



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

Table with columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO., EXAMINER, ART UNIT, PAPER NUMBER, NOTIFICATION DATE, DELIVERY MODE. Includes application details for HP Inc. and examiner MORGAN, JEFFREY CHAD.

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):

- ipa.mail@hp.com
barbl@hp.com
yvonne.bailey@hp.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* ROWDY K. WEBB, DANIEL M. HOLCOMB,  
PHILLIP A. MCOOG, JEAN-FREDERIC PLANTE,  
JEFFERSON P. WARD, KERRY J. KILK, ERIK M. PETERSON, and  
MICHAEL MULLOY

---

Appeal 2018-005722  
Application 13/916,459  
Technology Center 2800

---

Before ROMULO H. DELMENDO, DONNA M. PRAISS, and  
JENNIFER R. GUPTA, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*.

DECISION ON APPEAL

The Applicant (“Appellant”)<sup>1</sup> appeals under 35 U.S.C. § 134(a) from the Primary Examiner’s final decision to reject claims 1–16, 19, and 20.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b).

We affirm-in-part.

## I. BACKGROUND

The subject matter on appeal relates to: a method performed using a computer to facilitate an efficient printing ink or printing cartridge replacement for a printer; a non-transitory storage medium storing a machine-readable program code used for performing such a method; and a computer system including such a program code (Specification filed June 12, 2013 (“Spec.”), ¶ 10; Claims Appendix). Representative claims 1, 14, and 16, which are the only independent claims on appeal, are reproduced from the Claims Appendix to the Appeal Brief, as follows:

1. A method performed by a computer, comprising:
  - remotely communicating with a printer to receive data indicating a cumulative consumption value for a printing fluid consumed in the printer;
  - calculating a plurality of variable values including a first variable value that represents a quantity of cumulative consumption of the printing fluid that triggers a fulfilment event, a second variable value that represents a quantity of the printing*

---

<sup>1</sup> The Appellant is the Applicant, “Hewlett-Packard Development Company, L. P.” (“HPDC”), which is also listed as the real party in interest (Application Data Sheet filed June 12, 2103, 6; Appeal Brief filed August 9, 2017 (“Appeal Br.”), 1). According to the Appellant, “HPDC . . . is a wholly-owned affiliate of HP Inc.” and “[t]he general or managing partner of HPDC is HPQ Holdings, LLC” (Appeal Br. 1).

<sup>2</sup> Appeal Br. 6–24; Reply Brief filed May 15, 2018 (“Reply Br.”), 1–13; Final Office Action entered March 10, 2017 (“Final Act.”), 2–24; Examiner’s Answer entered March 21, 2018 (“Ans.”), 2–8.

*fluid that is depleted at the printer for a given time interval, the second variable value derived based on an estimated evaporation quantity loss, and a third variable value that is a statistically derived depletion quantity representing a cumulative consumption of the printing fluid that causes depletion of a printing fluid supply;*

*wherein one or more predefined relationships are defined between the first variable value, the second variable value, and the third variable value;*

receiving a variation of the second variable value;

changing the first variable value based on the variation of the second variable value and based on the one or more predefined relationships;

triggering the fulfilment event in response to the computer determining that the indicated cumulative consumption value exceeds the changed first variable value; and

in response to the triggering, signaling a communication across a network to initiate a supply of replacement printing fluid to be shipped to the printer.

14. A non-transitory storage medium storing a machine-readable program code, the program code to cause a computer to:

remotely communicate with a printer to receive data indicating a cumulative consumption value for a printing fluid consumed in a printer;

*calculate a plurality of variable values including a threshold value that represents a quantity of cumulative consumption of the printing fluid that triggers a fulfilment event, a first variable value that represents a quantity of printing fluid that is depleted at the printer for a given time interval, the first variable value derived based on an estimated evaporation quantity loss, and a second variable value that is a statistically derived depletion quantity representing a cumulative consumption of the printing fluid that causes depletion of a specified percentage of a population of printing fluid supplies;*

*wherein one or more predefined relationships are defined between the threshold value, the first variable value, and the second variable value;*

receive a variation of at least one of the first variable value or the second variable value;

change the threshold value based on the variation of at least one of the first variable value or the second variable value and based on the one or more predefined relationships;

trigger the fulfilment event in response to the indicated cumulative consumption value exceeding the changed threshold value; and

in response to the triggering, signal a communication across a network to initiate a supply of replacement printing fluid to be shipped to the printer.

