United States Court of Appeals for the Federal Circuit

YANBIN YU, ZHONGXUAN ZHANG,
Plaintiffs-Appellants

v.

APPLE INC.,
Defendant-Appellee

2020-1760

Appeal from the United States District Court for the Northern District of California in No. 3:18-cv-06181-JD, Judge James Donato.

YANBIN YU, ZHONGXUAN ZHANG,
Plaintiffs-Appellants

v.

SAMSUNG ELECTRONICS CO., LTD., SAMSUNG ELECTRONICS AMERICA, INC.,
Defendants-Appellees

2020-1803

Appeal from the United States District Court for the Northern District of California in No. 3:18-cv-06339-JD, Judge James Donato.

Decided: June 11, 2021

ROBERT G. LITTS, Dan Johnson Law Group, LLP, Burlingame, CA, argued for plaintiffs-appellants. Also represented by DANIEL JOHNSON, JR.

HEIDI LYN KEEFE, Cooley LLP, Palo Alto, CA, argued for all defendants-appellees. Defendant-appellee Apple Inc. also represented by DEEPA KANNAPPAN, LOWELL D. MEAD, PRIYA B. VISWANATH; PHILLIP EDWARD MORTON, Washington, DC.

DOUGLAS HALLWARD-DRIEMEIER, Ropes & Gray LLP, Washington, DC, for defendants-appellees Samsung Electronics Co., Ltd., Samsung Electronics America, Inc. Also represented by JAMES RICHARD BATCHELDER, DAVID S. CHUN, East Palo Alto, CA; STEVEN PEPE, New York, NY; SCOTT S. TAYLOR, Boston, MA.

Before NEWMAN, PROST*, and TARANTO, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* PROST.

Dissenting opinion filed by *Circuit Judge* NEWMAN.

PROST, *Circuit Judge*.

Yanbin Yu and Zhongxuan Zhang (collectively, "Yu") sued Apple and Samsung (collectively, "Defendants"),

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* Circuit Judge Sharon Prost vacated the position of Chief Judge on May 21, 2021.

alleging that Defendants infringed claims 1, 2, and 4 of U.S. Patent No. 6,611,289 ("the '289 patent"). The district court granted Defendants' motion to dismiss on the basis that the asserted claims were invalid under 35 U.S.C. § 101. Yu appeals. Because the district court did not err, we affirm.

BACKGROUND

The '289 patent is titled "Digital Cameras Using Multiple Sensors with Multiple Lenses." Claim 1 is representative[1] and recites:

> 1. An improved digital camera comprising:
>
> a first and a second image sensor closely positioned with respect to a common plane, said second image sensor sensitive to a full region of visible color spectrum;
>
> two lenses, each being mounted in front of one of said two image sensors;
>
> said first image sensor producing a first image and said second image sensor producing a second image;
>
> an analog-to-digital converting circuitry coupled to said first and said second image sensor and digitizing said first and said second intensity images to produce correspondingly a first digital image and a second digital image;

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[1] The district court treated claim 1 as representative for purposes of its eligibility analysis. Neither party disputes that treatment on appeal, and Yu does not separately argue the eligibility of dependent claims 2 or 4. We therefore treat claim 1 as representative for purposes of our eligibility analysis. *See Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1352 (Fed. Cir. 2016).

> an image memory, coupled to said analog-to-digital converting circuitry, for storing said first digital image and said second digital image; and
>
> a digital image processor, coupled to said image memory and receiving said first digital image and said second digital image, producing a resultant digital image from said first digital image enhanced with said second digital image.

Defendants filed a Rule 12(b)(6) motion to dismiss, which the district court granted with prejudice after concluding that each asserted claim was patent ineligible under § 101. The district court held that the asserted claims were directed to "the abstract idea of taking two pictures and using those pictures to enhance each other in some way." *Yu v. Apple Inc.*, Nos. 18-cv-6181, 18-cv-6339, 2020 WL 1429773, at *3 (N.D. Cal. Mar. 24, 2020) ("*District Court Opinion*"). The court explained that "photographers ha[ve] been using multiple pictures to enhance each other for over a century." *Id.* at *4. The district court further concluded that the asserted claims lack an inventive concept, noting "the complete absence of any facts showing that the[] [claimed] elements were not well-known, routine, and conventional." *Id.* at *6.

