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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JO LINSSEN and MICHAEL SCHAEFER

Appeal 2017-002470
Application 12/888,821¹
Technology Center 1600

Before DONALD E. ADAMS, RYAN H. FLAX and DAVID COTTA,
Administrative Patent Judges.

COTTA, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a blood cell counter. The Examiner rejected the claims on appeal under 35 U.S.C. § 101 as not directed to patent eligible subject matter. We have jurisdiction under 35 U.S.C. §§ 6(b) and 134(a).

We AFFIRM.

¹ According to Appellants, the real party in interest is Sysmex Corporation.
App. Br. 2.

STATEMENT OF THE CASE

According to the Specification, “Systemic Inflammatory Response Syndrome (SIRS) is a state where a subject is experiencing a serious inflammatory response in the whole body due to infection, injury, surgery, acute pancreatitis, or the like.” Spec. ¶ 3. “Septicemia is a disease that, if not appropriately treated at an early stage, the symptoms thereof can progress to serious septicemia, septic shock, and multiple organ dysfunction syndrome (MOD), ultimately leading to death.” *Id.* ¶ 4. One method of diagnosing septicemia is “by confirming the presence of infecting bacteria through culturing the blood of the subject,” however when this method is used “a lot of work and costs are required in order to determine whether the inflammatory response of the subject is an infectious inflammatory response or a noninfectious inflammatory response.” *Id.* ¶ 6. To address this problem, the Specification discloses a “blood cell counter” that outputs “diagnosis support information for supporting determination of whether an inflammatory response of the subject is an infectious inflammatory response or a noninfectious inflammatory response.” *Id.* ¶ 9.

Claims 1, 5, 10, 21–32 and 36 are on appeal. Claim 1 is illustrative and reads as follows:

1. A blood cell counter comprising:
 - a detection unit for detecting blood cells in blood of a subject; and
 - a data processing unit coupled to the detection unit and comprising:
 - a memory comprising an inflammatory response diagnosis support program;
 - a controller operable to execute the inflammatory response diagnosis support program to perform instructions comprising:
 - obtaining, based on a detection result by the

detection unit, first analytical information about hemoglobin amount in the blood and second analytical information about a number of neutrophils in the blood, the first analysis information being information about hemoglobin amount of reticulocytes or information about a difference between hemoglobin amount of reticulocytes and hemoglobin amount of mature red blood cells;

obtaining a first score by comparing the first analytical information with a first threshold value and a second score by comparing the second analytical information with a second threshold value;

obtaining an index by calculating the first and second scores;

determining whether an inflammatory response of the subject is an infectious inflammatory response or a noninfectious inflammatory response by comparing the obtained index and a determination threshold value; and

outputting a diagnosis support information including a determination result.

App. Br. 15.

The Examiner rejected claims 1, 5, 10, 21–32 and 36 under 35 U.S.C. § 101 as directed to patent ineligible subject matter.

ANALYSIS

Determination of subject matter eligibility involves a two-step test. First one must determine if the claimed subject matter is directed to a judicially recognized exception. *Mayo Collaborative Services, v. Prometheus Lab., Inc.* 566 U.S. 66, 77–78 (2012). If the claims address a judicially recognized exception, the next step is to determine if the claims recite additional elements that transform the nature of the claim. *Id.*

Appellants argue claims 1, 5, 10, 21–32, and 36 together. We designate claim 1 as representative.

In rejecting claim 1 as directed to patent-ineligible subject matter, the Examiner determined that the steps of “obtaining scores by comparing analytical information with a respective threshold value, obtaining an index by calculating scores and determining a response by comparing an obtained index and a threshold value” were “based on mathematical relationships and thus are abstract ideas.” Ans. 2. The Examiner explained that these steps “are simply utilizing obtained data for conducting comparisons and performing calculations, which amount to no more than calling on a computing device with basic functionality for comparing stored and retrieved data.” *Id.* at 3.

