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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte PAUL J. DESLAURIERS, YONGWOO INN, QING YANG, ASHISH M. SUKHADIA, and DAVID C. ROHLFING

Appeal 2017-008898
Application 13/660,750
Technology Center 2800

Before DONNA M. PRAISS, WESLEY B. DERRICK, and JANE E. INGLESE, *Administrative Patent Judges*.

DERRICK, *Administrative Patent Judge*.

DECISION ON APPEAL[1]

STATEMENT OF CASE

Appellant[2] seeks review under 35 U.S.C. § 134(a) from the Examiner's maintained rejection of claims 1–20 under 35 U.S.C. § 101.[3] We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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[1] We refer to the Specification filed October 25, 2012 ("Spec."), the Final Office Action mailed July 15, 2016 ("Final Act."), the Appeal Brief filed December 14, 2016 ("App. Br."), the Examiner's Answer dated April 5, 2017 ("Ans."), and the Reply Brief filed May 31, 2017 ("Reply Br.").

[2] The Appellant, Chevron Phillips Chemical Company LP, is also identified as the real party in interest. App. Br. 3.

[3] Previously pending rejections of claims 1–20 under 35 U.S.C. § 103 have been withdrawn. Ans. 3.

CLAIMED SUBJECT MATTER

Appellant's invention relates to a computer implemented method for improving processing of polyethylene resins and systems for implementing the method. Spec. ¶¶ 5–8. Claims 1, 5, 15, and 16 are independent. Claims 1 and 5 are directed to the system. Claims 15 and 16 are directed to the computer implemented method.

Claims 1 and 15, reproduced below with added emphasis and notation identifying steps of the computer implemented method, are illustrative of claims directed the system and the method, respectively.

1. A system for improving processing of polyethylene resins, comprising:

a processor;

a memory:

an output device; and

an analysis component stored in the memory, that when executed on the processor, configures the processor to:

[step 1] *receive a shear stress as a function of shear rate for a plurality of multimodal metallocene-catalyzed polyethylene samples, wherein the shear stress as a function of the shear rate is measured using capillary rheometry*;

[step 2] *determine values for a magnitude of slip-stick, a stress for smooth to matte transition, and a shear rate for smooth to matte transition for each of the plurality of multimodal metallocene-catalyzed polyethylene samples based on the shear stress and the shear rate measured from capillary rheometry*;

[step 3] *identify individual multimodal metallocene-catalyzed polyethylene resins from the plurality of multimodal metallocene-catalyzed polyethylene samples having a reduced tendency to melt fracture characterized by a magnitude of slip-stick greater than about 300 psi, a stress for smooth to matte transition greater than about 90 kPa, and a shear rate for smooth to matte transition greater than about 10 s^{-1}*; and

[step 4] *output an identification of the individual multimodal metallocene-catalyzed polyethylene resins to the output device.*

15. A computer implemented method for improving processing of polyethylene resins, comprising:

[step 1] *receiving by a processor, a shear stress as a function of shear rate for a plurality of multimodal metallocene-catalyzed polyethylene samples, wherein the shear stress as a function of the shear rate is measured using capillary rheometry*;

[step 2] *determining, by the processor, values for a slip-stick, a stress for smooth to matte transition, and a shear rate for smooth to matte transition for each of the plurality of multimodal metallocene-catalyzed polyethylene samples based on the shear stress and the shear rate*;

[step 3] *identifying, by the processor, individual multimodal metallocene-catalyzed polyethylene resins from the plurality of multimodal metallocene-catalyzed polyethylene samples having a reduced tendency to melt fracture characterized by a magnitude of slip-stick greater than about 300 psi, a stress for smooth to matte transition greater than about 90 kPa of stress, and a shear rate for smooth to matte transition greater than about 10 s^{-1}*; and

> [step 4] *outputting, by the processor, an identification of the individual multimodal metallocene-catalyzed polyethylene resins to an output device.*

App. Br. (Claims App'x), 20, 23–24.

DISCUSSION

We review the appealed rejection for error based upon the issues identified by Appellant and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072 (BPAI) (precedential), *cited with approval in In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) ("[I]t has long been the Board's practice to require an applicant to identify the alleged error in the examiner's rejections."). Upon consideration of the evidence and opposing contentions of Appellant and the Examiner, we are not persuaded that the Examiner erred in rejecting the claims as being directed to non-eligible subject matter. We add the following.

