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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte KUO-CHU LEE, LIPIN LIU, HASAN
TIMUCIN OZDEMIR, and JANNITE YU

Appeal 2017-001915
Application 13/193,962
Technology Center 3600

Before JOHNNY A. KUMAR, JENNIFER S. BISK, and
MATTHEW J. McNEILL, *Administrative Patent Judges*.

BISK, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants¹ appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 16, 17, and 21–28, all the remaining claims in the application. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

Appellants' invention relates to a method of improving store management using facial recognition to determine, for example, the amount of time customers wait in line. *See Spec* ¶¶ 1–6, 46, 137.

Claim 16 is illustrative:

¹ Appellants identify the real party in interest as Panasonic Intellectual Property Management Co., LTD. Appeal Br. 3.

16. A method of managing a plurality of queues at a site, the method comprising:

detecting from a video image, using a video imager, each face of a plurality of customers each in a queue of the plurality of queues at the site, wherein each said queue is configured to accept a line of customers awaiting their turn for service;

extracting face data from each detected face of each customer;

transmitting the face data to a customer table processor and a queue statistics processor:

determining, using the extracted face data and the customer table processor, how long each customer has been in a respective queue of the plurality of queues;

determining, based on how long each customer has been in the respective queues, an average waiting time for each queue of the plurality of queues by the queue statistics processor; and

transmitting the average waiting time for each queue of the plurality of queues in real time to a store manager display from the queue statistics processor.

THE REJECTIONS

1. The Examiner rejected claims 16, 17, and 21–28 under U.S.C. § 101 as directed to ineligible subject matter. Final Act. 3.²

2. The Examiner rejected claims 16, 17, and 21–24 under § 103(a) as being unpatentable over Lu (US 5,331,544; July 19, 1994 (filed Apr. 23, 1992)), Boss (US 2012/0116863 A1; May 10, 2012), Guo (US

² Throughout this opinion, we refer to (1) the Final Rejection mailed December 22, 2015 (“Final Act.”); (2) the Appeal Brief filed March 25, 2016 (“Appeal Br.”); (3) the Examiner’s Answer mailed September 29, 2016 (“Ans.”); and (4) the Reply Brief filed November 17, 2016 (“Reply Br.”).

2008/0186381 A1; Aug. 7, 2008), and Huang (US 6,195,121 B1; Feb. 27, 2001 (filed May 27, 1999)). Final Act. 3–8.

3. The Examiner rejected claim 25 under § 103(a) as being unpatentable over Lu, Boss, Guo, Huang, Hull (US 2007/0047780 A1; Mar. 1, 2007), and Coulter (US 2008/0107304 A1; May 8, 2008). Final Act. 8–9.

4. The Examiner rejected claims 26–28 under § 103(a) as being unpatentable over Lu, Boss, Guo, Huang, and Coulter. Final Act. 9–10.

ANALYSIS

THE § 101 REJECTION

We have reviewed the Examiner’s rejection in light of Appellants’ contentions and the evidence of record. For the following reasons, we sustain the Examiner’s rejection.

Legal Framework

To determine whether claims are patent eligible under § 101, we apply the Supreme Court’s two-step test articulated in *Alice Corp. Proprietary Ltd. v. CLS Bank International*, 134 S.Ct. 2347 (2014). First, we determine whether the claims are directed to a patent-ineligible concept: laws of nature, natural phenomena, and abstract ideas. *Id.* at 2354–55. If so, we then proceed to the second step and examine the claim’s elements—both individually and as an ordered combination—to determine whether the claim contains an “inventive concept” sufficient to transform the claimed abstract idea into a patent-eligible application. *Id.* at 2357.

The Federal Circuit has described the *Alice* step-one inquiry as looking at the “focus” of the claims, their “character as a whole,” and the *Alice* step-two inquiry as looking more precisely at what the claim elements

add—whether they identify an “inventive concept” in the application of the ineligible matter to which the claim is directed. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016); *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016); *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

Alice Step One

The Examiner finds that the claimed invention is directed to an abstract idea, namely managing queues at a site. Final Act. 3.

Appellants contend that “the claims are not directed to an abstract idea ‘of managing queues at a site’ itself.” Appeal Br. 11. Appellants argue that the claims “cannot be performed in the human mind,” at least for the reason that they involve using a video imager. *See id.* at 13; Reply Br. 5.