The Examiner then considered whether the additional elements recited by the claims — i.e., a “detection unit, data processing unit comprising a memory and controller, and the steps performed by the controller of obtaining the desired analytical information and outputting diagnosis support information” — amounted to significantly more than the abstract idea itself. Ans. 3–4. The Examiner found that “the detection unit as claimed is well-known in the art and routinely coupled with processing units as claimed because in order to perform mathematical calculations, data must be retrieved from a sample.” *Id.* at 4. In addition, the Examiner found that the additional steps of obtaining data and outputting relevant information were “conventional, routine and well-understood to those skilled in the art.” *Id.* The Examiner thus concluded that these additional elements “amount to insignificant extra solution activity” and were not sufficient to “amount to significantly more than the judicial exception.” *Id.*

We agree with the Examiner that the claims are directed to patent ineligible subject matter. We address Appellants’ arguments below.

Appellants argue that the Examiner did not “identify the claimed concept that is considered to be an abstract idea.” App. Br. 11. Appellants contend that the Examiner failed to consider the claim limitations as a whole and oversimplified the claimed invention by describing it generally as “based on mathematical relationships.” Reply Br. 1. We are not persuaded.

The Examiner specifically identified the claim steps that were found to comprise the abstract idea and explained that these steps do nothing more than articulate a mathematical relationship. Ans. 2. The Examiner also specified that the steps involve “utilizing obtained data for conducting comparisons and performing calculations.” *Id.* at 3. This was sufficient to identify the subject matter that the Examiner considered to be directed to a judicial exception. Nothing more was required to put Appellants on notice of the basis for the Examiner’s rejection.

Appellants argue that “merely employing mathematical relationships does not render the claimed invention an abstract idea.” App. Br. 10. We agree. A claim does not become patent ineligible simply because it employs a mathematical relationship. *Diamond v. Diehr*, 450 U.S. 175, 187 (1981) (recognizing that “claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program”). However, a mathematical relationship, by itself, is an abstract idea. *Diehr*, 450 U.S. at 192 (“A mathematical formula as such is not accorded the protection of our patent laws.”). When a claim contains a mathematical relationship, patent eligibility rests on whether the steps in addition to the mathematical relationship represent “insignificant post-solution activity” or whether they instead “implement or apply the [mathematical] formula in a structure or process which, when considered as

a whole, is performing a function which the patent laws were designed to protect.” *Id.* at 191–192; *see also, Mayo* 566 U.S. at 77–78. Claim 1 is not patent ineligible just because it employs a mathematical relationship, it is ineligible because, considered individually and as an ordered combination, the claim elements in addition to the mathematical relationship are not sufficient to transform the nature of the claim.

Appellants argue that improvements in computer related-technology are not inherently abstract and thus “the fact that the claimed blood cell counter includes a data processing unit and involves improvements to software does not necessarily mean that the claimed blood cell counter is directed to an abstract idea.” App. Br. 11–12. We are not persuaded because the Examiner’s rejection is not based on the assertion that the claimed blood cell counter is abstract because it relates to improved software. Rather, as discussed above, claim 1 is patent ineligible because the claim, considered as a whole, is directed to a mathematical relationship.

Appellants argue that they are not “simply claiming an abstract idea in an attempt to lay claim to a building block of future research and development, and thus there is no genuine risk of preempting future research and development.” App. Br. 12. We are not persuaded because even if claim 1 does not preempt use of the mathematical relationship recited in the claim, “the absence of complete preemption does not demonstrate patent eligibility.” *Ariosa Diagnostics, Inc. v. Sequenom, Inc.*, 788 F.3d 1371, 1379 (Fed. Cir. 2015).

Appellants argue that the claim elements requiring “obtaining, based on a detection result by the detection unit . . . analytical information . . . , determining whether an inflammatory response of the subject is an

infectious inflammatory response . . . , [and] outputting a diagnosis support information including a determination result” amount to significantly more than the recited abstract idea and provide “sufficiently inventive concepts [to] make the claimed invention patentable.” App. Br. 13. We are not persuaded.

