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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EDWARD K.Y. JUNG, ROYCE A. LEVIEN,
ROBERT W. LORD, MARK A. MALAMUD, and
JOHN D. RINALDO, JR.

Appeal 2010-007041
Application 11/901,954
Technology Center 3700

Before STEFAN STAICOVICI, JOHN W. MORRISON, and
HYUN J. JUNG, *Administrative Patent Judges*.

STAICOVICI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Edward K.Y. Jung et al. (Appellants) appeal under 35 U.S.C. § 134 from the Examiner's decision finally rejecting claims 1, 4, 7, 16, 20-22, 24-27, and 29. Claims 2, 3, 5, 6, 8-11, 13-15, 17, and 23 have been withdrawn and claims 12, 18, 19, and 28 have been canceled. We have jurisdiction over this appeal under 35 U.S.C. § 6.

THE INVENTION

Appellants' invention relates to a method and device for monitoring movement or position of a person's appendage, determining whether the movement or position is indicative of a risk of repetitive injury to the person, and implementing an action to reduce the determined risk. Spec. 1, para. [01].

Claims 1, 22, 26, and 29, with added brackets, are illustrative of the claimed invention and read as follows:

> 1. A method implemented in an environment that includes a person interacting with an electronic device via a user interface, the method comprising:
>
> [a] monitoring a position of an appendage of the person and a position of the user interface of the device to determine at least one of a movement or a position of the appendage with respect to the position of the user interface of the device;
>
> [b] determining if the monitored movement or position of the appendage of the person with respect to the position of the user interface of the device is indicative of a risk of a repetitive injury to the person; and
>
> [c] implementing an action facilitating a reduction of the determined indicated risk of a repetitive injury to the person.
>
> 22. An electronic device comprising:
>
> [a] a user interface operable to at least one of receive input from a person or provide an output to the person;

[b] a monitoring circuit operable to gather data indicative of a physical movement involved in the person making an input to the electronic device using the user interface;

[c] an analytic circuit operable to determine if the movement of the person making an input to the electronic device corresponds to a repetitive injury risk to the person; and

[d] a mitigation circuit operable to implement a remediation action by demonstrating or illustrating alternate positions or movement of the appendage to facilitate a reduction of the determined repetitive injury risk to the person.

26. A computer program product comprising:

(a) program instructions operable to perform a process in a computing device having a user interface operable to interact with a person, the process comprising:

[a] monitoring at least one of a movement or a position of an appendage of the person with respect to the user interface of the device;

[b] determining if the monitored movement or position of the appendage of the person is indicative of a risk of a repetitive injury to the person; and

[c] implementing an action by suggesting to the person one of a corrected position or movement of the appendage to facilitate a reduction of the determined indicated risk of a repetitive injury to the person; and

(b) a computer-readable signal-bearing storage medium bearing the program instructions.

29. An electronic device having an input or output device with a user interface operable to interact with a person, the electronic device comprising:

[a] means for monitoring at least one of a movement or a position of an appendage of the person touching the user interface of the input or output device;

[b] means for determining if the monitored movement or position of the appendage of the person is indicative of a risk of a repetitive injury to the person; and

> [c] means for implementing an action facilitating a reduction of the determined indicated risk of a repetitive injury to the person.

THE REJECTIONS

The following rejections are before us for review:

The Examiner rejected claims 1, 4, 7, 16, 20, 21, 26, and 27 under 35 U.S.C. § 101 as directed to non-statutory subject matter.

The Examiner rejected claims 1, 4, 7, 16, 20, and 21 under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement.

The Examiner rejected claims 1, 4, 7, 16, 20, and 29 under 35 U.S.C. § 102(b) as anticipated by Madill (US 6,647,288 B2, iss. Nov. 11, 2003).

The Examiner rejected claims 21, 22, 24, 26, 27 under 35 U.S.C. § 103(a) as unpatentable over Madill and Littell (US 2005/0270163 A1, publ. Dec. 8, 2005).

The Examiner rejected claim 25 under 35 U.S.C. § 103(a) as unpatentable over Madill, Littell, and Jadidi (US 2006/0184059 A1, publ. Aug. 17, 2006).

SUMMARY OF DECISION

We AFFIRM.

ANALYSIS[1]

The non-statutory subject matter rejection

[1] Appellants did not provide page numbers in the Appeal Brief and Reply Brief. However, for ease of referring to Appellants' arguments, we assign page numbers 1 through 51 to the Appeal Brief and page numbers 1 through 7 to the Reply Brief.

Claims 1, 4, 7, 16, 20, and 21

With respect to independent claim 1, the Examiner found that "[e]ach of the monitoring, determining and implementing steps can be performed by a human being or by hand." Ans. 3. Thus according to the Examiner, "the claim fails to meet the requirements for patent eligibility." *Id*.