The district court entered judgment. Yu timely appealed. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review a district court's grant of a Rule 12(b)(6) motion under the law of the regional circuit. *Simio, LLC v. FlexSim Software Prods., Inc.*, 983 F.3d 1353, 1358 (Fed. Cir. 2020). Under Ninth Circuit law, we review such dismissals de novo, construing all allegations of material fact in the light most favorable to the nonmoving party. *Yagman v. Garcetti*, 852 F.3d 859, 863 (9th Cir. 2017). And we review de novo a district court's determination of patent

ineligibility under § 101. *Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1257 (Fed. Cir. 2017).

In analyzing whether claims are patent eligible under § 101, we employ the two-step *Mayo*/*Alice* framework. *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 217 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70–73 (2012). First, we determine whether a patent claim is directed to an unpatentable law of nature, natural phenomenon, or abstract idea. *Alice*, 573 U.S. at 217. If so, we then determine whether the claim nonetheless includes an "inventive concept" sufficient to "'transform the nature of the claim' into a patent-eligible application." *Id.* (quoting *Mayo*, 566 U.S. at 72, 78).

I

We begin our analysis with step one. We agree with the district court that claim 1 is directed to the abstract idea of taking two pictures (which may be at different exposures) and using one picture to enhance the other in some way. *See District Court Opinion*, 2020 WL 1429773, at *3, *6.

"We have approached the Step 1 directed to inquiry by asking what the patent asserts to be the focus of the claimed advance over the prior art. In conducting that inquiry, we must focus on the language of the [a]sserted [c]laims themselves, considered in light of the specification." *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1292 (Fed. Cir. 2020) (cleaned up). Given the claim language and the specification, we conclude that claim 1 is "directed to a result or effect that itself is the abstract idea and merely invoke[s] generic processes and machinery" rather than "a specific means or method that improves the relevant technology." *Smart Sys. Innovations, LLC v. Chi. Transit Authority*, 873 F.3d 1364, 1371 (Fed. Cir. 2017).

At the outset, we note that claim 1 results in "producing a resultant digital image from said first digital image

enhanced with said second digital image." Yu does not dispute that, as the district court observed, the idea and practice of using multiple pictures to enhance each other has been known by photographers for over a century. *See District Court Opinion*, 2020 WL 1429773, at *4. Rather, Yu contends that claim 1 is directed to a patent-eligible application of this idea as opposed to just the idea itself.

The claim's remaining limitations undercut Yu's contention. Only conventional camera components are recited to effectuate the resulting "enhanced" image—two image sensors, two lenses, an analog-to-digital converting circuitry, an image memory, and a digital image processor. Indeed, it is undisputed that these components were well-known and conventional. *See, e.g.*, Reply Br. 12 ("It is true that the individual digital camera components recited in the claims are themselves generic and conventional." (emphasis omitted)). And, as claimed, these conventional components perform only their basic functions (e.g., "said first image sensor producing a first image," "said second image sensor producing a second image," "an analog-to-digital converting circuitry [for] digitizing . . . images," "an image memory . . . for storing said first digital image and said second digital image") and are set forth at a high degree of generality. This is consistent with the specification's identification of the "great need for a *generic* solution that makes digital cameras capable of producing high resolution images without [high] cost." '289 patent col. 2 ll. 3–6 (emphasis added). What is claimed is simply a generic environment in which to carry out the abstract idea. *See In re TLI Commc'ns LLC Pat. Litig.*, 823 F.3d 607, 611 (Fed Cir. 2016) ("[T]he recited physical components merely provide a generic environment in which to carry out the abstract idea of classifying and storing digital images in an organized manner.").

