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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* LESLEY SILVERTHORN MARINCOLA,  
BRYAN SILVERTHORN, F. IANNICE, KURT KUHLMANN,  
BRYAN DUGGAN, PETER ZULLO, and VICTORIA ARCH

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Appeal 2017-007854  
Application 13/722,197  
Technology Center 3600

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Before JOSEPH A. FISCHETTI, NINA L. MEDLOCK, and  
AMEE A. SHAH, *Administrative Patent Judges*.

SHAH, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

The Appellants<sup>2</sup> appeal under 35 U.S.C. § 134(a) from the Examiner's final decision rejecting claims 1–6, 8–13, 15, 16, 18–27, and 29–31. The Appellants' representative appeared for Oral Argument on May 8, 2019. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

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<sup>1</sup> Throughout this Decision, we refer to the Appellants' Appeal Brief ("Appeal Br.," filed Dec. 12, 2016), Reply Brief ("Reply Br.," filed Apr. 28, 2017), and Specification ("Spec.," filed Dec. 20, 2012), and to the Examiner's Answer ("Ans.," mailed Feb. 28, 2017) and Final Office Action ("Final Act.," mailed Jan. 15, 2016).

<sup>2</sup> According to the Appellants, the real party in interest is Angaza Design, Inc. Appeal Br. 3.

STATEMENT OF THE CASE

The Appellants' invention "relates to devices and methods for providing lighting and power to a consumer using pay-as-you-go technology . . . [that] allows for a user to pay for power and lighting on an incremental basis as they use the device." Spec ¶ 2.

Claims 1, 9, 16, and 19 are the independent claims on appeal. Claim 1 (Appeal Br. 47 (Claims App.)) is illustrative of the subject matter on appeal and is reproduced below (with added bracketing for reference):

1. A pay-as-you-go electrical apparatus for providing power to a connected device comprising:

[(a)] a power module configured to provide power to the connected device;

[(b)] a transceiver configured to transmit and receive audio-band signals for two-way communication between the electrical apparatus and the provider system through a mobile telephone;

[(c)] a control system comprising a processor and a memory configured to enable the electrical apparatus to provide power to the connected device when activated with usage credits, monitor usage of the electrical apparatus, track remaining usage credits, and disable the electrical apparatus from providing power to the connected device when there are no remaining usage credits; and

[(d)] a battery for providing power for the connected device to the power module;

[(e)] wherein the control system is configured to update usage credit information by generating encoded signals for transmission by the transceiver to the provider system through the mobile telephone and decoding encoded signals received by the transceiver from the provider system through the mobile telephone.

## REJECTIONS

Claims 1–6, 8, 16, 18–27, and 29–31 stand rejected under 35 U.S.C. § 101 as being directed to a judicial exception without significantly more.

Claim 16, 18, and 19–26 stand rejected under pre-AIA 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement.<sup>3</sup>

Claims 1, 2, 4, 5, 8, 9, 11, 12, 15, and 29–31 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Ricket (US 2012/0232714 A1, pub. Sept. 13, 2012), Betts-LaCroix et al. (US 2002/0194468 A1, pub. Dec. 19, 2002) (“Betts-LaCroix”), and Atsmon et al. (US 2006/0136544 A1, pub. June 22, 2006) (“Atsmon”).

Claims 3, 6, 10, and 13 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Ricket, Betts-LaCroix, Atsmon, and Chien (US 2014/0168985 A1, pub. June 19, 2014).

Claims 16 and 18 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Ricket, Betts-LaCroix, Atsmon, and Moore et al. (US 2013/0132267 A1, pub. May 23, 2013) (“Moore”).

Claims 19–26 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Moore, Ricket, Betts-LaCroix, and Atsmon.

Claim 27 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Ricket, Betts-LaCroix, Atsmon, and Urquhart (US 2011/0295706 A1, pub. Dec. 1, 2011).<sup>4</sup>

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<sup>3</sup> The application claims the filing date of provisional application 61/578,104, filed Dec. 20, 2011, and is thus considered pre-AIA.

<sup>4</sup> The rejection of claims 1–6, 8–13, 15, 16, 18–27, and 29–31 under 35 U.S.C. § 112, second paragraph, has been withdrawn. Ans. 2.

ANALYSIS

35 U.S.C. § 101 – Patent-Eligible Subject Matter

An invention is patent-eligible if it claims a “new and useful process, machine, manufacture, or composition of matter.” 35 U.S.C. § 101. However, the Supreme Court has long interpreted 35 U.S.C. § 101 to include implicit exceptions: “[l]aws of nature, natural phenomena, and abstract ideas” are not patentable. *Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 216 (2014) (internal quotation marks and 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, 67 (1972)). Concepts determined to be patent eligible include physical and chemical processes, such as “molding rubber products” (*Diamond v. Diehr*, 450 U.S. 175, 192 (1981)); “tanning, dyeing, making water-proof cloth, vulcanizing India rubber, smelting ores” (*id.* at 182 n.7 (quoting *Corning v. Burden*, 56 U.S.

