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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAEL A. REINPOLDT, WILLEM H. REINPOLDT III, and
RICHARD J. SALEM

Appeal 2017-009507
Application 13/074,305¹
Technology Center 2400

Before JOSEPH L. DIXON, SCOTT B. HOWARD, and SCOTT E. BAIN,
Administrative Patent Judges.

HOWARD, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Non-Final Rejection of claims 1–7, 9–11, 13–15, 17–19, and 22, which constitute all of the claims pending in this application. Although the action appealed from is a not a final rejection, we have jurisdiction pursuant to 35 U.S.C. §§ 6(b) and 134 because the application has been twice rejected. *Ex parte Lemoine*, 46 USPQ2d 1420, 1423 (BPAI 1994) (precedential).

We affirm.

¹ Appellants identify Thermal Matrix USA, Inc. as the real party in interest. App. Br. 2.

THE INVENTION

The disclosed and claimed invention is directed to “a method and system for detecting concealed objects using a handheld thermal imager.”

Spec. ¶ 1.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method to detect concealed objects using a handheld thermal imager comprising a display, a processor and a memory, which are integrated into the handheld thermal imager, the memory having a formatting module, an isolating module, a detecting module, and a filtering module, the method comprising:

capturing thermal sensor data from the handheld thermal imager;

transmitting the thermal sensor data to the processor;

formatting the thermal sensor data using image

processing algorithms stored in the formatting module;

isolating the subject of interest from the background scene in the thermal sensor data to display thermal imagery of the subject of interest;

detecting a relative deviation in a temperature within a discrete area on the subject of interest using the detecting module to suggest a size and location of the concealed object on the subject of interest;

filtering the thermal sensor data within the discrete area using the image processing algorithms of the filtering module only when the relative deviation in the temperature within the discrete area indicates a presence of the concealed object;

displaying a visual variable boundary around the discrete area, wherein the visual variable boundary changes in size and location based on the size of the concealed object and location of where the concealed object is on the subject of interest in order to assist an operator to recognize the presence of the concealed object; and

displaying filtered thermal imagery within the visual variable boundary only when the relative deviation in the

temperature within the discrete area indicates the presence of the concealed object.

REFERENCES

The prior art relied upon by the Examiner as evidence in rejecting the claims on appeal is:

Burger et al.	US 5,275,364	Jan. 4, 1994
Gulati	US 2007/0118324 A1	May 24, 2007
King et al.	US 7,304,297 B1	Dec. 4, 2007
Reinholdt	US 2009/0060272 A1	Mar. 5, 2009

REJECTIONS

Claim 11 stands rejected under pre-AIA 35 U.S.C. § 112 second paragraph as being indefinite. Final Act. 3–4.

Claims 1–7, 11, 13, 15, 19, and 22 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Gulati in view of Reinholdt. Final Act. 5–10.

Claims 9, 10, 17, and 18 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Gulati in view of Reinholdt and Burger. Final Act. 10–11.

Claim 14 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Gulati in view of Reinholdt and King. Final Act. 11–12.

ANALYSIS

We have reviewed the Examiner’s rejection in light of Appellants’ arguments that the Examiner erred. In reaching this decision, we have considered all evidence presented and all arguments made by Appellants. We are not persuaded by Appellants’ arguments regarding the pending

claims. Instead, we incorporate herein and adopt as our own: (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken (Non-Final Act. 3–12), and (2) the reasons and rebuttals set forth in the Examiner’s Answer in response to Appellants’ arguments (Ans. 14–16). We incorporate such findings, reasons, and rebuttals herein by reference unless otherwise noted. However, we highlight and address specific findings and arguments for emphasis as follows.

Section 112 Rejection

The Examiner concludes that the claim limitations “a formatting module” and “an isolating module” as recited in claim 11 are governed by pre-AIA 35 U.S.C. § 112, paragraph 6. Non-Final Act. 3. The Examiner further concludes that the modules are software per se and, as such, the Specification must provide “the algorithm that the computer uses to perform the claimed specialized functions.” *Id.*; *see also* Ans. 14. Because the Specification does not provide the algorithm, the Examiner concludes the claim is indefinite. Non-Final Act. 3 (citing *Halliburton Energy Services v. M-1 LLC*, 514 F.3d 1244, 1256 n.7 (Fed. Cir. 2008)).

