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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte GEORGE M. IONKOV, DENNIS H. HARDING,
AARON JAMES DYKSTRA, LAURA ELLEN GRIT, JAMES C. PETTS,
SAMUEL A. MINTER, LINDSEY CHRISTINA FOWLER, and YONG XI¹

Appeal 2016-003432
Application 14/323,734
Technology Center 3700

Before KEVIN F. TURNER, JILL D. HILL, and PAUL J. KORNICZKY,
Administrative Patent Judges.

HILL, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 2–21.² We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM-IN-PART.

¹ Appellants identify the real party in interest as Amazon Technologies, Inc., a subsidiary of Amazon.com, Inc.

² Claim 1 has been canceled. Appeal Br. 38 (Claims App.).

CLAIMED SUBJECT MATTER

Independent claims 2, 5, 14, and 17 are pending. Claim 2, reproduced below, illustrates the claimed subject matter:

2. A method comprising:
 - displaying a first portion of an electronic publication on a user device;
 - determining a first amount of time that the first portion of the electronic publication is displayed on the user device;
 - determining one or more passage of text included in the first portion of the electronic publication;
 - determining a second amount of time that the one or more passages are displayed by the user device based on the first amount of time that the first portion of the electronic publication is displayed;
 - determining content included in the one or more passages;
 - determining, by the user device, additional reading material based on the second amount of time and the content included in the one or more passages; and
 - providing, by the user device, a suggestion of the additional reading material.

REJECTION

Claims 2–21 stand rejected under 35 U.S.C. § 101 as directed to non-statutory subject matter. Final Act. 2.

PRINCIPLES OF LAW

A patent may be obtained for “any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.” 35 U.S.C. § 101. The Supreme Court has held that this provision contains an important implicit exception: Laws of nature, natural phenomena, and abstract ideas are not patentable. *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354 (2014); *Gottschalk v. Benson*, 409

U.S. 63, 67 (1972) (“mental processes, and abstract intellectual concepts are not patentable, as they are the basic tools of scientific and technological work.”). Notwithstanding that a law of nature or an abstract idea, by itself, is not patentable, the application of these concepts may be deserving of patent protection. *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289, 1293–94 (2012). In *Mayo*, the Court stated that “to transform an unpatentable law of nature into a patent eligible application of such a law, one must do more than simply state the law of nature while adding the words ‘apply it.’” *Id.* at 1294 (citation omitted).

In *Alice*, the Supreme Court reaffirmed the framework set forth previously in *Mayo* “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of these concepts.” *Alice*, 134 S. Ct. at 2355. The first step in the analysis is to “determine whether the claims at issue are directed to one of those patent-ineligible concepts.” *Id.* If the claims are directed to a patent-ineligible concept, then the second step in the analysis is to consider the elements of the claims “individually and ‘as an ordered combination’” to determine whether there are additional elements that “‘transform the nature of the claim’ into a patent-eligible application.” *Id.* (quoting *Mayo*, 132 S. Ct. at 1298, 1297). In other words, the second step is to “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.* (brackets in original) (quoting *Mayo*, 132 S. Ct. at 1294). The prohibition against patenting an abstract idea “cannot be circumvented by attempting to limit the use of the formula to a particular technological environment or adding insignificant

post-solution activity.” *Bilski v. Kappos*, 561 U.S. 593, 610–11 (2010) (citation and internal quotation marks omitted).

DISCUSSION

In rejecting the claims, the Examiner determines that the claims are directed to the abstract idea of “providing reading material and adjust[ing] the material based on the user’s consumption,” which falls under the category of organizing or managing human activities, and that any additional elements amount to no more than (i) “mere instructions to implement the idea on a computer, and/or” (ii) “recitation of generic computer structure . . . that serves to perform generic computer functions that are well-understood, routine, and conventional activities previously known to the pertinent industry.” Final Act. 2 (emphasis removed).

Claim 2

Appellants initially contend, regarding the first step of the *Alice* analysis, that claim 2 does not recite “adjust[ing] reading material,” which the Examiner finds to be the abstract idea set to which the claims are directed. Appeal Br. 9.

We understand the Examiner’s “adjusting” to cover, e.g.: (1) providing a suggestion of additional reading material in claims 2, 5, and 14; (2) identifying additional reading material relating to content that a user has difficulty understanding in claim 10 and 11; (3) changing passages upon receipt of a page change command as recited in claim 17; and (4) determining a predicted reading speed/time, an actual reading speed/time, and a passage difficulty to ultimately determine likelihood of user comprehension as recited in claims 3, 4, 6–8, 12, 13, and 18–20. We,

therefore, discern no error in the Examiner's identification of the claimed abstract idea as "providing reading material and adjust[ing] the material based on the user's consumption."