16. A computer system comprising:

a non-transitory storage medium storing a machine-readable program code;

a computer, the machine-readable program code executable on the computer to:

remotely communicate with a printer to receive data indicating a cumulative consumption value for a printing fluid consumed in a printer;

*calculate a plurality of variable values including a first threshold variable value that represents a quantity of cumulative consumption of the printing fluid that triggers a fulfilment event, a second variable value that represents a quantity of the printing fluid that is depleted at the printer for a given time interval, the second variable value derived based on an estimated evaporation quantity loss, and a third variable value that is a statistically derived depletion quantity representing a cumulative consumption of the printing fluid that causes depletion of a printing fluid supply;*

*wherein one or more predefined relationships are defined between the first threshold variable value, the second variable value, and the third variable value;*

receive a variation of at least one of the second variable value or the third variable value;

change the first threshold variable value based on the variation of at least one of the second variable value or the third variable value and based on the one or more predefined relationships;

trigger the fulfilment event in response to the indicated cumulative consumption value exceeding the changed first threshold variable value; and

in response to the triggering, signal a communication across a network to initiate a supply of replacement printing fluid to be shipped to the printer.

(Claims Appendix i, v–vi (emphases added)).

## II. REJECTIONS ON APPEAL

On appeal, the Examiner maintains several rejections, which are listed as follows:

- A. Claims 14–16, 19, and 20 under AIA 35 U.S.C. § 112(a) as failing to comply with the written description requirement;
- B. Claims 1–16, 19, and 20 under 35 U.S.C. § 101 as patent-ineligible because the claimed subject matter is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without reciting significantly more; and
- C. Claims 1, 5–7, 14, 16, 19, and 20 under 35 U.S.C. § 103 as unpatentable over Hayward et al.<sup>3</sup> (“Hayward”) in view of Therien.<sup>4, 5</sup>

(Ans. 2–8; Final Act. 2–24.)

## III. DISCUSSION

**Rejection A (Written Description).** The Examiner finds that “a threshold value” (Claim 14) and “a first threshold variable value” (claim 16)

---

<sup>3</sup> US 6,985,877 B1, issued January 10, 2006.

<sup>4</sup> US 6,382,762 B1, issued May 7, 2002.

<sup>5</sup> The Examiner states that the rejection of claims 2–4, 8–13, and 15 under 35 U.S.C. § 103 has been withdrawn (Ans. 2).

lack written description in the Inventors' disclosure as original filed (Final Act. 2–3). Specifically, the Examiner states that although the originally-filed disclosure describes “a fulfillment trigger” corresponding to a cumulative consumption of printing fluid that triggers a shipment of a supply of replacement printing fluid, the disclosure fails to describe “a fulfillment trigger” to mean a “threshold,” which has a well-known meaning in the art (*id.* at 3).

The Appellant contends that adequate written description in the original disclosure exists as the claimed subject matter need not be described in the original disclosure *in haec verba* in order to satisfy the written description requirement (Appeal Br. 6). The Appellant argues that one skilled in the relevant art would understand from the description in the original disclosure (Spec. ¶¶ 19, 41) that “a fulfillment trigger” is a threshold value with which a cumulative consumption value is compared (*id.* at 7).

We agree with the Appellant on this issue. The Examiner's rejection is based merely on a lack of literal support, which is not the correct standard for measuring compliance with the written description requirement. *Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1352 (Fed. Cir. 2010) (*en banc*); *In re Alton*, 76 F.3d 1168, 1175 (Fed. Cir. 1996).

