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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte BHARAT RAMACHANDRAN, ROBERT
MANZKE, and RAYMOND CHAN

Appeal 2017-005220
Application 14/397,789¹
Technology Center 2800

Before TERRY J. OWENS, BRIAN D. RANGE, and DEBRA L.
DENNETT, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

DECISION ON APPEAL

SUMMARY

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–14 and 22. We have jurisdiction. 35 U.S.C. § 6(b).

We AFFIRM.

¹ The Appellant is the applicant, KONINKLIJKE PHILIPS N.V., and, according to the Appeal Brief, is also the real party in interest. Appeal Br. 3.

STATEMENT OF THE CASE²

Appellant describes the invention as relating to a method for shape sensing with optical fiber. Appeal Br. 5. The invention exploits the inherent backscatter of laser light shining through conventional optical fiber in order to measure strain within the fiber and, based on strain measurements, reconstruct the fiber's shape. Spec. 1–2. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for shape sensing with optical fiber, comprising:
 - collecting shape data from an optical fiber shape sensing device;
 - performing a test on the shape data to determine data positions that exceed an acceptable threshold based on geometrical expectations of the shape data;
 - rejecting the shape data corresponding to the data positions that exceed the acceptable threshold; and
 - rendering acceptable shape data to provide a stable shape sensing data set.

Appeal Br. 19 (Claims App'x).

REJECTIONS AND REFERENCES

The Examiner maintains the following rejections on appeal:

Rejection 1. Claims 1–14 under 35 U.S.C. § 101 because the claimed invention is not directed to patent eligible subject matter. Final Act. 2.

² In this opinion, we refer to the Final Office Action dated March 8, 2016 (“Final Act.”), the Appeal Brief filed August 30, 2016 (“Appeal Br.”), the Examiner’s Answer dated December 12, 2016 (“Ans.”), and the Reply Brief filed February 8, 2017 (“Reply Br.”).

Rejection 2. Claims 1–14 and 22 under 35 U.S.C. § 103(a) as unpatentable over Roelle et al., Dec. 29, 2011, U.S. Patent Pub. No. 2011/0319910 A1 (“Roelle”) in view of Prisco, May 19, 2011, U.S. Patent Pub. No. 2011/0113852 A1 (“Prisco”).

ANALYSIS

We review the appealed rejections for error based upon the issues identified by the Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“[I]t has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections”)). After considering the evidence presented in this Appeal and each of Appellant’s arguments, we are not persuaded that Appellant identifies reversible error. Thus, we affirm the Examiner’s rejections for the reasons expressed in the Final Office Action and the Answer. We add the following primarily for emphasis.

Rejection 1, Section 101. With respect to this rejection, Appellant argues all claims as a group. Appeal Br. 7–9. We therefore limit our discussion to claim 1. Claims 2–14 stand or fall with that claim. 37 C.F.R. § 41.37(c)(1)(iv) (2013).

The Examiner rejects claims 1–14 under 35 U.S.C. § 101 because the claims are directed to an abstract idea. Final Act. 2. The Supreme Court has set forth “a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2355 (2014). According to the Supreme Court's framework, it

must first be determined whether the claims at issue are directed to one of those concepts (i.e., laws of nature, natural phenomena, and abstract ideas). *Id.* If so, a second determination must be made to consider the elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim” into a patent-eligible application. *Id.* (internal quotes and citation omitted).

Here, regarding the first part of the *Alice* inquiry, the Examiner determines that all steps of claim 1 are directed to abstract ideas such as “collecting shape data from an optical fiber shape sensing device,” “performing a test on the shape data . . . ,” and “rendering acceptable shape data to provide a stable shape sensing data set.” Final Act. 3. The Examiner determines that the recited steps are instructions to implement abstract ideas on a computer/processor and relate to data analysis after “usual data from the shape sensing optical fiber” has already been obtained. *Id.*

Appellant argues that the “collecting shape data from an optical fiber shape sensing device” is not abstract because it involves “the physical act of collecting shape data from an optical fiber shape sensing device or shape sensing optical fiber device.” Appeal Br. 8. Even if claim 1 were construed to require use of fiber as part of the claimed method, this would not make the subject matter of the claim non-abstract. Rather, our reviewing court has held that generic and well-known devices for inputting data into a computer do not transform an abstract idea into a patent-eligible invention. *See, e.g., Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n*, 776 F.3d 1343, 1348 (Fed. Cir. 2014) (holding that use of generic computer and scanner did not make claim patent eligible); *compare with Thales*

Visionix Inc. v. United States, 850 F.3d 1343, 1348–49 (Fed. Cir. 2017) (holding that claims “directed to systems and methods that use inertial sensors *in a non-conventional manner* to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame” were patent eligible) (emphasis added). Here, both the Specification and the cited art establish that use of optical fiber for shape sensing is a conventional input device. Spec. ¶ 1, 4 (explaining how shape sensing with fiber optics makes use of characteristic Rayleigh backscatter patterns and explaining that known shape sensing systems exhibit instability); Roelle ¶¶ 45–46 (describing use of Rayleigh scatter in an optical fiber to measure strain and obtain shape data). Just as in *Content Extraction*, use of a conventional input device does not transform an otherwise abstract idea into patent eligible subject matter.

