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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 DAVID M. DURHAM, TISSON MATHEW,
TRAVIS SCHLUESSLER, PRIYA RAJAGOPAL, and
HORMUZD M. KHOSRAVI

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Appeal 2017-011315
Application 13/943,408
Technology Center 2100

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Before CAROLYN D. THOMAS, JON M. JURGOVAN, and
JOSEPH P. LENTIVECH, *Administrative Patent Judges.*

LENTIVECH, *Administrative Patent Judge.*

DECISION ON APPEAL

Pursuant to 35 U.S.C. § 134(a), Appellants[1] appeal from the
Examiner's decision to reject claims 1, 2, 4–8, 10–14, and 16–18. Claims 3,
9, and 15 have been canceled. *See* App. Br. 15–18 (Claims App'x). We
have jurisdiction over the pending claims under 35 U.S.C. § 6(b).

We affirm.

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[1] According to Appellants, the real party in interest is Intel Corporation.
App. Br. 2.

STATEMENT OF THE CASE

Appellants' Invention

Appellants' invention generally relates to "resource management on a host device and more particularly to secure host resource management." Spec. ¶ 2. Claim 1, which is illustrative of the claimed invention, reads as follows:

1.   A method, comprising:

querying, by an environment that is isolated from a host device, at least one host device driver for event types supported by the at least one host device driver, the at least one host device driver being a part of a host of the host device, the environment configured to execute code independently and securely isolated from a host of the at least one host device driver, the environment being communicatively coupled to the host while in operation, the environment preventing the host from performing operations that would alter, modify, read, or otherwise affect the resource data record repository while the environment is in operation, and an event type is a logical grouping of a plurality of events, an event being a device operating state value;

receiving, by the environment, the event types from the at least one device driver;

caching the event types in a resource data record repository stored in the environment;

receiving a request from a capability module for an event type;

determining which of the event types cached in the resource data record repository match the request; and

subscribing the capability module to the event types cached in the resource data record that matched the request without re-querying the at least one device driver.

References

The Examiner relies on the following prior art in rejecting the claims:

Novik et al.	US 6,275,957 B1	Aug. 14, 2001
Griffin et al.	US 2002/0194496 A1	Dec. 19, 2002
Billau et al.	US 2005/0204366 A1	Sept. 15, 2005
Friedman et al.	US 6,986,058 B1	Jan. 10, 2006

Rejections

Claims 4, 10, and 16 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Final Act. 2–3.

Claims 1, 2, 4–8, 10–14, and 16–18 stand rejected under 35 U.S.C. § 101 because the claimed subject matter is judicially-excepted from patent eligibility under § 101. Final Act. 3.

Claims 1, 2, 4, 6–8, 10, 12–14, 16, and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Billau, Griffin, and Novik. Final Act. 4–9.

Claims 5, 11, and 17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the combination of Billau, Griffin, Novik, and Friedman. Final Act. 9.

ANALYSIS

112, Second Paragraph Rejection

The Examiner rejects claims 4, 10, and 16 under 35 U.S.C. § 112, second paragraph, as being indefinite because each of claims 4, 10, and 16 depend from a cancelled claim. Final Act. 3.

Appellants do not substantively argue the rejection. Instead, Appellants state that "[i]n the February 7, 2017 response to the Final Office Action, Appellant[s] amended claims 4, 10, and 16 to correct the dependency of these claims" but the Examiner declined to enter the amendments. Reply Br. 2.

Because the amendments were not entered by the Examiner and, therefore, claims 4, 10, and 16 still depend from cancelled claims, we affirm the Examiner's rejection of claims 4, 10, and 16 under 35 U.S.C. § 112, second paragraph.

101 Rejection

We have reviewed Appellants' arguments regarding the Examiner's rejection of claims 1, 2, 4–8, 10–14, and 16–18 under 35 U.S.C. § 101 and find them unpersuasive for the reasons that follow.

Section 101 defines patentable subject matter: "Whoever 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 therefor, subject to the conditions and requirements of this title." 35 U.S.C. § 101. The Supreme Court, however, has "long held that this provision contains an important implicit exception" that "[l]aws of nature, natural phenomena, and abstract ideas are not patentable." *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 70 (2012) (quotation omitted). To determine patentable subject matter, the Supreme Court has set forth a two part test.

"First, we determine whether the claims at issue are directed to one of those patent-ineligible concepts" of "laws of nature, natural phenomena, and

abstract ideas." *Alice Corp. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). "The inquiry often is whether the claims are directed to 'a specific means or method' for improving technology or whether they are simply directed to an abstract end-result." *RecogniCorp, LLC v. Nintendo Co.*, 855 F.3d 1322, 1326 (Fed. Cir. 2017). A court must be cognizant that "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), and "describing the claims at . . . a high level of abstraction and untethered from the language of the claims all but ensures that the exceptions to § 101 swallow the rule." *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1337 (Fed. Cir. 2016). Instead, "the claims are considered in their entirety to ascertain whether their character as a whole is directed to excluded subject matter." *Internet Patents Corp. v. Active Network, Inc.*, 790 F.3d 1343, 1346 (Fed. Cir. 2015).