As the Appellant points out (Appeal Br. 7), the originally-filed Specification describes a “fulfillment trigger,” which is a variable value, corresponding to a cumulative consumption of printing fluid that triggers a shipment of a supply of replacement printing fluid—e.g., in the form of a printing fluid cartridge (Spec. ¶ 19). The Specification further explains that “if the present cumulative consumption of black ink . . . is equal to or greater than the corresponding variable value ‘FT’ [fulfillment trigger], then a

shipment of a supply of replacement black ink to the printer . . . has been triggered” (*id.* ¶ 41). Even if the claim term “threshold” is given the meaning offered by the Examiner (Ans. 3), “a level, point, or value above which something is true or will take place and below which it is not or will not,” (as found in [www.merriam-webster.com](http://www.merriam-webster.com)), we are of the opinion that the above-identified descriptions in the originally-filed Specification reasonably convey to a person skilled in the art that the Inventors had possession of a threshold variable value representing cumulative consumption that triggers a replacement ink fulfillment event. *Ariad*, 598 F.3d at 1351.

For these reasons, we do not sustain Rejection A.

**Rejection B (Patent Eligibility).** As for claim 1, the Examiner states that the calculating step amounts to a concept that “is not meaningfully different than the concept of collecting information, analyzing it, and displaying (signaling) certain results of the collection an analysis, which [has been] found by the courts to be an abstract idea” (Final Act. 3–4). According to the Examiner, “[t]he claim does 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” (*id.* at 4). As for claims 14 and 16, the Examiner states that although these claims contain additional elements specifying a non-transitory storage medium storing a machine-readable program code and a computer system, respectively, these additional “elements are recited at a high degree of generality” that amount to performing calculations on a generic computer with “no indication that the

combination of elements improves the functioning of a computer or improves any other technology” (*id.* at 5–6).

The Appellant disagrees, arguing that the Examiner’s position is based on an overgeneralized reading of the claims (Appeal Br. 8–9). Specifically, the Appellant contends that “[w]hen the ordered combination of the elements as a whole is considered, claim 1 is directed to improving printer functionality” (*id.* at 9). In particular, the Appellant points out that “the Specification specifically explains how the printe[r] functionality can be improved, namely by reducing an extended amount of downtime of the printer” (*id.* at 10). In the Appellant’s words, “claim 1 recites a particular solution to a problem or a particular way to achieve a desired outcome, namely providing a technique to trigger the supply of replacement printing fluid to a printer” (*id.*). Furthermore, the Appellant argues that even if claim 1 can properly be characterized as being directed to an abstract idea, it recites additional features that are sufficient to transform the claimed subject matter into a patent-eligible application (*id.* at 12–14). The Appellant urges that the two other independent claims—namely, claims 14 and 16—are similarly patent-eligible (*id.* at 14).

We agree with the Appellant. Our reasons follow.

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: “[I]aws of nature, natural phenomena, and abstract ideas” are not patentable. *E.g., Alice Corp. 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, 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. 252, 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 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). “[M]erely requir[ing] 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 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.

We find, under Step 1 of the Guidance, that claim 1 is directed to a process (i.e., a method performed by a computer) that specifies a series of acts and claims 14 and 16 are directed to a machine or manufacture (i.e., a non-transitory storage medium storing a machine-readable program code and a computer system comprising such a non-transitory storage medium, respectively) (Claims Appendix i, v–vi). Although each of these claims falls

within one of the four categories of invention recited in the statute, that does not end our inquiry.

Under Step 2A(1), of the Revised Guidance, we find that claim 1, for example, recites a judicial exception in the form of mathematical concepts or mental processes (i.e., the “calculating” or “changing” steps in reproduced claim 1 above). Specifically, the “calculating” step determines a “first variable value that represents a quantity of cumulative consumption of the printing fluid that triggers a fulfilment event,” “a second variable value” that takes account of an estimated evaporation quantity loss over a given period of time, and a “third variable value that is a statistically derived depletion quantity representing a cumulative consumption of the printing fluid that causes depletion of a printing fluid supply” (Claim Appendix i). The claim further recites that the three variables have “one or more predefined relationships” and that the first variable value is changed “based on the variation of the second variable value and based on the one or more predefined relationships” (*id.*).

