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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte EMILY HAMILTON and BRIGLDE MATTAR

Appeal 2016-002806
Application 12/747,022¹
Technology Center 3600

Before, JOSEPH A. FISCHETTI, JAMES A. WORTH, and
AMEE A. SHAH, *Administrative Patent Judges*.

FISCHETTI, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellants seek our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1–13 and 19–24. We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

We AFFIRM IN PART.

¹ Appellants identify Perigen Inc. as the real party in interest. App. Br. 2.

THE INVENTION

Appellants claim a method and apparatus for monitoring labor progression and for providing a user interface to display data conveying fetal and maternal information during labor. (Spec., 1, ll. 25–28).

Claim 1 reproduced below, is representative of the subject matter on appeal.

1) A method for monitoring labour progression in an obstetrics patient, the method implemented by a programmable system including at least one programmable processor and comprising:

a) receiving at the system a contraction signal conveying occurrences of uterine contractions over time;

b) using the at least one processor, processing said contraction signal to derive a sequence of contraction persistence indices, the contraction persistence indices in the sequence being associated with respective portions of the contraction signal and conveying contraction rate patterns, the contraction persistence indices being derived at least in part by processing said contraction signal to determine:

i) whether there are excesses in rates of contraction in the associated portions of the contraction signal; and

ii) if there are excesses in the rates of contraction associated with at least some portions of the contraction signal, whether these excesses are part of sustained patterns of excess in the rates of contraction;

c) causing at least part of the sequence of contraction persistence indices to be conveyed to a user on a display device in communication with the programmable system.

THE EVIDENCE AND REJECTIONS

The Examiner relies upon the following as evidence of unpatentability.

Claims 1–12 and 19–24 are rejected under 35 U.S.C. § 101.

Claims 1–13 and 19–24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hamilton (US 2004/0254430 A1, published Dec. 16, 2004), in view of Marossero et al. (US 2005/0267376 A1, published Dec. 1, 2005).

FINDINGS OF FACT

1. The Specification defines the contractility persistence index as,

at a time "n" is based on a weighted sum of the contraction rate at time "n" and of one or more contraction rate(s) at times preceding time "n". Mathematically, a specific example of such a contractility persistence index can be expressed as follow:

$$(2) \text{Weighted Sum}[n] = w_0 \times \text{contractionrate}[n] + \sum_{k=1}^n w_k \times \text{contractionrate}[n - k_i]$$

$$0 < k_i \leq n$$

where k_i is an integer

$$0 \leq w_0 \text{ and } w_k \leq 1$$

and

$$\text{Contractility Persistence Index}[n] = G(\text{Weighted Sum})$$

[W]here Weighted Sum[n] denotes the weighted sum of the contractions at time "n"; contraction rate[n] denotes the rate of contraction at time "n"; contraction rate [n- k_i] for denotes the

rate of contraction at one or more times preceding time "n"; w_0 and w_i are weight values assigned to the contraction rates measured at different times; the Contractility Persistence Index [n] denotes the contractility persistence index at time "n" and $G()$ denotes a function. In a specific example, contraction rates at times further from time n are weighted less heavily than contraction rates at times closer to time n. In its simplest form, the $G()$ is the identify function, in other words the weighted sum is itself the index. In another example, the function $G()$ provides a mapping between different possible values of the weighted sum and a set of index levels. In another example, the function $G()$ is an averaging function so that the contractility persistence index is a weighted average of the contraction rates over time

Specification 15:27-16:21.

ANALYSIS

35 U.S.C. § 103 REJECTION

Each of independent claims 12, 13, and 24 require in one form or another:

processing said contraction signal to derive a sequence of contraction persistence indices, the contraction persistence indices in the sequence being associated with respective portions of the contraction signal and conveying contraction rate patterns, the contraction persistence indices being derived at least in part by processing said contraction signal to determine:

- i) whether there are excesses in rates of contraction in the associated portions of the contraction signal; and

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ii) if there are excesses in the rates of contraction associated with at least some portions of the contraction signal, whether these excesses are part of sustained patterns of excess in the rates of contraction;

(Appeal Br. Claims App. 17, 19, 20, and 22).

The Examiner found concerning this limitation, that Hamilton discloses it at:

[see at least, p. 1, ¶0005 (processing the signal in order to derive data); p. 1, ¶0008-0009 (measurement ... is indicative of a measurement of a health characteristic of a pregnant woman; process the signal indicative of a measurement of a health characteristic); p. 1, ¶0010 (processing the signal to derive data); p. 5, ¶0042 (compares measurement of the patient's health characteristic received ... to measurements, or ranges of measurements .. .); p. 5, ¶0043 (threshold measurement) of Hamilton]

(Answer 3–4).

Appellants argue:

Hamilton's discussion of contractions is quite limited. Now, the Examiner does refer to various paragraphs of Hamilton ([0005], [0008], [0009], [0010], [0042], [0043]), but upon close inspection, these paragraphs merely deal with signal processing of health characteristics. Nothing in these paragraphs of Hamilton, or in Hamilton generally, even remotely resembles "contraction persistence indices", "rates of contraction" or "sustained patterns of excess in the rates of contraction".