In the second step, we "consider the elements of each claim both individually and 'as an ordered combination' to determine whether the additional elements 'transform the nature of the claim' into a patent-eligible application." *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 566 U.S. at 79, 78). The Supreme Court has "described step two of this analysis as a search for an 'inventive concept'—*i.e.*, an element or combination of elements that is sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself." *Id.* (quotation omitted).

The Examiner finds the claims are directed to the abstract idea of "querying for information, receiving the information, storing the information, and performing analysis upon request based on the stored information." Ans. 3. The Examiner finds the claimed "subscribing" "is merely generating or displaying a result because it provides a report of

conditions for the event type." Ans. 3 (citing Spec. ¶ 41). The Examiner further finds the claims do not recite significantly more than the abstract idea because the additional elements recited in the claims (e.g., "an environment that is isolated from a host device," "at least one host device driver," "the resource data record repository," as recited in claim 1) "are simply generic components in a computer system and [are recited at] a high level of generality (i.e. generic hardware, generic modules with no specificity) and do not add significantly more and do not improve the functioning of the computer itself." Ans. 4.

Appellants argue "[i]n contrast to the Examiner's statements, the 200 plus words of claim 1, reciting device driver capability management with caching to improve computer performance are not 'mental steps.'" Reply Br. 2. Appellants further argue:

> The present claims are directed toward computer-functionality improvements, like the claims of *Enfish*. For example, the present claims are directly linked to computer device drivers, managing device driver event types using a cache to reduce driver queries while remaining responsive to queries about those drivers. Also, contrary to the Examiner's feelings, the host device, host device drivers, etc., are not generic in that they define the technological elements in which this improvement to computer operation runs.

Reply Br. 3. Appellants contend even if the claims are directed to an abstract idea, the claims recite significantly more than the abstract idea and, therefore, are directed to eligible subject matter under 35 U.S.C. § 101. App. Br. 9. In particular, Appellants argue:

> The Examiner's position does not look at the combination of elements in the claims in arriving at the conclusion that there is not significantly more than "collecting and storing information." Rather, the Examiner simply states that the

> additional elements are not enough. This is precisely the type of unsupported opinion that cannot stand in for substantial evidence, as required by the APA. The Examiner must prove that the additional elements do not amount to significantly more than the alleged abstract idea. Further, in light of the fact that the present claims are directly linked to computer device drivers and managing device driver event types, it is clear that the additional elements of the claims are directed to improving the functioning of a computer, a class of "significantly more" specifically called out by the Supreme Court in *Alice*.

App. Br. 9.

We do not find Appellants' arguments persuasive. Applying the first step of the analysis, we agree with the Examiner that the claims are directed to the abstract idea of collecting, storing, and analyzing information. Ans. 3. Claim 1, for example, recites a method including collecting data ("querying . . . at least one host device driver for event types supported by the at least one host device driver;" "receiving . . . the event types from the at least one [host] device driver"); storing the collected data ("caching the event types"); analyzing the stored data ("receiving a request from a capability module for an event type" and "determining which of the event types . . . match the request"); and storing a result of the analysis ("subscribing the capability module to the event types . . . that matched the request").

Claims of similar character have been deemed abstract by both the Supreme Court and our reviewing Court. *Cf. Content Extraction and Transmission LLC v. Wells Fargo Bank, National Ass'n*, 776 F.3d 1343, 1347 (Fed. Cir. 2014) ("collecting data, . . . recognizing certain data within the collected data set, and . . . storing that recognized data in a memory"); *Elec. Power Grp. v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016)

(claims directed to collection, manipulation, and display of data). That the claims require

> the at least one host device driver being a part of a host of the host device, the environment configured to execute code independently and securely isolated from a host of the at least one host device driver, the environment being communicatively coupled to the host while in operation, the environment preventing the host from performing operations that would alter, modify, read, or otherwise affect the resource data record repository while the environment is in operation, and an event type is a logical grouping of a plurality of events, an event being a device operating state value,

does not cause the claims to be directed to eligible subject matter but merely narrows the abstract idea to which the claims are directed.

Turning to the second step of the analysis, we agree with the Examiner (Ans. 4), that finds the claims do not recite significantly more than the abstract idea because the additional elements recited in the claims are described in the Specification as conventional computer components performing well-known, routine, and conventional functions to carry out the claimed limitations. *See e.g.,* Spec. ¶¶ 15–16, 18, 29, 35.

For the foregoing reasons, Appellants have not persuaded us of error in the Examiner's rejection of claims 1, 2, 4–8, 10–14, and 16–18 under 35 U.S.C. § 101.

