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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOSÉ GUILHERME MENDONÇA VILELA PINTO FERREIRA
and ANA CATARINA VIOLANTE VIEIRA

Appeal 2019-001556
Application 14/964,111
Technology Center 1700

Before ROMULO H. DELMENDO, LINDA M. GAUDETTE, and
JEFFREY B. ROBERTSON, *Administrative Patent Judges*.

ROBERTSON, *Administrative Patent Judge*.

DECISION ON APPEAL¹

STATEMENT OF THE CASE

Appellant² appeals under 35 U.S.C. § 134(a) from the Examiner’s rejection of claims 1–20. (*See* Appeal Br. 12–34.) We have jurisdiction pursuant to 35 U.S.C. § 6(b).

¹ This Decision includes citations to the following documents: Specification filed December 9, 2015 (“Spec.”); Non-Final Office Action mailed January 16, 2018 (“Non-Final Act.”); Appeal Brief filed July 11, 2018 (“Appeal Br.”); Examiner’s Answer mailed October 12, 2018 (“Ans.”); and Reply Brief filed December 10, 2018 (“Reply Br.”).

² We use the word “Appellant” to refer to “Applicant” as defined in 37 C.F.R. § 1.42(a). Appellant, Mellow, Inc., is also identified as the real party in interest. (Appeal Br. 3.)

We REVERSE.

THE INVENTION

Appellant states the invention relates to methods, processes, and procedures of “*sous-vide*” cooking. (Spec. ¶ 2.) According to the Specification, “*sous-vide*” cooking is a technique where “food is cooked for relatively longer times at relatively lower temperatures, and is generally separated from a cooking medium by packaging in airtight plastic bags.” (*Id.*)

Claim 1 is representative and reproduced below from the Claims Appendix to the Appeal Brief:

1. A method for sous-vide cooking, comprising:
 - receiving, from a remote client interface, a food type parameter, a food quantity parameter, a degree of cook parameter, a cook begin time parameter, and a cook finish time parameter for a cooking subject;
 - employing the food type parameter and the food quantity parameter to look up, in a cooking services database, a default time-temperature pair;
 - determining a cook duration from the cook begin time parameter and the cook finish time parameter;
 - comparing the time of the default time-temperature pair to the cook duration;
 - producing a new time-temperature pair when the time of the default time-temperature pair does not equal the cook duration;
 - deriving a cooking control routine from the new time-temperature pair;
 - transmitting the cooking control routine to a cooking control module of a cooking device;
 - with the cooking control module, performing a cooking process on the cooking subject in accordance with the cooking control routine; and

in accordance with the cooking control routine, employing the cooking control module to energize an air pump to supply air through a one-way valve in fluid communication with a cooking medium held by a cooking chamber of the cooking device and control an amount of air injected into the cooking medium.

(Appeal Br. (Claims Appendix) 35–36.)

Claims 7 and 14 are also independent and recite methods for sous-vide cooking. (*Id.* at 36–39.)

REJECTIONS³

1. The Examiner rejected claims 1–20 under 35 U.S.C. § 101 as directed to a judicial exception without significantly more. (Non-Final Act. 2–3.)
2. The Examiner rejected claims 1–20 under 35 U.S.C. § 103 as obvious over Hallgren et al. (US 2008/0121636 A1, published May 29, 2008, hereinafter “Hallgren”), Kish et al. (US 6,730,890 B2, issued May 4, 2004), and Guibert (US 4,307,286, issued December 22, 1981). (Non-Final Act. 4–10.)

We limit our discussion to independent claims 1, 7, and 14, which is sufficient for disposition of this appeal.

