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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
14/416,353 01/22/2015 OSCAR GARCIA MORCHON 2012P01640WOUS 1032

24737 7590 09/05/2018
PHILIPS INTELLECTUAL PROPERTY & STANDARDS
465 Columbus Avenue
Suite 340
Valhalla, NY 10595

EXAMINER

SHAW, BRIAN F

ART UNIT PAPER NUMBER

2491

NOTIFICATION DATE DELIVERY MODE

09/05/2018

ELECTRONIC

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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* OSCAR GARCIA MORCHON, SANDEEP SHANKARAN  
KUMAR, AND LUDOVICUS MARINUS GERARDUS MARIA  
TOLHUIZEN

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Appeal 2017-011581  
Application 14/416,353  
Technology Center 2400

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Before JAMES R. HUGHES, JENNIFER L. McKEOWN, and  
CARL L. SILVERMAN, *Administrative Patent Judges*.

McKEOWN, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from the Examiner's decision to reject claims 1–9, 11, 12, and 14. Claim 13 was cancelled and claim 10 was identified as allowable if rewritten in independent form. We understand claims 15–17 to not currently be rejected.<sup>2</sup> We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

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<sup>1</sup> According to Appellants, the real party in interest is Koninklijke Philips N.V. App. Br. 3.

<sup>2</sup> We note that the Examiner includes claims 15–17, newly added on October 14, 2016, in the Final Action summary (Final Act. cover sheet), but does not include these claims within the rejection at pages 12–14 of the Final Action.

STATEMENT OF THE CASE

Appellants' disclosed and claimed invention is directed to "generating a sequence of random numbers, and to encrypting or decrypting a data sequence with a stream cipher by means of a sequence of random numbers." Spec. 1, ll. 2–4.

Claim 1 is illustrative of the claimed invention and reads as follows:

1. An electronic random number generating device for generating an electronic representation of a sequence of random numbers, the electronic random number generating device comprising:

an electronic parameter storage configured to store multiple functions and for each function of the multiple functions to store a modulus associated with each function,

not all moduli being equal;

an electronic function evaluation device configured to generate an internal sequence of random numbers and generate a next number in the internal sequence of random numbers, the electronic function evaluation device being further configured to:

evaluate each function using a previously generated random number of the internal sequence as an input parameter to each function to

obtain an evaluation result from each function;

execute the evaluation result of each function modulo the respective modulus associated with each function;

applying a combination function to the evaluation results to obtain the next number in the internal sequence; and

the electronic random number generating device further comprising an output configured to generate an electronic representation of a next number in the sequence of random

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*See* Final Act. 3–6. Appellants also do not identify these claims as rejected.  
*See* App. Br. 8.

numbers based on the generated next number in the internal sequence.

### THE REJECTION

The Examiner rejected claims 1–9, 11, 12, and 14 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. Final Act. 3–6.

### ANALYSIS

#### THE REJECTION UNDER 35 U.S.C. § 101

##### *Claims 1–9, 11, 12, and 14*

Based on the record before us, we are not persuaded that the Examiner erred in rejecting claims 1–9, 11, 12, and 14 as directed to patent-ineligible subject matter.

Under the first step of the two-part eligibility analysis, set forth in *Alice*, we must first consider whether the claims are directed to patent-ineligible concepts, namely laws of nature, natural phenomena, and abstract ideas. *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). For example, abstract ideas include, but are not limited to, fundamental economic practices, methods of organizing human activities, an idea of itself, and mathematical formulas or relationships. If the claims are directed to an ineligible concept, then the second step is to consider whether the elements of the claims individually and as an ordered combination “transform the nature of the claim’ into a patent-eligible application.” *Alice*, 134 S. Ct. at 2355 (quoting *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 78–79 (2012)). This second step is described as “a search for an “inventive concept”—i.e., an element or combination of elements that is ‘. . . significantly more than . . . the [ineligible concept]

itself.” *Id.* at 2355 (alteration in original) (quoting Mayo, 566 U.S. at 72–73).

Turning to the first step of the eligibility analysis, the Examiner determines that the claimed invention “is directed to an abstract idea of using mathematical manipulations to generate a number in a pseudo-random sequence.” Final Act. 3; *see also* Ans. 4–6 (citing *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344 (Fed. Cir. 2014) and *Parker v. Flook*, 437 U.S. 584, 595 (1978)); Final Act. 6 (identifying the same abstract idea for claims 12 and 14). According to the Examiner,

there is nothing *in the claim* (although Applicant argues on page 9 of 06/03/2016 remarks that an improvement in computer-related technology is achieved by enhancing computer security by providing improved cryptographic keys) that reflects an improvement in the functioning of a computer or another technology - but rather the conventional practice of generating a number and outputting the number.

Final Act. 3–4; *see also* Final Act. 4–6.

