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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte RON KIMMEL, MICHAEL BRONSTEIN,
ALEXANDER BRONSTEIN, and EITAN ZEILER

Appeal 2019-005816
Application 12/772,466
Technology Center 3600

Before MURRIEL E. CRAWFORD, PHILIP J. HOFFMANN, and
ROBERT J. SILVERMAN *Administrative Patent Judges*.

CRAWFORD, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ seeks our review under 35 U.S.C. § 134 of the Examiner's final rejection of claims 1, 2, 4-8, 10, 11 and 18-21. We have jurisdiction under 35 U.S.C. § 6(b).

SUMMARY OF DECISION

¹ We use the word Appellant to refer to "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Intel Corporation. Appeal Br. 3.

THE INVENTION

Appellant claims a method and system for planning a surgical procedure based on predicted results. (Spec. ¶ 1, Title).

Claim 1 is representative of the subject matter on appeal.

1. A method for planning a current medical procedure to be performed on a body part of a current patient, the method comprising:

- obtaining, using a computer, current first representation of a surface of the body part of the current patient;
- retrieving, using the computer, at least one record from a database of records of previously performed medical procedures of previous patients, in which each record includes parameters of a previously performed procedure of said previously performed medical procedures, a first representation of the body part of the previous patient prior to performance of the previously performed procedure, and a second representation of a body part of the previous patient after the performance of the previously performed procedure, said at least one record being a best matching record based on a similarity criterion;
- creating a deformation map to characterize the transformation between the first and second representations of the body part of the previous patient, said map representing displacement between each of a plurality of points on the first representation of the previous patient and corresponding points on the second representation of the previous patient; and
- applying the deformation map to the first representation of the surface of the body part of the current patient to predict the transformation for the current patient.

THE REJECTION

Claims 1, 2, 4-8, 10, 11, and 18-21 are rejected under 35 U.S.C. § 101 as directed to a judicial exception without significantly more.

Claims 1, 2, 4, 6-10 and 12-21 are rejected as unpatentable under 35 U.S.C. § 103(a) over Lu (US 2004/0146191 A1, published July 29, 2004), Suetens (US 2008/0159608 A1, published July 3, 2008).

Claims 5 and 11 are rejected under 35 U.S.C. § 103(a) over Lu, Suetens and Fotsch US 2004/0181430 A1, published Sept. 16, 2004.

ANALYSIS

35 U.S.C. § 101 REJECTION

We will not sustain the rejection of claims 1, 2, 4-8, 10, 11 and 18-21 under 35 U.S.C. § 101.

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, . . . 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 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, 573 U.S. 208, 217–218 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 72–73 (2012)) (citations omitted).

To perform this test, we must first determine whether the claims at issue are directed to a patent-ineligible concept. The Federal Circuit has explained that “the ‘directed to’ inquiry applies a stage-one filter to claims, considered in light of the [S]pecification, based on whether ‘their character as a whole is directed to excluded subject matter.’” *See Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335 (Fed. Cir. 2016) (quoting *Internet*

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Patents Corp. v. Active Network, Inc., 790 F.3d 1343, 1346 (Fed. Cir. 2015)). It asks whether the focus of the claims is on a specific improvement in relevant technology or on a process that itself qualifies as an “abstract idea” for which computers are invoked merely as a tool. *See id.* at 1335–36.

In so doing we apply a “directed to” two prong test: 1) evaluate whether the claim recites a judicial exception, and 2) if the claim recites a judicial exception, evaluate whether the judicial exception is integrated into a practical application. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 FR 50, pp 50–57 (Jan. 7, 2019) (“Guidance”).

The Examiner determines that the claims are directed to organizing and manipulating information through mathematical correlations. (Final Act. 3). The Examiner finds the claims do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements, when considered both individually and as an ordered combination, do not amount to significantly more than the abstract idea. The Examiner finds that the additional elements merely add computer functionality in the area of patient procedure planning, which may increase the efficiency of the process, but does not confer patent eligibility on an otherwise abstract idea. (Final Act. 4).

