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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte WEI ZHANG and
WARNER RUDOLPH THEOPHILE TEN KATE

Appeal 2018-007100
Application 14/648,266
Technology Center 3700

Before MICHAEL C. ASTORINO, NINA L. MEDLOCK, and
KENNETH G. SCHOPFER, *Administrative Patent Judges*.

ASTORINO, *Administrative Patent Judge*.

DECISION ON REQUEST FOR REHEARING

The Appellant timely filed a Request for Rehearing (“Req. Reh’g”) under 37 C.F.R. § 41.52 on April 20, 2020, requesting that we reconsider our Decision of March 3, 2020 (“Dec.”), affirming the rejection under 35 U.S.C. § 101 of claims 11–15 as directed to judicial exception without significantly more.

The Appellant submits that the Decision evaluates the 35 U.S.C. § 101 rejection under the 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50 (Jan. 7, 2019) (“2019 Revised Guidance”), which “essentially amounts to an undesignated new ground of rejection” because the Examiner did not reject the claims under the 2019 Revised Guidance, the Appellant never had the opportunity to provide evidence

under the 2019 Revised Guidance, and the rejection was sustained based on the 2019 Revised Guidance. Req. Reh’g 2. Pursuant to 37 C.F.R. § 41.52, the Appellant requests a rehearing to present new arguments to address the 35 U.S.C. § 101 rejection under the 2019 Revised Guidance and the “October 2019 Update: Subject Matter Eligibility,” available at https://www.uspto.gov/sites/default/files/documents/peg_oct_2019_update.pdf (“October 2019 Update”). *See id.*

We disagree with the Appellant that the Decision is an undesignated new ground of rejection. In the interest of fairness, we will address the Appellant’s arguments presented in the Request because they may be understood as addressing points believed to have been misapprehended or overlooked by the Board. *See* 37 C.F.R. § 41.52(a)(1).

The Appellant’s arguments primarily concern the rejection of claim 11. *See* Req. Reh’g 2–5. Claim 11 is reproduced below with bracketed notations added:

11. A non-transitory computer program product, comprising computer program code that, when executed on a computer or processor, causes the computer or processor to determine a fall risk for a user by:

[(a)] analyzing a plurality of measurements of an acceleration of the user to determine if the user has performed a sit-to-stand transfer;

[(b)] identifying a peak vertical acceleration of the user during the sit-to-stand transfer from the plurality of measurements of the acceleration of the user, wherein the identified peak vertical acceleration is scaled using an estimate of gravity obtained from the measurements of the acceleration of the user thereby producing a scaled peak vertical acceleration; and

[(c)] estimating a fall risk for the user from the scaled peak vertical acceleration, wherein the fall risk is inversely proportional to the scaled peak vertical acceleration.

Appeal Br. 13, Claims App.

The Appellant disagrees with a statement in the Decision at page 10, which states, “[w]hen considered collectively and under the broadest reasonable interpretation” step (b) describes “identifying a scaled peak vertical acceleration from the acceleration data.” Req. Reh’g 2. According to the Appellant, “[c]laim 11 recites identifying a peak vertical acceleration . . . , and *then* the identified peak vertical acceleration is scaled using an estimate of gravity obtained from the measurements of the acceleration of the user thereby producing a scaled peak vertical acceleration.” *Id.* (emphasis added).

After the statement in the Decision that step (b) describes “identifying a scaled peak vertical acceleration from the acceleration data,” the Decision explains its meaning by reciting the entirety of step (b). Dec. 9. More specifically, the Decision states:

An examination of claim 11 shows that the claim recites . . . (b) *identifying a scaled peak vertical acceleration* from the acceleration data (i.e., “identifying a peak vertical acceleration of the user during the sit-to-stand transfer from the plurality of measurements of the acceleration of the user, wherein the identified peak vertical acceleration is scaled using an estimate of gravity obtained from the measurements of the acceleration of the user thereby producing a scaled peak vertical acceleration”).

Id. Put simply, the Decision only uses the language “identifying a scaled peak vertical acceleration from the acceleration data” as a concise version of the language of step (b). To be clear, we are in agreement with the

Appellant that “[i]dentifying a peak vertical acceleration is not the same as scaling that identified peak vertical acceleration.” Req. Reh’g 2. Indeed, these are two separate steps. As stated by the Appellant, “[i]dentifying a peak vertical acceleration includes identifying ‘the largest maximum in the portion of the vertical acceleration signal corresponding to the sit-to-stand transfer’” (*id.* (citing Spec. 8:13–14)). And, the identification of peak vertical acceleration may occur before or after the scaling of the identified peak vertical acceleration;

in step 107, an estimate of the acceleration due to gravity is estimated from the vertical acceleration signal, and in step 109 this estimate is used to scale the identified peak vertical acceleration to give a scaled peak vertical acceleration. *The peak vertical acceleration is preferably scaled by subtracting the estimate of gravity from the peak vertical acceleration.*

....

It will be appreciated that steps 101, 103, 107 and 109 do not have to be performed in the order shown in Figure 5. . . . *Alternatively, the estimate of gravity can be used to scale all of the vertical acceleration measurements, with the peak vertical acceleration being identified from the scaled vertical acceleration measurements.*

Spec. 9:18–34 (emphasis added); *id.* at Fig. 5. Additionally, we note that here the Specification makes clear that scaling the identified peak vertical acceleration may occur by use of a computation (*see* Req. Reh’g 2–3); i.e., “[t]he peak vertical acceleration is preferably scaled by *subtracting* the estimate of gravity from the peak vertical acceleration.” Spec. 9:20–23 (emphasis added).

