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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/487,986	06/04/2012	Christopher Scheib	256-008 CIP	5348
37468	7590	03/03/2020	EXAMINER	
STOCKWELL & SMEDLEY, PSC 861 CORPORATE DRIVE, SUITE 200 LEXINGTON, KY 40503			BERHANU, ETSUB D	
			ART UNIT	PAPER NUMBER
			3791	
			MAIL DATE	DELIVERY MODE
			03/03/2020	PAPER

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* CHRISTOPHER SCHEIB

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Appeal 2018-002963  
Application 13/487,986  
Technology Center 3700

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Before BENJAMIN D. M. WOOD, BRETT C. MARTIN, and  
JEREMY M. PLENZLER, *Administrative Patent Judges*.

MARTIN, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant<sup>1</sup> appeals from the Examiner's decision to reject claims 1, 2, 4–11, 13–22, and 24. Claim 3 was canceled during prosecution and the Examiner withdrew the patent eligibility rejection against claims 12, and 23. Ans. 5. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word Appellant to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Dr. Christopher Scheib. Appeal Br. 2.

CLAIMED SUBJECT MATTER

The claims are directed “to monitoring brain function during different states of consciousness such as general anesthesia, coma or natural sleep and, more particularly, to using electroencephalogram (EEG) data and other physiological data to evaluate brain function.” Spec. ¶ 2. Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A method for providing an indication of a state of awareness for a patient, comprising the steps of:
  - acquiring, by a microprocessor, a first EEG power spectrogram of a patient exposed to anesthesia;
  - retrieving, by the microprocessor, a previously-stored, second EEG power spectrogram;
  - comparing, by the microprocessor, the first EEG power spectrogram to the second EEG power spectrogram, wherein the second EEG power spectrogram is associated with a known state of awareness;
  - before comparing the first EEG power spectrogram and the second EEG power spectrogram, arranging, by the microprocessor, first data of the first EEG power spectrogram to provide a first power versus frequency waveform in a first log-log arrangement; wherein second data of the second EEG power spectrum is arranged to provide a second EEG power versus frequency waveform in a second log-log arrangement;
  - based on comparing the first and second EEG power spectrograms, calculating, by the microprocessor, a value that indicates a similarity between the first EEG power spectrogram and the second EEG power spectrogram; and
  - based on the calculated value, providing, by the microprocessor, an indication of a current state of awareness of the patient; wherein the indication is visually or audibly discernible.

REJECTION

Claims 1, 2, 4–11, 13–22, and 24 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. Ans. 2.

OPINION

*Standard for Patent Eligibility*

In issues involving subject matter eligibility, our inquiry focuses on whether the claims satisfy the two-step test set forth by the Supreme Court in *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208 (2014). The Supreme Court instructs us to “first determine whether the claims at issue are directed to a patent-ineligible concept,” *id.* at 216–18, and, in this case, the inquiry centers on whether the claims are directed to an abstract idea. If the initial threshold is met, we then move to the second step, in which we “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.* at 217 (*quoting Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 79, 78 (2012)). The Supreme Court describes the second step as a search for “an ‘inventive concept’—*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* (*quoting Mayo*, 566 U.S. at 72–73).

The USPTO published revised guidance on the application of § 101. USPTO’s January 7, 2019 Memorandum, 2019 Revised Patent Subject Matter Eligibility Guidance. Under that guidance, we first look to whether the claim recites:

- (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human interactions such as a fundamental economic practice, or mental processes); and
- (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP §§ 2106.05(a)–(c), (e)–(h)).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

- (3) adds a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field (*see* MPEP § 2106.05(d)); or
- (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

*See* Memorandum.

## ANALYSIS

### *Claim Grouping*

Appellant presents separate arguments for each of claims 1, 4, 9, 14, 20, 22, and 24. We address all of the arguments in turn, but initially focus on claim 1.

### *Examiner’s Findings and Conclusion*

In the first step of the *Alice* inquiry, the Examiner rejects the claims stating that the claims “do not amount to significantly more than an abstract idea.” Final Act. 3. The Examiner identifies the claimed series of steps for indicating an awareness of a patient. *Id.* At *Alice* step 2, the Examiner additionally finds that the claims do not add a meaningful limitation to the

abstract idea so as to amount to significantly more than the judicial exception. *Id.*

*Analysis According to the Guidelines*

*Step One: Does Claim 1 Fall within a Statutory Category of § 101?*

We first examine whether the claim recites one of the enumerated statutory classes of subject matter, i.e., process, machine, manufacture, or composition of matter, eligible for patenting under 35 U.S.C. § 101. Claim 1 is directed to a method, which is one of the statutory classes (i.e., a process) under 35 U.S.C. § 101.