Regarding the second part of the *Alice* inquiry, Appellant argues that claim 1 includes additional elements/steps that amount to more than “any natural principle itself.” Appeal Br. 8–9; *see also* Reply Br. 8. Appellant, however, does not identify what element/step is more than an abstract idea. Moreover, our reviewing Court has previously held that use of off-the-shelf conventional “computers, networks, and displays does not transform the claimed subject matter into patent-eligible applications.” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016). Moreover, “[m]erely requiring the selection and manipulation of information . . . by itself does not transform the otherwise-abstract processes of information collection and analysis.” *Id.*; *see also Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1348 (Fed. Cir. 2015) (holding that claims directed to retaining information in navigation of online forms is not patent

eligible despite reciting use of conventional browser Back and Forward navigation); *FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1096 (Fed. Cir. 2016) (“the use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter”). Also, as explained below, we do not agree with Appellant’s argument (Appeal Br. 9) that the cited references do not suggest each recitation of claim 1. We thus agree with the Examiner that claim 1, as a whole, is directed to instructions to implement an abstract idea on a computer processor. Ans. 4.

In reply, Appellant further argues that claim 1 includes “significantly more than any natural principle itself” because the claim falls within the scope of the holding articulated by *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299 (Fed. Cir. 2016). Reply Br. 6–8. Our reviewing court’s decision in *McRO* held claims patent eligible under Section 101 where the claims “focused on a specific asserted improvement in computer animation” of facial expressions made during speech and where “incorporation of the claimed rules, not the use of the computer . . . ‘improved [the] existing technological process’ by allowing the automation of further tasks.” *McRO*, 837 F.3d at 1314. Our reviewing court emphasized that the automation went beyond, for example, merely “organizing [existing] information into a new form.” *Id.* at 1315 (internal quotes and citation omitted).

Thus, the *McRO* decision recognized that the claims at issue there provided technological improvement to the animation computer processing and were thus patent eligible. *Id.* at 1313. In this sense, *McRO* is akin to *DDR, Enfish*, and similar decisions which held that claims were eligible where the claimed invention provided a technological improvement to the

same computer the claims at issue were directed to. *See DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014) (holding that claims reciting computer processor for serving “composite web page” were patent eligible because “the claimed solution is necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks”); *Enfish*, 822 F.3d at 1338 (Fed. Cir. 2016) (holding that claims directed to self-referential table for computer database were patent eligible because claims were directed to an improvement in the functioning of a computer); *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1259 (Fed. Cir. 2017) (holding that claims directed to “an improved computer memory system” having many benefits were patent eligible).

In contrast, the claims at issue here collect data, manipulate that data, and then render an output. Appellant does not persuasively argue that the claim improves the computer/processor that the claimed method acts through. Rather, the computer is ultimately being used for a standard computing function: computation. The claims at issue here are thus most akin to precedents involving claims directed at gathering data, computing, and displaying results, and the claims at issue in those precedents were not patent eligible. *See, e.g., Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (holding claims directed to “a process of gathering and analyzing information of a specified content, then displaying the results, and not any particular assertedly inventive technology for performing those functions” were not patent eligible); *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (holding that claims were not patent eligible because they were “directed to the abstract idea of collecting, displaying, and manipulating data”).

Because, for the reasons explained above, Appellant identifies no harmful error in the Examiner's Section 101 determination, we sustain this rejection of claims 1–14.

Rejection 2, Section 103. The Examiner rejects claims 1–14 and 22 as unpatentable as obvious over Roelle in view of Prisco. Appellant argues all claims as a group. Appeal Br. 7–9. We therefore limit our discussion to claim 1. Claims 2–14 and 22 stand or fall with that claim. 37 C.F.R. § 41.37(c)(1)(iv) (2013).

The Examiner finds that Roelle teaches a method for shape sensing with optical fiber including collecting shape data from an optical fiber shape sensing device, performing a test on the shape data to determine data portions that exceed an acceptable threshold based on geometrical expectations of the data, and rejecting shape data corresponding to positions that exceed the acceptable threshold. Final Act. 7 (providing citations to Roelle). The Examiner finds that Roelle teaches controlling advancement of a medical device based on a differential between real shape and reference shape “but does not explicitly teach rendering acceptable shape data to provide a stable shape sensing data set.” *Id.* The Examiner finds, however, that Prisco teaches that calibration relationship is stored so that shape information can be used to accurately indicate the shape or pose of the kinematic chain (whose shape is being determined with optical fiber). *Id.* (citing Prisco ¶ 7). The Examiner concludes that:

it would have been obvious to one of ordinary skill in the art at the time of the invention was made to apply the teaching of Prisco to the system of Roelle such that rendering acceptable shape data to provide a stable shape sensing data set is accomplished for the advantage of accuracy.