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 § 101 to include implicit exceptions: "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable. *See, e.g.*, *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014) (citation omitted).

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 binding precedent regarding § 101 to claims before the Office. *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Guidance"). The Guidance directs looking first to determine 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)).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, does the Guidance direct looking to determine 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 Guidance, 84 Fed. Reg. at 56 (Step 2B).

Here, referring to the independent claims, the Examiner determines that the claims are directed to an abstract idea, that is, "a series [of] mathematical/algorithmic and/or mathematical formula and/or data processing/analysis steps which correspond[] to concepts identified as an abstract idea, or ideas, in the form of a mathematical formula similar to those found to be non-patent eligible." Ans. 6–7. The Examiner also determines that "the recited method steps as an ordered combination, do not amount to significantly more than the abstract idea." *Id.* at 7. The Examiner also determines that the additional recited elements, including "a processor," "a memory," and "an output device," "comprise generic/conventional data gathering and data processing and generic/conventional computer/computing components." *Id.* at 7 (citing Spec. ¶¶ 97, 99, 102, 108, 110, 117, 119). The Examiner further maintains that the "[g]eneric computer components [are] recited as performing generic computer functions that are well-understood, routine and conventional activities" and that, as such, "amount to no more than implementing the abstract idea with a computerized system." *Id.* at 8.

Appellant contends that the claims are directed to patent eligible subject matter. App. Br. 9–15. Appellant argues that the claims: 1) include meaningful specific limitations other than what is well-known, understood, and routine in the field; 2) are confined to a particular useful application; and 3) improve another technology or technical field. *Id.* Appellant restates and

amplifies these same general arguments in the Reply Brief while responding to the Examiner's Answer. Reply Br. 4–20.

In applying step (1) of the Guidance to the claims on appeal, we determine that the independent claims recite an abstract idea in the recited steps 1–4. These steps, individually and collectively, recite mental processes that can be performed by a human with pen and paper. Step 1—receiving data for various samples—is a step of observing relevant data, an observation, which is a mental process. Step 2—determining values for certain parameters using the relevant data—is a step of evaluation or judgment, which is a mental process. Step 3—identifying resins having suitable properties on the basis that calculated parameter values of sufficient magnitude are correlated with suitable properties—is, likewise, a step of evaluation or judgment, which is a mental process. Step 4—outputting an identification of resins identified as having the suitable properties on the basis of the correlation—is part of formulating an opinion, specifically, expressing the identities of resins in a manner that can be comprehended. In sum, thus, steps 1–4 recite a mental process that can be conducted by a human using a pen and paper.[4] As such, the claims recite a patent-ineligible abstract idea. Guidance at 52, n.14.; *see also Mayo*, 566 U.S. at 71 ("[M]ental processes[] . . . are not patentable, as they are the basic tools of scientific and technological work"); *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1139 (Fed. Cir. 2016) (holding that claims to the mental process of "translating a functional description . . . into a hardware

[4] A claim covering performance in the mind, but for the recitation of generic computer components, is still a mental process unless it cannot practically be performed in the mind. Guidance at 52, n.14 (and cases cited therein).

component description" are directed to an abstract idea, because the claims "read on an individual performing the claimed steps mentally or with pencil and paper").

Appellant's criticism of the rejection grounded on the Examiner's similar determination that the "recited method steps comprise a series [of] mathematical/algorithmic and/or mathematical formula and/or data processing/analysis steps which correspond to concepts identified as an abstract idea" (Ans. 6) similarly falls short as to the Guidance because, under its broadest reasonable interpretation, nothing forecloses the performance of these steps by a human, mentally or with pen and paper (Guidance at 52, n.14; *see also Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1318 (Fed. Cir. 2016); *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1324 (Fed. Cir. 2016); *Versata Dev. Grp. v. SAP Am., Inc.*, 793 F.3d 1306, 1335 (Fed. Cir. 2015); *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1372, 1373 (Fed. Cir. 2011)).