*Step 2A, Prong One: Does Claim 1 Recite a Judicial Exception?*

We next look to whether the claim recites any judicial exceptions, which include laws of nature, natural phenomena, and certain groupings of abstract ideas, i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes.

In this instance, claim 1, for example, recites the steps of collecting and processing data. Specifically, the claim recites:

acquiring, by a microprocessor, a first EEG power spectrogram of a patient exposed to anesthesia;

retrieving, by the microprocessor, a previously-stored, second EEG power spectrogram;

comparing, by the microprocessor, the first EEG power spectrogram to the second EEG power spectrogram, wherein the second EEG power spectrogram is associated with a known state of awareness;

before comparing the first EEG power spectrogram and the second EEG power spectrogram, arranging, by the microprocessor, first data of the first EEG power spectrogram to provide a first power versus frequency waveform in a first log-log arrangement; wherein second data of the second EEG

power spectrum is arranged to provide a second EEG power versus frequency waveform in a second log-log arrangement;  
based on comparing the first and second EEG power spectrograms, calculating, by the microprocessor, a value that indicates a similarity between the first EEG power spectrogram and the second EEG power spectrogram; and  
based on the calculated value, providing, by the microprocessor, an indication of a current state of awareness of the patient; wherein the indication is visually or audibly discernible.

The Examiner determines that the step of providing an indication of a current awareness of a patient is a correlation, which “is a consequence of natural processes, similar to the naturally occurring correlation found to be a law of nature.” Ans. 2. Although the Examiner classifies this as a law of nature, the calculations (i.e., converting to log-log form and calculating a similarity value) and comparisons are mathematical concepts, which is one of the groupings of abstract ideas identified in the guidance.

The claim, itself, describes the calculations as providing a “frequency waveform in a . . . log-log arrangement” and “calculating . . . a value that indicates a similarity” by “comparing the first and second EEG power spectrograms.” Appellant explains, for example, that the “comparing” is “statistical analysis such as linear regression analysis” with “best-fit lines of the log-log arranged data . . . calculated for comparison and similarities between line slopes and starting and ending points of the lines.” Appeal Br. 14–15. The additional steps of acquiring and retrieving steps are insignificant extrasolution activity and providing the indication is insignificant post-solution activity. Accordingly, although not a law of nature, per se, the Examiner is still correct that the claims recite ineligible subject matter, i.e., an abstract idea. *See* Ans. 3, *see also* MPEP 2106.

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*Step 2A, Prong Two: Does Claim 1 Recite Additional Elements that Integrate the Judicial Exceptions into a Practical Application?*

Following our Office guidance, having found that claim 1 recites a judicial exception, we next determine whether the claim recites “additional elements that integrate the exception into a practical application” (*see* MPEP §§ 2106.05(a)–(c), (e)–(h)). *See* Revised Guidance, 84 Fed. Reg. at 54. As noted above, each of the claimed steps is merely recited as being performed by a microprocessor. The only thing in the claim other than the abstract idea is a “microprocessor.” As used in claim 1, the microprocessor is merely a generic component of a computer system that does not result in an improvement in the functioning of a computer or other technology or technological field. The recitations of the generic structures with which the recited steps are performed are merely instructions to use a generic computer system as a tool to perform the abstract idea. Thus, claim 1 does not apply, rely on, or use the judicial exception or additional data processing steps in a manner that imposes a meaningful limit on those steps. Rather, the claim is simply a drafting effort designed to monopolize the judicial exception and data processing steps of claim 1. *See* MPEP § 2106.05(f) (“Use of a computer or other machinery in its ordinary capacity for . . . tasks (*e.g.*, to receive, store, or transmit data) or simply adding a general purpose computer or computer components after the fact to an abstract idea . . . does not provide significantly more.”).

The Examiner is correct that the “additional steps of acquiring EEG data, retrieving previously stored EEG data, comparing the two sets of EEG data, and generating a first power versus frequency waveform and a second power versus frequency waveform” are merely “well-understood, routine and conventional activity for those in the field of medical diagnostics.” Ans.

3. In short, the additional elements discussed above: (1) do not improve the functioning of a computer or other technology; (2) are not applied with any particular machine; (3) do not effect a transformation of a particular article to a different state; and (4) are not applied in any meaningful way beyond generally linking the use of the judicial exception to a particular technological environment. *See* MPEP §§ 2106.05(a)–(c), (e)–(h). Consequently, the claimed invention does not integrate the judicial exception into a “practical application.”

For these reasons, the additional elements of claim 1 do not integrate the judicial exception into a practical application. Thus, claim 1 is directed to a series of pre- and post-solution activities and mathematical concepts performed by a microprocessor, which all fall into the judicial exception to patent-eligible subject matter under 35 U.S.C. § 101.

