UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
12/243,464	10/01/2008	Julian Pachon	12587-0123001 / D08-124/0	1261

52082 7590 10/26/2018

General Electric Company
GE Global Patent Operation
901 Main Avenue
3rd Floor
Norwalk, CT 06851
UNITED STATES OF AMERICA

EXAMINER	
VETTER, DANIEL	

ART UNIT	PAPER NUMBER
3628	

NOTIFICATION DATE	DELIVERY MODE
10/26/2018	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gpo.mail@ge.com
marie.gerrie@ge.com
lori.E.rooney@ge.com

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JULIAN PACHON and STUART H. SMITH

Appeal 2017-006531
Application 12/243,464[1]
Technology Center 3600

Before LARRY J. HUME, CARL L. SILVERMAN, and JASON M. REPKO, *Administrative Patent Judges*.

HUME, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134(a) of the Final Rejection of claims 21–40, which are all claims pending in the application. Appellants have canceled claims 1–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

---

[1] According to Appellants, GE Aviation Systems Taleris Ltd. and GE Flight Services, Inc. are the real parties in interest. App. Br. 2.

STATEMENT OF THE CASE[2]

The Invention

Appellants' disclosed embodiments and claimed invention "relate[] to creating airline flight schedules." Spec. 1, l. 3.

Exemplary Claim

Claim 21, reproduced below, is representative of the subject matter on appeal.

> 21. A method of operating aircraft resources according to an airline flight schedule, the method comprising:
>
> generating, by a processor, a set of proposed aircraft routings;
>
> generating, by a permissible crew pairing generator, a set of proposed crew pairings for at least a subset of the proposed aircraft routings;
>
> determining, by the permissible crew pairing generator, a set of permissible crew pairings for the at least a subset of the proposed aircraft routings, wherein determining the set of permissible crew pairings includes applying a first set of crew constraints to the set of proposed crew pairings for the at least a subset of the proposed aircraft routings, and determining the subset of the proposed crew pairings based on the first set of crew constraints;
>
> determining, by a permissible aircraft routing generator, a set of permissible aircraft routings by linking the set of permissible crew pairings with the set of proposed aircraft

---

[2] Our decision relies upon Appellants' Appeal Brief ("Br.," filed Oct. 14, 2016); Examiner's Answer ("Ans.," mailed Jan. 11, 2017); Final Office Action ("Final Act.," mailed Apr. 15, 2016); and the original Specification ("Spec.," filed Oct. 8, 2008). We note Appellants did not file a Reply Brief in response to the factual findings and legal conclusions in the Examiner's Answer.

routings, applying a second set of aircraft constraints to the linked set of permissible crew pairings and the set of proposed aircraft routings, and determining the subset of the proposed aircraft routings based on the second set of aircraft constraints;

determining, by the processor, a set of permissible airline flight schedules by applying a third set of airline constraints to the set of permissible aircraft routings and the set of permissible crew pairings, and outputting at least a subset of the permissible airline flight schedules to a user for selecting an airline flight schedule to be flown by the aircraft resources; and

operating the aircraft resources according to the selected airline flight schedule.

Rejection on Appeal[3]

Claims 21–40 stand rejected under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter. Final Act. 3.

CLAIM GROUPING

Based on Appellants' arguments (Br. 11), we decide the appeal of patent-ineligible subject matter Rejection R1 of claims 21–40 on the basis of representative claim 21.[4]

[3] We note the Examiner has withdrawn the rejection of the claims under 35 U.S.C. § 112(a). Final Act. 2.

[4] "Notwithstanding any other provision of this paragraph, the failure of appellant to separately argue claims which appellant has grouped together shall constitute a waiver of any argument that the Board must consider the patentability of any grouped claim separately." 37 C.F.R. § 41.37(c)(1)(iv). In addition, when Appellants do not separately argue the patentability of dependent claims, the claims stand or fall with the claims from which they depend. *In re King*, 801 F.2d 1324, 1325 (Fed. Cir. 1986).

ISSUE

Appellants argue (Br. 10–16) the Examiner's rejection of claim 21 under 35 U.S.C. § 101 as being directed to patent-ineligible subject matter is in error. These contentions present us with the following issue:

Under our governing case law concerning 35 U.S.C. § 101, did the Examiner err in concluding claim 21 is directed to a judicial exception, i.e., an abstract idea, specifically, a method of organizing human activity, without significantly more?