We agree with the Examiner that claims 16, 17, and 21–28 are all directed to an abstract idea, i.e., detecting and extracting face data of customers in a plurality of service queues, transmitting that data, determining how long each customer has been in a respective queue, determining an average waiting time for each queue, and transmitting that waiting time to a display. Our reviewing court has found similar methods to be abstract ideas. “[W]e have treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas.” *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (citations omitted). The Federal Circuit, however, has “consistently held . . . that claims are not saved from abstraction merely because they recite components more specific than a generic computer.” *BSG Tech LLC v. Buyseasons, Inc.*, 899 F.3d 1281, 1286 (Fed. Cir. 2018). For purposes of this step in the *Alice* analysis,

the video imager included in the claims, similar to the scanner in *Content Extraction* and the telephone unit and server in *TLI Communications*, “merely provide a generic environment in which to carry out the abstract idea.” *Id.* (citing *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat’l Ass’n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014); *In re TLI Commc’ns LLD Patent Litig.*, 823 F.3d 607, 613 (Fed. Cir. 2016)).

Alice Step Two

Because the claims are directed to an abstract idea, we proceed to step two to determine whether the claims include additional limitations that individually, or as an ordered combination, ensure the claims amount to “significantly more” than the abstract idea. *Alice*, 134 S. Ct. at 2357. For example, we look at whether the claims focus on a specific means or method that improves the relevant technology or instead are directed to a result or effect that, itself, is the abstract idea and merely invoke generic processes and machinery. *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1336 (Fed. Cir. 2016).

According to the Examiner, the claimed elements do not add significantly more to the abstract idea such that the claimed invention is rendered patent-eligible. Final Act. 3. The Examiner adds that “applicant’s invention uses a routine and conventional technology to obtain customer identity information of customers in a queue” and “use[s] computers to perform routine numerical calculations . . . transmit and display the result of calculations.” Ans. 8 (citing Spec. ¶ 169).

Appellants argue that the claims recite additional elements that amount to significantly more than the identified abstract idea. Appeal Br. 13–17; Reply Br. 5–10. According to Appellants, the claims “solv[e] a

problem in the technical realms of data transfer and data storage.” App. Br. 15–16 (citing Spec. ¶ 139).

We agree with the Examiner that “the claims are clearly directed to customer queue management,” (Ans. 10) a business problem as opposed to an improvement in computer technology. In fact, Appellants concede that the portion of the Specification relied on for the purported technical improvement is not a limitation of the claims. Reply Br. 8 (“Appellant noted how a *non-limiting feature of the disclosure* solves a problem in the technical realms of data transfer and data storage.”). Instead, Appellants agree “that claim 16 uses face data to determine how long each customer has been in a respective queue of the plurality of queues, which reduces a possibility of miscounting the waiting time in a crowded situation”—a business problem. Appeal Br. 16.

Moreover, notwithstanding Appellants’ contention that “the invention of claim 16 provides for the performance of a function not previously performable by a computer,” and, thus, “provides an improvement in computer-related technology” (Reply Br. 8), the analysis of *Alice*’s step two is not an evaluation of novelty or nonobviousness, but rather, a search for “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.’” *Alice*, 134 S.Ct. at 2355 (quoting *Mayo*, 132 S.Ct. at 1294). The question in the second step is not whether the claimed invention is novel, but rather whether the implementation of the abstract idea involves “more than performance of ‘well-understood, routine, [and] conventional activities previously known to the industry.’” *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343,

1347–48 (Fed. Cir. 2014) (quoting *Alice*, 134 S.Ct. at 2359). Consequently, even if we were to agree with Appellants that the claim recites a queue analysis methodology never before implemented on computers, the Examiner determines, and Appellants do not persuasively refute, that the computer implementation of the claimed methodology requires only computer equipment and functions that are well-understood, routine, and conventional, such as storing, receiving, processing, and displaying data. Final Act. 3; Ans. 7–9; see, e.g., *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1341 (Fed. Cir. 2017) (“Rather, the claims recite both a generic computer element—a processor—and a series of generic computer ‘components’ that merely restate their individual functions—i.e., organizing, mapping, identifying, defining, detecting, and modifying.”); *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 716 (Fed. Cir. 2014) (quoting *Alice*, 134 S. Ct. at 2357) (“Instead, the claimed sequence of steps comprises only ‘conventional steps, specified at a high level of generality,’ which is insufficient to supply an ‘inventive concept.’”); *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1352, 1355 (Fed. Cir. 2014) (finding computer-implemented system for guaranteeing performance of an online transaction to be ineligible).

Nor do we find Appellants’ reliance on *McRO, Inc. v. Bandai Namco Games America, Inc.*, 837 F.3d 1299 (Fed. Cir. 2016) (see Appeal Br. 10–11) persuasive. *McRo*’s claimed process used a combined order of specific rules that rendered information in a specific format that was applied to create a sequence of synchronized, animated characters. *McRO*, 837 F.3d at 1315. Notably, the recited process *automatically animated characters* using particular information and techniques, which, as discussed in the

specification, was an improvement over manual three-dimensional animation techniques. *Id.* at 1316.