Rejection 1

The Examiner stated that independent claims 1, 7, and 14 are directed

³ The Examiner withdrew the rejection of claims 14–20 under 35 U.S.C. § 112, second paragraph in the Answer. (Ans. 10; *see* Non-Final Act. 3.)

to “an abstract idea of instructing a computer with no active method.” (Non-Final Act. 2–3.) In particular, the Examiner stated “the preamble specifies the field of use as ‘for sous-vide cooking’ but in this case imposes no limits on the process of calculating cooking time, where the claims require mere data gathering steps to calculate a result and do not add any meaningful limits.” (*Id.* at 2.) The Examiner stated “[t]he additional element(s) or combination of element(s) in the claim(s) other than the abstract idea per se amount(s) to no more than: mere instructions to implement the idea on a computer and post-solution activity that could be attached to almost any calculation.” (*Id.*) The Examiner stated further “[b]y failing to explain how the process variable is selected, integrate the calculation into any specified cooking process, or specify the means of sensing the surface area or adjusting the surface area, the claim fails to improve the recited technological field.” (*Id.* at 2–3.)

Appellant argues that even if the claims recite a judicial exception, the claims “integrate the employing, determining, comparing and deriving actions into a cooking process.” (Appeal Br. 13.) Thus, Appellant contends that the claims transform a raw, uncooked food subject into a cooked food, and recite “significantly more” than a judicial exception, citing to *Diamond v. Diehr*, 450 U.S. 175 (1981). (Appeal Br. 13–14.)

DISCUSSION

For the reasons discussed below, we agree with the Appellant that the claimed subject matter has not been shown to be patent-ineligible as directed to a judicial exception without reciting significantly more. Because the Examiner’s reasoning is basically the same for independent claims 1, 7, and

14, we focus our discussion on claim 1, and reference the other independent claims as needed.

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” (*Diehr*, 450 U.S. at 191); “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 for sous-vide cooking) including a “determining a cook duration” step, a “comparing” step where the time of a default time-temperature pair is compared to the determined cook duration, a step of “producing a new time-temperature pair,” a step of “deriving a cooking control routine from the new time-temperature pair,” a step of “transmitting the cooking control routine to a cooking control module of a cooking device,” a step of “performing a cooking process” on a cooking subject, and a step of “employing the cooking control module to energize an air pump to supply air through a one-way valve in fluid communication with a cooking medium held by a cooking chamber of the cooking device.”

In this regard, we do not agree with the Examiner that the claims recite “no active method” and only specify a “field of use.” Claims 1 and 7 recite “performing a cooking process” on “a cooking subject,” with “a cooking medium.” Claim 14 recites “performing a sous-vide cooking process on a food subject placed in a flexible vessel.” Thus, the claims recite active methods.

Accordingly, claim 1 falls within one of the four statutory categories of invention. Therefore, we turn next to Step 2A(1) of the Revised Guidance.

Under Step 2A(1) we find that claim 1 recites a judicial exception in the form of mental steps and mathematical concepts. Specifically, the

recited steps in claim 1 of “determining a cook duration from the cook begin time parameter and the cook finish time parameter” as well as “comparing the time of the default time-temperature pair to the cook duration” are mental steps. According to the Specification, these steps involve looking up a default time-temperature pair correlated to the food type and food quantity parameters in a cooking services database, and comparing the default time-temperature pair to the cooking duration. (Spec. ¶¶ 49, 50, 88, 89; Figs. 2A, 2B.) In particular, as to the step of “determining a cook duration,” this step utilizes the cook begin time and cook finish time parameter, to determine the cook duration, which is a mathematical calculation. (*Id.* ¶¶ 50, 89.) Thus, each of these steps involves mathematical calculations and mental steps, where the “correlating” and “comparing” steps may be performed in the human mind.

As to the step of “producing a new time-temperature pair when the time of the default-time temperature pair does not equal the cook duration,” the Specification states that such a step “includes applying an adaptation rule from the cooking services database,” which “is influenced by a heat equation approximation for the food type and food quantity parameters Optionally, the adaptation rule is influenced by pathogen decay curves” (*id.* ¶¶ 21–23, 91, 92; Figs. 2A, 2B, 3A–3C), and therefore involves mathematical calculations. Thus, this element of claim 1 constitutes an abstract idea.