ANALYSIS

In reaching this decision, we consider all evidence presented and all arguments actually made by Appellants. To the extent Appellants have not advanced separate, substantive arguments for particular claims, or other issues, such arguments are waived. 37 C.F.R. § 41.37(c)(1)(iv).

We disagree with Appellants' arguments with respect to claims 21–40 and, unless otherwise noted, we incorporate by reference herein and adopt as our own: (1) the findings and reasons set forth by the Examiner in the action from which this appeal is taken; and (2) the reasons and rebuttals set forth in the Examiner's Answer in response to Appellants' arguments. We highlight and address specific findings and arguments regarding claim 21 for emphasis as follows.

Alice Framework

Section 101 provides that anyone who "invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof" may obtain a patent. 35 U.S.C. § 101.

The Supreme Court has repeatedly emphasized that patent protection should not extend to claims that monopolize "the basic tools of scientific and technological work." *Gottschalk v. Benson*, 409 U.S. 63, 67 (1972); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 71 (2012); *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2354 (2014). Accordingly, laws of nature, natural phenomena, and abstract ideas are not patent-eligible subject matter. *Alice Corp.*, 134 S. Ct. at 2354.

The Supreme Court's two-part *Alice* framework guides us in distinguishing between patent claims that impermissibly claim the "building blocks of human ingenuity" and those that "integrate the building blocks into something more." *Alice Corp.*, 134 S.Ct. at 2354 (citation omitted). First, we "determine whether the claims at issue are directed to [a] patent-ineligible concept[]." *Id.* at 2355. If so, we "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." *Id.* at 2357 (quoting *Mayo*, 566 U.S. at 72, 79). Although the two steps of the *Alice* framework are related, the "Supreme Court's formulation makes clear that the first-stage filter is a meaningful one, sometimes ending the § 101 inquiry." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016). We note the Supreme Court "has not established a definitive rule to determine what constitutes an 'abstract idea'" for the purposes of step one. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016) (citing *Alice*, 134 S. Ct at 2357).

In *Enfish*, our reviewing court held claims directed to a self-referential logical model for a computer database patent-eligible under step one of *Alice*. *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1330 (Fed.

Cir. 2016). The disclosed technique enabled faster searching and more effective storage of data than previous methods. *Id.* at 1333. The court found the claims directed to "a specific improvement to the way computers operate, embodied in the self-referential table" (*id.* at 1336), and explained that the claims are "not simply directed to *any* form of storing tabular data, but instead are specifically directed to a *self-referential table* for a computer database" that functions differently than conventional databases. *Id.* at 1337.

In *McRO*, the claims were not held to be abstract because they recited a "specific . . . improvement in computer animation" using "unconventional rules that relate[d] sub-sequences of phonemes, timings, and morph weight sets." *McRO, Inc. v. Bandai Namco Games Am. Inc.*, 837 F.3d 1299, 1302–03, 1307–08, 1314–15 (Fed. Cir. 2016). In *McRO*, "the incorporation of the claimed rules, not the use of the computer," improved an existing technological process. *Id.* at 1314.

However, our reviewing court has held claims ineligible as directed to an abstract idea when they merely collect electronic information, display information, or embody mental processes that could be performed by humans. *Elec. Power Grp.*, 830 F.3d at 1353–54 (collecting cases). At the same time, "all inventions at some level embody, use, reflect, rest upon, or apply laws of nature, natural phenomena, or abstract ideas." *Mayo*, 566 U.S. at 71. Abstract ideas may include, but are not limited to, fundamental economic practices, methods of organizing human activities, an idea of itself, and mathematical formulas or relationships. *Alice* 134 S.Ct. at 2355–57. Under this guidance, we must therefore ensure at step one that we articulate what the claims are directed to with enough specificity to ensure

the step one inquiry is meaningful. *Id.* at 2354 ("[W]e tread carefully in construing this exclusionary principle lest it swallow all of patent law.").