But unlike *McRO* that improved how the physical display operated to produce better quality images, the claimed invention here analyzes data to assess the waiting time of customers in a queue—a mathematical determination (*see, e.g.*, Spec. ¶ 137 (discussing queue statistics module)) that does not purport to improve a display mechanism as was the case in *McRO*. Although the claimed invention requires computer components, it is the incorporation of those components—not a claimed rule—that purportedly improves the existing process. *Cf. FairWarning IP, LLC v. Iatric Systems, Inc.*, 839 F.3d 1089, 1095 (Fed. Cir. 2016). That the Specification emphasizes integrating available systems and organizing the information received using standard equipment to implement the claimed invention only bolsters the notion that the claimed invention does not focus on an improvement in computer technology itself, but rather focuses on an abstract idea that is implemented using standard computer equipment and functionality as tools. *See, e.g.*, ¶ 11 (“[T]here has thus arisen a need to cohesively organize received multimedia information . . . a need to be able to search the captured content (from, e.g., cameras)” that “heretofore the integration by connecting other devices with a multimedia recorder is not feasible considering the many application at a retail site.”)); *Elec. Power*, 830 F.3d at 1354. The claims do not, for example, purport to improve the functioning of the video imager, or the method with which facial data is captured, analyzed, or displayed. Nor do they effect an improvement in any other technology or technical field. “At best, the claims describe the automation of the [abstract idea] through the use of generic-computer

functions.” *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1363 (Fed. Cir. 2015). That is not enough to transform an abstract idea into a patent-eligible invention. *See Alice*, 134 S. Ct. at 2360.

Lastly, we find unavailing Appellants’ contention that the Examiner also allegedly failed to consider preemption adequately. *See* Appeal Br. 16; Reply Br. 8. Where, as here, the claims cover a patent-ineligible concept, preemption concerns “are fully addressed and made moot” by an analysis under the *Alice* framework. *See Ariosa*, 788 F.3d at 1379. The Examiner’s point in this regard is well taken. *See* Ans. 10.

For the foregoing reasons, then, the recited elements—considered both individually and as an ordered combination—do not contain an “inventive concept” sufficient to transform the claimed abstract idea into a patent-eligible application. Therefore, we are not persuaded that the Examiner erred in rejecting independent claim 16.

We also sustain the Examiner’s ineligibility rejection of dependent claims 17 and 21–28. *See* Final Act. 3. Appellants’ contention that the dependent claims are eligible for the same reasons that the independent claims are eligible (Appeal Br. 18) is unavailing for the reasons previously discussed. Dependent claims 17 and 21–28 call for similar generic components, devices, and functions as independent claim 16. Appellant has not argued that the additional limitations added by these claims require any non-conventional components, devices, or functions.

Therefore, we are not persuaded that the Examiner erred in rejecting claims 16, 17, and 21–28 under § 101.

THE § 103 REJECTIONS

Claim 16

Appellants direct their arguments mainly to the limitations of independent claim 16. *See* Appeal Br. 18–22; Reply Br. 10–14. We, therefore, address the independent claim first.

“detecting from a video image, using a video imager, each face of a plurality of customers each in a queue of the plurality of queues at the site”

With respect to the “detecting” limitation of independent claim 16, Appellants argue that Lu does not disclose acquiring facial images *in a queue*, but, instead, acquires those images only at the point of sale once the customer has already reached the checkout counter. Appeal Br. 19; Reply Br. 10–11, 14.

Although we agree with Appellants that Lu focuses on acquiring customer facial images once they have arrived at the point of sale, this argument is not persuasive of error because the Examiner also points to other references. For example, Huang explicitly describes “[a] video camera . . . positioned to view the queue” so that “multi-dimensional information regarding the queue” may be collected. Huang, (57). Moreover, the Examiner explains that “both Boss and Huang teach obtaining various statistics related to customers in a queue, where the statistics are specific to a particular customer.” Ans. 20; *see also* Ans. 23–24 (“Boss and Huang teach obtaining customer identification information from customers who are standing in a queue.”). We are, therefore, not persuaded of error in the finding that the combination of Lu, Huang, and Boss teach the detecting limitation.

