UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte DAVID ALLEN JOHNSTON, ELMORRIS P. DIXON
and KENDAL R. HARRIS

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Appeal 2018-006126[1]
Application 14/597,811
Technology Center 2400

_____

Before STEPHEN C. SIU, JENNIFER L. McKEOWN,
and JOHN D. HAMANN, *Administrative Patent Judges.*

McKEOWN, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants appeal under 35 U.S.C. § 134(a) from the Examiner's Final
decision to reject claims 1–20.

We AFFIRM.

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STATEMENT OF THE CASE

Appellants' disclosed and claimed invention is directed to

An enhanced transfer of information using an industrial protocol system and method are disclosed. In one embodiment, an industrial automation system includes a serving device communicably coupled with a client device via an industrial data exchange protocol. The client device is configured to generate a service request in accordance with the industrial data exchange protocol, compress the service request, encapsulate the compressed service request in a request packet, and send the request packet to the serving device. The serving device is configured to receive the request packet, decompress the compressed service request, process the service request, gather a service response payload based on the service request, compress the service response payload, encapsulate the compressed service response payload into a response packet, and send the response packet to the client device.

Abstract.

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

> 1. An industrial automation system:
> a serving device communicably coupled with a client device via an industrial data exchange protocol;
> wherein the client device is configured to generate a service request in accordance with the industrial data exchange protocol, compress the service request, encapsulate the compressed service request in a request packet, and send the request packet to the serving device; and
> wherein the serving device is configured to receive the request packet, decompress the compressed service request, process the service request, gather a service response payload based on the service request, compress the service response payload, encapsulate the compressed service response payload into a response packet, and send the response packet to the client device.

THE REJECTIONS

The Examiner rejected claims 1–20 under 35 U.S.C. § 101 as directed to patent-ineligible subject matter. Final Act. 11–12.

The Examiner rejected claims 1–20 under 35 U.S.C. § 103(a) as unpatentable over Bartels (US 2007/0162957 A1; pub. July 12, 2007, "Bartels") and Callaghan (US 2007/0061018 A1; pub. Mar. 15, 2007, "Callaghan"). Final Act. 12–18.

ANALYSIS

THE REJECTION UNDER 35 U.S.C. § 101

Claims

Based on the record before us, we are persuaded that the Examiner erred in rejecting claims 1–20 as directed to patent ineligible subject matter.

The Supreme Court, in *Alice*, reiterated the two-step framework previously set forth in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 566 U.S. 66, 82 (2012), "for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts." *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. Ct. 2347, 2355 (2014). The first step in that analysis is to "determine whether the claims at issue are directed to one of those patent-ineligible concepts" (*id.*), for example, to an abstract idea. If the claims are directed to one of the patent-ineligible concepts, the inquiry proceeds to the second step where the elements of the claims are considered "individually and 'as an ordered combination'" to determine whether there are additional elements that "'transform the nature of the claim' into a patent-

eligible application." *Alice*, 134 S. Ct. at 2355 (quoting *Mayo*, 132 S. Ct. at 1297).

With respect to step one of the eligibility analysis, the Examiner finds that the claims are directed to the abstract idea of "exchanging data between client and server using an industrial protocol." Final Act. 11. According to the Examiner, "[t]his concept may reasonably fall under the abstract idea of data recognition and storage." Final Act. 12. With respect to step two of the eligibility test, the Examiner determines that the claims "do not include additional elements that are sufficient to amount to significantly more than the judicial exception." Final Act. 12. According to the Examiner,

> Compression, data transmission, decompression, and encapsulation do not provide significantly more than the abstract idea recited in the claim, since they do not add specific limitations other than what are well-understood, routine, conventional activities in the field and do not result in an improvement to the technology of sending, storing, and receiving data in an industrial protocol system.

