UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte DAN V. TEODORESCU[1]

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Appeal 2017-006327
Application 12/643,310
Technology Center 3700

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Before TONI R. SCHEINER, JEFFREY N. FREDMAN, and
JOHN G. NEW, *Administrative Patent Judges*.

SCHEINER, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of
claims directed to a graphical user interface. The Examiner rejected the
claims as directed to patent-ineligible subject matter, and as obvious. We
have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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[1] Appellant identifies "Alcon Research, Ltd. . . . owned by Novartis AG," as
the real party in interest. Br. 2.

BACKGROUND

The Specification, titled "Event Driven Configuration of a Surgical System Console" (Spec. 1), describes a graphical user interface "for modifying preprogrammed relationships between a plurality of subsystems of a surgical system" (*id.* at 3:2–3). For example, the user interface for an emulsification surgical system or console may comprise a display screen displaying representations of various surgical subsystems, such as a foot pedal subsystem, a fluidics subsystem, an aspiration vacuum, an irrigation system, an ultrasonic generator, a motorized intravenous pole subsystem, a pneumatic vitrectomy cutter subsystem, etc. *Id.* at 7:11–21. The configuration of the user interface allows a "user to identif[y] a first subsystem to monitor for a triggering event and a second subsystem to respond to the triggering event." *Id.* at 8:28–29. That is, "a user may select any desired event triggering subsystem and any desired responsive subsystem," where the triggering and responsive subsystems may be the same or different. *Id.* at 10:3–6. Thus, the configuration of the user interface "enable[s] a user to modify the relationships between different subsystems in the surgical console, thereby customizing subsystem responses and permitting a user to tailor the console to his or her own preferences" and "to control and operate the console in ways that were not conceived or considered during design of the console." *Id.* at 6:26–30.

The user interface may display a matrix or table which "include[s] one or more selectable triggering events . . . identifying a subsystem condition that selectively occurs during a surgical procedure performed with the surgical system" and "a plurality of selectable responses to the one or more selectable triggering events" to be performed by a selected responsive

subsystem. *Id.* at 3:4–8. For example, if the user selects the fluidics subsystem as the event triggering subsystem, triggering events may include full occlusion, occlusion break, or vacuum pressure exceeding or falling below a preset threshold. *Id.* at 10:21–24. Similarly, if the user selects the ultrasonic generator as the responsive subsystem, the selectable responses include an adjust power option, an adjust timing option, and a deliver pulse option. *Id.* at 10:28–31.

Finally, "the user interface further includes one or more selectable ending criteria for one or more of the plurality of selectable responses . . . [which] identify conditions for ending the response to the triggering event and resuming control of the subsystems based on the preprogrammed relationships." *Id.* at 3:11–14.

STATEMENT OF THE CASE

Claims 1, 4–6, 8, and 21–35 are on appeal; claims 2, 3, 7, and 9–20 have been canceled. Claim 1 is the sole independent claim, and each of dependent claims 4–6, 8, and 21–35 depends directly from claim 1.

Claim 1 is representative and reads as follows:

> 1. A graphical user interface presented on a system display screen, the graphical user interface comprising:
>
> a representation listing, shown on the display screen, of at least two of a plurality of subsystems of a surgical system, the representation listing configured for a user to select, through user interaction with the graphical user interface, a desired event triggering subsystem representation and a desired responsive subsystem representation;
>
> a plurality of user-selectable triggering event representations shown on the display screen, each of the plurality of user-selectable triggering event representations identifying a subsystem condition that occurs during a surgical

procedure performed with the surgical system, the plurality of user-selectable triggering event representations configured for the user to select, through user interaction with the graphical user interface, a user-selected triggering event; and

a plurality of user-selectable response representations, shown on the display screen, to the plurality of user-selectable triggering event representations, the plurality of user-selectable response representations configured for the user to select, through user interaction with the graphical user interface, a user-selected response representation, the user-selectable response representations representing user-selectable subsystem responses to perform when the user-selected triggering event is detected, wherein the user-selectable subsystem responses deviate from preprogrammed relationships between subsystems of the surgical system;