Appellants also argue that the Examiner's determination that claim 2 is directed to the abstract idea of organizing or managing human activities "take[s] the claims to a higher level of abstraction than is warranted," and improperly ignores numerous limitations of claim 2. Appeal Br. 9–10. Appellants contend that claim 2 instead recites "a specific concrete method of programmatically determining additional reading material suggestions for a user based on amounts of time that portions and passages of an electronic publication are displayed on a user device and the contents of those portions and passages," which "does not preempt every application of the idea of displaying electronic publications, of suggesting additional reading material, or of assigning reading material." *Id.* at 10. According to Appellants, the subject matter of claim 2 is similar to the claims addressed in *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245 (Fed. Cir. 2014) (Mayer, dissenting), where the court determined that the claims were "necessarily rooted in computer technology to overcome a problem specifically arising in the realm of computer networks," and "d[id] not attempt to preempt every application of the idea . . ." *Id.* at 11 (citing *DDR Holdings*, 773 F.3d at 1257, 1259). According to Appellants, claim 2 is directed to "a machine-centric solution" for suggesting additional reading material based on prior reading performance, and is "rooted in computer technology to overcome a problem . . . arising in the realm of electronic publications." *Id.*

We are not persuaded that the limitations of claim 2 amount to more than organizing or managing human activity. Claim 2 only recites

displaying reading material, determining the content of the material and how long the material is displayed, and using the amount of time the material is displayed to suggest additional reading material. Appellants fail to explain how the claimed steps, which might typically be performed by a teacher or similar individual, go beyond organizing and managing human activity. That the reading material is an “electronic publication” on a “user device” does not take the claim out of the realm of organizing and managing human activity. This differs from the claims in *DDR Holdings*, where the court determined that the claims satisfied “*Mayo/Alice* step two” because the claimed solution was “necessarily rooted in computer technology . . . to overcome a problem specifically arising in the realm of computer networks.” *See DDR Holdings*, 773 F.3d at 1257. While Appellants’ claimed solution may arguably be “rooted in computer technology,” we are not persuaded that it overcomes a problem arising in the realm of computer networks or other similar technology. It is the art of managing a user’s reading for increased comprehension, rather than the art of the underlying technology of electronic publication, that is being improved. Thus, a review of *DDR Holdings* does not persuade us that Appellants’ claims are directed to other than an abstract idea.

Regarding the second step of the *Alice* analysis, Appellants argue that claim 2 amounts to significantly more than an abstract idea, because its limitations do more than merely implement an abstract idea on a computer or perform generic computer functions that are well-understood, routine, and conventionally known in the industry. Appeal Br. 11–12. In support of this contention, Appellants list the limitations of claim 2, and argue that the listed limitations perform specific steps “that together advance the art of

electronic publications, and amount to much more than generic computer functions that are well-understood, routine, and conventionally known in the industry.” Appeal Br. 12. Appellants contend, in particular, that “the limitations of claim 2 set forth a machine-centric solution for suggesting additional reading material based on determining amounts of time that portions and passages of an electronic publication are displayed and the contents of such portions and passages, and would not be possible in traditional print publications,” which amounts to significantly more than an abstract idea. *Id.* at 12–13.

We are not persuaded that Appellants’ claims satisfy the second step of the *Alice* test. We agree with the Examiner that Appellants’ claims recite only routine and conventional use of the underlying technology. Unlike the claims in *DDR Holdings*, which “overc[a]me a problem specifically arising in the realm of computer networks,” Appellants’ claims do not improve an underlying technology by, e.g., manipulating interactions with the Internet to override “routine and conventional sequence of events ordinarily triggered by” an action. *Id.* at 1257–59. For the reasons explained above, we sustain the rejection of claim 2.

Claims 5, 8–11, and 14

Appellants argue claims 5, 8–11, and 14 as a group. We select independent claim 5 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv). Claims 8–11 and 14 stand or fall with claim 5.

Claim 5 recites a “computer readable storage medium having instructions that, when executed by a processor, cause the processor to perform operations” similar to those set forth in claim 2. Appeal Br. 39

(Claims App.). Regarding claim 5, Appellants make the same arguments set forth regarding claim 2. *Id.* at 17–20.

