



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/204,410	08/05/2011	Grant A. Dolson	ITW 23082-1	9789
23721	7590	03/26/2019	EXAMINER	
GEORGE R. CORRIGAN CORRIGAN LAW OFFICE 2168 COLLADAY POINT DRIVE STOUGHTON, WI 53589			BORISSOV, IGOR N	
			ART UNIT	PAPER NUMBER
			3649	
			NOTIFICATION DATE	DELIVERY MODE
			03/26/2019	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

george.corrigan@corrigan.pro  
gcorrigan@new.rr.com  
kari.brekke@corrigan.pro

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* GRANT A. DOLSON, ANTHONY J. KOWALESKI,  
ROBERT R. DAVIDSON, BRUCE ALAN CASNER,  
KNUT NORMAN FROLAND, L. THOMAS HAYES, and  
RICHARD JOHN SCHUH

---

Appeal 2018-005226<sup>1</sup>  
Application 13/204,410<sup>2</sup>  
Technology Center 3600

---

Before NINA L. MEDLOCK, PHILIP J. HOFFMANN, and  
KENNETH G. SCHOPFER, *Administrative Patent Judges*.

SCHOPFER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the rejection of claims 11–21 and 43–52. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

<sup>1</sup> Our decision references the Appeal Brief (“Br.,” filed Oct. 20, 2017), the Examiner’s Answer (“Ans.,” mailed Feb. 12, 2018), and the Final Office Action (“Final Act.,” mailed Apr. 20, 2017).

<sup>2</sup> According to Appellants, the real party in interest is Illinois Tool Works Inc. Appeal Br. 3.

## BACKGROUND

The Specification discloses that “[t]he present invention relates generally to the art of welding-type power supplies and welding operations. More specifically, it relates to a welding-type power supply with a cost calculator built, or to a method of calculating costs of welding.”

Spec. 2, ¶ 1.

## CLAIMS

Claims 11, 18, and 43 are the independent claims on appeal. Claim 11 is illustrative of the appealed claims and recites:

11. A method of providing welding-type power and calculating a single aspect of the cost of performing a weld, comprising:

receiving input power and converting it to welding-type power;

providing the welding-type power to a weld;

monitoring the welding type power provided to the weld;

controlling the converting in response to the monitoring, by using a controller; and

calculating, by a processor, the single aspect of the cost of performing a single welding process weld in response to data relating to the single welding process received from the controller, including in response to the monitoring, wherein the cost is not averaged over multiple welding processes.

Br. 20.

## REJECTIONS

1. The Examiner rejects claims 11–21 and 43–52 under 35 U.S.C. § 101 as claiming non-statutory subject matter.

2. The Examiner rejects claims 11–21 and 43–52 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.
3. The Examiner rejects claims 11–21 and 43–52 under 35 U.S.C. § 103(a) as unpatentable over Blankenship 336<sup>3</sup> in view of Blankenship 154,<sup>4</sup> Vaidya,<sup>5</sup> and Official Notice as evidenced by Holverson<sup>6</sup> and Rapp1.<sup>7</sup>
4. The Examiner rejects claims 11–21 and 43–52 under 35 U.S.C. § 103(a) as unpatentable over Blankenship 336 in view of Blankenship 154, Ivkovich,<sup>8</sup> and Official Notice as evidenced by Holverson and Rapp1.

## DISCUSSION

### *Subject Matter Eligibility*

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. However, the Supreme Court 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. Pty. v. CLS Bank Int’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. 66, 75–77 (2012)). In accordance with that framework,

---

<sup>3</sup> Blankenship et al., US 7,761,336 B1, iss. July 20, 2010.

<sup>4</sup> Blankenship et al., US 2005/0258154 A1, pub. Nov. 24, 2005.

<sup>5</sup> Vaidya et al., US 6,051,805, iss. Apr. 18, 2000.

<sup>6</sup> Holverson et al., US 6,747,247 B2, iss. June 8, 2004.

<sup>7</sup> Rapp1 et al., US 6,642,482 B2, iss. Nov. 4, 2003.

<sup>8</sup> Ivkovich, US 6,583,386 B1, iss. June 24, 2003.

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, 192 (1981)); “tanning, dyeing, making waterproof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S. 252, 267–68 (1853))); 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.* (citation omitted) (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 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 (citation and 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.* (alterations in original) (quoting *Mayo*, 566 U.S. at 77). “[M]erely requir[ing] generic computer implementation[] fail[s] to transform that abstract idea into a patent-eligible invention.” *Id.*

The United States Patent and Trademark Office (USPTO) recently published revised guidance on the application of the *Alice* and *Mayo* framework. USPTO’s January 7, 2019 Memorandum, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (“Memorandum”).