Appellants, on the other hand, assert that the claims, as a whole, are not directed to an abstract idea. App. Br. 13–20. Appellants contend that the claims “are not directed to the abstract idea of random number generation,” but “are directed to a specific and concrete, not abstract, way of technically handling the particular technical problem identified with generating random numbers.” App. Br. 14 (emphasis omitted); *see also* App. Br. 15 (asserting that “even if the concept of generating a random number, if viewed by itself in vacuum, may be an abstract idea, the particular way in which a sequence of random numbers is generated in accordance with the Appellants’ claims, and the apparatus for doing so, is not an abstract idea, but it is a concrete idea.”).

According to Appellants, the “claims are directed only to the particular technical way in which the random number generator is arranged and operates.” App. Br. 15 (emphasis omitted); *see also* App. Br. 18 (asserting that the claims are not directed to an abstract idea “because the claimed invention is directed at a very sophisticated technical way to generate a sequence of random numbers, i.e., to a specific implementation of a solution to a problem in the computer and software arts.”). Appellants further elaborate that

The claims recite a concept that is an improvement in computer related technology by improving random number generation which in its various incarnations is a commonly used and often essential technique. For example, Appellants’ specification discusses how such an improvement can enhance computer security by providing improved cryptographic keys.

App. Br. 20; *see also* Reply Br 4–6.

We find Appellants arguments unpersuasive. The Examiner, considering the claim limitations individually and as an ordered combination, explains that the claims are “directed to an abstract idea of using mathematical manipulations to generate a number in a pseudo-random sequence.” Final Act. 3; Ans. 6. While the claims may be directed to specific mathematical calculations, it nevertheless is merely a generic computer performing the claimed mathematical process. *See* Final Act. 3–4 (finding that the claims merely perform “mathematical manipulations that result in a random number”). *Parker v. Flook*, 437 U.S. 584, 595 (1978)(“[I]f a claim is directed essentially to a method of calculating, using a mathematical formula, even if the solution is for a specific purpose, the claimed method is nonstatutory.”).

While Appellants allege that the claims are directed to an improvement in the random number generation technology. The Examiner also explains that “the instant specification describes random number generation as a mathematical process.” Ans. 5. Appellants generally assert that the claims “enhance computer security by providing improved cryptographic keys” (App. Br. 19), but Appellants fail to tie this alleged improvement to the claims. As the Examiner points out, the claims do not improve the functioning of the computer itself, but merely perform mathematical manipulations. Ans. 6. The Specification also describes that the claimed invention electronic device may be “a mobile electronic device, say a mobile phone, or a set-top box, or a computer, or the like.” Spec., p. 8, ll. 13–15; *see also* Spec., p. 8, ll. 29–30 (“Examples of computer program products include memory devices, optical storage devices, integrated circuits, servers, online software, etc.”); Spec., p. 15, ll. 13–15 (stating that “the electronic random number generating device 100 comprises a microprocessor (not shown) which executes appropriate software”). As such, the Specification similarly identifies that the claimed invention is performed on a generic computing device.

Under step two of the eligibility analysis, we address whether the claims add significantly more to the alleged abstract idea. The Examiner considers the claimed limitations individually and as an ordered combination and determines that “[t]here are no meaningful limitations in the claim that transform the exception into a patent-eligible application, such that the claim does not amount to significantly more than the exception itself.” Final Act. 5–6.

On the other hand, Appellants assert that:

The claim limitations do much more than merely implement an abstract idea on a computer or perform generic computer functions that are well-understood, routine, and conventionally known in the industry, as indicated hereinabove. Rather, the claim limitations offer improvements to the field in which the subject matter of the present application is directed by increasing the effective randomness of the random number sequence generated making it less likely to be discovered by an unauthorized party that attempts to do so for nefarious purposes.

App. Br. 20–21. Additionally, according to Appellants, the “claims are clearly more than simply an instruction to implement random number generation, if such was to be considered an abstract idea.” App. Br. 21.

We are unpersuaded of error in the Examiner’s rejection. As the Examiner determines,

[t]he method claims do not, for example, purport to improve the functioning of the computer itself. Nor do they effect an improvement in any other technology or technical field. Instead, the claims at issue amount to nothing significantly more than an instruction to apply the abstract idea of random number generation via a generic computer.

Ans. 5. Specifically, the Examiner points out that the claims are directed to “merely a number generator” and the claims are “entirely embodied as being mathematical formulas.” Ans. 5. The Examiner further explains:

[r]andom number generation schemes are well known (as stated in the background) and the instant specification describes random number generation as a mathematical process (reads on the result of using a linear shift register and the combining of several prior art random number generators, see as-filed background page 2 lines 3- 27).

Ans. 5.

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Accordingly, for the reasons discussed above and by the Examiner, we affirm the Examiner's rejection of claims 1–9, 11, 12, and 14 as directed to patent-ineligible subject matter.

#### DECISION

We affirm the Examiner's decision to reject claims 1–9, 11, 12, and 14 as directed to patent-ineligible subject matter.

AFFIRMED