Final Act. 7. Further, the Examiner determines that

> It is both conventional and routine in computer network technology to compress a service response payload based on service request and encapsulate the compressed service response payload into a response packet conforming to the industrial data exchange protocol. The claim at best sends/receives request/response using data compression between general purpose computers. Therefore, there 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, the claim is not patent-eligible (Step 2B: NO) and should be rejected under 35 U.S.C. §101.

Ans. 4.

Appellants argue that the Examiner does not identify factual support for the conclusory assertion "that the limitations are conventional and routine. Reply Br. 6. Specifically, Appellants argue

> the Examiner has not provided a factual determination, beyond conclusory statements, that supports the contention that the present claims are "conventional and routine." *See* Examiner's Answer, p. 4. . . .Indeed, as recognized in a recent PTO memorandum relating to changes in examination procedure pertaining to subject matter eligibility, the Deputy Commissioner of Patent Examination Policy clarified that "such a conclusion must be based upon a factual determination that is supported as discussed in section III below [which provides ways for the Examiner to provide the factual determination]." Memorandum regarding Change in Examination Procedure Pertaining to Subject Matter Eligibility Decision of April 19, 2018.

Reply Br. 6–7; *see also* App. Br. 9; Reply Br. 6 (asserting that compressing and encapsulating a service response payload based on a service request conforming to the industrial data exchange protocol is not conventional).

We agree with Appellants. While the Examiner generally finds that the claimed limitations are routine and conventional, the Examiner provides no factual support for this determination. *See Berkheimer v. HP Inc.*, 881 F.3d 1360 (Fed. Cir. 2018). As such, based on the record before us, we are persuaded of error in the Examiner's rejection.

Accordingly, we reverse the Examiner's § 101 rejection of claims 1–20 as directed to patent ineligible subject matter.

THE REJECTION UNDER 35 U.S.C. § 103 BASED ON BARTELS AND CALLAGHAN

Claims 1–20

Based on the record before us, we are not persuaded that the Examiner erred in rejecting claims 1–20 as unpatentable over Bartels and Callaghan.

Appellants argue the combination of Bartels and Callaghan do not teach or suggest compressing a service response payload and encapsulating the compressed service response payload into a response packet conforming to an industrial data exchange protocol. App. Br. 10–12. Namely, Appellants assert that Bartels' control data packets are not compressed or encapsulated. App. Br. 11–12. According to Appellants, Bartels

> teaches that "[i]f data is simply being passed through the link (i.e., from clear interface 202 to secure interface 206, or vice versa) without being encapsulated in an encrypted packet, then compression is not applied." [Bartels], ¶ 96. That is, [Bartels] discloses that data, which is not encapsulated in an encrypted packet, is not compressed.

App. Br. 11–12. Further, Appellants maintain that because Bartels teaches at paragraph 77 that "information, including control information, status requests, and other non-sensitive data, may be transmitted without encryption, even when the device is operating in secure mode," then Bartels' control data packets, including information such as "control information, status requests, and the like," are not encrypted or compressed. App. Br. 12.