“determining, based on how long each customer has been in the respective queues, an average waiting time for each queue of the plurality of queues by the queue statistics processor”

With respect to the second “determining” limitation of independent claim 16, Appellants argue that Huang is not sufficiently clear in teaching how it determines how long each customer has been in the respective queue. Appeal Br. 21–22. Moreover, according to Appellants, although Guo and Lu disclose face detection, “none of the applied references discloses or otherwise renders obvious at least the use of face data in the determination of the waiting time.”

In response, the Examiner explains that Boss teaches measurement of time each customer is in the queue and Huang teaches notifying a manager that queue statistics indicate an abnormality with a queue. Ans. 24.

Appellants argue, however, that Boss does not disclose “detecting each of a plurality of customers each in a queue of the plurality of queues at the site.” Reply 14.

We are not persuaded by Appellants’ argument. Boss teaches collecting information on individual customers in one of a plurality of queues at a site. Ans. 16 (quoting Boss ¶ 28 (“For example, relative elapsed times spent in a queue may be determined at **206**, with higher benefits offered for leaving a queue to those who have been waiting in a current queue the longest.”)). We are, therefore, not persuaded of error in the finding that the combination of Lu, Huang, and Boss teach the second determining limitation.

Combining Lu, Guo, Boss, and Huang

Appellants also argue that the Examiner has not provided a proper basis for the proposed combination of Boss with the other three references. According to Appellants, “one skilled in the art would not be led to combine the RFID tracking device of BOSS with the face detection systems of GUO with LU and the Examiner has failed to [explain] why one would.” Appeal Br. 20; Reply Br. 12–14).

The Examiner has provided a valid articulated line of reasoning with a rational underpinning to support the conclusion of obviousness with respect to the combination of Boss with Lu, Guo, and Huang. Final Act. 5. We note that the Examiner has expanded upon the stated rationale for combining the references at pages 12–18 of the Answer. The Examiner has cited Boss’s discussion of (1) low customer satisfaction with long queue wait times (Ans. 13 (citing Boss ¶ 2)), (2) determining a maximum queue length beyond which customer satisfaction is adversely affected (*id.* at 14–15 (citing Boss ¶ 21)), and (3) tracking individual customers and how long they have been waiting (*id.* at 15–16 (citing Boss ¶¶ 23, 28)). The Examiner explains that the references disclose several ways to track individual customers, including facial recognition, RFID bracelets, and personal mobile devices. *Id.* at 16–17 (citing Lu, Boss). Appellants’ arguments in the Reply Brief do not challenge the Examiner’s findings. Further, the Examiner explains that a person of ordinary skill in the art would understand these methods to be equivalents. *Id.* According to the Examiner, “[o]ne of ordinary skill in the art would further recognize an advantage of Boss’s teachings over Lu in using a personal mobile device to track identity is that of being able to communicate with the identified customer” along with other advantages. *Id.*

Thus, a person of ordinary skill would be motivated to combine the references in order to achieve these benefits. We are not persuaded of error in the Examiner's reasoning.

For the above reasons, we find that the Examiner did not err in concluding that the combination of Lu, Guo, Boss, and Huang renders the rejected claims unpatentable. Accordingly, the Examiner's obviousness rejection of independent claim 16 is sustained.

Claims 17 and 21–24

We also sustain the Examiner's obviousness rejection, based on the combination of Lu, Guo, Boss, and Huang, of dependent claims 17 and 21–24. Final Act. 6–8. For the same reasons as discussed with respect to claim 16, Appellants' arguments (App. Br. 22–23) are not persuasive of any error in the Examiner's determination.

Claim 25

We also sustain the Examiner's obviousness rejection, based on the combination of Lu, Guo, Boss, Huang, Hull, and Coulter, of dependent claim 25.³ Final Act. 8–9. For the same reasons as discussed with respect to

³ Appellants contend that this rejection was “dropped in the Examiner's Answer dated September 29, 2016, and assume that these rejections were withdrawn.” Reply 3. 37 C.F.R. § 41.39(a)(1) states, however, that “[a]n examiner's answer is deemed to incorporate all of the grounds of rejection set forth in the Office action from which the appeal is taken . . . unless the examiner's answer expressly indicates that a ground of rejection has been withdrawn.” Because the examiner's answer does not expressly withdraw this ground of rejection, it stands.

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claim 16, Appellants' arguments (App. Br. 23) are not persuasive of any error in the Examiner's determination.

Claims 26–28

We also sustain the Examiner's obviousness rejection, based on the combination of Lu, Guo, Boss, Huang, and Coulter, of dependent claims 26–28.³ Final Act. 9–11. For the same reasons as discussed with respect to claim 16, Appellants' arguments (App. Br. 23–24) are not persuasive of any error in the Examiner's determination.

DECISION

We affirm the Examiner's decision to reject claims 16, 17, and 21–28.

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