As to the step of “deriving a cooking control routine from the new time-temperature pair,” the Specification states the server is “operable to derive the cooking control routine” (*id.* ¶ 98), which includes mental comparing steps and/or mathematical calculations with respect to cooking

parameters from the cooking device, including thermal characteristics such as minimum temperature, maximum temperature, and heat capacity of the cooking device. (*See id.* ¶¶ 70–72.) Thus, this element of claim 1 recites an abstract idea.

However, 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.”). As a result, we now turn to Step 2A(2) of the Revised Guidance to determine whether the claims integrate the judicial exception into a practical application.

We determine that the additional elements recited in claim 1 integrate the mathematical concepts and mental steps into a practical application. 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)—performing a cooking process—that integrate the mathematical concepts or mental processes into a practical application directed to an improved sous-vide cooking method that overcomes problems in prior art techniques.

In this regard, according to the Specification, sous-vide cooking requires that cooking temperatures and durations must be controlled precisely to obtain a palatable cooked food that is safe from food-borne bacteria. (Spec. ¶ 3.) The Specification teaches that a user may want to use a non-standard time and temperature combination to accommodate a set schedule, lack of time, or personal taste, but that deviating from such well-known time and temperature combinations can result in food that is not safe

or palatable. (*Id.*) As a solution to this problem, the Specification teaches the recited methods “substantially eliminate or at least partially address problems in the prior art; and facilitate personalization of a time-temperature pair for easy and safe ‘*sous-vide*’ cooking of food.” (*Id.* ¶ 44.) These Specification disclosures evince that the recited method of sous-vide cooking in combination with the other independent claim elements (i.e., the determining, comparing, producing, and deriving steps) solves the problem of safely personalizing an existing sous-vide cooking technique.

Thus, we determine that the claimed subject matter integrates the judicial exceptions into a practical application that results in an overall improvement in sous-vide cooking. *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 statements that “[t]he computers are used in their conventional way” and that the “claims require mere data gathering steps to calculate a result and do not add any meaningful limits” (Ans. 3) are incorrect. Here, the claimed subject matter integrates the judicial exceptions into a practical application that results in an overall improvement by providing a technique that solves the problem of safely personalizing an existing sous-vide cooking technique in the prior art, 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) (determining that the claim at issue that was directed to “merely selecting information, by content or source, for collection, analysis, and display [and] 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. *But see Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018) (explaining that improvements described in the specification, to the extent they are captured in the claims, must be considered in determining whether the invention describes well-understood, routine, and conventional activities under Step 2B). As our analysis for claim 1 is also pertinent to independent claims 7 and 14, which contain the same or similar limitations as discussed above, we do not sustain the rejection as maintained against all claims on appeal.

To summarize, we do not sustain the Examiner’s rejection of claims 1–20 under 35 U.S.C. § 101.

Rejection 2

ISSUE

The Examiner found “there is no disclosure for sous-vide cooking as presently claimed” in Hallgren, Kish, or Guibert, but stated the recitation of “sous-vide cooking” in the preamble amounts to an intended use, and the body of the claim sets forth all of the limitations, which does not result in a structural difference between the presently claimed invention and the prior

art. (Ans. 8.) In this regard, the Examiner found Hallgren discloses computer controlled automated oven cooking, including receiving a number of parameters in order to derive a cooking control routine and performing a cooking process on a cooking subject in order to yield a safely cooked food. (*Id.* at 5–6.) The Examiner found Hallgren does not disclose a remote interface as recited in claim 1. (*Id.* at 5.) The Examiner relied on Kish for disclosing a programmable remote controlled apparatus and method for controlling the time and temperature of a cooking or baking cycle and determined that because Hallgren discloses computer controlled cooking, it would have been obvious to one of ordinary skill in the art to have provided a programmable remote controlled apparatus and method for controlling the time and temperature of a cooking cycle that can be entered at a remote site as taught by Kish. (*Id.* at 5–6.) The Examiner found that Hallgren does not disclose an air pump to supply air through a one-way valve, but because Kish discloses convection ovens, one of ordinary skill would have looked to Guibert, which discloses convection ovens including an air pump to supply air through a one-way valve. (*Id.* at 7.) The Examiner determined that it would have been obvious to have employed the specific mechanism of Guibert in the combination of Hallgren and Kish in order to achieve convection heating as disclosed in Kish. (*Id.*)