In response, Appellants take the position that independent claim 1 satisfies the machine-or-transformation test because the claim (1) is tied to a particular machine, namely, "the user interface of the device" and (2) "transforms the monitored movement or position into 'implementing an action facilitating a reduction of the determined indicated risk.'" Reply Br. 4-5. Thus, according to Appellants, claims 1, 4, 7, 16, 20, and 21 are directed to statutory subject matter. Reply Br. 7.

Section 101 defines the subject matter that may be patented under the Patent Act: "[w]hoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." Supreme Court precedents "provide three specific exceptions to § 101 's broad patent-eligibility principles: 'laws of nature, physical phenomena, and abstract ideas.'" *Bilski v. Kappos*, 130 S. Ct. 3218, 3225 (2010) (quoting *Diamond v. Chakrabarty*, 447 U.S. 303,309 (1980)).

In this case, we agree with the Examiner that the steps of claim 1, namely, "monitoring," "determining," and "implementing" read on a process that could be performed in the human mind, or by a human. Ans. 3. "[M]ental processes-or processes of human thinking-standing alone are not patentable even if they have practical application." *In re Comiskey*, 554

F.3d 967, 979 (Fed. Cir. 2009); *see also Gottschalk v. Benson*, 409 U.S. 63, 67 (1972) ("Phenomena of nature..., mental processes, and abstract intellectual concepts are not patentable, as they are basic tools of scientific and technological work.").

The U.S. Supreme Court acknowledges that the machine-or-transformation test is a "useful and important clue or investigative tool" for determining patent eligibility under § 101. *Bilski*, 130 S. Ct. at 3221. In this regard, although we appreciate that claim 1 recites "[a] user interface of the device," we note that none of the recited steps refers to any specific operations that would cause the "user interface of the device" to be the mechanism to perform these steps. As noted by the Examiner, "the monitoring step can be performed by a human observer watching the person use the user interface" and "the human observer can then determine if the movement of the person is indicative of a repetitive injury to the person." Ans. 3. As such, the steps of claim 1 are not executed by a particular machine or apparatus.

Furthermore, in contrast to Appellants' position that claim 1 transforms the monitored movement or position into "implementing an action facilitating a reduction of the determined indicated risk", because the monitored movement or position is not an article, the implementing step of claim 1 cannot result in the transformation of an article. *See* Reply Br. 5. "[T]he human observer can either move the user interface or can physically move the person to prevent a repetitive injury." Ans. 3.

For all these reasons, we sustain the rejection of independent claim 1 and dependent claims 4, 7, 16, 20, and 21, which have not been separately argued, as directed to non-statutory subject matter.

Claims 26 and 27

Independent claim 26 is directed to "a computer-readable signal-bearing storage medium." App. Br., Clms. App'x.

The Examiner finds that the claim is directed to non-statutory subject matter because the recited "computer-readable signal-bearing storage medium" is not limited to physical memory, such as, "ROM, RAM, CD-ROM, DVD or magnetic storage, but also includes quantum memory," which according to the Examiner "does not comprise a physical structure" because the "[S]pecification does not limit the types of computer readable medium to only physical structures" and the limitation can be interpreted "as nothing more than a signal." Ans. 3-4. In other words, the Examiner takes the position that the recited "computer-readable signal-bearing storage medium" includes signal bearing mediums. *See* Ans. 4.

Appellants contend that the claim is directed to statutory subject matter because the claim "is directed to an article of manufacture, namely, a computer program product." Reply Br. 6.

At the outset, we note that Appellants' Specification states that a "computer-readable signal-bearing medium includes a computer storage medium," and in another embodiment, it "includes a communication medium." Spec. 16, para. [049]. Appellants' Specification further states that "[c]ommunications media may typically embody computer-readable instructions, data structures, program modules, or other data in a *modulated data signal* such as a carrier wave or other transport mechanism." Spec. 6, para. [025] (". . . communications media include . . . wireless media such as acoustic, RF, optical, and infrared media."). Emphasis added.

Thus, under the broadest reasonable interpretation, the "computer-readable signal-bearing storage medium" of independent claim 26 encompasses transitory signals. Accordingly, independent claim 26 is directed to non-statutory subject matter. *See In re Nuijten*, 500 F.3d 1346, 1357-58 (Fed. Cir. 2007) ("A transitory, propagating signal like Nuitjen's is not a 'process, machine, manufacture, or composition of matter.'... [T]hus, such a signal cannot be patentable subject matter."); *see also Subject Matter Eligibility of Computer Readable Media*, 1351 Off. Gaz. Pat. Office 212 (Feb. 23, 2010) ("A claim drawn to such a computer readable medium that covers both transitory and non-transitory embodiments may be amended to narrow the claim to cover only statutory embodiments to avoid a rejection under 35 U.S.C. § 101 by adding the limitation 'non-transitory' to the claim.").