(Appeal Br. 14).

We agree with Appellants. Our review of Hamilton at relevant paragraphs 42 and 43 reveals that Hamilton at best discloses,

[a]s shown in Table 2, the database contains a threshold measurement, above which the associated action is "there is no significant benefit with the additional use of cervical ripening agents". In other words, the threshold measurement or range of measurements separate the measurements that are not associated with an action, from those that are associated with an action. In the case of the cervical ripeness scores contained above, the threshold range is over 60%. However, for cervical ripeness scores that fall below that range, the associated action is to provide the patient with medication for causing a change in the measurement of the cervical ripeness score.

Hamilton para. 43.

Claim 1 defines the contraction (contractility) persistence indices being,

associated with respective portions of the contraction signal and conveying contraction rate patterns, the contraction persistence indices being derived at least in part by processing said contraction signal to determine:

- i) whether there are excesses in rates of contraction in the associated portions of the contraction signal; and
- ii) if there are excesses in the rates of contraction associated with at least some portions of the contraction signal, whether these excesses are part of sustained patterns of excess in the rates of contraction;

We find no connection in Hamilton between of the disclosed threshold measurement, e.g., a cervical ripeness scores, "the threshold range is over 60%", and the claimed contraction persistence indices. According to the claims, the claimed contraction persistence indices determine: 1) contraction rate patterns, 2) whether there are excesses in rates of contraction in the associated portions of the contraction signal, and 3) if there are excesses in

the rates of contraction associated with at least some portions of the contraction signal, whether these excesses are part of sustained patterns of excess in the rates of contraction. None of these claimed characteristics are disclosed or suggested by Hamilton.

The Examiner argues that Appellants' arguments are singular (Answer 13–14), but the Examiner does not show and we cannot find where, in either Hamilton or Marossero, the specific requirements identified above of the claimed contraction persistence indices are disclosed. At best, Hamilton at paragraph 9 only generally discloses a “signal indicative of a measurement of a health characteristic in order to derive a data element indicative of the likelihood of the certain outcome and for deriving data indicative of an action for causing the health characteristic to be modified.” What the particular health characteristic and the signal indicative of measurement are is not disclosed and is left open by Hamilton for numerous various applications. (*See* Hamilton, ¶ 9).

Therefore, we will not sustain the rejection of independent claims 1, 12, 13 and 24. Since claims 2–11, and 20–23 depend from claims 1 and 19 respectively, and since we cannot sustain the rejection of claims 1 and 19, the rejection of the dependent claims likewise cannot be sustained.

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35 U.S.C. § 101 REJECTION

Claim 1 is representative of the independent claims before us on appeal, which all contain similar limitations, and is a method claim of steps, *viz.*

processing [a] ... contraction signal to derive a sequence of contraction persistence indices, the contraction persistence indices in the sequence being associated with respective portions of the contraction signal and conveying contraction rate patterns, the contraction persistence indices being derived at least in part by processing said contraction signal to determine:

- i) whether there are excesses in rates of contraction in the associated portions of the contraction signal; and
- ii) if there are excesses in the rates of contraction associated with at least some portions of the contraction signal, whether these excesses are part of sustained patterns of excess in the rates of contraction;
- c) causing at least part of the sequence of contraction persistence indices to be conveyed to a user on a display device in communication with the programmable system.

Appeal Br. 17.

The Supreme Court

set forth a framework for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts. First, . . . determine whether the claims at issue are directed to one of those patent-ineligible concepts. If so, we then ask, “[w]hat else is there in the claims before us?” To answer that question, . . . 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

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patent-eligible application. [The Court] described step two of this analysis 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.”

Alice Corp., Pty. Ltd. v CLS Bank Int’l, 134 S. Ct. 2347, 2355 (2014) (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289 (2012)).

To perform this test, we must first determine whether the claims at issue are directed to a patent-ineligible concept.

Although the Court in *Alice* made a direct finding as to what the claims were directed to, we find that this case’s claims themselves and the Specification provide enough information to inform one as to what they are directed to.

The preamble to claim 1 recites that it is for monitoring “labour progression” in an obstetrics patient. The steps in claim 1 result in causing at least part of the sequence of contraction persistence indices to be conveyed to a user. The Specification at paragraph 22 recites:

At present, clinical staff estimates the frequency of contractions by feeling the mother's abdomen for a few minutes and noting the timing of a few contractions or by examining a paper tracing that shows a recording of contraction pressures/intensity over time. These assessments are performed periodically and the results recorded in the medical record.