Under that guidance, we first look to whether the claim recites:

- (1) (*see* Memorandum Step 2A – Prong One) 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) (*see* Memorandum Step 2A – Prong Two) additional elements that integrate the judicial exception into a practical application (*see* MPEP §§ 2106.05(a)–(c), (e)–(h)).<sup>9</sup>

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

(3) adds a specific limitation beyond the judicial exception that are 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* Memorandum.

Here, the Examiner determines that claim 11 is directed to a judicial exception because:

Claims 11 recites a method of calculating a cost of a weld during a welding process by obtaining data relating to the single welding process received from a welding controller, and calculating the single aspect of the cost of performing a single welding process weld in response to said data. In other words, the claimed method simply describes the concept of gathering and manipulating data by reciting steps of receiving and calculating data. This idea is similar to the basic concept of manipulating information using mathematical relationships (e.g.,

---

<sup>9</sup> We acknowledge that some of these considerations may be properly evaluated under Step 2 of *Alice* (Step 2B of Office guidance). Solely for purposes of maintaining consistent treatment within the Office, we evaluate it under Step 1 of *Alice* (Step 2A of Office guidance). *See* USPTO’s January 7, 2019 Memorandum, “2019 Revised Patent Subject Matter Eligibility Guidance.”

converting numerical representation in Benson), which has been found by the courts to be an abstract idea. Therefore, the claim is directed to an abstract idea.

Final Act. 3. The Examiner finds that the other method steps, i.e., the receiving, providing, monitoring, and controlling steps, “are insignificant pre-solution activity in the middle of a process and are ineffective to transfer the claim into a patent-eligible application, because they are not central to the purpose of the method invented by the applicant.” *Id.* at 3–4.

We agree with the Examiner that claim 11 recites a judicial exception. *See Memorandum Step 2A – Prong One.* In particular, claim 11 recites the step of “calculating, by a processor, the single aspect of the cost of performing a single welding process weld in response to data relating to the single welding process received from the controller, including in response to the monitoring, wherein the cost is not averaged over multiple welding processes.” Appeal Br. 20. As explained by the Examiner, this step simply requires manipulating data in a processor to determine a cost, which “is similar to the basic concept of manipulating information using mathematical relationships.” Final Act. 3. Thus, the claimed calculating step recites a mathematical concept, i.e. an abstract idea.

However, our analysis under *Alice* step 1 does not end there. Rather, the “directed to” inquiry in the *Alice* framework requires, where a claim recites a judicial exception, an evaluation of whether the claim “appl[ies], rel[ies] on, or use[s] the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception,” i.e. a determination of whether the judicial exception is integrated into a practical application. *See Memorandum Step 2A – Prong Two.*

“When a claim containing a mathematical formula implements or applies that formula in a structure or process which, when considered as a whole, is performing a function which the patent laws were designed to protect . . . , then the claim satisfies the requirement of § 101.” *Diehr*, 450 U.S. at 192. We conclude that such is the case here, because claim 11 includes additional limitations that impose meaningful limits on the judicial exception. Claim 11 recites “[a] method of providing a welding-type power and calculating a single aspect of the cost of performing a weld” and recites receiving, providing, monitoring, and controlling steps related to performing a welding process in addition to the calculating step discussed above. We disagree with the Examiner that these additional steps are “insignificant pre-solution activity.” Rather, they provide meaningful limits to the context in which the calculating step is performed, i.e. the calculating step is based on a specific weld that is performed and not on any welding operation in general.

Based on the foregoing, we determine that the Examiner has not established claim 11 is directed to ineligible subject matter. Accordingly, we do not sustain the rejection of claim 11. We also do not sustain the rejection of claims 12–21 and 43–52 for the same reasons because those claims depend from claim 11 or either recite, or depend from a claim reciting, limitations substantially similar to the claim limitations recited and discussed with respect to claim 11.

*Written Description*

With respect to claims 11–21 and 43–52, the Examiner finds that the claims lack written description support to the extent that each independent claim requires that “the cost is not averaged over multiple welding processes.” Final Act. 2. The Examiner finds that “[t]he [S]pecification

does not provide support for [this] limitation.” *Id.* Appellants argue that the Specification defines a cost calculator that is used to calculate the cost of one or more welding processes or aspects of one or more processes, and the Specification and claims make clear that Appellants “had in their possession the idea to calculate the cost of one welding process, and to do so using data from that welding process.” Br. 16–17. Appellants conclude that “[i]mplicit in collecting data and measuring the cost of a single welding process is not averaging the cost of that single welding process – there is simply no reason or suggestion to average a single cost.” *Id.* at 17. In response, the Examiner finds that “the *Specification* is silent regarding *excluding* a particular mathematical operation from functioning of the cost calculator,” and thus, the Specification does not provide support for the recited limitation. Ans. 11.

As discussed below, we agree with the Examiner that the Specification lacks adequate support for the negative limitation recited in each of the independent claims.