The Appellant acknowledges the determination in the Decision that claim 11 recites two abstract ideas; namely, mental processes and

mathematical concepts. Req. Reh’g 2. More specifically, the Decision states:

When considered collectively and under the broadest reasonable interpretation, claim 11 describes steps (i.e., instructions) for determining a fall risk for a user by (a) analyzing acceleration data to identify a STS transfer, (b) identifying a scaled peak vertical acceleration from the acceleration data, and (c) estimating a fall risk for the user, which is similar to the concept of “selecting certain information, analyzing it using mathematical techniques, and reporting or displaying the results of the analysis” in *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018). Accordingly, claim 11 recites a way of evaluating, which is a concept that can be performed in the human mind, i.e., mental processes identified in the 2019 Revised Guidance (84 Fed. Reg. at 52), as well as a “series of mathematical calculations based on selected information” (*id.* at n.12 (citing *SAP Am.*, 898 F.3d at 1163)) —mathematical relationships, mathematical formulas or equations, mathematical calculations, which is one of the “[m]athematical concepts” identified in the 2019 Revised Guidance (*id.* at 52), and thus recites an abstract idea.

Dec. 10.

The Appellant references the October 2019 Update with respect to mental processes and mathematical concepts and focuses on the “wherein” clause of step (b), i.e., “wherein the identified peak vertical acceleration is scaled using an estimate of gravity obtained from the measurements of the acceleration of the user thereby producing a scaled peak vertical acceleration.” Req. Reh’g 3. The Appellant argues that the “wherein” clause “does not recite a mental process” because “it is not reasonable to determine that a human can ‘practically’ perform, in the mind, the claimed scaling computation.” *Id.* The Appellant also argues that the “wherein”

clause “merely involves a mathematical concept and does not recite any mathematical concept, [therefore] this limitation is not a mathematical concept.” *Id.* The Appellant’s arguments are not persuasive.

As discussed above, the Specification describes, “[t]he peak vertical acceleration is preferably scaled by *subtracting* the estimate of gravity from the peak vertical acceleration.” Spec. 9:20–23 (emphasis added). We determine that subtraction is a type of evaluation that can practically be performed in the human mind, and therefore is a mental process. *See* October 2019 Update 7. Additionally, scaling the peak vertical acceleration by subtracting the estimate of gravity from peak vertical acceleration is a mathematical concept, i.e., a mathematical calculation. *See* Spec. 9:21–23; October 2019 Update 4 (“A mathematical calculation is a mathematical operation (such as multiplication) or an act of calculating using mathematical methods to determine a variable or number There is no particular word or set of words that indicates a claim recites a mathematical calculation.”). Moreover, we note that the Appellant fails to persuasively explain why the evaluation described in the “wherein” clause of step (b) cannot be practically performed in the human mind or why the “wherein” clause lacks a mathematical concept.

The Appellant argues, “the subject limitation is ‘an additional limitation[.]’” and that “this additional limitation, in combination with the other limitations / the claim as a whole, integrates the alleged judicial exception into a practical application.” Req. Reh’g 4. However, it is unclear if the Appellant’s reference to the “the subject limitation” refers to the entirety of claim 11’s step (b) or only the “wherein” clause of step (b). In either case, neither portion of claim 11 is an additional limitation of the

claim. Rather, the entirety of step (b) recites the abstract idea. *See* Dec. 8–12. As discussed in the Decision, “[t]he additional elements of claim 11 are the ‘non-transitory computer program product, comprising computer program code’ and ‘computer or processor.’” *Id.* at 10–11.

The Appellant argues:

claim 11, as a whole, provides, relative to existing fall risk detection systems, a more robust and reliable computing system that reduces processor computational effort and that mitigates sensor calibration errors that introduce error into the peak vertical acceleration and thus the fall risk estimation. The 2019 Update states: “. . . if the additional limitations reflect an improvement in the functioning of a computer, or an improvement to another technology or technical field, the claim integrates the judicial exception into a practical application and thus imposes a meaningful limit on the judicial exception. No further analysis is required. The claim is eligible at Step 2A.”

Req. Reh’g 4 (quoting October 2019 Update 11); *see* Spec. 8:33–34, 9:1–6, 11–17. The Appellant’s argument is not persuasive. As discussed in the Decision, “there is no such improvement to technology or a technological process. Any improvement in claim 11 is an improvement in the analysis of the acceleration data to estimate a fall risk, i.e., the abstract idea.” Dec. 11; *see SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1168 (Fed. Cir. 2018).

For the foregoing reasons, the Appellant’s Request does not persuade us that the rejection of claim 11 under 35 U.S.C. § 101 includes a reversible error. The Appellant offers substantially the same arguments for patent eligibility for claim 12 as claim 11. *See* Req. Reh’g 5 (“[T]he above discussion regarding claim 11 applies *mutatis mutandis* to claim 12.”). The Appellant does not separately argue the rejection of claims 13–15, which depend from claim 12. *Id.* Thus, the Appellant’s Request does not

persuade us that we erred in affirming the rejection of claims 12–15 under 35 U.S.C. § 101.

The Request does not address the Examiner’s rejections under 35 U.S.C. §§ 112(a), 102(b), and 103(a), which were reversed. We do not modify our decision to reverse these grounds of rejection.

CONCLUSION

We have granted the Appellant’s Request to the extent that we have considered our Decision in light of the points raised therein, but have denied the Request.

Outcome of Decision on Rehearing:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Denied	Granted
11–15	101	Eligibility	11–15	

Final Outcome of Appeal after Rehearing:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
12–15	112(a)	Written Description		12–15
11–15	101	Eligibility	11–15	
11	102(b)	Najafi		11
12–14	103(a)	Najafi		12–14
15	103(a)	Najafi, Zijlstra		15
Overall Outcome			11–15	

DENIED