For the reasons set forth above regarding claim 2, we are not persuaded that claim 5 is directed to other than an abstract idea under part one of the *Alice* test, or recites “significantly more” under part two of the *Alice* test. The claimed computer readable storage medium and processor are known elements employed in a known way.

Claim 6

Claim 6 depends from claim 5 and recites determining additional information regarding the passage and the user’s behavior relevant thereto. Appeal Br. 40 (Claims App.). Appellants argue that the Examiner errs in finding that the limitations of claim 6 “amount to no more than generic computer functions that are well-understood, routine and conventional activities previously known to the pertinent industry without specifically addressing the claim elements of claim 6 or providing any evidentiary support as to why such limitations are believed to be well understood, routine and conventional.” *Id.* at 21. According to Appellants, claim 6 provides “additional tangible operations that cannot be categorized as mere instructions to implement the idea on a computer” and significant improvements in a technical field that “are meaningful beyond generally linking the use of an abstract idea to a particular technological environment.” *Id.* at 22.

For the reasons explained above regarding claim 2, we agree with the Examiner that claim 6 is directed to the abstract idea of “providing reading material and adjust[ing] the material based on the user’s consumption,” which falls under the category of organizing or managing human activity.

Further, Appellants have not persuaded us that determining additional information regarding text and a duration of time that the text is displayed amount to more than generic computer functions that are well-understood, routine and conventional activities.

Claims 3 and 7

Claim 3 depends from claim 2 and recites receiving information regarding text difficulty and predicting a reading speed based thereon. Appeal Br. 38 (Claims App.). Claim 7 depends from claim 5 and recites the same limitations. *Id.* at 40. Appellants argue claims 3 and 7 as a group. *Id.* at 22. We select claim 3 as representative. 37 C.F.R. § 41.37(c)(1)(iv). Claim 7 stands or falls with claim 3.

Appellants argue that the Examiner fails to specifically address the elements of claim 3. *Id.* at 23. According to Appellants, claim 3 provides “additional tangible operations that cannot be categorized as mere instructions to implement the idea on a computer” and significant improvements in a technical field that “are meaningful beyond generally linking the use of an abstract idea to a particular technological environment.” *Id.* at 23–24.

As explained above, we agree with the Examiner that claim 3 is directed to the abstract idea of “providing reading material and adjust[ing] the material based on the user’s consumption,” which falls under the category of organizing or managing human activity. Further, Appellants have not persuaded us that receiving an indication of passage difficulty and determining a predicted reading speed based on such difficulty and the user’s average reading time amount to more than generic computer functions that are well-understood, routine and conventional activities.

Claim 12

Claim 12 depends from claim 5 and recites, *inter alia*, “performing a lookup in a data structure . . . [that] associates the portion of the electronic publication with a particular subject matter.” Appeal Br. 41 (Claims App.). Appellants argue that the Examiner fails to specifically address the elements of claim 12. *Id.* at 25. According to Appellants, claim 12 provides “additional tangible operations that cannot be categorized as mere instructions to implement the idea on a computer” and significant improvements in a technical field that “are meaningful beyond generally linking the use of an abstract idea to a particular technological environment.” *Id.* at 25–26.

As explained above, we agree with the Examiner that claim 12 is directed to the abstract idea of “providing reading material and adjust[ing] the material based on the user’s consumption,” which falls under the category of organizing or managing human activity. Further, Appellants have not persuaded us that looking up data to associate certain text with its subject matter amounts to more than generic computer functions that are well-understood, routine and conventional activities.

Claims 4 and 13

Claim 4 depends from claim 2 and recites, *inter alia*, establishing a reading speed threshold and comparing that threshold to the user’s actual reading speed to determine a probability that the user understands the reading material. Appeal Br. 39 (Claims App.). Claim 13 depends from claim 5 and recites the same limitations. *Id.* at 42. Appellants argue claims 4 and 13 as a group. *Id.* at 26. We select claim 4 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv). Claim 13 stands or falls with claim 4.

Appellants argue that the Examiner fails to specifically address the elements of claim 4. *Id.* at 27. According to Appellants, claim 4 provides “additional tangible operations that cannot be categorized as mere instructions to implement the idea on a computer” and significant improvements in a technical field that “are meaningful beyond generally linking the use of an abstract idea to a particular technological environment.” *Id.* at 28.