Yu's contrary arguments are unpersuasive.[2] For example, Yu argues that the asserted claims "are directed to a patent-eligible improvement in digital camera functionality" by "providing a specific solution" to problems such as "low resolution caused by low pixel counts" and "inability to show vivid colors caused by limited pixel depth." Appellant's Br. 36–38; *see also id.* at 56. But claim 1's solution to those problems is the abstract idea itself—to take one image and "enhance" it with another. *See* '289 patent col. 10 ll. 54–58 ("[A] digital image processor . . . produc[es] a resultant digital image from said first digital image enhanced with said second digital image.").

Yu further points to portions of the specification to support the contention that the asserted advance in the claims is the particular configuration of lenses and image sensors. But "[e]ven a specification full of technical details about a physical invention may nonetheless conclude with claims that claim nothing more than the broad law or abstract idea underlying the claims." *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 769 (Fed. Cir. 2019). Such is the case here.

Each time the specification of the '289 patent suggests that a particular configuration is the asserted advance over the prior art, it does so in a four-lens, four-image-sensor configuration in which three of the sensors are color-specific while the fourth is a black-and-white sensor. *See* '289 patent col. 9 ll. 23–27 ("One of the key features of the

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[2] We note that Yu's claimed invention is couched as an improved machine (an "improved digital camera"). But whether a device is "a tangible system (in § 101 terms, a 'machine')" is not dispositive. *See Alice*, 573 U.S. at 224; *In re TLI Commc'ns*, 823 F.3d at 611 ("[N]ot every claim that recites concrete, tangible components escapes the reach of the abstract-idea inquiry."). As discussed herein, the focus of claim 1 is the abstract idea.

present multiple sensors is to use the intensity image from B/W sensor 308 to expand the dynamic ranges of images from sensors 302, 304 and 306 so as to increase overall dynamic range of the resultant color images."); *see also id.* at col. 10 ll. 17–25 ("What sets the present invention fundamentally apart from existing technologies is the use of the black-and-white intensity image from the image sensor with a full transparent filter or no filter at all. The B/W image sensor can capture full information including details that may be missed by those color image sensors."). Indeed, the portion of the specification describing the "many obvious benefits and advantages" of the "unique configuration" hinges on that particular four-lens, four-image-sensor configuration in which three of the sensors are color-specific while the fourth is a black-and-white sensor. *Id.* at col. 2 ll. 52–57 ("Second each of the image sensors is only responsible for one color; thereby the expensive process of coating a mosaic of selectively transmissive filters superimposed in pixel-based registration on one image sensor is eliminated and subsequently no micro-lenses process is needed."). Yet representative claim 1 requires only a two-lens, two-image-sensor configuration in which none of the image sensors must be color.[3] In these circumstances, the mismatch between the specification statements that Yu points to and the breadth of claim 1 underscores that the focus of the claimed advance is the abstract idea and not the particular configuration discussed in the specification that allegedly departs from the prior art.

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[3] In the '289 patent, a sensor "sensitive to a full region of visible color spectrum" is a black-and-white sensor. '289 patent claim 1; *see id.* at col. 2 ll. 39–49, col. 5 ll. 28–39, col. 10 ll. 17–23; Oral Arg. at 2:54–3:20, 19:05–46, No. 20-1760, http://oralarguments.cafc.uscourts.gov/default.aspx?fl=20-1760_03032021.mp3.

Accordingly, at step one, we agree with the district court that claim 1 of the '289 patent is directed to an abstract idea.

II

Turning to step two, we conclude that claim 1 does not include an inventive concept sufficient to transform the claimed abstract idea into a patent-eligible invention. Because claim 1 is recited at a high level of generality and merely invokes well-understood, routine, conventional components to apply the abstract idea identified above, *see, e.g.*, '289 patent claim 1; *id.* at col. 2 ll. 3–5; J.A. 117–20, claim 1 fails at step two, *see, e.g.*, *Alice*, 573 U.S. at 225–26; *Mayo*, 566 U.S. at 73; *see also, e.g.*, *In re TLI Commc'ns*, 823 F.3d at 615 (concluding patent claims ineligible at step two in part because "the recited physical components behave exactly as expected according to their ordinary use").