In applying step (2) of the Guidance, we determine that the independent claims do not integrate the recited judicial exception into a practical application because the claims do not apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the exception. Guidance at 54–55; *see also* MPEP § 2106.05(a)–(c), (e)–(h). Claim 1, directed to a system for improving processing of polyethylene resins, recites additional elements beyond the steps that constitute the identified abstract idea, namely, the additional elements of a processor, a memory, an output device, and an analysis component stored in the memory. As set forth in the Specification, the analysis component is executed on the processor so as to configure the processor to carry out the recited method,

that is, the analysis component is the computer program or executable instructions for carrying out the method. *See, e.g.*, Spec. ¶¶ 5, 6, 8, 146. Claim 15, directed to a computer implemented method for improving processing of polyethylene resins, similarly relies on a computer. The Specification identifies a computer system 780, which includes a processor 782 in communication with memory devices including secondary storage 784, read only memory (ROM) 786, random access memory (RAM) 788, input/output (I/O) devices 790, and network connectivity devices 792 as suitable for implementing the disclosed method (Spec. ¶ 107, Fig. 10), and that "programming and/or loading executable instructions onto the computer system 780 . . . transform[s] the computer system 780 in part into a particular machine or apparatus" (*id.* ¶108). These additional components are not, however, distinguishable from a general purpose computer system and do not integrate the exception into a practical application. We note in particular that there is no recited action or step utilizing the identified resins, or their identity, in an effort to improve processing of polyethylene resins, but, rather, there is merely a general linking of the judicial exception to the technological environment of polyethylene resin processing. In this respect, the instant claims are like those in *Flook*, in which the method consisted of three steps, measuring a present value of a process variable, using an algorithm to calculate an updated alarm-limit value, and adjusting the alarm limit to the updated value for "process variable[s] involved in a process comprising the catalytic chemical conversion of hydrocarbons." *Flook*, 437 U.S. at 584, 586, 588–90; *see also* Guidance at 55, n.32.

Having determined that the claims are directed to an abstract idea that is not integrated into a practical application, we determine whether the

additional elements recited in the claim provide "significantly more" than the recited judicial exception or combination of elements such that the claim is rendered patent eligible. *See, e.g.*, *Diehr*, 450 U.S. at 187; *see also* Guidance at 56. In accordance with controlling precedent, as reflected in Step 2B of the Guidance, we determine whether the recited additional element[s] "add[] a specific limitation beyond the judicial exception that is not 'well-understood, routine, conventional' in the field" or "simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception." Guidance at 56 (Step 2B).

Turning first to the recitation "improving processing of polyethylene resins" in the independent claims, it lacks any specificity as to what is done and is at such a high level of generality that it falls short of providing significantly more than the judicial exception. While the identity of the identified individual multimodal metallocene-catalyzed polyethylene resins might be useful information, the claims fail to recite any action or step beyond the abstract idea itself with any specificity as to "improving processing of polyethylene resins." The second step of the *Alice/Mayo* framework is a search for "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*, 134 S. Ct. at 2355.

As to the recited processor, memory, output device, and analysis component stored in the memory (*see, e.g.,* claim 1), these amount to no more than a general purpose computer on which implementing an abstract idea remains a patent ineligible abstract idea. *See, e.g.*, *Benson*, 409 U.S. at 69. In particular, the function of these elements amounts to no more than

performing generic computer functions, i.e., receiving data, performing calculations, storing and retrieving information in memory, and outputting data, merely used to implement the abstract idea (mental processes), such that the function is merely well-understood, routine, conventional activity. *See, e.g.*, MPEP § 2106.05(d); Berkheimer Memo.[5] Moreover, as discussed above, the Specification supports that these elements in combination amount to no more than a general purpose computer. *See, e.g.*, Spec. ¶¶ 107–108, Fig. 10 (discussing "computer system 780").

As to the recited source of the received data, "measured using capillary rheometry" (claims 1, 15) or "measured from capillary rheometry" (claim 1), even if it were not subsumed within the abstract idea itself, it does not suffice as significantly more. The Specification identifies the use of a "dual-bore capillary rheometer (Rosand RH-7, Malvern)" (Spec. ¶ 47), which establishes the device to be well-understood, routine, and conventional (*see, e.g.,* Berkheimer Memo, III.A.1 ("A specification demonstrates the well-understood, routine, conventional nature of additional elements when it describes the additional elements . . . as a commercially available product.")).