Specification 2:25–29. The Specification defines the contraction persistence indices as a mathematical equation (FF. 1) which, according to the excerpt

from the Specification above, is otherwise perceived by human intervention. (FF. 1). Thus, all this evidence shows that claim 1 is directed to a mathematical formula for monitoring labour progression in an obstetrics patient. It follows from prior Supreme Court cases, and *Gottschalk v. Benson*, 409 U.S. 63 (1972) in particular, that the claims at issue here are directed to an abstract idea in the form of a mathematical equation. Like the algorithm in *Gottschalk*, deriving a sequence of contraction persistence indices based on the equation defined by the Specification (FF. 1), is a mathematical algorithm. Mathematical formulas are patent-ineligible subject matter. *Parker v. Flook*, 437 U.S. 584, 594–595 (1978). Thus, determining contraction persistence indices is an “abstract idea” beyond the scope of § 101. *See Alice Corp. Pty. Ltd.*, 134 S. Ct. at 2355-1257.

As in *Alice Corp. Pty. Ltd.*, we need not delimit the precise contours of the “abstract ideas” category in this case. It is enough to recognize that there is no meaningful distinction in the level of abstraction between the concept of performing a mathematical algorithm in *Gottschalk* and the concept of deriving a sequence of contraction persistence indices based on the equation defined by the Specification (FF. 1), at issue here. Both are squarely within the realm of “abstract ideas” as the Court has used that term. *See Alice Corp. Pty. Ltd.*, 134 S. Ct. at 2357. That the claims do not preempt all forms of the abstraction or may be limited to the abstract idea in the obstetrics setting, does not make them any less abstract. *See OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1360–61 (Fed. Cir. 2015). Perhaps more

to the point, claim 1 does no more than calculate a weighted average which is the epitome of abstraction.

The introduction of a computer into the claims does not alter the analysis at *Mayo* step two.

[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention. Stating an abstract idea “while adding the words ‘apply it’” is not enough for patent eligibility. Nor is limiting the use of an abstract idea “to a particular technological environment.” Stating an abstract idea while adding the words “apply it with a computer” simply combines those two steps, with the same deficient result. Thus, if a patent’s recitation of a computer amounts to a mere instruction to “implement[t]” an abstract idea “on ... a computer,” that addition cannot impart patent eligibility. This conclusion accords with the preemption concern that undergirds our § 101 jurisprudence. Given the ubiquity of computers, wholly generic computer implementation is not generally the sort of “additional feature[e]” that provides any “practical assurance that the process is more than a drafting effort designed to monopolize the [abstract idea] itself.”

Alice Corp. Pty. Ltd., 134 S. Ct. at 2358 (alterations in original) (citations omitted).

“[T]he relevant question is whether the claims here do more than simply instruct the practitioner to implement the abstract idea . . . on a generic computer.” *Alice Corp. Pty. Ltd.*, 134 S. Ct. at 2359. They do not.

Taking the claim elements separately, the function performed by the computer at each step of the process is purely conventional. Using a computer to take in data and compute a result from a database amounts to

electronic data query and retrieval—one of the most basic functions of a computer. All of these computer functions are well-understood, routine, conventional activities previously known to the industry. In short, each step does no more than require a generic computer to perform generic computer functions.

Considered as an ordered combination, the computer components of Appellants' claims, from a patent eligibility stand point, add nothing more to the claims than when the steps are considered separately. Viewed as a whole, Appellants' claims simply calculate, via a mathematical formula, a sequence of indices based on the equation defined by the Specification (FF. 1), using a generic computer. The claims do not, for example, purport to improve the functioning of the computer itself. Nor do they effect an improvement in any other technology or technical field. Instead, the claims at issue amount to nothing significantly more than an instructions to calculate, via a mathematical formula, a sequence of indices based on the equation defined by the Specification (FF. 1). Under our precedents, that is not enough to transform an abstract idea into a patent-eligible invention. *See Alice Corp. Pty. Ltd.*, 134 S. Ct. at 2360.

As to the computer program product and apparatus claims, they

are no different from the method claims in substance. The method claims recite the abstract idea implemented on a generic computer; the system claims recite a handful of generic computer components configured to implement the same idea. This Court has long “warn[ed] ... against” interpreting § 101 “in

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ways that make patent eligibility ‘depend simply on the draftsman’s art.’

Alice Corp. Pty. Ltd., 134 S. Ct. at 2360 (alterations in original).

Thus, we disagree with the Appellants that reciting “a method that is implemented by a programmable system including a programmable processor, such method comprising specific steps that involve the receipt and processing of signals to derive a sequence of contraction rates and contraction persistence indices on a display” adds “significantly more to “such notional abstract idea.” (Appeal Br. 9, 11). Again, viewed as a whole, Appellants’ claims simply calculate and display, via a mathematical formula, a sequence of indices based on the equation described by the Specification (FF. 1), using a generic computer.

We also affirm the rejections of dependent claims since Appellants have not challenged such with any reasonable specificity (see *In re Nielson*, 816 F.2d 1567, 1572 (Fed. Cir. 1987)).

CONCLUSIONS OF LAW

We conclude the Examiner did err in rejecting claims 1–13 and 19–24 under 35 U.S.C. § 103.

We conclude the Examiner did not err in rejecting claims 1–12 and 19–24 under 35 U.S.C. § 101.

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DECISION

The decision of the Examiner to reject claims 1–13 and 19–24 is affirmed in part.

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 IN PART