103 Rejections

Appellants contend the combination of Billau, Griffin, and Novik does not teach or suggest

> querying, by an environment that is isolated from a host device, at least one host device driver for event types supported by the at least one host device driver, the at least one host device

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driver being a part of a host of the host device, the environment
configured to execute code independently and securely isolated
from a host of the at least one host device driver, the environment
being communicatively coupled to the host while in operation,
the environment preventing the host from performing operations
that would alter, modify, read, or otherwise affect the resource
data record repository while the environment is in operation, and
an event type is a logical grouping of a plurality of events, an
event being a device operating state value; [and]

. . .

caching the event types in a resource data record
repository stored in the environment,

as recited in claim 1, and similarly recited in independent claims 7 and 13.

App. Br. 10–12; Reply Br. 4–5.

Regarding the disputed limitations, the Examiner finds Billau teaches

determining a set of functions of a virtual device driver by querying an I/O

adapter device driver. Final Act. 4–5 (citing Billau ¶ 19). The Examiner

further finds Billau teaches that a configuration table or file could be written

that contains the available functions for the I/O adapter hosting device driver

and that the configuration table or file could be read to determine available

functions for the virtual hosted device driver. Final Act. 5 (citing Billau

¶ 40). Based on these findings, the Examiner concludes Billau teaches or

suggests the claimed "querying" and "caching" because:

The claims state "caching the event types in a resource
data repository stored in the environment." The examiner cited
to Billau ¶ [0040] which states the configured table or file could
be written that contains the available functions for the I/O
adapter. This is stated after a discussion of querying I/O adapter
device driver to see which functions are supported by the adapter.
Therefore, Billau teaches a caching the event types in a resource
data record repository. Furthermore, the claim is not specific as

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it does not state the caching must take place after the querying.
The steps in the method are not ordered.

Ans. 5.

Appellants argue Billau fails to teach or suggest the claimed
"querying" and "caching" because Billau teaches writing the functions to the
configuration table or file as an alternative to querying the I/O adapter
device driver. App. Br. 10–11 (citing Billau ¶ 40). We agree.

Billau teaches "[o]ne of the significant functions provided by the I/O
hosting interface 550 is the ability for the virtual hosted device driver 540 to
query the I/O adapter hosting device driver 560 to determine what functions
are supported by the I/O adapter 390." Billau ¶ 40. Billau further teaches:

> One suitable way to configure the virtual hosted device
> driver 540 is to query the I/O adapter hosting device driver 560
> for its available functions. Of course, *other methods* of
> communicating the available functions of the I/O adapter hosting
> device driver 560 to the virtual hosted device driver 540 are
> within the scope of the preferred embodiments. For example, a
> configuration table or file in the partition manager could be
> written that contains the available functions for the I/O adapter
> hosting device driver, and this table or file could be read to
> determine available functions for the virtual hosted device driver.

Billau ¶ 40 (emphasis added). Thus, Billau teaches configuring the virtual
hosted device driver by querying the I/O adapter hosting device driver *or* by
reading the configuration table or file.

Additionally, the Examiner finds Novik teaches or suggests the
disputed limitations because:

> Novik teaches that query for a specific event using a filter.
> It retrieves the event by using the filter to find the specific event.
> When the event is reported it returned. Novik teaches caching
> (i.e. storing) by disclosing that the events are registered in the
> repository. The repository being the storage where the events are

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cached. Further, it is stated that the registration is <u>done based on a query</u>. Therefore, the results of cache is linked to the querying. Even as such, the claims are still not narrow enough to require the caching to be done after the query. There is no order of the claim limitations present in the claims.

Ans. 6.

Appellants argue Novik teaches that registrations are expressed "in the form of queries" and that the purpose of the query is to "filter events, not retrieve them." App. Br. 11–12 (citing Novik 3:38–42, 4:28–30). Appellants further argue registering (e.g., storing) events in a repository, as taught by Novik, does not teach or suggest caching event types in a resource data record repository, as required by claim 1, because "caching is not synonymous with 'storing,' it is a specific type of storage to improve speed of a computer." Reply Br. 5. We agree.

Novik describes "a central repository wherein event subscribers register the types or classes of events for which they require notification and event providers register the types or classes of events they are capable of detecting and for which they will provide notifications." Novik 3:33–37. Novik teaches "[t]he registrations, both by providers and subscribers, are made according to a standardized hierarchical classification of event classes and are preferably expressed in the form of queries." *Id.* at 37–41. Thus, Novik teaches that the types of events are stored in the central repository based on event providers providing a registration expressed in a form of a query and not by querying at least one host driver, as required by claim 1.

For the foregoing reasons, we are persuaded the Examiner erred in finding the cited references teach or suggest the disputed limitations.

Accordingly, we do not sustain the Examiner's rejection under 35 U.S.C. § 103(a) of claim 1; and claims 2, 4–8, 10–14, and 16–18, which recite corresponding limitations.

DECISION

We affirm the Examiner's rejection of claims 4, 10, and 16 under 35 U.S.C. § 112, second paragraph.

We affirm the Examiner's rejection of claims 1, 2, 4–8, 10–14, and 16–18 under 35 U.S.C. § 101.

We reverse the Examiner's rejections of claims 1, 2, 4–8, 10–14, and 16–18 under 35 U.S.C. § 103(a).

Since at least one rejection encompassing all claims on appeal is affirmed, the decision of the Examiner is 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