Under the "abstract idea" step we must evaluate "the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs of Tex., LLC v. DirecTV, LLC*, 838 F.3d 1253, 1257 (Fed. Cir. 2016) (citation omitted). If the claims are not directed to a patent-ineligible concept, the inquiry ends. *See Visual Memory LLC v. NVIDIA Corp.*, 867 F.3d 1253, 1262 (Fed. Cir. 2017). If the concept is directed to a patent-ineligible concept, we proceed to the "inventive concept" step. For that second step we must "look with more specificity at what the claim elements add, in order to determine 'whether they identify an "inventive concept" in the application of the ineligible subject matter' to which the claim is directed." *Affinity Labs*, 838 F.3d at 1258 (quoting *Elec. Power Grp.*, 830 F.3d at 1353).

Alice Step 1 — Abstract Idea

The Examiner concludes "[t]he claims are directed to the abstract idea of optimizing an airline schedule based upon various factors in an optimal routings algorithm (as shown in the recited functions of claims 21–40), which is a method of organizing human activities involving mathematical formulas." Final Act. 3. Similarly, in the Answer (2), the Examiner concludes "[t]he claims are directed to a mathematical model for determining planned airline routes."

Appellants generally contend, "the claimed subject matter is *not* an abstract idea, and in any event includes additional elements necessary to render the subject matter patent-eligible even if it were an abstract idea." Br. 10.

More specifically, Appellants argue "[t]he The Examiner fails to meaningfully complete the 'directed to' inquiry and describes the claims at a high level of abstraction untethered from the language of the claims," because "[t]he Examiner has proceeded to summarize a *nearly 2,000 word, 6 page, 20 claim set* with multiple patentably-distinct independent claims into a *13 word cursory conclusion* that the claims are 'directed to optimizing an airline schedule based upon various factors in an optimal routings algorithm.'" Br. 11. "The Examiner overlooks that the claim is directed to an ordered method generating multiple sets of information, and application of a set of specific constraints to output a selectable set of possible flight schedules for operating aircraft resources." *Id.*

Appellants further argue:

> Appellants can find no aspect of representative independent claims 21, 35, or 38 that relates to the "optimizing an airline schedule" or "an optimal routings algorithm," as described by the Examiner. Neither the multiple sets of constraints nor the different sets of information are explicitly defined as "optimal routings," "optimal/optimizing algorithm," or described as "optimizing the airline schedule." In fact, those "abstract idea" terms are not used anywhere in the claim set at all, in explicit contrast with the Examiner's allegations.

Br. 12.

In addition, Appellants argue the claims on appeal "are analogous to the claims of Enfish," and "are not directed to the abstract idea of 'optimizing an airline schedule based upon various factors in an optimal routings algorithm,' as concluded by the Examiner, but rather are directed to a specific improvement in the operating aircraft resources according to an

airline flight schedule, as claimed and described in the specification." Br. 13.

In response, the Examiner states "the additional details [of the claims] merely further describe the abstract idea of optimizing an airline schedule using abstract factors (e.g., times, crew pairing, etc.) in algorithm," and Appellants "appear[] to be conflating the specific words used in the claims with their actual substance. The conclusion does not follow that the claims are not directed to an optimization algorithm simply because the word 'optimizing' does not appear in the claims." Ans. 2.[5]

With respect to Appellants' "*Enfish*" argument, cited *supra*, the Examiner determined:

> *Enfish* is easily distinguishable from the instant claims in that the problem to be solved in that case was solely related to technology-configuring memory in computers. The solutions to the airline routing model argued in the Brief (13–14) inure solely to organizing future human activities (i.e., flying airline segments with their associated crew pairings) through explicitly mathematical means, and not to any technical element. The similarly involve business/financial improvements ("operational efficiencies and cost savings"-Brief, 13) that exist in the abstract rather than the technological realm.

Ans. 3.

Under the "abstract idea" step we must evaluate "the 'focus of the claimed advance over the prior art' to determine if the claim's 'character as a whole' is directed to excluded subject matter." *Affinity Labs*, 838 F.3d at 1257 (citation omitted).

---

[5] The Examiner further points to Appellants' Specification, which discloses the steps of the invention are "techniques for generating optimized flight schedules for airlines." Ans. 3 (citing Spec. 2, ll. 4–5).