Appellant argues, *inter alia*, the recitation that the methods recited in the claims are for sous-vide cooking characterizes the action of performing a cooking process, whereas Hallgren, Kish, and Guibert do not disclose a method for sous-vide cooking either alone or in combination. (Appeal Br. 16–17.) In particular, Appellant argues Hallgren discloses a microwave, Kish discloses a control system associated with a conventional stove, broiler,

conventional oven, convection oven, microwave oven or barbecue, and Guibert discloses an air pump, which does not overcome the deficiencies of Hallgren and Kish with respect to sous-vide cooking. (*Id.*)

Accordingly, the dispositive issue with respect to this rejection is:

Has Appellant identified a reversible error in the Examiner's position that the combination of Hallgren, Kish, and Guibert discloses a method of sous-vide cooking as recited in claim 1?

DISCUSSION

Initially, we agree with Appellant that the term "sous-vide" cooking is not merely a recitation of intended use, but imparts meaningful limitations into the claims. With respect to claims 1 and 7, the claims recite "[a] method for sous-vide cooking" that includes "performing a cooking process on the cooking subject" in a "cooking device" containing a "cooking medium." Claim 14 recites "performing a sous-vide cooking process on a food subject placed in a flexible vessel."

As discussed above, the Specification states "*sous-vide*" cooking is a technique where "food is cooked for relatively longer times at relatively lower temperatures, and is generally separated from a cooking medium by packaging in airtight plastic bags." (Spec. ¶ 2.) The Specification states "[t]he cooking medium is usually a temperature-controlled water bath or steam oven which allows for rapid heat transfer between the packaged food and the cooking medium." (*Id.*) These disclosures provide evidence that "sous-vide" cooking is an art-recognized term for a particular method of cooking. Therefore, we are of the view that the term "sous-vide" in the preamble as well as the further limitations recited in independent claims 1, 7,

and 14 amount to more than an intended use and impart structural limitations to the claims. *Corning Glass Works v. Sumitomo Elec. U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989) (The determination of whether preamble recitations are structural limitations can be resolved only on review of the entirety of the application “to gain an understanding of what the inventors actually invented and intended to encompass by the claim.”).

Thus, although we agree with the Examiner that the Specification is silent as to whether sous-vide cooking requires vacuum cooking as argued by Appellant (Ans. 12; *see* Appeal Br. 16; Reply Br. 4), we are not persuaded by the Examiner’s position that the isolated disclosures of a package that can be sealed in a plastic bag in Hallgren (§ 36) and of a steam heater for air in Guibert (col. 8, ll. 14–17) are sufficient to render the sous-vide method in the claims obvious. Indeed, as discussed above, the Examiner found Hallgren, Kish, and Guibert did not disclose sous-vide cooking methods. (Non-Final Act. 7–8; Ans. 8.) In this regard, there is no evidence of record to indicate that Hallgren, directed to a method of operating a microwave oven (§ 6), Kish, directed to a programmable controlled apparatus for household appliances (col. 1, ll. 10–15, 43–49), or Guibert, directed to rapidly rising the temperature of pre-cooked food or other product (col. 5, ll. 15–24), are used or could be used to perform sous-vide cooking when combined as set forth by the Examiner in the rejection.

As a result, the Examiner has failed to make a prima facie case that the methods of sous-vide cooking recited in the claims would have been obvious over the prior art of record. Accordingly, we reverse the Examiner’s rejection of claims 1–20.

DECISION

Claims Rejected	Basis	Affirmed	Reversed
1-20	§ 101		1-20
1-20	§ 103(a) Hallgren, Kish, and Guibert		1-20
Overall Outcome			1-20

REVERSED