*Step 2B: Does Claim 1 Recite an Inventive Concept?*

We next consider whether claim 1 recites any elements, individually or as an ordered combination, that transform the judicial exception into a patent-eligible application, e.g., by providing an inventive concept. *Alice*, 573 U.S. at 217–18. As noted above, the only additional elements include routine diagnostic activity. These additional elements do not provide, either individually or as a combination, improvements to another technology or technical field or the functioning of the computer itself.

According to Office guidance, under Step 2B, “examiners should . . . evaluate *the additional elements* individually and in combination . . . to determine whether they provide an inventive concept (*i.e.*, whether the additional elements amount to significantly more than the exception itself).” *See* Revised Guidance 84 Fed. Reg. at 56 (emphasis added). Thus, the

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second step of the inquiry (Step 2B) looks at the additional elements in combination. *See, e.g.*, Examples accompanying Guidance (Example 37 (claim 3 analysis) and Example 40 (claim 2 analysis)). *See also BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (“It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”).

Apart from being used to perform the judicial exception, the generic computer system components only serve to perform well-understood functions (e.g., acquiring, comparing, arranging, and outputting data). *See FairWarning IP, LLC v. Iatric Sys., Inc.*, 839 F.3d 1089, 1096 (Fed. Cir. 2016) (“[T]he use of generic computer elements like a microprocessor or user interface do not alone transform an otherwise abstract idea into patent-eligible subject matter”). In our view, claim 1 fails to add a specific limitation beyond the judicial exception that is not “well-understood, routine, conventional” in the field, but instead “simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.” *See Revised Guidance*, 84 Fed. Reg. at 56. That is, we are not persuaded that claim 1 is directed to a specific application designed to achieve an improved technological result, as opposed to being directed to merely ordinary functionality of the above-recited additional elements to apply a judicial exception. For the reasons discussed above, we find no element or combination of elements recited in claim 1 that contains any “inventive concept” or adds anything “significantly more” to transform the judicial exception into a patent-eligible application. *See Alice*, 573 U.S. at 221.

As to the remaining independent claims, we agree with the Examiner that the same rationale as applied to claim 1 equally applies to claims 20 and 24. As to the dependent claims, as with claim 1, the additional recitations merely amount to additional routine diagnostic activity or display of results, which does not add anything significant to claim 1 that would make them patent eligible. Accordingly, we agree with the Examiner that all of the claims are directed to patent-ineligible subject matter.

*Appellant's Contentions*

Appellant's main arguments are that two EEG power spectrograms are compared to one another to determine similarity and that these spectrograms have their data arranged in a log-log arrangement prior to the comparison. Reply Br. 2. As the Examiner states, however, "[c]laim 1 merely compares data acquired from a patient to stored data that is associated with a 'known' level of awareness" and that this "is the basic method of pattern/template matching that is used routinely in medical diagnostics." Ans. 5. Further, the Examiner is correct that "[t]he use of a log-log, power versus frequency waveform spectrogram merely transforms the already conventionally analyzed log-linear EEG spectrogram into an alternate mathematical scale by which to compare EEG spectrograms." Ans. 6. Regardless of the format, the analysis is still merely comparison of two spectrograms for similarities. Appellant also asserts that the claims provide "an improvement in computer-related technology." Reply Br. 7. The claims, however, do not improve the actual function of the computer, but merely amount to an alleged improvement in the actual diagnostic method being used. Such is not the type of improvement that is contemplated to confer patent eligibility.

Regarding claim 4, Appellant asserts that this claim “does not recite physiological data but is limited to providing a specific way that a second EEG power spectrogram is derived.” Reply Br. 8. Regardless of the specific manner in which the EEG is derived, the Examiner is still correct that utilizing a database of average values for comparison is well known. Ans. 7. Here, the reference is still an amalgamation “of known reference data obtained from a plurality of different individuals in order to properly classify the patient,” which is insignificant extra-solution activity. *Id.* (citing Feng col. 3, ll. 16–27 and Pinhas ¶¶ 239 and 307).

As to claims 9, 14, and 24, the Examiner is correct that “overlying two waveforms on one another in order to allow a person to visually compare the two waveforms is not unconventional.” Ans. 8 (citing Sato, Hoffman, and Lerman). Appellant again relies on the alleged benefits of a log-log scale over a log-linear scale, which we have already addressed above and found unpersuasive. In sum, we are not persuaded by Appellant’s arguments.

### CONCLUSION

The Examiner’s rejection is affirmed.

### DECISION SUMMARY

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
1, 2, 4–11, 13–22, 24	101		1, 2, 4–11, 13–22, 24	

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TIME PERIOD FOR RESPONSE

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