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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOAO PAULO RIBEIRO, JEAN-PIERRE ARPIN, and FRANCIS POURTIER[1]

Appeal 2018-006143
Application 15/165,340
Technology Center 2800

Before BEVERLY A. FRANKLIN, DONNA PRAISS, and BRIAN D. RANGE, *Administrative Patent Judges*.

FRANKLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

[1] Appellant identifies the real party in interest as Dover Europe Sàrl.

Appellant request our review under 35 U.S.C. § 134(a) of the Examiner's decision rejecting claims 1, 4–6, and 21. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

STATEMENT OF THE CASE

Claim 1 is illustrative of Appellant's subject matter on appeal and is set forth below:

> 1. Method of calibrating an inkjet printer that comprises a fluid circuit, a print head connected to the fluid circuit through an umbilical, this method comprising:
>
> measuring with a pressure sensor at a reference point in the fluid circuit or the print head, an ink pressure at a temperature T and at a nominal jet velocity;
>
> correcting data representative of a theoretical characteristic reference curve that relates the pressure in the fluid circuit or the print head, the ink density, the ink viscosity, the operating temperature, and said nominal velocity of the inkjet generated by the print head, as a function of the difference between the measured ink pressure resulting from said characteristic reference curve for said temperature T and said nominal jet velocity;
>
> forming an actual characteristic reference curve based on the corrected data, thereby accounting for variations or changes in geometric or mechanical parameters of said fluid circuit, and
>
> forming an inkjet based on the actual characteristic reference curve.

The Examiner relies on the following prior art reference as evidence of unpatentability:

Prothon et al. ("Prothon")	US 2012/0299989 A1	Nov. 29, 2012

THE REJECTIONS[2]

1. Claims 1, 4–6, and 21 are rejected under 35 U.S.C. §101 as being directed to a judicial exception, i.e., an abstract idea.

2. Claims 1, 4, 5, and 21 are rejected under 35 U.S.C. §102(a)(2) as being anticipated by Prothon.

ANALYSIS

Upon consideration of the evidence and each of the respective positions set forth in the record, we find that the preponderance of evidence supports Appellant's position in the record. We thus reverse the Examiner's decision for the reasons provided by Appellant in the record, and add the following for emphasis.

Rejection 1

For the reasons discussed below, we are persuaded by Appellant's arguments that the claimed subject matter has not been shown to be patent-ineligible as directed to a judicial exception without reciting significantly more.

An invention is patent-eligible if it claims a "new and useful process, machine, manufacture, or composition of matter." 35 U.S.C. § 101. The Supreme Court, however, has long interpreted 35 U.S.C. §101 to include implicit exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *E.g.*, *Alice Corp. v. CLS Banklnt'l*, 573 U.S. 208, 216(2014).

In determining whether a claim falls within an excluded category, we are guided by the Supreme Court's two-step framework, described in *Mayo* and *Alice*. *Id.* at 217–18 (citing *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S.

[2] Claim 21 is also objected to as indicated on page 2 of the Answer.

66, 75–77 (2012)). In accordance with that framework, we first determine what concept the claim is "directed to." See *Alice*, 573 U.S. at 219 ("On their face, the claims before us are drawn to the concept of intermediated settlement, i.e., the use of a third party to mitigate settlement risk."); *see also Bilski v. Kappos*, 561 U.S. 593, 611 (2010) ("Claims 1 and 4 in petitioners' application explain the basic concept of hedging, or protecting against risk.").

Concepts determined to be abstract ideas, and thus patent ineligible, include certain methods of organizing human activity, such as fundamental economic practices (*Alice*, 573 U.S. at 219–20; *Bilski*, 561 U.S. at 611); mathematical formulas (*Parker v. Flook*, 437 U.S. 584, 594–95 (1978)); and mental processes (*Gottschalk v. Benson*, 409 U.S. 63, 69 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 191 (1981)); "tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores" (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 52, 267–68 (1854))); and manufacturing flour (*Benson*, 409 U.S. at 69 (citing *Cochrane v. Deener*, 94 U.S. 780, 785 (1876))).

In *Diehr*, the claim at issue recited a mathematical formula, but the Supreme Court held that "[a] claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula." *Diehr*, 450 U.S. at 187; *see also id*. at 191 ("We view respondents' claims as nothing more than a process for molding rubber products and not as an attempt to patent a mathematical formula."). Having said that, the Supreme Court also indicated that a claim "seeking patent protection for that formula in the abstract . . . is not accorded the protection of our patent laws, . . . and this principle cannot be circumvented by attempting to limit the use of the formula to a particular technological environment." *Id*. (citing *Benson* and *Flook*); *see, e.g., id*. at 187 ("It is

now commonplace that an application of a law of nature or mathematical formula to a known structure or process may well be deserving of patent protection.").