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252, 267–68 (1853)); 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 (citation 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. 2019 REVISED PATENT SUBJECT MATTER ELIGIBILITY GUIDANCE, 84 Fed. Reg. 50 (Jan. 7, 2019) (“2019 Revised Guidance”). Under the 2019 Revised 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
- (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 2106.05(a)–(c), (e)–(h) (9th Ed., Rev. 08.2017, Jan. 2018)).

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* 2019 Revised Guidance.

Claims 1–6, 8, 27, and 29–31

*Step One of the Mayo/Alice Framework*

Under the first step of the *Mayo/Alice* framework, the Examiner looks to the language of claim 1 and the description in the Specification (*see* Final Act. 4–6; Ans. 10, 13–14) to determine that claim 1 is “directed to the abstract idea of a series of steps instructing how to pay for credits for purchasing power or light which is a fundamental economic practice and thus an abstract idea” (Final Act. 21) and “to paying for credits to purchase power or light as the pay as you go apparatus uses credits” (*id.* 4) (emphasis

omitted). When viewed through the lens of the 2019 Revised Guidance, the Examiner’s analysis depicts the claimed subject matter as one of the ineligible “[c]ertain methods of organizing human activity” that include “fundamental economic principles or practices . . . [and] commercial . . . interactions” under Prong One of Revised Step 2A. 2019 Revised Guidance, 84 Fed. Reg. at 52.

The Appellants disagree and contend that claim 1 “is directed to a pay-as-you-go electrical apparatus (for providing power to a connected device) that communicates with a provider system by transmitting and receiving audio-band signals, encoded with information, to and from a mobile telephone,” and that “claim 1 is directed to an apparatus, not an abstract idea.” Appeal Br. 12.

Under the first prong of step 2A of the 2019 Revised Guidance, we first determine if the claims recite an abstract idea. To do so, the Specification can be “helpful in illuminating what a claim is ‘directed to,’” but “reliance on the specification must always yield to the claim language in identifying that [true] focus” of the claim. *ChargePoint, Inc. v. SemaConnect, Inc.*, 920 F.3d 759, 766 (Fed. Cir. 2019). Here, an examination of the claim shows that independent claim 1 recites “[a] pay-as-you-go electrical apparatus for providing power to a connected device comprising:” (1) a power module providing power to the device (limitation (a)); (2) a system with a processor and memory enabling the apparatus to provide the power, monitor usage of the apparatus, track credits, disable the apparatus from providing power when there are no more credits, and update credit information by generating and transmitting encoded signals and decoded received signals through a transceiver

(limitations (b), (c) and (e)); and (3) a battery providing power to the power module (limitation (d)). *See* Appeal Br. 47 (Claims App.).

The Specification provides for “devices and methods for providing lighting and power to a consumer using pay-as-you-go technology . . . [that] allow[] for a user to pay for power and lighting on an incremental basis.” Spec. ¶ 2. The invention addresses the “need [that] exists for a safe and economical way of providing light and energy to base of pyramid households.” *Id.* ¶ 3. The Specification provides that the power module can be a phone charging jack or other power outlet or adapter to allow powering of an electrical device. *See id.* ¶¶ 31, 38; Appeal Br. 3. The transceiver can be an internal microphone or speaker that hears and processes tones. *See* Spec. ¶¶ 45, 60, 69, 70; Appeal Br. 3. The control system can be a system control board. *See* ¶¶ 41, 43; Appeal Br. 3–4. The battery can be a rechargeable battery, such a lithium-ion or lithium-ion-phosphate battery. *See* Spec. ¶¶ 31, 34; Appeal Br. 4.

Based on the foregoing, claim 1, under the broadest reasonable interpretation of the claim limitations, recites an apparatus comprising a power module such as an outlet, a transceiver, a control system, and a battery, i.e., an apparatus with structural components. Although the control system performs functions related to monitoring, tracking, and updating data, the apparatus of claim 1 does “more than simply instruct the practitioner to implement [an] abstract idea . . . on a generic computer.” *Alice*, 573 U.S. at 225. Even assuming the Examiner’s interpretation that claim 1 can encompass a generic laptop computer (*see* Ans. 3, 5) is correct, the claim recites the structural components of the apparatus; it does not recite an abstract idea that a generic computer simply implements.

Because we determine, under the first step of the *Alice* framework and under Step 2A, Prong 1 of the 2019 Revised Guidance, that claim 1 is directed to a structural apparatus that does not recite an abstract idea, we do not need to reach the second step of the *Alice* framework or Step 2A, Prong 2 and Step 2B of the 2019 Revised Guidance. We also do not sustain the Examiner’s rejection under 35 U.S.C. § 101 of independent claim 1 and dependent claims 2–6, 8, 27, and 29–31.

Claims 16 and 18–26

*Step One of the Mayo/Alice Framework*

Under the first step of the *Mayo/Alice* framework, the Examiner determines that claims 16 and 18–26 “are directed to the abstract idea of a series of steps instructing how to pay for credits for purchasing power or light which is a fundamental economic practice and thus an abstract idea.” Final Act. 21. When viewed through the lens of the 2019 Revised Guidance, the Examiner’s analysis depicts the claimed subject matter as one of the ineligible “[c]ertain methods of organizing human activity” that include “fundamental economic principles or practices . . . [and] commercial . . . interactions” under Prong One of Revised Step 2A. 2019 Revised Guidance, 84 Fed. Reg. at 52.