Appellants do not dispute that the claim limitations are governed by pre-AIA 35 U.S.C. § 112, paragraph 6. App. Br. 7. Instead, Appellants argue that “[t]o the extent that [section 112, paragraph 6] is invoked, the Specification states that ‘[t]hose of skill would further appreciate that the various . . . modules . . . described in connection with the embodiments disclosed herein may be implemented as electronic hardware, computer software, or combinations of both.’” *Id.* (citing Spec. ¶¶ 36–37). Therefore, Appellants argue, “the modules recited in Claim 11 are directed to hardware

or the combination of hardware and software, and the corresponding structure has been identified in the Specification.” *Id.*

Because the recited modules are means-plus-function terms as described by paragraph 6 of section 112, we must “construe the disputed claim term by identifying the ‘corresponding structure, material, or acts described in the specification’ to which the claim term will be limited.” *Robert Bosch, Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1097 (Fed. Cir. 2014) (quoting *Welker Bearing Co. v. PHD, Inc.*, 550 F.3d 1090, 1097 (Fed. Cir. 2008)). If an applicant “employs means-plus-function language in a claim, [the applicant] must set forth in the specification an adequate disclosure showing what is meant by that language.” *Blackboard, Inc. v. Desire2Learn, Inc.*, 574 F.3d 1371, 1382 (Fed. Cir. 2009) (quoting *In re Donaldson Co.*, 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc)). “If the specification does not contain an adequate disclosure of the structure that corresponds to the claimed function, the patentee will have ‘failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112,’ which renders the claim invalid for indefiniteness.” *Id.* (quoting *Donaldson*, 16 F.3d at 1195).

“[I]n a means-plus-function claim ‘in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.’” *Aristocrat Techs. Austl. Pty Ltd. v. Int’l Game Tech.*, 521 F.3d 1328, 1333 (Fed. Cir. 2008) (quoting *WMS Gaming, Inc. v. International Game Technology*, 184 F.3d 1339, 1348 (Fed. Cir. 1999)). In the case of computer-implemented functions, our reviewing court requires that the

specification “disclose an algorithm for performing the claimed function.” *See NetMoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1367 (Fed. Cir. 2008). The specification can express the algorithm “in any understandable terms including as a mathematical formula, in prose, . . . as a flow chart, or in any other manner that provides sufficient structure.” *Finisar Corp. v. DirecTV Grp., Inc.*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (citation omitted). If the algorithm is not disclosed in the specification, the claim is unpatentable as indefinite. *See, e.g., Aristocrat*, 521 F.3d at 1338; *WMS Gaming*, 184 F.3d at 1349

Appellants have not persuaded us that the Examiner erred. Instead, we agree with and adopt the Examiner’s determination. Although the Specification indicates that the recited modules “may be implemented as electronic hardware,” the Specification goes on to state that it may also be implemented as “computer software, or combinations of both” software and hardware. Accordingly, the modules are broad enough to encompass either software, as the Examiner concludes (Non-Final Act. 3), or a combination of hardware and software, as Appellants concede (App. Br. 7). Because both implementation as software or a combination of software and hardware require the disclosure of an algorithm and Appellants have not identified where the algorithm is located in the Specification, the claim is indefinite.

Section 103 Rejection

Appellants argue the Examiner erred in finding Gulati teaches “detecting a relative deviation in a temperature within a discrete area on the subject of interest using the detecting module to suggest a size and location of the concealed object on the subject of interest,” as recited in claim 1. *See*

App. Br. 7–9; Reply Br. 2–3. More specifically, Appellants argue Gulati teaches using “previously stored empirical data on emissivity levels which is a different method than recited in Claim 1.” App. Br. 7 (emphasis omitted); *see also id.* at 8–9 (“Rather Gulati is relying on comparing thermal [data] to previously stored empirical data, which is a different method than the method recited in Appellant’s Claim 1.”); Reply Br. 2, 3 (arguing that Gulati paragraph 45 does not teach detecting a relative deviation). According to Appellants, the claimed method “uses a pre-determined relative difference between a temperature of a subject and a temperature of a background scene of the thermal sensor data.” App. Br. at 8.