Yu's contrary arguments again fail. For example, Yu argues that "[t]he unconventional nature of the digital camera architecture is demonstrated by the prosecution history of the '289 Patent" because the asserted claims "were allowed . . . over multiple prior art references." Appellant's Br. 56. But even if claim 1 recites novel subject matter, that fact is insufficient by itself to confer eligibility. *See SAP Am., Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1163 (Fed. Cir. 2018); *Two-Way Media Ltd. v. Comcast Cable Commc'ns, LLC*, 874 F.3d 1329, 1340 (Fed. Cir. 2017) ("Eligibility and novelty are separate inquiries.").

Yu further argues that the claimed "hardware configuration is vital to performing the claimed image enhancement" and that, "[t]herefore, the claimed combination of limitations . . . is unconventional." Appellant's Br. 59. But the conclusion does not follow from the premise. Conventional computer equipment can be "vital" to an advance that is still abstract, but not suffice to avoid ineligibility at *Alice* step two. *See*, *e.g.*, *SAP*, 898 F.3d at 1168–70 (ineligibility holding where abstract, mathematical data

manipulation had to be implemented on computers, but only conventional computer equipment was required). Here, the *claimed* hardware configuration itself is not an advance and does not itself produce the asserted advance of enhancement of one image by another, which, as explained, is an abstract idea. The claimed configuration does not add sufficient substance to the underlying abstract idea of enhancement—the generic hardware limitations of claim 1 merely serve as "a conduit for the abstract idea." *In re TLI Commc'ns*, 823 F.3d at 612. In other words, "[t]he main problem that [Yu] cannot overcome is that the *claim*—as opposed to something purportedly described in the specification—is missing an inventive concept." *Two-Way Media*, 874 F.3d at 1338.

In sum, we see no inventive concept in claim 1 that would confer patent eligibility at step two.

III

Yu also argues that the district court erred at the pleadings stage in making certain adverse findings of fact and failing to accept certain allegations in the complaint. According to Yu, the district court (1) should not have considered the undisputed fact that the practice of using multiple pictures to enhance each other was well-known for over a century; (2) should not have ruled on the "highly complex" technology at issue without first hearing expert testimony; and (3) improperly disregarded Yu's allegations of patent eligibility.

Yu's arguments are misplaced. First, the district court's recognition at the pleadings stage in the context of § 101 of the century-old practice of using multiple pictures to enhance each other concerns a pertinent "fundamental . . . concept[] and technological development[] [and thus] is well supported by our precedents." *Affinity Labs of Tex., LLC v. Amazon.com Inc.*, 838 F.3d 1266, 1270 (Fed. Cir. 2016). Second, patent eligibility can be determined at the Rule 12(b)(6) stage without the aid of expert

testimony. *See, e.g.*, *Genetic Techs. Ltd. v. Merial L.L.C.*, 818 F.3d 1369, 1373–74 (Fed. Cir. 2016). It was not error for the district court to do so here. Last, "[i]n ruling on a 12(b)(6) motion, a court need not accept as true allegations that contradict matters properly subject to judicial notice or by exhibit, such as the claims and the patent specification." *Secured Mail Sols. LLC v. Universal Wilde, Inc.*, 873 F.3d 905, 913 (Fed. Cir. 2017) (cleaned up). Here, the district court considered the intrinsic record and concluded that the claims were directed to patent-ineligible subject matter, despite Yu's allegations to the contrary. This is not error.

CONCLUSION

We have considered Yu's remaining arguments and find them unpersuasive. In view of the foregoing, the judgment of the United States District Court for the Northern District of California is affirmed.