But the mere fact that the claim recites mathematical concepts or mental processes does not automatically render the claim patent-ineligible. *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.”).

Under Step 2A(2), as in *Diehr* (integrating concepts from the Arrhenius equation to provide an improved rubber molding process), claim 1 recites additional elements (steps) that integrate the mathematical concepts or mental processes into a practical application directed to a printer’s overall operation in a network environment. As recited in claim 1, the method also

includes the steps of “remotely communicating with a printer to receive data indicating a cumulative consumption value for a printing fluid consumed in the printer” and “signaling a communication across a network to initiate a supply of replacement printing fluid to be shipped to the printer” when the mathematical concepts or mental processes yield a first variable value that triggers a fulfillment event. These additional steps, which occur both before and after the mental processes, are physical acts that cannot be performed by purely mathematical or mental processes. As explained in the Specification (Spec. ¶ 9), the claimed subject matter viewed as whole including the mathematical concepts or mental processes provides an improved network printer operation because it avoids extended downtime and facilitates efficient stocking of replacement printer cartridges. *Diehr* 450 U.S. at 187 (“[O]ne does not need a ‘computer’ to cure natural or synthetic rubber, but if *the computer use incorporated in the process patent significantly lessens the possibility of ‘overcuring’ or ‘undercuring,’* the process as a whole does not thereby become unpatentable subject matter.”) (emphasis added); *but see Flook*, 437 U.S. at 595–96 (merely reciting a new and presumably better method for calculating an alarm limit as part of a catalytic conversion process with no improvement to the catalytic process itself rendered a claim to such process patent-ineligible).

The Examiner’s statement that “[t]he concept described in claim 1 is not meaningfully different than the concept of collecting information, analyzing it, and displaying (signaling) certain results of the collection” (Final Act. 4) is incorrect. Here, the claimed subject matter integrates the judicial exceptions into a practical application that results in an overall improvement in a network printer’s operation, and, therefore, amounts to

more than mere collecting information, analyzing it, and displaying certain results. *Cf. Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350, 1355 (Fed. Cir. 2016) (“[M]erely selecting information, by content or source, for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes.”).

Because our analysis under Step 2A of the Revised Guidance is dispositive, we need not consider Step 2B of the guidance. As our analysis for claim 1 is also pertinent to the two other independent claims (namely, claims 14 and 16), which contain the same or similar limitations, we do not sustain Rejection B.

**Rejection C (Obviousness).** The Appellant does not argue any claim separately within the meaning of 37 C.F.R. § 41.37(c)(1)(iv) (Appeal Br. 14–19, 21). Therefore, consistent with the manner in which the Appellant’s arguments are presented, we confine our discussion to claim 14, which we select as representative pursuant to the rule. Claims 1, 5–7, 16, 19, and 20 stand or fall with claim 14.

The Examiner finds that Hayward describes a method that includes every limitation recited in claim 14 except for taking account of a variable value derived from an estimated printing fluid evaporation quantity loss (Final Act. 15–17). The Examiner finds further, however, that Therien teaches an inkjet printer and system in which ink composition evaporation is estimated over the lifetime of an ink supply and taken into account (*id.* at 17). Based on these findings, the Examiner concludes that “[i]t would have been obvious to one of ordinary skill in the art . . . to use the rates of evaporation in calculating the changes in the ink composition, as taught by

Therien, to the method of Hayward . . . in order to ‘more accurately predict an upcoming out-of-ink condition’” (*id.* (quoting Therien col. 10, ll. 27–29)).