If the claim is "directed to" an abstract idea, we then turn to the second step of the *Alice* and *Mayo* framework, where "we must examine the elements of the claim to determine whether it contains an 'inventive concept' sufficient to 'transform' the claimed abstract idea into a patent-eligible application." *Alice*, 573 U.S. at 221 (quotation marks omitted). "A claim that recites an abstract idea must include 'additional features' to ensure 'that the [claim] is more than a drafting effort designed to monopolize the [abstract idea].'" *Id.* (quoting *Mayo*, 566 U.S. at 77). "[Merely requiring] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention." *Id.*

The PTO recently published revised guidance on the application of §101 with regard to the first step of the *Alice/Mayo* test (i.e., Step 2A of the USPTO's Subject Matter Eligibility Guidance as incorporated into M.P.E.P. § 2106). USPTO's January 7, 2019, *2019 Revised Patent Subject Matter Eligibility Guidance* ("Revised Guidance"). 84 Fed. Reg. 50 (Jan. 7, 2019). Thus, under Step 1 of the Guidance, as revised, we determine whether the claimed subject matter falls within the one of the four statutory categories: process, machine, manufacture, or composition of matter. Step 2A of the Guidance is two-pronged, under which we look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes); and
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* MPEP § 2106.05(a)–(c), (e)–(h)).

See 84 Fed. Reg. at 54—55.

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then, under Step 2B, look to whether the claim:

> (3) adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)); or
>
> (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

See 84 Fed. Reg. at 56.

Guidance Step 1

Following the aforementioned revised guidance, initially, there is no dispute that claims 1, 4–6, and 21 fall within one of the four statutory categories of invention under Step 1 of the Guidance. Accordingly, we turn next to Step 2A(1) of the Revised Guidance.

Guidance Step 2A, Prong 1

Under Step 2A(1), we find that claim 1 recites a judicial exception in the form of mathematical concepts (such as the recitation of "forming an actual characteristic reference curve based on the corrected data, thereby accounting for variations or changes in geometric or mechanical parameters of said fluid circuit"), and therefore the series of mathematical calculations recited in claim 1 constitutes an abstract idea. *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018) (holding that claims to a "series of mathematical calculations based on selected information" are directed to abstract ideas).

Guidance Step 2A, Prong 2

As a result, we next turn to Step 2A(2) of the Revised Guidance to determine whether the claims integrate the judicial exception into a practical application (e.g., the recitation of "forming an inkjet based on the actual characteristic reference curve"). *Diehr*, 450 U.S. at 187 ("A claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula.").

We are persuaded by Appellant that the claim recites steps that integrate the judicial exception into a practical application because an article is transformed to a different state or thing, specifically an inkjet is formed. Appeal Br. 5. Appellant analogizes the claims to those in *Diamond v. Diehr* wherein the claims were directed to measuring a temperature of a rubber mold, calculating the Arrhenius equation for reaction time based on the measured temperature, and opening the mold press when the appropriate time had elapsed. *Id*. Appellant states that this opening, based on the calculation of measured parameters, was found to be patent eligible. Appellant argues that the claims here are no different. *Id*. Appellant explains that a measurement of pressure is made, a new characteristic reference curve is formed, and an inkjet is formed based on that curve. Appellant states that, in other words, just as the claims in *Diehr* performed a physical action based on a calculation from measured data, the present claims perform a physical action based on calculations from measured data. We agree and are persuaded by such argument.

Claim 1 thus integrates the abstract idea of the recited method of calibrating an inkjet printer into a practical application by forming an inkjet based on an actual characteristic reference curve. As a result, Appellant's claims do not attempt to monopolize the abstract idea of calibrating an inkjet printer itself, but rather defines a specific method that employs the abstract idea to achieve an improvement in the technical field of ink jet calibration.

In view of the above, we thus reverse Rejection 1.

Rejection 2

We agree with Appellant that Prothon describes that, by knowing a volume and the viscosity of ink in a container, the viscosity gap between the measured value and a predetermined experimental value can be calculated to determine an amount of solvent needed to dilute the ink to a normal viscosity. Prothon ¶ 138; Appeal Br. 3. Appellant explains that, in other words, Prothon describes that a measured viscosity of a theoretical form of ink (not of actual ink in the inkjet printer) can be corrected to be a desired viscosity. Appeal Br. 3–4. Appellant explains that this correction is predicated on 'theoretical' (or otherwise predetermined) relationships between ink parameters, not the actual ink in the circuit. Claim 1 is different because claim 1 requires, *inter alia*,

> forming an actual characteristic reference curve[3] based on the corrected data, thereby accounting for variations or changes in geometric or mechanical parameters of said fluid circuit, and
>
> forming an inkjet based on the actual characteristic reference curve.

In response, the Examiner fails to adequately address the aforementioned points raised by Appellant. On pages 9–10 of the Answer, the Examiner states that Proton discloses a Density–Temperature curve in Figure 5. But, we agree with Appellant that Figure 5 merely shows the relationship between ink density and viscosity, and while it can be referred to as a 'reference curve', it is not the claimed

[3] The claimed "actual reference characteristic curve" includes the parameters of the pressure in the fluid circuit or the print head, the ink density, the ink viscosity, the operating temperature, and the nominal velocity of the inkjet generated by the print head recited earlier in the claim.

"actual characteristic reference curve" because it does not relate all of the claimed parameters. Appeal Br. 4. The Examiner makes an effort to say that the curve relates all of these parameters based upon Bernoulli's equation. Ans. 10. However, this falls short for lack of adequate explanation and evidentiary support.

In view of the above, we reverse Rejection 2.

DECISION

Each rejection is reversed.

ORDER

REVERSED