The Appellants contend that the rejection of claims 16, 18, and 19–26 should be reversed for “analogous reasons” presented for apparatus claim 1, because “[c]laims 16 and 19 similarly recite communication between the apparatus and the provider system using audio-band signals through a mobile telephone.” Appeal Br. 19–20; Reply Br. 6.

Under the first prong of step 2A of the 2019 Revised Guidance, we first determine if the claims recite an abstract idea. Here, an examination of the claims shows that independent claim 16 recites “[a] method performed

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by a pay-as-you-go lighting apparatus comprising:” (1) obtaining a user’s energy credit information from a provider system by receiving signals from a mobile telephone; (2) enabling the apparatus to provide lighting when activated with usage credits in accordance with the obtained information; and (3) transferring usage information to the provide by transmitting signals to the telephone. *See* Appeal Br. 49 (Claims App.). Dependent claim 18 further provides that the signals comprise location identifying data. *See id.* Independent claim 19 recites “[a] method performed by a provider system of managing pay-as-you-go lighting apparatuses, comprising:” (1) receiving a user-associated payment message; (2) encoding a message with energy credit information based on the payment message for transmitting over audio-band signals; (3) transmitting the encoded message to the apparatus through a mobile telephone; and (4) receiving over the telephone network as message sent by the apparatus over signals through the telephone. *See id.* at 49–50 (Claims App.). Dependent claims 20–26 further define the payment and encoded messages and recite further limitations of associating the payment message with an account, initiating a telephone call, aggregating data, updating profile data, identifying apparatuses with overdue payments, and messaging users about overdue payment. *See id.* at 50–51. The claims do not recite details on the apparatuses performing the methods and recite the results of the functions without providing details on how, i.e., by what algorithm or on what basis/method, the obtaining, enabling, and encoding functions are performed.

The Specification provides for “devices and methods for providing lighting and power to a consumer using pay-as-you-go technology . . . [that] allows for a user to pay for power and lighting on an incremental basis.” Spec. ¶ 2. The Specification discusses the existing problems of households

at the base of the socio-economic pyramid lacking access to electricity and spending “up to 30% of their income on expensive batteries and low-quality, dangerous fuel-based sources of light, such as kerosene, to meet their energy needs.” *Id.* ¶ 3. The Specification also describes barriers to energy access in developing countries of: “1) a lack of effective customer financing for high-performance, high-quality solar energy products; and 2) the inability of for-profit companies to expand and grow if operating under slim sales margins and a reliance on large volume sales to counteract these small margins.” *Id.* ¶ 5. The invention ostensibly addresses the “need [that] exists for a safe and economical way of providing light and energy to base of pyramid households” (*id.* ¶ 3) and the barriers (*id.* ¶ 6), and “allows for solar lighting and power systems to be within the financial reach of households that were previously dependent upon kerosene for lighting by allowing these household to pay for lighting systems in small increments over time at a cost less than they currently pay for kerosene” (*id.*). Thus, the Specification suggests that the problems facing the inventor were to provide an economical way of providing safe energy so as to be within the financial reach of households on the lower socio-economic scale by paying incrementally.

Based on the foregoing, claim 16, under the broadest reasonable interpretation of the claim’s limitations, recites a method comprising obtaining and transmitting credit information by signals through a mobile telephone and enabling an apparatus to provide lighting based on the information. Claim 19, under the broadest reasonable interpretation of the claim’s limitations, recites a method of managing an apparatus comprising receiving, encoding, and transmitting messages with payment and credit information by signals through a mobile telephone. As such, claims 16

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and 19 recite methods for communicating payment and credit information between an apparatus and provider system using audio-band signals through a mobile telephone, similar to the Appellants' characterization of "communicat[ing] between the apparatus and the provider system using audio-band signals through a mobile telephone."<sup>5</sup> Appeal Br. 19–20; Reply Br. 6. The limitations of receiving and obtaining payment and credit information, encoding messages with the information, and transmitting signals are ordinarily performed in communicating between systems. The limitation of enabling an apparatus to function based on the credit information received is a post-solution activity and an activity ordinarily performed in commercial interactions, similar to providing a service based on payment or credit. Communicating payment and credit information using signals through a mobile telephone is similar to the concepts of communicating and receiving requests to and from a remote server related to turning on and off charge transfer for electric vehicles in *ChargePoint*, 920 F.3d at 767–77, and of acquiring and using information from a bankcard and denying access based on a determination of invalidity in *Smart Systems Innovations, LLC v. Chicago Transit Authority*, 873 F.3d 1364, 1371–72 (Fed. Cir. 2017). Accordingly, we conclude the claims recite a way of communicating payment and credit information through a mobile telephone, which is a commercial interaction, one of the certain methods of organizing

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<sup>5</sup> We note that although the description of the abstract idea may differ from the Examiner's characterization, "[a]n abstract idea can generally be described at different levels of abstraction." *Apple, Inc. v. Ameranth, Inc.*, 842 F.3d 1229, 1240 (Fed. Cir. 2016). The Board's "slight revision of its abstract idea analysis does not impact the patentability analysis." *Id.* at 1241.

human activity as identified in the 2019 Revised Guidance (84 Fed. Reg. at 52).