AFFIRMED

United States Court of Appeals for the Federal Circuit

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NEWMAN, *Circuit Judge*, dissenting.

The invention described and claimed in U.S. Patent No. 6,611,289 ("the '289 patent") is a digital camera having two lenses mounted in front of separate image sensors, with analog to digital conversion circuitry, a memory that stores the images, and a digital processor that enhances the images. This camera is a mechanical and electronic device of defined structure and mechanism; it is not an "abstract idea." Observation of the claims makes clear that they are for a specific digital camera:

> 1. An improved digital camera comprising:
>
> a first and second image sensor closely positioned with respect to a common plane, said second image sensor sensitive to a full region of visible color spectrum;
>
> two lenses, each being mounted in front of one of said two image sensors;
>
> said first image sensor producing a first image and said second image sensor producing a second image;
>
> an analog-to-digital converting circuitry coupled to said first and said second image sensor and digitizing said first and said second intensity images to produce correspondingly a first digital image and a second digital image;
>
> an image memory, coupled to said analog-to-digital converting circuitry, for storing said first digital image and said second digital image; and

> a digital image processor, coupled to said image memory and receiving said first digital image and said second digital image, producing a resultant digital image from said first digital image enhanced with said second digital image.
>
> 2. The improved digital camera as recited in claim 1, wherein said first image sensor sensitive to said full region of visible color spectrum.
>
> 4. The improved digital camera as recited in claim 1, wherein said analog-to-digital converting circuitry comprises two individual analog-to-digital converters, each integrated with one of said first and second image sensors so that said first and second digital images are digitized independently and in parallel to increase signal throughput rate.

The '289 patent specification states that the digital camera described therein achieves superior image definition. A statement of purpose or advantage does not convert a device into an abstract idea. From the court's further enlargement of Section 101 to deny access to patenting, and further obfuscation of the statute, I respectfully dissent.

DISCUSSION

The majority states that this digital camera is ineligible for consideration for patenting because "claim 1 is directed to the abstract idea of taking two pictures (which may be at different exposures) and using one picture to enhance the other in some way." Maj. Op. at 5. I repeat: claim 1 is for a digital camera having a designated structure and mechanism that perform specified functions; claim 1 is not for the general idea of enhancing camera images. The camera of the '289 patent may or may not ultimately satisfy all the substantive requirements of patentability, for this is an active field of technology. However, that does not convert a mechanical/electronic device into an abstract idea.

Section 101 states the general classes of patentable subject matter

The purpose of Section 101 is to define the subject matter of patents as distinguished from the subject matter of copyright—for both arise from the same clause of the Constitution. Section 101's words first appeared in the Patent Act of 1793, where the Act defined the subject matter of patents as "any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement on any art, machine, manufacture or composition of matter." Patent Act of 1793, ch. 11, § 1; 1 Stat. 318 (1793). Thomas Jefferson's words remain in today's statute; *see* 35 U.S.C. § 101 (defining patentable subject matter as "any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof.").

The issues here debated have long been settled. The Court in *Diamond v. Diehr*, 450 U.S. 175 (1981), discussed the codification of Section 101 in Title 35, and summarized:

> The Senate Report stated: "Section 101 sets forth the subject matter that can be patented, 'subject to the conditions and requirements of this title.' The conditions under which a patent may be obtained follow, and *Section 102 covers the conditions relating to novelty*."

Id. at 190 (emphasis in *Diehr*) (quoting S. Rep. No. 82-1979, at 5 (1952), *reprinted in* 1952 U.S.C.C.A.N. 2399). In contravention of this explicit distinction between Section 101 and Section 102, the majority now holds that the '289 camera is an abstract idea because the camera's components were well-known and conventional and perform only their basic functions. That is not the realm of Section 101 eligibility. The Supreme Court disposed of this position in *Diehr*:

> It has been urged that novelty is an appropriate consideration under § 101. Presumably, this argument results from the language in § 101 referring to any "new and useful" process, machine, etc. Section 101, however, is a general statement of the type of subject matter that is eligible for patent protection "subject to the conditions and requirements of this title." Specific conditions for patentability follow and § 102 covers in detail the conditions relating to novelty. The question therefore of whether a particular invention is novel is "wholly apart from whether the invention falls into a category of statutory subject matter."