Turning to the claimed invention, claim 21 recites: "[a] method of operating aircraft resources according to an airline flight schedule." Claim 21 (preamble). Method claim 21's limitations also require the steps of:

> (a) "generating . . . proposed aircraft routings;"
>
> (b) "generating . . . a set of proposed crew pairings";
>
> (c) "determining a set of permissible crew pairings [by] applying . . . constraints . . . and determining the subset of the proposed crew pairings based on the first set of crew constraints;"
>
> (d) "determining . . . a set of permissible aircraft routings . . . applying a second set of aircraft constraints to the linked set of permissible crew pairings and the set of proposed aircraft routings, and determining the subset of the proposed aircraft routings based on the second set of aircraft constraints;"
>
> (e) "determining . . . a set of permissible airline flight schedules by applying a third set of airline constraints to the set of permissible aircraft routings and the set of permissible crew pairings, and outputting at least a subset of the permissible airline flight schedules to a user for selecting an airline flight schedule to be flown by the aircraft resources;" and
>
> (f) "operating the aircraft resources according to the selected airline flight schedule."

Our reviewing courts have often identified abstract ideas by referring to earlier precedent, e.g., by comparing a claimed concept to the concepts previously identified as abstract ideas by the courts. *Amdocs (Israel), Ltd. v. Openet Telecom, Inc.*, 841 F.3d 1288, 1294 (Fed. Cir. 2016); *Enfish*, 822 F.3d. at 1334. For example, in *Alice*, the Supreme Court identified the claimed systems and methods as describing the concept of intermediated settlement, and then compared this concept to the risk hedging concept identified as an abstract idea in *Bilski*. Because this comparison revealed

"no meaningful distinction between the concept of risk hedging in *Bilski* and the concept of intermediated settlement at issue here," the Court concluded that the concept of intermediated settlement was an abstract idea. *Alice*, 134 S. Ct. at 2356-57. Similarly, the Federal Circuit in *Amdocs* compared the claims at issue with "eligible and ineligible claims of a similar nature from past cases" as part of its eligibility analysis. *Amdocs,* 841 F.3d at 1295–1300.

Under step one, we agree with the Examiner that the inventions claimed in independent claim 21 is directed to an abstract idea, i.e., the abstract idea of optimizing an airline schedule based upon various factors in an optimal routings algorithm (as shown in the recited functions of claims 21–40), which is a method of organizing human activities involving mathematical formulas. *See* Spec 12–13. Because there can be considerable overlap in the categorization of abstract ideas under our controlling section 101 case law, we also conclude the claimed invention alternatively may be considered as "an idea 'of itself.'" *See Digitech Image Techs., LLC v. Elec. for Imaging, Inc.*, 758 F.3d 1344, 1351 (Fed. Cir. 2014) (A process that employs mathematical algorithms to manipulate existing information to generate additional information is abstract.).

The Specification "relates to creating airline flight schedules" (Spec. 1, l. 3), and "describes systems and techniques for generating optimized flight schedules for airlines." Spec. 3, ll. 4–5.[6] We find this type

[6] *See also* Spec. 44 ("Abstract"):

> The subject matter of this specification can be embodied in, among other things, a method that includes receiving a number N_m of optional flights available to fly a flight route. The

of activity, i.e., creating airline flight schedules taking into account crew constraints, for example, includes longstanding conduct that existed well before the advent of computers and the Internet, and could be carried out by a human with pen and paper. *See CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1375 (Fed. Cir. 2011) ("That purely mental processes can be unpatentable, even when performed by a computer, was precisely the holding of the Supreme Court in *Gottschalk v. Benson*.").[7]

Our reviewing court has previously held other patent claims ineligible for reciting similar abstract concepts. For example, while the Supreme Court has enhanced the § 101 analysis since *CyberSource* in cases like *Mayo* and *Alice*, the Federal Circuit continues to "treat[ ] analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category." *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146–47 (Fed. Cir. 2016) (quoting *Elec. Power Grp.*, 830 F.3d at 1354).

> method also includes receiving a minimum number I_m of the optional flights to fly the flight route, receiving a maximum number u_m of the optional flights to fly the flight route, and generating one or more constraints for 7 an optimization model that are configured to cause the optimization model to a favor the selection of at least I_m flights and to favor the selection of at most u_m flights from the N_m optional flights to fly the flight route. The method includes selecting, using the optimization model, an optimized subset of the N_m optional flights, where the selection is based on the one or more constraints.