Under Step 2A, Prong 2 of the 2019 Revised Guidance (84 Fed. Reg. at 54), we look to whether the claims “apply, rely on, or use the judicial exception in a manner that imposes a meaningful limit on the judicial exception, such that the claim is more than a drafting effort designed to monopolize the judicial exception,” i.e., “integrates the . . . judicial exception into a practical application.” Here, the Appellants contend that the claims are not abstract because they are “directed to an **apparatus**, not an abstract idea.” Appeal Br. 12; *see also id.* at 14 (“Claim 1 recites a specific device that does concrete, tangible, non-generic things. The device of claim 1 makes noises and provides power to a connected device.”).

However, claims 16 and 19 do not recite structural elements, but rather steps performed by some undefined apparatus using a mobile telephone. “Ultimately, ‘[t]he § 101 inquiry must focus on the language of the Asserted Claims themselves,’ . . . and the specification cannot be used to import details from the specification if those details are not claimed.” *ChargePoint*, 920 F.3d at 769 (quoting *Synopsis Inc. v. Mentor Graphics Corp.*, 839 F3d. 1138, 1149 (Fed. Cir. 2016)). As noted above, the invention addresses an economical problem, not a technological one. The Specification does not suggest that the methods technologically improve an apparatus or mobile telephone itself, that the apparatus or phone would operate differently than it otherwise conventionally operates, or that the invention involves overcoming a technical difficulty by communicating via audio-band signals. *See id.*, 920 F.3d at 768. Here, simply tying the steps to a generic apparatus and mobile telephone, as recited in claims 16 and 19, does not make the claims not abstract. *See Alice*, 573 U.S. at 223–24 (the

mere recitation of a computer to implement an abstract idea does not impart patent-eligibility); *In re TLI Commc'ns Patent Litig.*, 823 F.3d 607, 611 (Fed. Cir. 2016). (“[N]ot every claim that recites concrete, tangible components escapes the reach of the abstract-idea inquiry.”).

The Appellants also contend that the elements of claim 1 of “communicating with a provider system by transmitting and receiving audio-band signals through a mobile telephone” and “[e]nabling and disabling power delivery to a connected device based on this communication . . . are clearly much more than merely reciting performance of the abstract idea—paying for credits for purchasing power or light— by a generic computer using generic computer functions.”<sup>6</sup> Appeal Br. 17. However, the Appellants do not provide evidence or technical reasoning how or why the elements of claims 16 and 19 “reflect[] an improvement to the functioning of [the apparatus], or . . . to other technology or technical field,” implement or use the judicial exception in conjunction with the claimed apparatus and mobile phone that is integral to the claim, or “appl[y] or use[] the judicial exception in some other meaningful way beyond generally linking the use of the judicial exception to a particular technological environment.” 2019 Revised Guidance, 84 Fed. Reg. at 55.

The Appellants do contend that the specific technological features of claim 1 of a transceiver transmitting and receiving audio-based signals and a system updating usage credit information by generating and transmitting

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<sup>6</sup> We acknowledge that some of these considerations may be properly evaluated under Step 2 of *Alice* (Step 2B of Office guidance). Solely for purposes of maintaining consistent treatment within the Office, we evaluate them under Step 1 of *Alice* (Step 2A of Office guidance). See 2019 Revised Guidance, 84 Fed. Reg. at 55.

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encoded signals and decoding received signals provide an improvement to the technological field of power delivery and improve the functioning of the computer itself. Appeal Br. 17–18; *see also* Reply Br. 5–6. However, these technological features are not present in claims 16 and 19. Moreover, as the Appellants acknowledge, any alleged improvement is an economic improvement, i.e., “reduc[ing] the cost of the apparatus by eliminating the need for expensive cellular communication capability” (Appeal Br. at 18), not a technological improvement or improvement in the functioning of the claimed apparatus itself.

The Appellants’ further contention that the claims apply the judicial exception in reciting “a particular, non-generic machine” (Appeal Br. 18–19) does not address how the “particular, non-generic machine” comprising an apparatus and mobile telephone applies the abstract idea in a meaningful way beyond generally linking the components to the technological environment of enabling lighting, which without more is insufficient to transform the claim into a patent-eligible application of the abstract idea. *See ChargePoint*, 920 F.3d at 768 (limiting the claims to the particular technological environment of charging stations); *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1354 (Fed. Cir. 2016), *cert. denied*, 137 S. Ct. 1230 (2017) (“limiting the claims to the particular technological environment of power-grid monitoring is, without more, insufficient to transform them into patent-eligible applications of the abstract idea at their core.”); *Affinity Labs of Texas, LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1258–59 (Fed. Cir. 2016) (confining the abstract idea to the particular technological environment of cellular telephones does not render the claim less abstract).