Id.

Appellant argues that Roelle fails to teach or suggest performing a test on shape data to determine data positions that exceed an acceptable threshold based on geometrical expectations of the shape data as recited in claim 1. Appeal Br. 11. Appellant concedes that Roelle teaches comparing real shape data to a reference. *Id.* at 13. Appellant argues, however, that Roelle does not teach or suggest that its “thresholds concerning a differential between the real shape and a reference shape” may be “based on geometrical expectations of the shape data.” *Id.* at 12; *see also* Reply Br. 9–12. Appellant also argues that Roelle’s comparisons are not a “test on the shape data” as a person with ordinary skill in the art would understand that recitation of claim 1. Appeal Br. 13.

Claim 1’s recitation of “performing a test on the shape data to determine data positions that exceed an acceptable threshold based on geometrical expectations of the shape data” is explained in page 19, lines 1–23 of the Specification. Appeal Br. 7 (identifying portion of Specification corresponding to this recitation). The Specification refers to this language and then states “[s]uch tests may include hypothesis tests which compare measured data to training data or models.” Spec. 19. The Specification further explains that the thresholds may be based on “a shape sensing model (e.g., a statistical model, a physiological model, etc.)” and explains that thresholds may be “determined based upon previous collected shape data.” *Id.* The Specification goes on to explain, for example, that “another test on the shape data *may include* performing an adaptive search of nodal twist or roll” *Id.* at 19–20 (emphasis added). Notably, the description of the

other tests is in terms of what the tests may include rather than what the tests must include.

A preponderance of the evidence supports the Examiner's position that Roelle teaches or suggests the same kind of threshold test recited by the claim and as described by the Specification. In particular, Roelle teaches or suggests that its medical device may be controlled if the differential between the real shape (i.e., the measured shape data) and a reference shape (geometrical expectations of the shape data) is acceptable. Ans. 6; Roelle ¶ 37. Roelle also teaches or suggests that a comparison can be made between the measured shape and tip position of the device (i.e., the shape data as recited in claim 1) and predicted values which may be based on models or previous shape measurement (i.e., geometric expectations of the shape data). Ans. 6–7, Roelle ¶¶ 325, 330. Appellant's argument does not persuasively explain how this is different from the testing recited by claim 1 when claim 1 is interpreted in view of the Specification at pages 19–20.

Appellant also argues that neither Roelle nor Prisco teaches “rejecting the shape data corresponding to the data positions that exceed the acceptable threshold” as recited in claim 1. Appeal Br. 14–15. The preponderance of the evidence, however, supports the Examiner's position that Roelle teaches advancing its device if the differential between measured shape and reference shape is acceptable (i.e., having a differential that is acceptable compared to a threshold value). Ans. 8. In particular, a person of skill in the art would read paragraphs 37, 325, and 330 of Roelle together to understand that when the measured shape is poor compared to the reference, the data should not be used (i.e., the instrument should not be advanced based on faulty data). Furthermore, the Examiner correctly notes that the

Specification broadly defines “rejecting the shape data” as including correction, deletion, or replacement. Spec. 20; *see also* Spec. 13 (explaining that outlier data “can be deleted”). Appellant fails to provide a persuasive argument as to why determining that the instrument should not be moved further based on faulty data is different from rejecting the shape data as recited in claim 1.

Appellant further argues that Roelle does not teach or suggest rejecting shape data so that a stable shape sensing data set may be provided. Appeal Br. 14. The Examiner acknowledges that Roelle does not explicitly teach rendering acceptable shape data to provide a stable shape sensing data set and, accordingly, cites Prisco as meeting this recitation. Final Act. 7. Appellant does not dispute that Prisco teaches such rendering and does not dispute the Examiner’s combining of the teachings of Roelle and Prisco. Appeal Br. 15. Appellant’s argument on this point is therefore unpersuasive because it argues that both Roelle and Prisco do not teach certain recitations of claim 1 without persuasively arguing against the combination asserted by the Examiner. *In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986). (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”).

Because Appellant fails to identify harmful error, we sustain the Examiner’s rejection of claims 1–14 and 22 as unpatentable over Roelle in view of Prisco.

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DECISION

For the above reasons, we affirm the Examiner's rejection (1) of claims 1–14 under 35 U.S.C. § 101 and (2) of claims 1–14 and 22 under 35 U.S.C. § 103(a) as unpatentable over Roelle in view of Prisco.

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

AFFIRMED