Having thus accounted for all additional elements recited, over the recited judicial exception, we determine that the claims do not provide "significantly more" than the recited judicial exception. Accordingly, we determine that the claims are not directed to patent eligible subject matter.

[5] Memorandum - Changes in Examination Procedure Pertaining to Subject Matter Eligibility, Recent Subject Matter Eligibility Decision (Berkheimer v. HP, Inc.), April 19, 2018.

On this record, Appellant's arguments to the contrary, that the claims are directed to patent eligible subject matter, are not well-founded. App. Br. 9–15; Reply Br. 4–20.

Appellant argues that the claims include meaningful specific limitations other than what is well-known, understood, and routine in the field (App. Br. 10–12) and that the Examiner has failed to establish that the claim features are well-understood, routine, and conventional (*id.* at 12; Reply Br. 5–13). Appellant further argues that the claims are not directed to an abstract idea, but instead to a specific asserted improvement in processing of polyethylene resins. Reply Br. 11–12 (maintaining that the claims are akin to the claims in *McRO, Inc. v. Bandai NAMCO Games America, Inc.*, 837 F.3d 1299 (Fed. Cir. 2016)),

Appellant's arguments as to what is well-understood, routine, and conventional focus on the "identification of polyethylenes" via the specific thresholds for the magnitude of slip-stick and for both the stress and shear rate for smooth to matte transition, and that the relevant claim limitations are not established to be well-understood, routine, and conventional. App. Br. 10–12; Reply Br. 9.

Appellant's arguments are not persuasive that the claims are directed to eligible subject matter because they address the recited judicial exception itself, rather than any additional element. The analysis in the second step of the *Alice/Mayo* framework is a search for "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*, 134 S. Ct. at 2355. Even if novel, judicial exceptions are patent ineligible absent *further* elements amounting to significantly more that transforms

them into eligible subject matter. *Flook*, 437 U.S. at 591–92 ("[T]he novelty of the mathematical algorithm is not a determining factor at all."); *Ass'n Mol. Pathology v. Myriad Genetics, Inc.*, 133 S. Ct. 2107, 2116 (2013) ("Groundbreaking, innovative, or even brilliant discovery does not by itself satisfy the § 101 inquiry."); *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1376 (Fed. Cir. 2016) ("[A] claim directed to a newly discovered law of nature (or natural phenomenon or abstract idea) cannot rely on the novelty of that discovery for the inventive concept necessary for patent eligibility."). The relied upon steps Appellant contends are not conventional do not, accordingly, transform the ineligible subject matter, because they are not something more than, but are, rather, part of the ineligible concept.

As to recited elements that are in addition to the abstract idea, rather than part of the abstract idea itself, as discussed above, Appellant fails to offer any cogent argument that these were not well-understood, routine, and conventional.

As to the argument that the claims are not directed to an abstract idea, first raised in the Reply Brief (Reply Br. 11–13 (citing *McRO*), we find the argument untimely and deem it waived as there is no good reason offered why it could not have been raised earlier in the Appeal Brief.[6] 37 C.F.R. § 41.41(b)(2); *cf. McBride v. Merrell Dow and Pharms., Inc.*, 800 F.2d 1208, 1211 (D.C. Cir. 1986) (internal citations omitted) ("Considering an argument advanced for the first time in a reply brief . . . is not only unfair to

[6] While Appellant cites *McRO* in the Appeal Brief, it is relied on as support for Appellant's position that the Examiner failed to establish that any of the elements are well-understood, routine, and conventional, not for the position that the claims do not recite an abstract idea. App. Br. 12.

an appellee but also entails the risk of an improvident or ill-advised opinion on the legal issues tendered.").

Appellant contends that the claims are confined to a particular useful application. App. Br. 13; Reply Br. 13–18. Appellant argues that the Examiner addresses the claims at a high level of abstraction, failing to appreciate that the claims are confined to a particular useful application. App. Br. 13. Appellant relies on *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337 (Fed. Cir. 2016), citing slip opinion at 14, as support for its position. App. Br. 13. Appellant also argue that the claims recite significant post-solution activity that meaningfully limits the claims. Reply Br. 15–18.