*Step Two of the Mayo/Alice Framework*

Under the second step in the *Mayo/Alice* framework and Step 2B of the 2019 Revised Guidance, we find supported the Examiner’s determination that “considered separately and in combination, the generically recited computer elements do not add meaningful limitations to the abstract idea because they would be routine in any computer implementation and therefore they do not add significantly more to the abstract idea itself.” Final Act. 21; *see also* Ans. 10–11, 19–21.

We note that, as discussed above, the claims simply recite the functional results to be achieved by an undefined, generic apparatus and a conventional mobile telephone. The claims “provide[] only a result-oriented solution[] with insufficient detail for how a computer accomplishes it. Our law demands more.” *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1342 (Fed. Cir. 2017). The Appellants do not provide support or reasoning as to how any of the functions of the claims “[a]dd[] a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field.” 2019 Revised Guidance, 84 Fed. Reg. at 56. The claimed apparatus and mobile telephone operate in their ordinary and conventional capacities to perform the well-understood, routine, and conventional functions of providing, transmitting, and receiving signals and enabling an action based on the information received. *See Affinity Labs v. DIRECTV, LLC*, 838 F.3d at 1262 (the claim recites “routine functions, such as transmitting and receiving signals, to implement the underlying idea”); *Alice*, 573 U.S. at 226 (“Nearly every computer will include a ‘communications controller’ and ‘data storage unit’ capable of performing the basic calculation, storage, and transmission functions required by the method claims.”).

Based on the foregoing, we are not persuaded that the Examiner erred in rejecting independent claims 16 and 18–26 under 35 U.S.C. § 101, and we sustain the rejection of these claims.

35 U.S.C. § 112, first paragraph – Written Description

The Examiner rejects independent claims 16 and 19 and dependent claims 18 and 20–26 as failing to comply with the written description requirement of 35 U.S.C. § 112, first paragraph, because the Specification does not provide support for the limitations of a “first set of audio-band signals” received and a “second set of audio-band signals” transmitted. Final Act. 22.

The Appellants contend that the Examiner “misconstru[es] claim 16 as requiring two sets of bands” (Appeal Br. 20), whereas the claim requires “two sets of signals that are audio-band” (*id.* at 21), which is adequately supported in the Specification at paragraph 7 (*id.*). Specifically, the Appellants contend that the Specification provides that “[b]ecause the information received is different from the information transmitted, the noises received are different from the noises transmitted. Therefore, a first set of noises is received, while a second set (i.e., a set that is different from the first set) of noises is transmitted.” *Id.*

Claim 16 requires, in relevant part, obtaining energy credit information “by receiving a first set of audio-band signals from a mobile telephone” and transferring usage information “by transmitting a second set of audio-band signals that comprise the usage information to the mobile telephone.” Appeal Br. 49 (Claims App.). Claim 19 recites similar limitations. *See id.* at 51. Paragraph 7 of the Specification provides that a customer initiates sending the provider a payment, and once payment is received, the provider initiates a voice call to the customer’s cell phone to

activate the apparatus for a proportional amount of energy credit based on the payment. *See* Spec. ¶ 7. “Using FSK technology (Frequency-Shift Keying – or the transmission of information through discrete frequency changes in audible noise), high-frequency audible noises are played through the speaker on the cell phone and received by an internal microphone in the lighting system,” the noises are then decoded and light enabled for a specified amount of time. *Id.* The apparatus stores usage and diagnostic data and “can transmit these data back to the provider using the cellular network” by encoding the data “into high-frequency noise that is then transmitted back to the provider through the customer’s open voice call channel.” *Id.* ¶ 8.

The Specification, thus, provides for the apparatus receiving one set of noise/audio signals regarding an amount of energy credit and transmitting another set of noise/audio signals regarding usage data. As such, we agree with the Appellants that the Specification provides adequate written description support.

Based on the foregoing, we are persuaded that the Examiner erred in rejecting independent claims 16 and 19 under 35 U.S.C. § 112, first paragraph, and we do not sustain the rejection of claims 1 and 19 and of dependent claims 18 and 20–26.

35 U.S.C. § 103(a) – Obviousness

Claims 1, 2, 4, 5, 8, 9, 11, 12, 15, and 29–31

The Appellants argue claims 1, 2, 4, 5, 8, 9, 11, 12, 15, and 29–31 as a group. *See* Appeal Br. 30, 33. We select claim 1 from the group with the remaining claims standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Appellants contend that the Examiner's rejection of independent claim 1 is in error "because the references fail to disclose or suggest 'update[ing] usage credit information by generating encoded signals for transmission by the transceiver to the provider system [using audio-band signals],' as recited in claim 1," limitations (c) and (e). Appeal Br. 30 (alterations in original).