We disagree with Appellants' interpretation of Bartels. As shown in Fig. 1 below, Bartels describes a system for communications between a supervisory control and data acquisition (SCADA) control host system 101 and remote terminal systems 121, 120. Bartels ¶¶ 9, 32, Fig. 1.
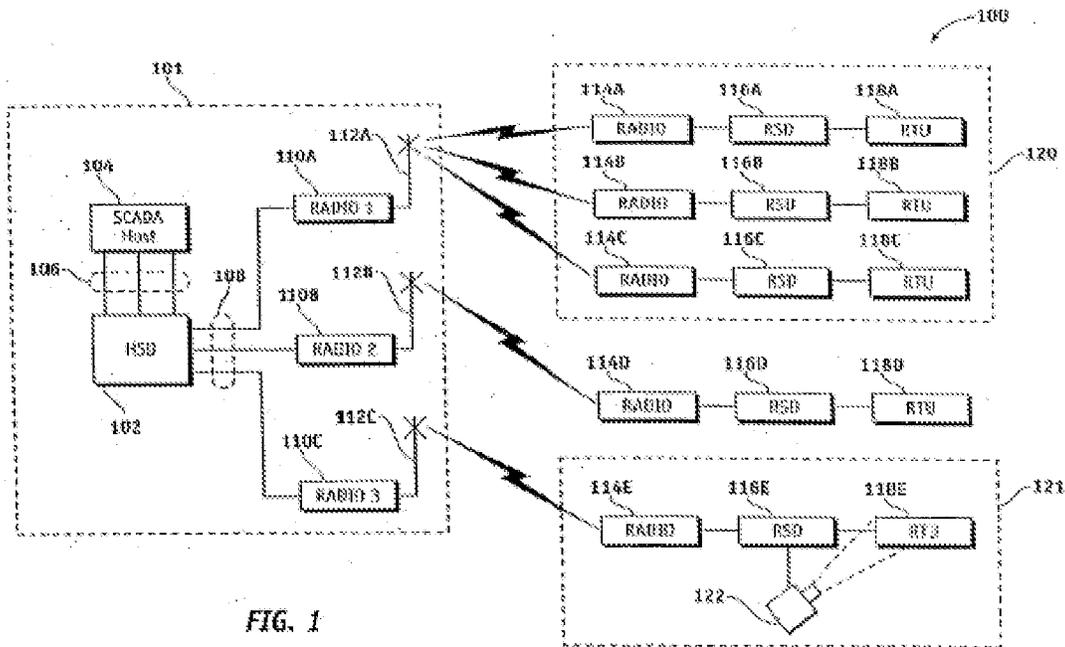
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FIG. 1

As also shown, Bartels' SCADA control host system 101 includes a SCADA
control host 104 and host security device (HSD) 102. Bartels notes that
while these components are shown separately, the components and functions
may be within the SCADA host 104. Bartels ¶ 38. Similarly, each remote
terminal system 121 includes a remote terminal unit (RTU) and a remote
security device (RSD) 116. Bartels Fig. 1. According to Bartels, there is a
need to protect the communications between the host and remote systems
(Bartels ¶¶ 7–8) and, thus, the HSD and RSD are used to encapsulate
communications between them. Bartels ¶ 32; *see also* Final Act. 13, Ans. 5.
Bartels also teaches compressing the communications prior to encryption.
Bartels ¶ 92; *see also* Final Act. 13, Ans. 5.

Turning to Appellants' argument, we agree with the Examiner that
Bartels teaches compressing and encapsulating communications, such as
control information, between the SCADA control host system and a remote

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terminal system. Final Act. 13; Ans. 5; Bartels ¶¶ 36, 91–92. Notably, Bartels refers to not only securely transmitting SCADA information, but also *other data*. Bartels ¶ 91. Further, as Appellants point out, Bartels states that the control information, status requests and other data *may be* transmitted without encryption. In other words, a skilled artisan would understand that control information may be transmitted without encryption, but alternatively may be transmitted *with encryption*. *See also, e.g.*, Ans. 5; Bartels ¶91 (referring to secure transmission of SCADA and *other data* between the host and remote terminals); ¶ 92 (noting that both data and control packets are compressed).

Moreover, Bartels explains that "[t]he various data communications between SCADA host 104 and RTUs 118A-E are referred to herein as 'SCADA information.'" Bartels ¶ 36; *see also* ¶ 32 (noting that the SCADA control host system communicates with the remote terminal systems "to obtain sensor data, provide control instructions, and for other purposes."). A skilled artisan, thus, would understand that data communications in a supervisory control and data acquisition (SCADA) system would include requests and responses. *See* Ans. 5. As Appellants acknowledge, SCADA transmissions in Bartels are encrypted and compressed and, thus, these data communication would also satisfy the claimed limitations.