The Examiner finds Gulati teaches the disputed limitation. Non-Final Act. 6 (citing Gulati ¶¶ 45, 65); Ans. 15–16 (citing Gulati ¶¶ 45, 83). More specifically, the Examiner finds Gulati teaches that a

differential emissivity calculation is performed to compare the pixels of one area (e.g., the area representing the explosive material) against pixels of adjacent area (e.g., the area representing human body not covered by the explosive material) to infer the presence of the camouflaged object on a human body) to suggest a size (area of concealed object, such as explosive material as disclosed in paragraph [0045] lines 23-29) and location of the concealed object on the subject of interest.

Non-Final Act. 6 (citing Gulati ¶¶ 45, 65); *see also* Ans. 15–16.

During examination of a patent application, a claim is given its broadest reasonable construction “in light of the specification as it would be interpreted by one of ordinary skill in the art.” *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004) (internal citations and quotations omitted). There is a presumption that a claim term carries its ordinary and customary meaning. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed.

Cir. 2007). An applicant may rebut this presumption, however, by acting as his own lexicographer, providing a definition of the term in the specification with “reasonable clarity, deliberateness, and precision.” *See In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read from the specification into the claims. *In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993). “[A]lthough the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments. . . . [C]laims may embrace ‘different subject matter than is illustrated in the specific embodiments in the specification.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (en banc) (citations omitted).

Applying the broadest reasonable interpretation of the disputed limitation, we found the claim broad enough to cover any method of detecting a relative deviation in a temperature, including using comparisons with previously stored empirical data. Appellants have not identified anything in the claim language that limits how the relative deviation in a temperature can be detected. Because Appellants’ arguments are not commensurate with the scope of the claims, they are unpersuasive. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982).

Instead, we agree with and adopt the Examiner’s findings. Although Appellants quote from part of paragraph 44, Appellants omit the final sentence, which states: “The differential emissivity between a human body, a background black body, and a camouflaged object acting as a black body of interest can be exploited.” As that sentence makes clear, Gulati works by

comparing temperature deviations. Additionally, paragraph 45 further describes how Gulati detects a difference (deviation) in temperatures:

In some implementations, additive black body algebra may be implemented to infer the presence of the camouflaged object on a human body. The camouflaged object is a target object to be detected. When the detection system detects an emissivity level, the detected emissivity level is automatically processed to determine if the emissivity level corresponds to an emissivity level produced by a combination of harmless blackbodies (e.g., a person wearing a sweater and carrying a mobile phone) or an emissivity level produced by a combination of blackbodies that include explosive material (e.g., a person wearing a jacket and concealing explosive material underneath the jacket).

Gulati ¶ 45. Therefore, we are not persuaded by Appellants' argument that the Examiner erred.

Accordingly, we sustain the Examiner's rejection of claim 1, along with the rejection of claims 11 and 19, which are argued on the same grounds, and dependent claims 2–7, 13, 15, and 22, which are not argued separately.

With respect to dependent claims 9, 10, 14, 17, 18, Appellants merely contend that because the additional references used in the rejections of these claims (Burger and King) do not cure the shortcomings of the other references applied against claims 1 and 11, the Examiner failed to make a prima facie case of obviousness for these claims. App. Br. 10. Because we determine that the rejection of claims 1 and 11 are not erroneous for the reasons discussed above, we sustain the rejections of these claims for the same reasons.

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DECISION

For the above reasons, we affirm the Examiner's decisions rejecting claims 1–7, 9–11, 13–15, 17–19, and 22.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv). *See* 37 C.F.R. § 41.50(f).

AFFIRMED