The Examiner finds, in relevant part, that Ricket teaches updating usage credit information and receiving audio signals using a transceiver. Final Act. 27 (citing Ricket ¶ 18); *see also* Ans. 32 ("The primary art of Ricket teaches usage monitoring and adjusting usage threshold based on receipt of payment confirmation."). The Examiner acknowledges that Ricket "does not teach sending audio signals using a transceiver (speaker)." The Examiner relies on Betts-LaCroix and Atsmon for teaching sending and receiving, i.e., communicating through, encoded audio information. Final Act. 27–29 (citing Betts-LaCroix ¶ 105, Fig. 5A; Atsmon ¶¶ 22, 24, 179, 187); Ans. 32. Specifically, the Examiner finds that Betts-LaCroix and Atsmon teach that "communicating using encoded audio signals is not novel but involves 'using standard components . . .'" Ans. 34. The Examiner determines that one of ordinary skill in the art would modify Ricket with "the ability to have a speaker as taught by Betts-LaCroix et al." for the reasons that it is a combination of old elements, each element would have performed the same function as it did separately, the results of the combination are predictable, and for the "financial benefit. . . [of] not requiring wiring an apparatus for only one way communication that could be accomplished over a mobile phone with audio signals." Final Act. 28. The Examiner determines that one of ordinary skill in the art would modify the combination of Ricket and Betts-LaCroix with "the ability to use mobile

devices to control devices acoustically as taught by Atsmon et al.” for the reasons that it is a combination of old elements, each element would have performed the same function as it did separately, the results of the combination are predictable, and because “the devices benefit by taking advantage of such communication capability” of both a microphone and a speaker. Final Act. 31.

Ricket discloses, in relevant part, an appliance usage monitoring system that “tracks a usage threshold that determines how much the appliance may be used before the appliance is to be placed into a disabled state.” Ricket ¶ 18. “The usage threshold may be adjustable based on receipt of confirmation of payment to the application provider.” *Id.* For example, the usage threshold may be extended based on receipt of confirmation of payment. *See id.* Betts-LaCroix discloses, in relevant part, a communication module with “a low power wireless communication circuit 522 of sufficient bandwidth to transmit encoded audio information, such as a Bluetooth circuit.” Betts-LaCroix ¶ 105. Atsmon discloses, in relevant part, a transducer that can act as both a receiver and transmitter (Atsmon ¶ 22), a wireless telephone interpreting computer-information encoding signals (*id.* ¶ 24), a computer and device operative to communicate using sound waves (*id.* ¶ 179), and an acoustic mechanism that can be used to transmitting billing and payment information (*id.* ¶ 187).

Thus, the prior art teaches tracking, monitoring, and updating usage information, disabling an appliance based on that information, transmitting encoded information, and using a wireless telephone to communicate billing and payment information via sound waves. The Appellants’ argument that “Ricket fails to disclose or suggest ‘update[ing] usage credit information by generating encoded signals for transmission by the transceiver to the

provider system [using audio-band signals],’ as recited in claim 1” (Appeal Br. 32 (alterations in original)), because Ricket does not disclose transmitting audio-band signals (*see id.* at 31) is unpersuasive because it is an argument against Ricket individually when the Examiner relies on the combination of Ricket, Betts-LaCroix, and Atsmon for teaching the limitation (*see* Final Act. 27–31; Ans. 32–34). One cannot show non-obviousness by attacking the references individually when the rejection is based on a combination of the references. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). The Appellants’ argument does not address how or why the combination is in error.

To the extent the Appellants argue that the prior art Betts-LaCroix and Atsmon are not analogous art (*see* Reply Br. 7 (“Betts-LaCroix and Atsmon have nothing to do with pay-as-you-go devices”)), we disagree. The Appellants have not provided evidence or technical reasoning that the prior art is not from the same field of the Appellants’ endeavor or is not reasonably pertinent to the particular problem with which the Appellants are involved. *In re Klein*, 647 F.3d 1343, 1348 (Fed. Cir. 2011).

Based on the foregoing, we are not persuaded that the Examiner erred in rejecting independent claim 1 under 35 U.S.C. § 103(a), and we sustain the rejections of claim 1 and of claims 2, 4, 5, 8, 9, 11, 12, 15, and 29–31, which stand with claim 1.

Claims 3, 6, 10, 13, and 27

The Appellants contend that the Examiner’s rejections of dependent claims 3, 6, 10, 13, and 27 are in error for the same reasons the rejection of claims 1 and 9 is in error (*see* Appeal Br. 30), i.e., “for their respective dependencies” (*id.* at 32). Because we are not persuaded of any deficiencies

in the rejection of claims 1 and 9, we are also not persuaded of error in the Examiner's rejections under 35 U.S.C. § 103 of claims 3, 6, 10, 13, and 27.

Claims 16 and 18

The Appellants contend that the Examiner's rejection of independent claim 16 and dependent claim 18 is in error because Betts-LaCroix does not disclose or suggest the limitation of transmitting a second set of audio-band signals that comprise usage information, and because Moore and Atsmon "teaches away from 'transferring usage information concerning usage of the lighting apparatus to the provider system by transmitting a second set of audio-band signals that comprise the usage information to the mobile telephone.'" Appeal Br. 33–34, 36–41.