Then, in the Reply Brief, Appellants argue that Bartels does not teach "encapsulate[ing] the compressed service response payload into a response packet" because Bartels' SCADA information is distinct from the control messages. Reply Br. 7–8. According to Appellants, SCADA information is sent between the SCADA host 104 and RTU 118, whereas control messages are only sent between the HSD and RSD. Reply Br. 8. This argument is

without merit. As discussed above, Bartels describes that the HSD may be included within SCADA host and RSD may be included within the RTU. As such, a skilled artisan would understand that both the SCADA information and the control messages are sent between the SCARA control host system and the remote terminal system. Therefore, we find Appellants' arguments unpersuasive.

Similarly unavailing is Appellants' argument that Bartels and Callaghan combined do not teach a client device that encapsulates a compressed service request in a request packet, as required by claim 1. App. Br. 12–14. Appellants, more specifically, contend that Callaghan is silent regarding encapsulating and that the Examiner concedes that Bartels also does not teach this limitation. App. Br. 13. However, Appellants do not address the Examiner's reliance on Figure 3 of Callaghan depicting that the data request is encapsulated by encapsulating component 308. Ans. 6–7; *see also* Callaghan ¶ 37. Moreover, as discussed above, Bartels also teaches encapsulating both request and response packets between the host and the remote terminals. *See* Ans. 6; Bartels ¶ 91.

Appellants next argue that Bartels lacks the claimed serving device that receives and processes the service request. Reply Br. 7. According to Appellants, "[t]he control data packets taught in Bartels are sent by a host security device (HSD) 102 (allegedly the serving device) and received by remote security devices (RSDs) 116 (allegedly the client devices). *See* Bartels, ¶¶ 59, 66." Reply Br. 7. We understand, though, Bartels' SCADA control host system, i.e. the client device, sends a request to the remote terminal system, i.e. the serving device. Ans. 5 (referring to control data packets that are sent from the SCADA control host system to the remote

terminal system as the claimed request). As such, it is the remote terminal system that receives and processes the service request.

Finally, Appellants assert that a skilled artisan would not have been motivated to combine Bartels and Callaghan. App. Br. 14–15. Namely, Appellants maintain that

> submits that it is unclear why one of skill in the art would incorporate the XML payload taught in Callaghan with the control data packets of [Bartels] to include "human readable meta information about the data provided," when [Bartels] could simply incorporate the "human readable meta information about the data provided" directly in the control data packets of [Bartels] - without using XML format. That is, there appears to be no motivation to use the XML payload if "human readable meta information about the data provided" is directly incorporated into the control data packets of [Bartels].

App. Br. 14; *see also* Reply Br. 10–11 (asserting that Callaghan and Bartels both teach compressing communications and, thus, there would be no benefit from the combination).

The Examiner, though, explains that the combination facilitates reduction of use of available bandwidth (Ans. 6). Further, the Examiner determines that

> It is important to combine Bartels into Callaghan since XML payload which may include human readable meta information is, as one of ordinary skill in the art would know, bandwidth demanding and is best communicated by industrial automation protocol using compression technique.

Ans. 7. Moreover, Bartels describes that the SCADA system may use conventional protocols. *See* Bartels ¶¶ 36, 66; *see also* Bartels ¶ 85 (stating that "the techniques described herein may be used with any type of information and/or any underlying data formats or protocols."). Callaghan teaches using an industrial automation protocol. Callaghan, Abstract. As

such, the cited combination simply combines known methods, needing only routine skill in the art, yielding predictable results and, thus, is an obvious variation. *See KSR International Co. v. Teleflex Inc.*, 550 U.S. 398, 417(2007) (holding that "when a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious.").

Accordingly, based on the record before us, we affirm the Examiner's rejection of claims 1–20 as unpatentable over Bartels and Callaghan.

DECISION

We reverse the Examiner rejection of claims 1–20 as directed to patent ineligible subject matter, but affirm the Examiner's decision to reject claims 1–20 as unpatentable over the cited combination of prior art.

No time period for taking any subsequent action in connection with this appeal may be extended. *See* 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED