entries
   concerning an individual;
   sorting, with the processor configured with a means to conduct a merge sort.

The alternative specification discloses a structure, a block diagram flow chart, that
provides an algorithm to conduct a merge sort. The use of “means for” invoke special rules
of language interpretation regarding the means for under 35 U.S.C. § 112(f). When this is
invoked, the means must be described in the specification. MPEP 2185. Further, the scope
of the means for sorting entities is defined by its use in the specification. Here, an explicit
algorithm is provided.
V. Example 12 – monoclonal antibody defined by binding function

A. Hypothetical Claim 12

12. An isolated monoclonal antibody, wherein, when bound to Protein Y, the monoclonal antibody binds to at least one of the following residues: A135, V136, P137, R151, T202, A221, D286, S291, I292, C295, D297, C298, R299, F300, or S301 of Protein Y (SEQ ID NO:1), and wherein the monoclonal antibody blocks binding of Protein Y to Receptor Z.

B. Specification

The specification discloses 40 cross-competing/cross-blocking antibodies that bind Protein Y. The specification teaches that 24 of these antibodies were derived from a human Fab phage display library. The variable regions of the 24 antibodies derived from the phage library vary considerably from each other in their CDR and framework regions. Four of the 24 antibodies demonstrating threshold functions of binding affinity and neutralization activity (parent antibodies) were further mutated at various amino acids in attempts to optimize these functions. Sixteen additional antibodies were derived from the 4 parent antibodies demonstrating improved functions, but structurally (by amino acid sequence) were very similar to the parent antibodies.

The specification also teaches that two of the optimized antibodies were crystallized with Protein Y to determine their epitopes. The collective pool of amino acids of Protein Y that were found to be in close contact the two antibodies include residues A135, V136, P137, R151, T202, A221, D286, S291, I292, C295, D297, C298, R299, F300, or S301 of Protein Y. Five of these amino acids which overlap with each of the two antibodies were determined to be the “sweet spot” of the epitope. The other amino acids were in close contact with either one of the two antibodies. Because all 40 antibodies cross-compete or cross-block with each other, the inventors determined that all forty must have overlapping epitopes and that they likely all include the sweet spot of the epitope.

C. Analysis of Hypothetical Claim 12 for compliance with § 112(a) – Written Description Analysis

Claim 12 is directed to the genus of antibodies defined by their function, i.e., those that bind protein Y at any one of the specified residues and prevent binding of Protein Y to Receptor Z. Claim 12 fails to meet the written description requirement of 35 U.S.C § 112(a) or 35 U.S.C. 112, first paragraph (pre-AIA). A sufficient description of a genus requires the
disclosure of either a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can “visualize or recognize” the members of the genus. Functional claim language can meet the written description requirement when the art has established a correlation between structure and function. *Ariad Pharm., Inc. v. Eli Lilly and Co.*, 598 F.3d 1336, 1350 (Fed. Cir. 2010).

Requiring a written description of the invention, as set forth in Ariad, plays a vital role in preventing applicants from claiming subject matter that has not been invented, and thus cannot be described. The purpose of the written description requirement is to ‘ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent specification.’ *University of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 920 (Fed.Cir.2004) (quoting *Reiffin v. Microsoft Corp.*, 214 F.3d 1342, 1345 (Fed.Cir.2000)).

With respect to whether the specification discloses species representative of the claim’s scope, the specification demonstrates that the structural diversity of antibodies meeting the claimed functional properties is large. Moreover, the claim requires binding to only one of the recited amino acid residues of Protein Y – i.e., the number of antibodies meeting at least this claim limitation, and the corresponding claim scope, is likely to be large. By disclosing 40 antibodies of widely varying structure, yet each meeting the claimed functional limitations, the specification confirms that disclosure of the genus by “representative” species is not plausible. In other words, the disclosure teaches that instead of being able to “visualize or recognize” the members of the claimed genus by reference to the disclosed species, the skilled artisan would need to first make an antibody and then test it to discern whether the antibody was within the scope of the claim or outside the scope of the claim. “[A] patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.” *Rochester*, 358 F.3d at 930 n. 10 (quoting *Brenner*, 383 U.S. at 536, 86 S.Ct. 1033). Thus, the specification fails to provide legally sufficient evidence showing adequate written description for claim 22 under the representative species test.

With respect to whether the specification discloses structural features common to the claimed genus, as discussed above, the claim is directed to antibodies, not residues or regions on Protein Y, that bind one or more specified amino acid residues of Protein Y and
that prevent binding of Protein Y to Receptor Z. There are no structural features common
to the antibodies recited in the claim – instead the common thread amongst the claimed
antibodies is their function (binding to Protein Y at one or more of the specified residues).
Written description for function based claims can be met when there is a known or
disclosed correlation between the claimed function and resulting structure. In this case,
simply knowing which particular residues on Protein Y to which an antibody binds tells a
person of ordinary skill in the art nothing about the amino acid sequence of the antibody
that binds to it. Unlike the relationship between the amino acid sequence of a protein and
the genus of DNA that could encode for that protein, where knowing either describes by
structure the other, there is no antibody “code” to translate a residue on an antigen to an
antibody that binds to it. In addition, knowing the desired location on Protein Y for an
antibody to bind does not allow a person of skill in the art to predict the sequence of such an
antibody. Similarly, a person of skill in the art cannot predict where on Protein Y an
antibody will bind just by knowing the sequence of the antibody. In other words, there is no
established or disclosed correlation between the sequence (structure) of the claimed
antibodies and its function of binding to any particular amino acid on Protein Y. Finally,
knowing that an antibody competes for binding to Protein Y with an antibody of disclosed
structure similarly offers no information about the identity of the competing antibody. The
patent disclosure fails to allow one skilled in the art to visualize or recognize antibodies
having the claimed functional properties. Thus, there is insufficient disclosure in the
specification to satisfy the "common structural features" and corresponding “structure
function relationship” tests for written description.

In the recent and relevant decision in AbbVie Deutschland GmbH v. Janssen
Biotech, Inc. 759 F.3d 1285 (Fed. Cir. 2014) the court found that if the disclosed species only
abide in a corner of the genus, one has not described the genus sufficiently to show that the
inventor invented, or had possession of, the genus. In the instant case, the specification
discloses various antibodies that bind particular amino acids on Protein Y. The antibodies
are the result of screening a phage display library and then optimizing a few that have
threshold properties. The phage display library antibodies are structurally different from
each other in the CDR sequences while the optimized antibodies are very similar. However,
there is no disclosure of what sequences are necessary to achieve the desired function
corresponding to the breadth of the claim. Applicants have not established any reasonable
structure-function correlation with regards to the sequences in the variable domains or CDRs that can be altered and still maintain binding function to the specified amino acids. One could not reasonably or predictably extrapolate the structure of the antibodies to the structure of any and all other antibodies as broadly claimed. Merely drawing a fence around a perceived genus is not a description of the genus. One needs to show that one has truly invented the genus, i.e., that one has conceived and described sufficient representative species encompassing the breadth of the genus. Otherwise, one has only a research plan, leaving it to others to explore the unknown contours of the claimed genus. The written description requirement guards against claims that “merely recite a description of the problem to be solved while claiming all solutions to it and . . . cover any compound later actually invented and determined to fall within the claim’s functional boundaries.” Here, the patent describes 40 antibodies and those antibodies are not representative of the full variety or scope of the genus. Yet, the claim covers all structurally diverse antibodies that have the limited function and there is no evidence to show whether one of skill in the art could make predictable changes to the described antibodies to arrive at other structurally diverse antibodies. In order to demonstrate that it has invented what is claimed, the patent must adequately describe representative antibodies to reflect the structural diversity of the claimed genus. The patent attempts to claim every antibody that would achieve a desired result, and covers all structurally diverse antibodies, yet the patent does not describe representative examples to support the full scope of the claims. Therefore, the claim lacks an adequate written description.
VI. Example 13 method of treatment claim with a functionally defined antibody

A. Hypothetical Claim 13

13. A method of treating cancer comprising administering to a patient an antibody that binds Receptor B.

B. Specification

The specification teaches a dozen murine antibodies that bind Receptor B. All 12 murine antibodies are diverse in amino acid sequence. Receptor B is a known receptor found on T cells and its function when bound by its ligand is to suppress T cell proliferation. The specification also shows preclinical data that when the receptor is blocked by the murine antibodies and not able to bind its ligand, the “brake” is released and T cells are again able to proliferate. The hypothesis disclosed in the specification is that antibodies that block the ligand from binding to the receptor could be useful to treat cancers by allowing the T cells to proliferate thereby enabling the body’s own natural immune system to attack the cancer. This is the first disclosure of this hypothesis.

C. Analysis of Hypothetical Claim 13 for compliance with § 112(a) – Written Description Analysis

Claim 13 is directed to a method of using a genus of antibodies where the antibodies are defined by their function, i.e., those that bind Receptor B. Claim 13 is rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112, first paragraph (pre-AIA), as failing to comply with the written description requirement. A sufficient description of a genus requires the disclosure of either a representative number of species falling within the scope of the genus or structural features common to the members of the genus so that one of skill in the art can “visualize or recognize” the members of the genus. Functional claim language can meet the written description requirement when the art has established a correlation between structure and function. Ariad Pharm., Inc. v. Eli Lilly and Co., 598 F.3d 1336, 1350 (Fed. Cir. 2010).

Requiring a written description of the invention, as set forth in Ariad, plays a vital role in preventing applicants from claiming subject matter that has not been invented, and thus cannot be described. The purpose of the written description requirement is to ‘ensure that the scope of the right to exclude, as set forth in the claims, does not overreach the scope of the inventor’s contribution to the field of art as described in the patent...
Regardless whether a compound is claimed per se or a method is claimed that entails the use of the compound, the inventor cannot lay claim to that subject matter unless he can provide a description of the compound sufficient to distinguish infringing compounds from noninfringing compounds, or infringing methods from non-infringing methods. *Univ. of Rochester v. G.D. Searle & Co., Inc.*, 358 F.3d 916, 920 (Fed.Cir.2004).

With respect to whether the specification discloses species representative of the claim’s scope, the specification demonstrates possession of a dozen antibodies that function to treat cancer by binding to Receptor B. All 12 antibodies are diverse in amino acid sequence. But there is no disclosure of why these 12 are representative of the entire genus. By disclosing a dozen antibodies of widely varying sequence structure, yet each meeting the claimed functional limitations, the specification confirms that disclosure of the genus by “representative” species is not plausible. In other words, the disclosure teaches that instead of being able to “visualize or recognize” the members of the claimed genus by reference to the disclosed species, the skilled artisan would need to first make an antibody and then test it to discern whether the antibody was within the scope of the claim or outside the scope of the claim. “[A] patent is not a hunting license. It is not a reward for the search, but compensation for its successful conclusion.” *Rochester*, 358 F.3d at 930 n. 10 (quoting *Brenner*, 383 U.S. at 536, 86 S.Ct. 1033). Thus, the specification fails to provide legally sufficient evidence showing adequate written description for claim 1 under the representative species test.

With respect to whether the specification discloses structural features common to the claimed genus, the only factor present in the claims is a recitation of the antibody function: "binds to Receptor B" and "treats cancer." The instant specification fails to describe structural features common to the members of the genus, which features constitute a substantial portion of the genus because the instant specification only discloses a dozen exemplary antibody sequences that functions as claimed. A definition by function does not suffice to define the genus because it is only an indication of what the antibody does, rather than what it is. The specification fails to provide any structural features coupled to the claimed functional characteristics of the broadly drawn antibody used in the instant claims. Written description for function based claims can be met when there is a
known or disclosed correlation between the claimed function and resulting structure. Simply knowing that a particular antibody binds to receptor B tells a person of ordinary skill in the art *nothing* about the amino acid sequence of the antibody. Unlike the relationship between the amino acid sequence of a protein and the genus of DNA that could encode for that protein, where knowing either describes by structure the other, there is no antibody “code” to translate binding to Receptor B to the sequence of the antibody. In other words, there is no established or disclosed correlation between the sequence (structure) of the claimed antibodies and its function of binding to Receptor B. In this case, the only factor present in the claims is a recitation of the antibody function: "binds to Receptor B" and "treats cancer." The instant specification fails to describe structural features common to the members of the genus, which features constitute a substantial portion of the genus because the instant specification only discloses a dozen exemplary antibody sequences that functions as claimed. The specification fails to provide any structural features coupled to the claimed functional characteristics of the broadly drawn antibody used in the instant claims. Although the applicants may argue that it is possible to screen for Receptor B antibodies that function to treat cancer, screening assays are not sufficient to provide adequate written description for an invention because they are merely a wish or plan for obtaining the claimed chemical invention. *Rochester v. Searle*, 358 F.3d 916, Fed Cir., 2004.

Accordingly, in the absence of sufficient recitation of distinguishing identifying characteristics, the specification does not provide adequate written description of the claimed genus. The patent disclosure fails to allow one skilled in the art to visualize or recognize antibodies having the claimed functional properties. Thus, there is insufficient disclosure in the specification to satisfy the "common structural features" and corresponding “structure function relationship” tests for written description. Since the specification fails to adequately describe the product to which the claimed method uses, it also fails to adequately describe the method.

In the recent and relevant decision in *AbbVie Deutschland GmbH v. Janssen Biotech, Inc.* (Fed. Cir. 2014) the court found that if the disclosed species only abide in a corner of the genus, one has not described the genus sufficiently to show that the inventor invented, or had possession of, the genus. In the instant case, the specification discloses various antibodies that bind Receptor B. The antibodies are the result of an immunization with Receptor B antigen. All antibodies are structurally different from each other in the
CDR sequences. There is no disclosure of what sequences are necessary to achieve the desired function. Applicants have not established any reasonable structure-function correlation with regards to the sequences in the variable domains or CDRs that can be altered and still maintain Receptor B binding function and treat cancer. One could not reasonably or predictably extrapolate the structure of the murine antibodies to the structure of any and all other Receptor B antibodies as broadly claimed in the methods. Merely drawing a fence around a perceived genus is not a description of the genus. One needs to show that one has truly invented the genus, i.e., that one has conceived and described sufficient representative species encompassing the breadth of the genus. Otherwise, one has only a research plan, leaving it to others to explore the unknown contours of the claimed genus. The written description requirement guards against claims that “merely recite a description of the problem to be solved while claiming all solutions to it and . . . cover any compound later actually invented and determined to fall within the claim’s functional boundaries.” Here, the patent only describes a dozen antibodies and those antibodies are not representative of the full variety or scope of the genus. Yet, the claim covers all structurally diverse antibodies that have the limited function and there is no evidence to show whether one of skill in the art could make predictable changes to the described antibodies to arrive at other structurally diverse antibodies. In order to demonstrate that it has invented what is claimed, the patent must adequately describe representative antibodies to reflect the structural diversity of the claimed genus. The patent attempts to claim every antibody that would achieve a desired result, i.e., binding Receptor B, and covers all structurally diverse antibodies, yet the patent does not describe representative examples to support the full scope of the claims. Therefore, the claim lacks an adequate written description.