The Appellant contends Hayward “refers to tracking consumption of the consumable, and **not** to calculating the **threshold value** recited in claim 14” (Appeal Br. 16–17). The Appellant argues:

Hayward refers merely to various example threshold conditions, with nothing to indicate that the threshold value is changed based on variation of a first variable value or a second variable value and based on one or more predefined relationships between the threshold value, the first variable value, and the second variable value.

(*Id.* at 18.) The Appellant urges that because Hayward does not teach calculating the threshold value and changing the threshold value based on the factors expressly recited in claim 14, the Examiner’s rejection was entered in error (*id.* at 19).

The Appellant’s arguments fail to identify any reversible error in the Examiner’s rejection. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011).

Hayward describes a method for ordering a part for an imaging apparatus (e.g., a printer) including:

identifying electronically a condition in a consumable part (e.g., an ink cartridge), the consumable part having a first condition upon installation, at least one intermediate condition after use, and *a third condition when a replacement of the consumable part is substantially necessary*; and

using a software and sensor system associated with the apparatus for at least one of: (a) electronic monitoring of the condition of the consumable part; (b) electronic *predicting* of the condition of the consumable part; and after at least one of (a) and (b), (c)

automatically launching an electronic communications to initiate at least one inquiry and an offer to purchase a replacement for the consumable part of an occurrence or prediction of at least one of the first condition, intermediate condition, and third condition.  
(Hayward col. 2, ll. 12–29.)

Thus, Hayward teaches that “the [third] condition indicates when the consumable has reached a *threshold* in time to reorder before the consumable is completely exhausted” (*id.* at col. 7, ll. 57–62; emphasis added). According to Hayward, the *threshold* conditions of the consumable component may include a measure, timing, or data such as: supply; wear; usage; rate of depletion; rate of wear; predicted date of depletion supply; predicted date of need of the consumable component; delivery schedule of the consumable component; and statistical data of the consumable component (*id.* at col. 8, ll. 58–65). Furthermore, Hayward teaches that a “monitor module causes an indication of a status condition to be displayed when the consumables are expected to be below a threshold based on [an] inventory sub-module,” and “[t]he user can then navigate through the screens to the status screen and order more of the consumable by clicking [a] ‘Buy Now’ button” (*id.* at col. 8, ll. 4–9). Additionally, Hayward teaches that a modem, which is connected to the Internet, or a server may be used to communicate electronic information from the apparatus to a remote output device regarding the condition of the consumable component and automatically initiate an electronic order for a replacement consumable component (*id.* at col. 8, ll. 53–58).

Thus, contrary to the Appellant’s position, a person having ordinary skill in the art would have drawn a reasonable inference from Hayward’s

teachings that when predicting a date of supply depletion or date on which a replacement consumable is needed, certain calculations as to the threshold (third) condition based on the first condition and intermediate condition of the existing ink supply must be performed. *In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”); *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (“A person of ordinary skill is also a person of creativity, not an automaton.”).

Although Hayward does not teach taking account of ink evaporation, Therien teaches the concept of determining and compensating for ink evaporation “to more accurately predict an upcoming out-of-ink condition” (Therien col. 10, ll. 18–36). As Hayward contemplates predicting replacement as well as considering statistical data, a person having ordinary skill in the art would have been prompted to combine Therien with Hayward by modifying Hayward’s system to take account of ink evaporation statistical data gathered over time in order to improve the accuracy in predicting an upcoming out-of-ink condition (i.e., determine a more accurate threshold condition).

For these reasons and those given by the Examiner, we uphold the Examiner’s rejection as maintained against claim 14.

#### IV. SUMMARY

Rejection A (claims 14–16, 19, 20) is not sustained.

Rejection B (claims 1–16, 19, and 20) is not sustained.

Rejection C (claims 1, 5–7, 14, 16, 19, and 20) is sustained.

Appeal 2018-005722  
Application 13/916,459

Therefore, the Examiner's final decision to reject claims 1–16, 19, and 20 is affirmed as to claims 1, 5–7, 14, 16, 19, and 20 but reversed as to claims 2–4, 8–13, and 15.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED-IN-PART