[7] *CyberSource* further guides that "a method that can be performed by human thought alone is merely an abstract idea and is not patent-eligible under § 101." *CyberSource*, 654 F.3d at 1373.

In addition, our reviewing court has concluded that abstract ideas include the concepts of collecting data, recognizing certain data within the collected data set, and storing the data in memory. *Content Extraction & Transmission LLC v. Wells Fargo Bank, N.A.*, 776 F.3d 1343, 1347 (Fed. Cir. 2014). Additionally, the collection of information and analysis of information (e.g., recognizing certain data within the dataset) are also abstract ideas. *Elec. Power*, 830 F.3d at 1353–54 (Collecting information and "analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, [are] essentially mental processes within the abstract-idea category"). Similarly, "collecting, displaying, and manipulating data" is an abstract idea. *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1340 (Fed. Cir. 2017). Also, collecting and comparing known information has been determined to be an abstract idea. *Classen Immunotherapies, Inc. v. Biogen IDEC*, 659 F.3d 1057, 1067 (Fed. Cir. 2011) ("Claim 1 of the '283 patent states the idea of collecting and comparing known information"). Also, more recently, our reviewing court has also concluded that acts of parsing, comparing, storing, and editing data are abstract ideas. *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1367 (Fed. Cir. 2018).

Therefore, in agreement with the Examiner, we conclude claim 1 involves nothing more than identifying, collecting, storing, comparing, and generating data, without any particular inventive technology — an abstract idea. *See Elec. Power Grp.*, 830 F.3d at 1354.[8]

[8] Merely automating previously manual processing by using computers does not qualify as an eligibility-rejection-defeating improvement. *Credit Acceptance Corp. v. Westlake Servs.*, 859 F.3d 1044 (Fed. Cir. 2017).

Accordingly, on this record, and under step one of *Alice*, we agree with the Examiner's conclusion the claims are directed to an abstract idea.

Alice Step 2 —Inventive Concept

If the claims are directed to a patent-ineligible concept, as we conclude above, we proceed to the "inventive concept" step. For that step we must "look with more specificity at what the claim elements add, in order to determine 'whether they identify an "inventive concept" in the application of the ineligible subject matter' to which the claim is directed." *Affinity Labs*, 838 F.3d at 1258 (quoting *Elec. Power Grp.*, 830 F.3d at 1353).

In applying step two of the *Alice* analysis, our reviewing court guides we must "determine whether the claims do significantly more than simply describe [the] abstract method" and thus transform the abstract idea into patentable subject matter. *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014). We look to see whether there are any "additional features" in the claims that constitute an "inventive concept," thereby rendering the claims eligible for patenting even if they are directed to an abstract idea. *Alice*, 134 S.Ct. at 2357. Those "additional features" must be more than "well-understood, routine, conventional activity." *Mayo*, 566 U.S. at 79.

Limitations referenced in *Alice* that are not enough to qualify as "significantly more" when recited in a claim with an abstract idea include, as non-limiting or non-exclusive examples: adding the words "apply it" (or an equivalent) with an abstract idea;[9] mere instructions to implement an

[9] *Alice*, 134 S.Ct. at 2357–58.

abstract idea on a computer;[10] or requiring no more than a generic computer to perform generic computer functions that are well-understood, routine and conventional activities previously known to the industry.[11]

Evaluating representative claim 21 under step 2 of the *Alice* analysis, we agree with the Examiner that it lacks an inventive concept that transforms the abstract idea of optimizing an airline schedule using crew constraints into a patent-eligible application of that abstract idea. *See* Ans.[12]

We note the patent eligibility inquiry may contain underlying issues of fact. *Mortg. Grader, Inc. v. First Choice Loan Servs. Inc.*, 811 F.3d 1314, 1325 (Fed. Cir. 2016). In particular, "[t]he question of whether a claim element or combination of elements is well-understood, routine and conventional to a skilled artisan in the relevant field is a question of fact." *Berkheimer*, 881 F.3d at 1368.