Appellant's reliance on *Enfish* is not well-founded. For claims directed to computer software, the issue is whether "the focus of the claims is on [a] specific asserted improvement in computer capabilities . . . or, instead, on a process that qualifies as an 'abstract idea' for which computers are invoked merely as a tool." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016). The claims in *Enfish* were determined to be directed to a "self-referential table for a computer database" that operated differently from conventional databases and improved the computer's function. *Enfish*, 822 F.3d at 1337. Thus, in addressing the claims at a high level of abstraction, the district court ignored the improvement in the computer's function. *Id.* Here, in contrast, the abstract idea is merely implemented on a general purpose computer, as discussed above, and does not provide an improvement in the function of the computer.

The argument grounded on the claims being limited to a particular useful application is also not persuasive. As explained in *Alice*, "the prohibition against patenting abstract ideas cannot be circumvented by

attempting to limit the use of [the idea] to a particular technological environment." *Alice*, 134 S. Ct. at 2538 (internal citations and quotations omitted). The value or usefulness is likewise not dispositive of patent eligibility. *Flook*, 437 U.S. at 594–95 (Determining claims to "a new and presumably better method for calculating alarm limit values," which were of undisputed usefulness, to be directed to nonstatutory subject matter.).

The argument grounded on the claims reciting significant post-solution activity is also not persuasive. Reply Br. 15–18. Appellant relies on *Diamond v. Diehr* in arguing that its claims are not directed to ineligible subject matter simply because the claims use a mathematical formula or a computer. *Id.* at 16–18 (citing *Diehr*, 450 U.S. at 188). Appellant argues that the reasoning in *Diehr*—that an eligible process of curing rubber remains eligible subject matter despite the incorporation of a mathematical formula or use of a computer—supports the eligibility of Appellant's claims that similarly incorporate use of a computer to identify individual polyethylene resins. *Id.* at 17–18 (citing *Diehr*, 450 U.S. at 187). Appellant contends its claims are "directed to an improved technological process, . . . improving processing of polyethylene resins by efficiently identifying those that have a reduced tendency to melt fracture." *Id.* at 18.

Appellant's argument fails because, contrary to *Diehr* in which the claims "describe in detail a step-by-step method for [curing rubber articles], beginning with the loading of a mold with raw, uncured rubber and ending with the eventual opening of the press at the conclusion of the cure" (*Diehr*, 450 U.S. at 184), Appellant's claims are silent as to any actual step of processing polyethylene resins. Thus, the issue is not that including a mathematical formula or use of a computer does not undercut subject matter

eligibility, but, rather, that there is not something significantly more than the abstract idea itself set forth in the claims. As discussed above, the value or usefulness of the claimed method is not dispositive of subject matter eligibility. *Flook*, 437 U.S. at 594–95.

Appellant's further reliance on *Thales* is similarly deficient. Reply Br. 18 (citing *Thales Visionix Inc. v. United States*, 850 F.3d 1343 (Fed. Cir. 2017). In *Thales*, the court found that "the claims [were] directed to a new and useful technique for using sensors" and determined that the claims were not rendered abstract because "a mathematical equation is required to complete the claimed method." *Id.* at 1349. The court explained that "[t]he claims specify a particular configuration of inertial sensors and a particular method of using the raw data from the sensors . . . [and] seek to protect only the application of physics to the unconventional configuration of sensors." *Id.* Appellant's claims differ from those in *Thales* because, as explained above, they are silent as to any actual step of processing polyethylene resins while Thales' claims "specify a particular configuration of inertial sensors and a particular method of using the raw data from the sensors" in carrying out the method. *Id.*

Appellant contends that the claims "improve another technology or technical field, namely processing of polyethylene resins." App. Br. 14–15 (citing *Diehr*, 450 U.S. 175; Spec. ¶¶ 5–8).

Appellant's arguments are not well-founded because, as explained above, the claims are silent as to any actual step of processing polyethylene resins, and the claims' reference to "improving processing of polyethylene resins" does not suffice. "[S]eeking patent protection for [a mathematical] 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." *Diehr*, 450 U.S. at 191 (citing *Benson* and *Flook*).

Accordingly, we sustain the Examiner's rejection of claims 1–20 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter.

DECISION

The Examiner's rejection of claims 1–20 under 35 U.S.C. § 101 is AFFIRMED.

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).

AFFIRMED