one or more user-selectable ending criteria representations, shown on the display screen, for one or more of the plurality of user-selectable response representations, the one or more user-selectable ending criteria representations configured for the user to select, through user interaction with the graphical user interface, a user-selected ending criteria, the ending criteria representations identifying one or more conditions for ending the user-selected response to the user-selected triggering event and resuming control of the subsystems based on the preprogrammed relationships,

wherein user interaction with the graphical user interface comprises the user selecting a graphical representation on the graphical user interface through a surgical system input device.

The claims stand rejected as follows:

Claims 1, 4–6, 8, and 21–35 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter;

Claims 1, 4, 5, 8, 22, 23, 27–29, 31, 34, and 35 under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Donofrio[2] and Boukhny;[3] and

Claims 6, 21, 24–26, 30, 32, and 33 as unpatentable over Donofrio, Boukhny, and Scheller.[4]

SUBJECT MATTER ELIGIBILITY

Issue

The issue raised by this rejection is whether the preponderance of the evidence supports the Examiner's finding that claims 1, 4–6, 8, and 21–35 are directed to patent-ineligible subject matter.

Principles of Law

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 held that "[l]aws of nature, natural phenomena, and abstract ideas" are not patentable under 35 U.S.C. § 101. *See, e.g., Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208, 216 (2014).

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[2] Donofrio et al., US Patent Application Publication 2008/0177152 A1, published July 24, 2008.

[3] Boukhny et al., US Patent Application Publication 2006/0248477 A1, published November 2, 2006.

[4] Scheller et al., U.S. Patent No. 4,933,843, issued June 12, 1990.

In determining whether a claim falls into an excluded category, we are guided by the Supreme Court's two-step framework, described in *Mayo* and *Alice*. 573 U.S. 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 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.").

Patent-ineligible abstract ideas 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)). In contrast, patent-eligible inventions include physical and chemical processes, such as "molding rubber products" (*Diamond v. Diehr*, 450 U.S. 175, 192 (1981)); "tanning, dyeing, making waterproof cloth, vulcanizing India rubber, smelting ores" (*id.* at 184 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 at 176; *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.").

Nevertheless, 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 USPTO recently published revised guidance on the application of § 101. USPTO, *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (January 7, 2019) ("Memorandum"). Under that guidance, we first 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

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(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, do we then 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 Memorandum.

Analysis

The Examiner rejected claims 1, 4–6, 8, and 21–35 as directed to patent-ineligible subject matter. According to the Examiner, "the claims are directed to a judicial exception" (Ans. 3), specifically, "an abstract idea since they are exploiting mathematical computations" (*id.* at 4, emphasis omitted). The Examiner acknowledges that "the claims set forth a 'graphical user interface', 'surgical system', [and a] 'display screen'" (*id.* at 13), but contends that "these elements individually or in combination, do not add significantly more to the abstract idea because they are merely a generic computer system to perform the abstract idea with a display attachment (i.e. 'display screen') which is a well-known device in order to display data" (*id.*, emphasis omitted).

We do not agree that the claims are directed to a patent-ineligible abstract idea. Claim 1, the sole independent claim, is directed to a system comprising a graphical user interface and a display screen. The system comprises a machine and, therefore, the claim is nominally directed to a

statutory category of invention. Moreover, we agree with Appellant that "the claims do not recite a mathematical formula" and "[n]o mathematical formula is evident from the claimed graphical user interface and the Examiner has not provided any reasoning to support his assertion that the claims are directed to a mathematical formula." Br. 5. Nor has the Examiner established that the claims are directed to any other group of abstract ideas, such as a method of organizing human activity or a mental process.

Furthermore, even if we agreed with the Examiner that claim 1 "exploit[s] mathematical computations," we determine that the claim integrates any such mathematical computations into a practical application. In particular, the claimed device is configured to allow a user to select a triggering event associated with a user-selected subsystem of a surgical system, and to select a particular subsystem response to the triggering event, such that the user can "deviate from preprogrammed relationships between subsystems of the surgical system." *See* claim 1.

Accordingly, a preponderance of the evidence does not support the Examiner's finding that the claims are directed to patent-ineligible subject matter. The rejection of claims 1, 4–6, 8, and 21–35 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter is reversed.

OBVIOUSNESS

Claims 1, 4, 5, 8, 22, 23, 27–29, 31, 34, and 35 stand rejected as unpatentable over Donofrio and Boukhny, and claims 6, 21, 24–26, 30, 32, and 33 stand rejected as unpatentable over Donofrio, Boukhny, and Scheller.

Overview of Donofrio

Donofrio discloses a conscious sedation system comprising a controller and a response testing apparatus. The controller may include an input (e.g., a touch screen) and text-to-speech software that generates an audible request or other message to a patient. For instance, a personalized message may address a sedated, but conscious patient by name, and instruct the patient how to respond to audible, tactile, or other stimulation during a medical procedure. Donofrio ¶¶ 146, 147. The controller input may also include a microphone to allow, *inter alia*, a specific person to record a message for the patient. *Id.* at ¶ 148. Finally, the response testing apparatus allows the patient to generate and/or communicate a response to the controller. *Id.* at ¶ 146.

Overview of Boukhny

Boukhny discloses "a user interface for an ocular surgical system, such as phacoemulsification and vitreo-retinal surgical systems, [which] includes a display element and a window that are displayed on the display screen." Boukhny ¶ 13. According to Boukhny, the user interface is an improvement on previously "known user interfaces [that] include buttons, arrows, switches, bars and/or knobs for setting desired numeric values of operating characteristics of the surgical system. *Id.* ¶ 6.

> The display element includes a representation of a parameter of pulses generated by the ocular surgical system relative to a position of [a] controller. The window is generated in response to touching the display screen. The window includes a display element that has a representation of the parameter of the pulses relative to the position of the controller and an adjustment element for changing a value of the parameter that is represented in the display element in the window. A current representation of the parameter displayed in the window is

changed to a different representation of the parameter in response to touching the display screen at the window. A value of the parameter is changed by touching the display screen at the adjustment element. After the user has adjusted the parameter, the window can be closed by touching the display screen at a pre-defined area of the window.

Id. ¶ 13.

Alternatively,

The display element includes a representation of a parameter of the pulses relative to a position of the foot pedal. The window is generated in response to touching the display screen of the system. The window includes a display element having a representation of the parameter of the pulses relative to the position of the controller and an adjustment element for changing a value of the parameter represented in the display element. At least three representations of the parameter are sequentially displayed in the display element in the window by touching the display screen at the display element in the window. This allows a user to scroll through the representations. The representation that is displayed in the display element in the window is the selected representation of the parameter. A value of the parameter is changed by touching the display screen at the adjustment element. After the parameter is adjusted, the window is closed by touching the display screen at a pre-defined area of the window.

Id. ¶ 14.

Analysis

With respect to claim 1, the Examiner contends that Donofrio discloses "a graphical user interface (input 712) presented on a system display screen (par. 0024 – touch screen)." Ans. 5. According to the Examiner:

[Donofrio's] representation, shown on the display screen, listing of at least two of a plurality of subsystems of a surgical

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> system, (- monitors of blood pressure, blood oxygen saturation,
> etc., touch screen which displays information) [is] configured
> for a user to select, through user interaction with the graphical
> user interface, a desired event triggering subsystem
> representation and a desired responsive subsystem
> representation (par. 0052).

Ans. 5 (citing Donofrio ¶ 52).