“To satisfy [the written description] requirement, the specification must describe the invention in sufficient detail so ‘that one skilled in the art can clearly conclude that the inventor invented the claimed invention as of the filing date sought.’” *In re Alonzo*, 545 F.3d, 1015, 1019 (Fed. Cir. 2008), citing *Lockwood v. Am. Airlines, Inc.*, 107 F.3d 1565, 1572 (Fed.Cir.1997). Negative limitations are permissible to define the scope of a claimed invention. *See, e.g., Animal Legal Def. Fund v. Quigg*, 932 F.2d 920, 923 (Fed. Cir. 1991). And the original disclosure need not provide *ipsis verbis* support for a negative limitation and may be adequately supported where the

Specification provides a reason to exclude the relevant limitation. *See Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1351 (Fed. Cir. 2012).

We find no support in the Specification as originally filed for the exclusion of averaging costs over multiple welding projects from the claims. The Specification describes a cost calculator “used to calculate the cost of one or more welding processes, or aspects of one or more welding processes.” Spec. ¶ 14. The Specification also describes that cost calculation is performed by “using one or more of cost data and data related to sensed data, program parameters, quantity of material used and type of materials used.” *Id.* at ¶ 16. “Sensed parameters include time based data and welding output data.” *Id.* at ¶ 17. The Specification also indicates that the cost calculator is used to perform a cost calculation for a specific part type or to calculate the costs of welding and “allows the user to focus on parts/welds that increase or maximize productivity and profits.” *Id.* at ¶¶ 25, 27. Appellants do not identify any portion of the Specification describing how the cost calculator performs a calculation of the cost of performing a single welding process, and Appellants do not identify any portion of the Specification providing a reason for excluding calculating costs based on averages over multiple welding processes. Rather, we find that one of ordinary skill the art would understand that the purpose and goals related to the use of a cost calculator as described in the Specification could be achieved by calculating costs that have been averaged, and there is nothing in the Specification to indicate otherwise.

Accordingly, we sustain the rejection of claims 11–21 and 43–52 as lacking written description support.

*Obviousness*

With respect to the obviousness rejections, Appellants group all of claims 11–21 and 43–52 into a single group. *See* Br. 17–19. We select claim 11 as representative of this group, and claims 12–21 and 43–52 stand or fall with claim 11.

With respect to the obviousness rejections, Appellants argue only that the prior art does not teach to calculate the cost of a single welding operation as required by the independent claims. Br. 17–19. More particularly, Appellants argue that neither Vaidya nor Ivkovich teaches calculating the cost of a single weld process that is not averaged over multiple welding processes as required by the claims. *Id.* at 18–19.

We are not persuaded of error by this arguments.

With respect to the claim 11, the Examiner relies on either Vaidya or Ivkovich as teaching or suggesting calculating the welding cost of a single process, and the Examiner concludes that based on the teachings of Vaidya or Ivkovich it would have been obvious to calculate the costs of performing a single welding process as required by the claim. *See* Final Act. 13–14 (citing Vaidya col. 2, ll. 52–54; col. 5, ll. 1–3), 21–23 (citing Ivkovich col. 6, ll. 35–38, 54–59; col. 7, ll.5–7, 48–68); *see also* Ans. 11–13. We agree with the Examiner that both Vaidya and Ivkovich teach calculating the cost of a single welding process. Vaidya discloses the use of software for “calculating welding cost per linear foot for a single pass weld for the manufacturing operation or determining welding cost per piece manufactured.” Vaidya col. 2, ll. 50–55. Similarly, Ivkovich teaches measuring “the cost and productivity of [a] particular welding operation” where a “‘welding operation’ refers to the process of applying either a single

weld to a workpiece or applying a series of welds to a workpiece.” Ivkovich col. 7, ll. 5–7, 48–67.

Further, we note that the Examiner does not rely on Vaidya or Ivkovich alone in rejecting the claims, particularly with respect to the claimed cost calculator. Rather, the Examiner finds that both Blankenship 336 and Blankenship 154 teach a welding cost calculator, and the Examiner concludes that one of ordinary skill in the art would have found the claimed method obvious over the combination of art. The Examiner also indicates that to the extent neither Vaidya nor Ivkovich expressly indicates that the cost of single weld is not averaged, as required by the claims, these references at least would suggest to one of ordinary skill in the art that such a cost calculation could be performed. *See* Ans. 11–13. We agree. For these reasons, we are not persuaded of error by Appellants’ arguments against Vaidya and Ivkovich individually.

Based on the foregoing, we are not persuaded of error in the obviousness rejections. Accordingly, we sustain the obviousness rejections of claims 11–21 and 43–52.

#### CONCLUSION

We REVERSE the rejection of claims 11–21 and 43–52 under 35 U.S.C. § 101. We AFFIRM the rejection of claims 11–21 and 43–52 under 35 U.S.C. § 112, first paragraph. We AFFIRM the rejection of claims 11–21 and 43–52 under 35 U.S.C. § 103(a).

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