Claim 16 recites a method comprising, in relevant part, obtaining credit information from a provider by a first set of audio-band signals from a mobile telephone and transferring usage information by transmitting a second set of audio-band signals to the provider. *See* Appeal Br. 49 (Claims App.). Claim 18 provides for the audio-band signals to comprise a specific type of data, i.e., location identifying data. *See id.* The Examiner finds, in relevant part, that Ricket teaches obtaining credit information by receiving a first set of audio-band signals (Final Act. 38 (citing Ricket ¶ 24)), tracking and monitoring usage information (*id.* 39 (citing Ricket ¶¶ 17, 18)) and "receiving audio signals using a transceiver (microphone)" (*id.* at 40). The Examiner acknowledges that Ricket does not teach "transferring usage information to provider" (*id.* at 39) and relies on Moore to teach "the ability to communicate with the service provider" (*id.* at 40). The Examiner also acknowledges that Ricket and Moore do not teach "sending audio signals using a transceiver (speaker)." *Id.* Similar to claim 1, the Examiner relies on Betts-LaCroix and Atsmon for teaching sending and receiving, i.e.,

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communicating through, encoded audio information. *See id.* at 40–44 (citing Betts-LaCroix ¶ 105, Fig. 5A; Atsmon ¶¶ 22, 24, 179, 187); *see also* Appeal Br. 37 (acknowledging the combination).

The Appellants’ argument that “Betts-LaCroix does not disclose or suggest transmitting audio-band signals” (Appeal Br. 34), because Betts-LaCroix uses microwave signals and not audio band signals (*id.*) is unpersuasive. Betts-LaCroix discloses that “communication module **518** includes a low power wireless communication circuit **522** of sufficient bandwidth to transmit encoded audio information, such as a Bluetooth circuit.” Betts-LaCroix ¶ 105. The “Bluetooth circuit” is an example of a circuit; Betts-LaCroix does not disclose that the encoded audio signals are transmitted via microwave signals. Further, the Appellants argue against Betts-LaCroix individually when the Examiner relies on the combination of Ricket, Moore, Betts-LaCroix, and Atsmon for teaching the limitation. *See* Final Act. 38–44. The Appellants do not address how or why the combination is in error, or how or why the signal transmitting usage information is not a separate audio signal from the obtaining credit signal. *See* Ans. 36.

We further find unpersuasive of Examiner error the Appellants’ argument that “Moore teaches away from ‘transmitting a second set of audio-band signals that comprise the usage information to the mobile telephone’,” because “such a modification [of using audio-band signals] eliminates the ability of [Moore’s] pay-as-you-go device to communicate with the provider system without a user’s intervention.” Appeal Br. 36–37. The Examiner relies on Moore only “to teach transferring usage information to a provider.” Ans. 42. The rejection is not based on a bodily incorporation of Moore’s pay-as-you-go apparatus into Ricket’s apparatus. *See In re*

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*Keller*, 642 F.2d at 425 (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference. . . . Rather, the test is what the combined teachings of those references would have suggested to those of ordinary skill in the art.”); *In re Nevelt*, 482 F.2d 965, 968 (CCPA 1973) (“Combining the teachings of references does not involve an ability to combine their specific structures.”).

Moreover, the Appellants do not show how or where Moore criticizes, discredits, or otherwise discourages the use of audio-band signals. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). The portions of Moore relied on by the Appellants (*see* Appeal Br. 37–39 (citing Moore ¶¶ 22, 37, 47, 49, 71)) discuss a control unit of a solar powered lamp comprising an antenna connected to a modem, such as a radio unit, that is connected to a SIM (Moore ¶ 22), the lamp communicating a message with an identification number to the system in the event available credit is not available (*id.* ¶ 37), sending usage information to the system to track and monitor usage and changing the operational state based on the information (*id.* ¶¶ 47, 49), and that conserving some charge in the battery has benefits such as maintaining communications and continuing tamper alerts (*id.* ¶ 71). Even if, as the Appellants state, Moore’s “lamp 200 communicates with a transaction processing system 300 using built-in cellular communication components, which means that lamp 200 communicates via radio signals, not audio-band signals as recited in claim 16” (Appeal Br. 37), and places “importance” on this built-in feature (*id.* at 39), this does not criticize, discredit, or otherwise discourage, i.e., teach away from, the use of radio-band signals over a mobile telephone.

For similar reasons, we are also not persuaded by the Appellants’ argument that *Atsmon* teaches away from transmitting a second set of audio-

band signals with usage information. *See* Appeal Br. 40–41. Even if Atsmon teaches using hardware already built into device, Atsmon does not criticize, discredit, or otherwise discourage, i.e., teach away from, the use of radio-band signals. We note that the claims do not recite specific components of the apparatus. And the Appellants’ argument that “[t]he advantage of Atsmon’s method would not apply to Ricket because Ricket does not have speakers or the electronics necessary to ‘transmit[] a second set of audio-band signals that comprise the usage information to the mobile telephone’” (*id.* at 40) is an argument against the combination of Ricket and Atsmon whereas the Examiner relies on the combination of Ricket, Betts-LaCroix, and Atsmon for teaching the limitation. Further, that there may be “inferiority of Atsmon’s audio-band signal communication relative to Moore’s cellular communication” (*id.* at 41), as the Appellants contend, does not mean that Atsmon teaches away from Moore or Ricket. *See, e.g., In re Gurley*, 27 F.3d 551, 554 (Fed. Cir. 1994) (“[a] known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use.”).