The “determining” step is part of the mathematical relationship identified by the Examiner. Therefore, it cannot add significantly more to the patent ineligible subject matter, i.e., the mathematical relationship. As to the remaining two steps — the “obtaining” and “outputting” steps — we agree with the Examiner that these involve “well-understood, routine and conventional techniques.” Ans. 7. Indeed, Appellants do not allege that either step is, by itself, unconventional. Because these additional steps involve nothing more than the use of conventional technologies to gather data and display an analysis of that data, they are insufficient to confer patent eligibility on the claimed subject matter. *Mayo*, 566 U.S. at 79–80 (finding that claim limitation that “simply tell[s] doctors to gather data from which they may draw an inference in light of correlations add[s] nothing significant”); *see also*, *Intellectual Ventures I LLC v. Capital One Financial Corp*, 850 F.3d 1332, 1340 (Fed. Cir. 2017) (“[A]n invention directed to collection, manipulation, and display of data [is] an abstract process.”); *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016) (“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 [is] directed to an abstract idea.”).

Appellants argue that “the claimed invention significantly improves existing technology by determining whether an inflammatory response of the subject is an infectious inflammatory response or a noninfectious inflammatory response using a blood cell counter without requiring additional apparatus for culturing of the blood, thereby saving work and costs.” App. Br. 14. Thus, according to Appellants, “the claimed invention provides improvements to the technical field of a blood cell counter and diagnosing Systemic Inflammatory Response Syndrome (SIRS).” *Id.* We are not persuaded.

Our reviewing court has made clear that a difference exists between patent ineligible claims, as here, that focus “on asserted advances in uses to which existing computer capabilities could be put” and patent eligible claims that focus “on a specific improvement . . . in how computers could carry out one of their basic functions of storage and retrieval of data.” *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016), discussing *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016); *see also Research Corp. Technologies Inc. v. Microsoft Corp.*, 627 F.3d 859, 865 (Fed. Cir. 2010) (“higher quality halftone images [were produced] while using less processor power and memory space.”). We do not find, and Appellants do not identify, such a technological advance – e.g., “using less processor power and memory space” – in Appellants’ claimed invention. *Research Corp.* 627 F.3d at 865.

Our reviewing court has further made clear that the relative importance of an alleged invention is not determinative of whether the subject matter claimed is patent-eligible. For example, the Federal Circuit rejected an argument similar to that raised by Appellants in *Ariosa*

Diagnostics, Inc. v. Sequenom Inc., 788 F.3d 1371, 1379 (Fed. Cir. 2004). In that case, the Federal Circuit found that the importance of the method embodied in claims directed to noninvasive pre-natal screening did not justify its patentability, explaining:

Sequenom also notes that “the method reflects a significant human contribution in that [Drs.] Lo and Wainscoat combined and utilized man-made tools of biotechnology in a new way that revolutionized prenatal care.” *Id.* We agree but note that the Supreme Court instructs that “[g]roundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry.” *Myriad Genetics, Inc.*, 133 S.Ct. at 2117. The discovery of the BRCA1 and BRCA2 genes was a significant contribution to the medical field, but it was not patentable. *Id.* at 2117. While Drs. Lo and Wainscoat’s discovery regarding cffDNA may have been a significant contribution to the medical field, that alone does not make it patentable. We do not disagree that detecting cffDNA in maternal plasma or serum that before was discarded as waste material is a positive and valuable contribution to science. But even such valuable contributions can fall short of statutory patentable subject matter, as it does here.

Ariosa, 788 F.3d at 1379–1380. Thus, even accepting Appellants’ assertion that the claimed cell counter “significantly improves existing technology” (App. Br. 14), this alone does not render the method to be patentable subject matter.

Accordingly, we affirm the Examiner’s rejection of claim 1 as directed to patent ineligible subject matter. Because they were not argued separately, claims 5, 10, 21–32, and 36 fall with claim 1.

DECISION

For these reasons and those set forth in the Examiner’s Answer and Final Office Action, we affirm the Examiner’s rejection of claims 1, 5, 10, 21–32,

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and 36 under 35 U.S.C. § 101 as not directed to patent eligible subject matter.

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

AFFIRMED