As explained above in our discussion of claim 2, we agree with the Examiner that claim 4 is directed to the abstract idea of “providing reading material and adjust[ing] the material based on the user’s consumption,” which falls under the category of organizing or managing human activity. Further, Appellants have not persuaded us that setting up reading speed thresholds for a passage, and comparing an actual user reading speed to the thresholds to determine a probability that the user understands the passage, amount to more than generic computer functions that are well-understood, routine and conventional activities.

Claims 15 and 16

Claim 15 depends from claim 14, and recites an optical sensor and tracking the user’s eye movement. Appeal Br. 43 (Claim App.). Claim 16 depends from claim 14 and recites, *inter alia*, at least one of a touch sensor, a proximity sensor, and a motion sensor, using the touch, proximity and/or motion sensor to determine whether the user device is being held by the user, and revising a reading duration time value if the use device is not being held. *Id.* at 43–44.

Regarding claim 15, Appellants argue that the Examiner failed to address the specific limitations therein, and that tracking a user’s eye

movement with an optical sensor, and using such tracking to determine user behavior and ultimately provide a suggestion of additional reading material, “is a technological advancement” that “provide[s] additional tangible operations and structure that cannot be categorized as mere instructions to implement the idea on a computer or recitation of generic computer structure that serves to perform generic computer functions.” Appeal Br. 29–30. Appellants submit that claim 15, therefore, satisfies the second part of the two-part analysis by providing significantly more than an abstract idea. *Id.* at 30.

Regarding claim 16, Appellants similarly argue that the Examiner failed to address the specific limitations therein, and that determining whether the user device is held by the user (following a lack of page turning) using at least one of a touch sensor, a proximity sensor, or a motion sensor, satisfy the second part of the two-part analysis by providing significantly more than an abstract idea. *Id.* at 31–32.

Because the Examiner has not (1) specifically alleged that the sensors of claims 15 and 16, including the determinations based on information therefrom, are directed to the broadly defined abstract idea of “providing reading material and adjust[ing] the material based on the user’s consumption” (Final Act. 2), or (2) explained why the sensors recited and determination based on information therefrom amount to no more than (i) “mere instructions to implement the idea on a computer, and/or” (ii) “recitation of generic computer structure . . . that serves to perform generic computer functions that are *well-understood, routine, and conventional activities previously known to the pertinent industry*” (Ans. 11–12, emphasis

added), we do not sustain the rejection of claims 15 and 16 as directed to non-statutory subject matter.³

Claim 17–20

Appellants argue claims 17–20 as a group. We select claim 17 as representative. *See* 37 C.F.R. § 41.37(c)(1)(iv). Claims 18–20 stand or fall with claim 7.

Claim 17 recites “[a] computer-readable storage medium having instructions that, when executed by a processor, cause the processor to” provide an electronic publication passage to a user, provide another passage to the user upon receiving a change page command, and determine a “rate of consumption of the electronic publication for the user based ... on the passage and timing of the page change command.” Appeal Br. 44 (Claims App.). Regarding claim 17, Appellants make the same arguments set forth above regarding claim 2. *Id.* at 32–34.

Although claim 17 only provides reading material and determines information regarding the user’s consumption of such material, rather than adjusting reading material, for the reasons set forth above regarding claim 2, we are not persuaded that claim 17 is directed to other than an abstract idea under part one of the *Alice* test, or recites “significantly more” under part two of the *Alice* test. The claimed computer readable storage medium and processor are known elements used in a known way.

³ *See also Exergen Corp. v. Kaz USA, Inc.*, 2018 WL 1193529 (Fed. Cir. Mar. 8, 2018) (nonprecedential) (“The question of whether a claim element is well-understood, routine, and conventional to a skilled artisan in the relevant field is a question of fact and deference must be given to the determination made by the fact finder on this issue.”).

Claim 21

Claim 21 depends from claim 17 and recites, *inter alia*, determining whether the user device is being held by the user based on sensor data from at least one of a touch sensor, a motion sensor, or a proximity sensor.

Appeal Br. 45 (Claims App.) For the reasons set forth above regarding claim 16, which recites similar subject matter, we do not sustain the rejection of claim 21 as directed to non-statutory subject matter.

CONCLUSION

We AFFIRM the rejection of claims 2–14 and 17–20 under 35 U.S.C. § 101.

We REVERSE the rejection of claims 15, 16, and 21 under 35 U.S.C. § 101.

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).

AFFIRMED-IN-PART