The Examiner acknowledges that Donofrio fails to disclose any other limitation of claim 1. That is, the Examiner contends that Donofrio discloses the preamble and first clause of claim 1, but acknowledges that Donofrio fails to disclose any other limitation of the claim, starting with "a plurality of user-selectable triggering event representations" and ending with "system input device." Ans. 6.

The Examiner cites Boukhny as disclosing a graphical user interface for an ocular surgical system with a window that includes:

> [A] display element having a representation of the parameter of
> the pulses relative to the position of the controller and an
> adjustment element for changing a value of the parameter
> represented in the display element. At least three
> representations of the parameter are sequentially displayed in
> the display element in the window by touching the display
> screen at the display element in the window. This allows a user
> to scroll through the representations. The representation that is
> displayed in the element in the window is the selected
> representation of the parameter. A value of the parameter is
> changed by touching the display screen at the adjustment
> element. After the parameter is adjusted, the window is closed
> by touching the display screen at a pre-defined area of the
> window.

Ans. 7 (quoting Boukhny ¶ 14; Examiner's emphasis omitted).

The Examiner concludes:

> It would have been obvious to one skilled in the art at the time of the invention to have further modified Donofrio to include the user-selected triggering events and representations as disclosed by Boukhny in order to being able to quickly adjust pulse parameters in an understandable manner also simplifies setting up the equipment, reduces operation costs and improve safety (see Boukhny, col. 3, lines 19–23[5]).

Ans. 8.

Appellant contends that neither Donofrio nor Boukhny teaches "a representation listing . . . of at least two of a plurality of subsystems of a surgical system, the representation listing configured for a user to select, through user interaction with the graphical user interface, a desired event triggering subsystem representation and a desired responsive subsystem representation," as recited in the first clause of claim 1. Br. 6. Appellant further contends that paragraph 52 of Donofrio, relied on by the Examiner for those limitations, "is directed primarily to unique identifiers for RF transmitters and appears to be wholly unrelated to graphical user interfaces." *Id.* (emphasis omitted).

Appellant contends that "Donofrio and Boukhny also do not teach at least 'user-selectable triggering event representations', 'user-selectable response representations', and 'user-selectable ending criteria' as recited in claim 1." *Id.* at 7 (emphases omitted). Appellant stresses that claim 1 requires that the plurality of user-selectable triggering event representations identify a subsystem condition that occurs during a surgical procedure performed with the surgical system, and that the user-selectable response

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[5] This appears to be a citation to paragraph 11 of Boukhny.

representations represent user-selectable subsystem responses to perform when the user-selected triggering event is detected. *Id.* Appellant contends that "Boukhny's dropdown menu" does not meet claim 1's requirement for these elements because Boukhny's "parameter values are specifically for 'the parameter of the pulses relative to the position of the controller' . . . which is a fixed relationship in the Boukhny graphical user interface." *Id.* (emphases omitted) (citing Boukhny ¶ 14).

Essentially, Appellant's position is that neither Donofrio nor Boukhny discloses a graphical user interface with representations of surgical subsystems, triggering events associated with the surgical subsystems, and subsystem responses to the triggering events—where the configuration of the representations on the graphical user interface allows a user to select a subsystem response to a triggering event that deviates from preprogrammed relationships between subsystems. Br. 6–7.

In response, the Examiner contends that:

> [T]he claim provide[s] a display screen that display[s] representations configured to be selected by a user. As an apparatus claim, the structural element (in this case the display screen) is configured to perform the functional elements in the claim. *The prior art, needs to be merely capable of performing the functions of the claim,* as Donofrio does.

Ans. 15 (original emphasis omitted; new emphasis added).

We are not persuaded that the Examiner has established that the teachings of Donofrio and Boukhny, even if combined as proposed by the Examiner, teach or suggest a graphical interface configured as required by the claims.