Diehr, 450 U.S. at 189–90 (quoting *In re Bergy*, 596 F.2d 952, 961 (C.C.P.A. 1979), vacated as moot, *Diamond v. Chakrabarty*, 444 U.S. 1028 (1980)). I stress this history, for the principle that the majority today invokes was long ago discarded. A device that uses known components does not thereby become an abstract idea, and is not on that ground ineligible for access to patenting.

The "abstract idea" concept with respect to patent-eligibility is founded in the distinction between general principle and specific application. An oft-cited illustration is *O'Reilly v. Morse*, 56 U.S. 62 (1853), where the Court rejected Samuel Morse's claim 8 to the scientific principle he called "galvanic current," or electromagnetism, as used for printing at a distance. The Court explained:

> The eighth [claim] is too broad and covers too much ground. It is this. 'I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed, for making or printing intelligible characters, signs or letters at any distances, being a new

> application of that power, of which I claim to be the first inventor or discoverer.'

Id. However, the Court sustained Morse's claims to the structure and details of the invention that he named the telegraph.

Over the ensuing decades, this reasoning has solidified the foundations of eligibility, drawing on the fundamental distinction between breadth of general scientific principle, and its embodiment in practical application. This distinction between a general concept and its specific application is implemented in the Patent Act. Determination of patentability of a new device is not a matter of eligibility under Section 101, but of compliance with all the statutory provisions.

Patent-eligible subject matter must meet the substantive standards of patentability in order to receive a patent, but Section 101 ineligibility does not arise simply because a device embodies minor and predictable differences from the prior art, as the majority holds. Maj. Op. at 5–6. "The question . . . of whether a particular invention is novel is wholly apart from whether the invention falls into a category of statutory subject matter." *Diehr*, 450 U.S. at 190 (internal quotation marks and citation omitted).

As technology advanced, the Supreme Court was cognizant of the importance of technology to the nation's economy and well-being, and resolved significant new issues. For example, as the field of biotechnology evolved, the Court reiterated that Section 101 embraces any new or useful "manufacture" or "composition of matter," and reminded us that "Congress intended statutory subject matter to 'include anything under the sun that is made by man.'" *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980) (quoting S. Rep. No. 82-1979, at 5 (1952), *reprinted in* 1952 U.S.C.C.A.N. 2399; and H.R. Rep. No. 82-1923, at 6 (1952)).

And as litigation burgeoned in computer-implemented technologies, in *Alice Corp. Pty. Ltd. v. CLS Bank International*, 573 U.S. 208 (2014), the Court sought to provide guidance by proposing a two-step analytical process to distinguish abstract idea from specific embodiment. The *Alice* two-step analysis does not produce the majority's now-effected enlargement of Section 101.

In the current state of Section 101 jurisprudence, inconsistency and unpredictability of adjudication have destabilized technologic development in important fields of commerce. Although today's Section 101 uncertainties have arisen primarily in the biological and computer-implemented technologies, all fields are affected. The case before us enlarges this instability in all fields, for the court holds that the question of whether the components of a new device are well-known and conventional affects Section 101 eligibility, without reaching the patentability criteria of novelty and nonobviousness.

The digital camera described and claimed in the '289 patent is a mechanical/electronic device that easily fits the standard subject matter eligibility criteria. Neither the panel majority nor the district court decided patentability under Section 102 or Section 103, having eliminated the claims under Section 101. The '289 claims warrant review under the substantive criteria of patentability—a review that they have never received.

The fresh uncertainties engendered by the majority's revision of Section 101 are contrary to the statute and the weight of precedent, and contrary to the public's interest in a stable and effective patent incentive.

I respectfully dissent.