In conclusion, for the reasons set forth *supra*, we sustain the rejection of independent claim 26 and dependent claim 27, which has not been separately argued, as directed to non-statutory subject matter.

The Written Description Rejection

Independent claim 1 recites, *inter alia*, "monitoring a position of an appendage of the person *and* a position of the user interface of the device." App. Br., Clms. App'x. Emphasis added. The Examiner found that although Appellants' Specification "supports the monitoring of the movement of the appendage with respect to the device," the Specification "lacks support for monitoring the position of the user interface of the device." Ans. 5.

It is well settled that the fundamental factual inquiry is whether the specification conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, applicant was in possession of the invention as now claimed. *See, e.g.*, *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64 (Fed. Cir. 1991). Here, Appellants' Specification specifically discloses monitoring "at least one of a movement or a position of an appendage of the person with respect to the user interface of the device." Spec., para. [038]. Since the position of the person's appendage is monitored with respect to the user interface it follows that the user interface acts as a reference point, and as such, the position of the user interface is known, that is, the position of the user interface is monitored. Thus, we agree with Appellants that the limitation of "monitoring a position of an appendage of the person and a position of the user interface of the device" is supported by Appellants' original disclosure. App. Br. 18.

Accordingly, we do not sustain the rejection of claims 1, 4, 7, 16, 20, and 21 under 35 U.S.C. § 112, first paragraph, for failing to comply with the written description requirement.

The anticipation rejection based upon Madill

Claims 1, 4, 7, 16, and 20

The Examiner found that Madill teaches "the use of EMG [electrodes] to monitor the position of the user's appendages with respect to a workstation" because in Figure 2 of Madill, EMG electrodes 31a, 31b, 32a, 32b, 33a, and 33 b, are attached to the user "to monitor the arm movement with respect to the workpiece mounted on the workstation." Ans. 10 and 11.

Appellants argue that the electrodes of Madill enable sensing of muscle loading, and as such, do not "[monitor] a position of an appendage of the person and a position of the user interface of the device," as called for by independent claim 1. App. Br. 29-30. We agree.

The device and method of Madill uses electromyography electrodes 31a, 31b, 32a, 32b, 33a, and 33 b to monitor muscle loading of a user while performing a repetitive task (*i.e.*, muscle loading profile 101, 111, 121,131). Madill, col. 5, ll. 23-25 and 35-38 and fig. 2; *see also* Ans. 6. Madill further teaches that the electromyography electrodes "are responsive to micro-voltage fluctuations produced by a person's muscles during rest and motion or the performance of work." *Id*., col. 4, ll. 51-55. Thus, although we appreciate that the electrodes of Madill monitor the movement of a person's appendage while performing work, the electrodes of Madill do not monitor the position of a person's appendage, as called for by independent claim 1. A person's appendage can occupy various positions and yet have similar muscle loading profiles. Therefore, we agree with Appellants that Madill fails to teach the limitation of "monitoring a position of an appendage of the person and a position of the user interface of the device," as called for by independent claim 1. App. Br. 29.

Accordingly, we do not sustain the rejection of independent claim 1 and its dependent claims 4, 7, 16, and 20 under 35 U.S.C. § 102(b) as anticipated by Madill.

Claim 29

Appellants argue that Madill "does *not recite* the text of" either clause [a] or clause [b] of independent claim 29. App. Br. 47-48. Although we

appreciate that Madill does not recite the exact language of either clause [a] or clause [b] of independent claim 29, nonetheless, Madill teaches these limitations. A reference which describes the subject matter of a claim anticipates the claim even if the reference does not use the same terminology used in the claim. *See In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990) (stating that anticipation does not require an *ipsissimus verbis* test).

As such, with respect to clause [a], we note that in contrast to independent claim 1, independent claim 29 recites, "means for monitoring at least one of a movement *or* a position of an appendage of the person." App. Br., Clms. App'x. Emphasis added. When a claim contains alternatives, the claim is anticipated if any of the alternatives is known in the prior art. *See Brown v. 3M*, 265 F.3d 1349, 1351 (Fed. Cir. 2001) (*citing Titanium Metals Corp. of Am. v. Banner*, 778 F.2d 775, 782 (Fed. Cir. 1985). Here, we agree with the Examiner that because the electrodes of Madill monitor muscle loading, the electrodes monitor the movement of the user's appendage, and hence, constitute "the claimed 'means for monitoring.'" Ans. 15.