Based on the foregoing, we are not persuaded that the Examiner erred in rejecting independent claim 16 and dependent claim 18 under 35 U.S.C. § 103(a), and we sustain the rejections of claims 16 and 18.

#### Claims 19–26

The Appellants argue claims 19–26 as a group. *See* Appeal Br. 42, 45. We select claim 19 from the group with the remaining claims standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Appellants contend that “[f]or reasons analogous to those provided above with respect” to claim 16, “the Examiner’s proposed modification of Moore would not have been obvious because Moore teaches

away from ‘a message sent by the pay-as-you-go lighting apparatus over a second set of audio-band signals through the mobile telephone.’” Appeal Br. 42–43. The Appellants also contend that Atsmon teaches away from Moore. *Id.* at 45. For the reasons provided above with respect to claim 16, i.e., that neither Moore nor Atsmon criticizes, discredits, or otherwise discourages the use of radio-band signals, this argument is not persuasive of Examiner error.

The Appellants also contend that the Examiner’s rejection of independent claim 19 is in error because “the proposed modification . . . would render Moore’s device unsatisfactory for its intended purpose and would change the principle of operation of Moore’s device.” Appeal Br. 43. We disagree for at least the following reasons.

Claim 19 recites a method performed by a system of managing an apparatus comprising receiving a payment message, encoding an energy credit message, transmitting the encoded message through a mobile phone, and receiving over the telephone network a message sent by the apparatus over a second set of audio-band signals. *See id.* at 49–50 (Claims App.). The claim does not recite specific structure or components of the apparatus. The Examiner relies on Moore to teach receiving a payment message, “transmitting encoded (RF) messages,” and “receiving and sending credit messages.” Final Act. 45–46. The Examiner acknowledges that Moore does not teach transmitting messages over sets of audio-based signals, transmitting messages through a mobile telephone connected to a telephone network, and receiving over the telephone network a set of audio-band signals. *See id.* The Examiner relies on Ricket to teach “the ability to communicate using audible signals” (*id.* at 46), on Betts-LaCroix for teaching encoding audio information, a microphone, and speaker (*see id.*

at 46–46), and on Atsmon for teaching using a mobile telephone to send and receive signals and “the ability to use mobile devices to control devices acoustically” (*id.* at 51; *see also id.* at 46–50).

The Appellants’ statement that “Moore describes a device that uses cellular communication technology to bi-directionally communicate with a provider system without user intervention” (Appeal Br. 43; *see also id.* at 38–39) is not supported by evidence or technical reasoning. The Appellants do not direct attention to where Moore describes that the intended purpose of its device is to interact without user intervention. As discussed above with respect to claim 16, the portions of Moore relied on by the Appellants describe communications between a lamp and system that may not require user intervention, but do not describe that the intent is to prevent or discourage user interaction. At best, Moore describes the intended purpose of its apparatus to have “various operational states that are dependent on local and/or remote events or input” and that may connect via a cellular communication network and takes into account local input received by the user. Moore ¶ 7. As such, we are not persuaded that adding the abilities to communicate via mobile telephone renders Moore’s apparatus unsatisfactory for its intended purpose.

The Appellants also contend that “there is no reason provided by the references to make the Examiner’s proposed modification,” because the capability of Moore’s device is greater than that of Ricket’s device, and Moore’s apparatus, already having built-in cellular communication, does not need Atsmon’s built-in audio components. Appeal Br. 44–45. However, the Appellants do not address why the Examiner’s provided reasons for combining are in error. In general, Moore’s apparatus’s capability may be greater than that of Ricket’s, but the Examiner determines that in some

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areas, namely transmitting and messages sets of audio-based signals over a telephone network, Moore's apparatus lacks capability. Further, the Examiner does not rely on Atsmon for teaching built-in components; rather, as noted above, the Examiner relies on Atsmon for teaching using a mobile telephone to send and receive signals and "the ability to use mobile devices to control devices acoustically." Final Act. 51.

Based on the foregoing, we are not persuaded that the Examiner erred in rejecting independent claim 19 under 35 U.S.C. § 103(a), and we sustain the rejection of claim 19 and of claims 20–26, which stand with claim 19.

#### DECISION

The Examiner's rejection of claims 1–6, 8, 27, and 29–31 under 35 U.S.C. § 101 is REVERSED.

The Examiner's rejection of claims 16 and 18–26 under 35 U.S.C. § 101 is AFFIRMED.

The Examiner's rejection of claims 16, 18, and 19–26 under pre-AIA 35 U.S.C. § 112, first paragraph, is REVERSED.

The Examiner's rejections of claims 1–6, 8–13, 15, 16, 18–27, and 29–31 under pre-AIA 35 U.S.C. § 103(a) are 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)(iv).

AFFIRMED