The Specification discloses that predicted outcome of a medical operation is of concern to patients and surgeons and may especially be true with respect to the fields of plastic, aesthetic, reconstructive, and cosmetic surgery. In these fields, a body part may be reshaped or modified in order to improve the appearance of the patient. Predicting the result is a major factor in planning. Computer imaging and image processing techniques have been utilized to predict the results of a surgical procedure. The method of the

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present invention includes providing a database of results of previously performed surgical procedures (storing information), and acquiring a current representation. (Spec. ¶4).

Claim 1 includes the steps of “creating a deformation map” and “applying the deformation map to the first representation of the surface of the body part of the current patient.” Appellant argues that these steps cannot be performed practically in the human mind. (Reply Br. 2).

The Guidance explains that the abstract idea exception includes “mental processes,” that is, acts that people can perform in their minds or using pen and paper. *See* Guidance, 84 Fed. Reg. at 52 & nn. 14–15.

The Specification discloses:

Once a deformation map is obtained by calculation or retrieval, the deformation map may be applied to the representation of the input current surface. For example, a deformation map may include a set of vector displacements associated with points or facets of the pre-surgery surface representation. Application of the deformation map to the current representation then applies the vector displacement to each point or facet of the input surface representation. The result of application of the deformation map to the input surface is a representation of a predicted surface. Typically, application of the deformation map to the input surface is performed by the server. The representation of the predicted surface may then be sent via the network back to the remote station. At the remote station, the representation of the predicted surface may be rendered as an image and displayed on a display device, such as a monitor, associated with the remote station. Thus, the patient or the surgeon may review the displayed image of the predicted surface to see whether the predicted results are satisfactory.

We fail to see, and the Examiner has not explained, how the applying this step could practically be performed in the human mind. *See* the October 2019 Update at 7 (“Claims do not recite a mental process when they do not

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contain limitations that can practically be performed in the human mind, for instance when the human mind is not equipped to perform the claim limitations.”). While certain acts of collecting and analyzing information may practically be performed in the human mind, the Examiner has not established that the applying step of claim 1 can be performed in the human mind. As such we will not sustain the rejection of claim 1 under 35 U.S.C. § 101.

35 U.S.C. § 103(a) REJECTIONS

We will not sustain this rejection because we agree with Appellant that the prior art does not disclose “retrieving . . . at least one record from a database of records of previously performed medical procedures of previous patients,” and “said at least one record being a best matching record based on similarity criterion” as required by claim 1. The Examiner relies on paragraphs 19 and 21 of Suetens for teaching this subject matter. (Final Act. 7). However, Suetens teaches matching 2D pre-operative photographs with 3D pre-operative descriptions of the same patient — not of a previous patient. Therefore, we will not sustain this rejection as it is directed to claim 1.

We will also not sustain the rejections of the remaining claims under 35 U.S.C. § 103(a) because each of the remaining claims includes the subject matter we find missing in Suetens, and the Examiner relies on Suetens for teaching this subject matter in rejecting the remaining claims.

CONCLUSIONS OF LAW

We conclude the Examiner did err in rejecting claims 1, 2, 4-8, 10, 11 and 18-21 under 35 U.S.C. § 101.

We conclude the Examiner did err in rejecting claims 1, 2, 4-8, 10, 11 and 18-21 under 35 U.S.C. § 103(a).

DECISION

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1, 2, 4-8, 10 and 18-21	101	Ineligibility		1, 2, 4-8, 10, 11 and 18-21
1, 2, 4, 6-8, 10 and 18-21	103	Lu, Suetens		1-4, 6-10, 12-21
5, 11	103	Lu, Suetens, Fotsch		5, 11
Overall Outcome				1, 2, 4-8, 10, 11 and 18-21

REVERSED