In regard to clause [b], like the Examiner, we find that Madill teaches generating muscle loading profiles 101, 111, 121, 131 that can be used to "identify the muscle or muscle group profile as being the most likely . . . to fatigue or be overloaded by repetitive use." Madill, col. 7, ll. 43-50; *see also* Ans. 15. We thus agree with the Examiner that Madill teaches the claimed "means for determining if the monitored movement . . . of the person is indicative of a risk of a repetitive injury to the person." Ans. 15-16. Lastly, we are not persuaded by Appellants' hindsight argument because hindsight is not germane to the issue of anticipation. *See* App. Br. 30.

In conclusion, for the foregoing reasons, we sustain the anticipation rejection of independent claim 29.

The obviousness rejection over Madill and Littell

Claim 21

With respect to the rejection of claim 21, Appellants do not make any substantive arguments separate from the arguments made with respect to the rejection of independent claim 1, from which claim 21 depends. App. Br. 31. Accordingly, for the reasons set forth *supra*, we sustain the rejection of claim 21 under 35 U.S.C. § 103(a) as unpatentable over Madill and Littell.

Claims 22 and 24

Appellants argue that Madill "does not recite the text of clause [a]" and Littell "does not recite the text of clause [d]" of independent claim 22. App. Br. 33 and 35. Thus, according to Appellants, the Examiner arrived at the obviousness rejection of claim 22 by employing impermissible hindsight reconstruction. App. Br. 36.

Although we appreciate that neither Madill nor Littell recites the exact language of clause [a] and clause [d], respectively, of independent claim 22, nonetheless, Madill and Littell discloses these limitations.

Regarding clause [a], because the electrophysiological system of Madill generates a muscle loading using as input the user's movements, we agree with the Examiner that Madill discloses "a user interface operable to

. . . receive input from a person," as called for by independent claim 22. Madill, col. 3, l. 66 through col. 4, l. 5 and col. 7, ll. 35-37; *see also* App. Br. 33-34.

In regard to clause [d], the Examiner found that Littell specifically discloses in paragraph [0038] "the use of a visual feedback to allow the user to monitor their movement with respect to a correct posture." (" . . . the screen view includes the user's image in the environment of the scene (i.e., current position), superimposed by or otherwise in respect to a target correct posture indication.") *Id*. Hence, the Examiner correctly found Littell discloses the limitations of clause [d].

With respect to Appellants' hindsight argument, we are not persuaded because the Examiner has articulated that the visual feedback of Littell is being simply substituted for the audio and visual feedback of Madill (*see* Ans. 12; Madill, col. 10, ll. 28-38) and Appellants have not alleged, nor provided persuasive evidence showing, that the Examiner's proposed substitution would have been either beyond the level of ordinary skill in the art or unpredictable to a person of ordinary skill in the art. Moreover, the Examiner has provided a reason with rational underpinning (" . . . provide a means of allowing the user to correct their posture in a manner that alleviates or prevents a repetitive risk injury.") *See* Ans. 7; *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006).

In conclusion, for the foregoing reasons, we sustain the rejection of claim 22 under 35 U.S.C. § 103(a) as unpatentable over Madill and Littell.

Finally, regarding the rejection of claim 24, Appellants do not make any substantive arguments separate from the arguments made with respect to the rejection of independent claim 22, from which claim 24 depends. App.

Br. 37. Accordingly, for the same reasons discussed above, we also sustain the rejection of claim 24 over the combined teachings of Madill and Littell.

Claims 26 and 27

Appellants argue that Madill "do[es] not recite the text of clause [c]" and likewise, Littell "does not recite the text of clause [c]" of independent claim 26. App. Br. 40 and 41. Thus, according to Appellants, the Examiner arrived at the obviousness rejection of claim 26 by employing impermissible hindsight reconstruction. App. Br. 42.

At the outset, we agree with the Examiner that the limitations of clause [c] of independent claim 26 are similar to the limitations of clause [d] of independent claim 22. Ans. 13-14. Accordingly, we are not persuaded by Appellants' arguments for the same reasons set forth *supra* with respect to the rejection of independent claim 22. Hence, we sustain the rejection of independent claim 26 as unpatentable over Madill and Littell.

Since Appellants do not set forth any other substantive arguments regarding the rejection of claim 27, we likewise sustain the rejection of claim 27 over the combined teachings of Madill and Littell. *See* App. Br. 42-43.

The obviousness rejection over Madill, Littell, and Jadidi

With respect to the rejection of claim 25, Appellants do not make any separate arguments. Accordingly, for the reasons discussed above, with respect to the rejection of independent claim 22, from which claim 25 depends, we sustain the rejection of claim 25 under 35 U.S.C. § 103(a) as unpatentable over Madill, Littell, and Jadidi.

SUMMARY

The decision of the Examiner to reject claims 1, 4, 7, 16, 20-22, 24-27, and 29 is affirmed.

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

hh