First, we agree with Appellant that paragraph 52 of Donofrio—although it contains the words "triggered" and "triggering"—is unrelated to

graphical user interfaces, or user-selectable triggering event representations.
Paragraph 52 merely discloses "a proximity-triggered unique identifier
imposed" when an RF transmitter and RF receiver are brought into
proximity to each other. *See* Donofrio ¶ 52. We further agree with
Appellant that the Examiner has not established that Donofrio teaches user-
selectable triggering event representations, user-selectable response
representations, and user-selectable ending criteria, as recited in claim 1.
Nor do we find paragraphs 147 and 148 of Donofrio—cited in response to
Appellant's argument on page 4 of the Answer—to be relevant to the
claimed subject matter, as the disclosed input and controller relate to audible
communication with a sedated, but conscious patient, rather than surgical
subsystems.

Boukhny, on the other hand, discloses a graphical user interface for an
ocular surgical system that "includes a display element and a window that
are displayed on the display screen," where "[t]he display element includes a
representation of a parameter of pulses generated by the ocular surgical
system relative to a position of the controller" or "foot pedal." (Boukhny
¶¶ 13, 14). "A value of the parameter is changed by touching the display
screen at the adjustment element." *Id.* Thus, we agree with the Examiner's
finding that Boukhny discloses a user interface with representations of
surgical subsystems and responses. Nevertheless, we do not agree that
Boukhny—alone, or in combination with Donofrio—teaches or suggests a
graphical user interface configured as required by claim 1.

The Federal Circuit has held that "configured to" is analogous to
"made to," "adapted to," and "designed to." *In re Man Mach. Interface
Techs. LLC*, 822 F.3d 1282, 1286 (Fed. Cir. 2016). In other words,

"configured to" has a narrower meaning than "capable of." Claim 1 requires a graphical user in interface with, *inter alia*, representations "*configured* for the user to select . . . a user-selected response representation . . . representing user-selectable subsystem responses to perform when [a] user-selected triggering event is detected wherein the user-selectable subsystem responses deviate from preprogrammed relationships between subsystems of the surgical system." Thus, we find that a person of ordinary skill in the art would understand that the claimed graphical user interface is specially designed to accomplish the specific purpose recited in the "configured" clauses of claim 1—i.e., it is specially designed to enable a user to select subsystem responses that deviate from preprogrammed relationships between subsystems of the surgical system. *See Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1349 (Fed. Cir. 2012) (using the terms "designed to" and "configured to" as "to accomplish a specific purpose"); *see also In re Giannelli*, 739 F.3d 1375, 1379 (Fed. Cir. 2014) (accord).

Appellant argues persuasively that Boukhny's representations of "parameter values are specifically for 'the parameter of the pulses relative to the position of the controller,'" and are in "a fixed relationship in the Boukhny graphical user interface." Br. 7 (emphases omitted) (citing Boukhny ¶ 14). We agree with Appellant that the Examiner has not established that the cited art teaches or suggests a graphical user interface configured to enable the user to select subsystem responses that deviate from preprogrammed relationships between subsystems of the surgical system, as required by claim 1, and dependent claims 4, 5, 8, 22, 23, 27–29, 31, 34, and 35.

We reverse the rejection of claims 1, 4, 5, 8, 22, 23, 27–29, 31, 34, and 35 as unpatentable over Donofrio and Boukhny, and the rejection of claims 6, 21, 24–26, 30, 32, and 33 as unpatentable over Donofrio, Boukhny, and Scheller.

SUMMARY

The rejection of claims 1, 4–6, 8, and 21–35 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter is reversed;

The rejection of claims 1, 4, 5, 8, 22, 23, 27–29, 31, 34, and 35 under 35 U.S.C. § 103 as unpatentable over Donofrio and Boukhny is reversed; and

The rejection of claims 6, 21, 24–26, 30, 32, and 33 under 35 U.S.C. § 103 as unpatentable over Donofrio, Boukhny, and Scheller is reversed.

REVERSED