---

[10] *Id.*, *e.g.*, simply implementing a mathematical principle on a physical machine, namely a computer (citing *Mayo*, 566 U.S. at 84–85).

[11] *Id.* at 2359: *e.g.*, using a computer to obtain data, adjust account balances, and issue automated instructions.

[12] The Examiner further concludes:

> The rejection identifies additional elements such as a processor and memory, and explains that aside from being instructed to perform the abstract idea merely serve to perform routine and conventional activities (e.g., storing data). Final Rejection mailed April 15, 2016, ¶ 7. The additional step of operating the aircraft is insignificant post-solution activity. The operation of the aircraft is not improved in any way by the claimed algorithm, it merely results in the aircraft being flown to, e.g., a different location at a different time (an abstract business/human activity organization result)."

Ans. 4.

As evidence of the conventional nature of the claimed system components and processes, we note Appellants' Specification. For example:

> FIG. 9 is a schematic diagram of a computer system 900. The system 900 can be used for the operations described in association with any of the computer-implement methods described previously, according to one implementation. The system 900 is intended to include various forms of digital computers, such as laptops, desktops, workstations, personal digital assistants, servers, blade servers, mainframes, and other appropriate computers. The system 900 can also include mobile devices, such as personal digital assistants, cellular telephones, smartphones, and other similar computing devices. Additionally the system can include portable storage media, such as, Universal Serial Bus (USB) flash drives. For example, the USB flash drives may store operating systems and other applications. The USB flash drives can include input/output components, such as a wireless transmitter or USB connector that may be inserted into a USB port of another computing device.
>
> The system 900 includes a processor 910, a memory 920, a storage device 930, and an input/output device 940. Each of the components 910, 920, 930, and 940 are interconnected using a system bus 950. The processor 910 is capable of processing instructions for execution within the system 900. The processor may be designed using any of a number of architectures. For example, the processor 910 may be a CISC (Complex Instruction Set Computers) processor, a RISC (Reduced Instruction Set Computer) processor, or a MISC (Minimal Instruction Set Computer) processor.
>
> In one implementation, the processor 910 is a single-threaded processor. In another implementation, the processor 910 is a multi-threaded processor. The processor 910 is capable of processing instructions stored in the memory 920 or on the storage device 930 to display graphical information for a user interface on the input/output device 940.

Spec. 32, l. 18–33, l. 22.

We agree with the Examiner that the claim limitations may be broadly but reasonably construed as reciting conventional computer components and techniques, particularly in light of Appellant's Specification, as quoted above.[13]

With respect to the Step 2 analysis, we agree with the Examiner because, as in *Alice*, the recitation of a "method of operating aircraft resources according to an airline flight schedule," using a "processor" and a "generator" is simply not enough to transform the patent-ineligible abstract idea here into a patent-eligible invention. *See Alice*, 134 S. Ct. at 2357 ("[C]laims, which merely require generic computer implementation, fail to transform [an] abstract idea into a patent-eligible invention.").[14]

Accordingly, based upon the findings above, on this record, we are not persuaded of error in the Examiner's conclusion that the appealed claims

---

[13] During prosecution, claims must be given their broadest reasonable interpretation when reading claim language in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under this standard, we interpret claim terms using "the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description contained in the applicant's specification." *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

[14] Appellants question the Examiner's findings concerning routine and well-understand functions of claim 21 by querying, "[d]oes the Examiner truly believe that (e.g., in claim 21) applying a first set of crew constrains [sic] to a set of proposed crew pairings by a crew pairing generator is known and conventional generic computing elements or a step of operating aircraft resources in accordance with a flight schedule?" Br. 15. In response, we note, under Step 2 analysis, the claim elements are directed to improving a business process and not a technical or computer-system related problem.

are directed to patent-ineligible subject matter. Therefore, we sustain the Examiner's § 101 rejection of independent claim 21, and grouped claims 22–40, not argued separately, and which fall therewith. *See* Claim Grouping, *supra*.

CONCLUSION

The Examiner did not err with respect to patent-ineligible subject matter Rejection R1 of claims 21–40 under 35 U.S.C. § 101, and we sustain the rejection.

DECISION

We affirm the Examiner's decision rejecting claims 21–40.

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). *See* 37 C.F.R. § 41.50(f).

AFFIRMED