

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ABB, INC.
Petitioner

v.

ROY-G-BIV CORPORATION
Patent Owner

Case IPR2013-00063
Patent 6,513,058 B2

Before THOMAS L. GIANNETTI, BRYAN F. MOORE, and
JENNIFER S. BISK, *Administrative Patent Judges*.

BISK, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

ABB, Inc. (“Petitioner”) filed a petition to institute an *inter partes* review of claims 1-5 (the “challenged claims”) of U.S. Patent 6,513,058 B2 (the “’058 patent”). 35 U.S.C. § 311. For the reasons described below, we institute an *inter partes* review of claims 1-5 on only one of the proposed grounds: obviousness over the combination of Gertz, Stewart, and Morrow.

ABB contends that the challenged claims are unpatentable under 35 U.S.C. §§102 and/or 103 based on the following prior art references:

1. Gertz, Matthew W., *A Visual Programming Environment for Real-Time Control Systems*. Ph.D. dissertation, Carnegie Mellon University, Nov. 22, 1994 (Ex. 1002) (“Gertz”);
2. Microsoft Corporation, *WOSA (Windows Open Services Architecture) Extensions for Financial Services*, Revision 1.1, April 14, 1994 (Ex. 1003) (“WOSA/XFS”);
3. Stewart, David B., *Real-Time Software Design and Analysis of Reconfigurable Multi-Sensor Based Systems*. Ph.D. dissertation, Carnegie Mellon University, April 1, 1994 (Ex. 1004) (“Stewart”);
4. Morrow, J. Dan; Nelson, Bradley J.; and Khosla, Pradeep, *Vision and Force Driven Sensorimotor Primitives for Robotic Assembly Skills*. Institute for Software Research, paper 574, January 1, 1995 (Ex. 1005) (“Morrow”);
5. WO 96/38769 (Ex. 1006) (“Brown”);
6. U.S. Patent No. 6,144,895 (Ex. 1007) (“Govindaraj”);
7. U.S. Patent No. 6,411,987 (Ex. 1008) (“Steger”)
8. Michael Wright et al., U.S. Patent No. 5,453,933 (Ex. 1009) (“Wright”); and
9. Parker, J. et. al., Communication Network for a Brushless Motor Drive

System, Sixth Int’l Conference on Electrical Machines and Drives, Sept. 8-10, 1993 (Ex. 1010) (“Parker”).

The specific grounds asserted in the Petition (Pet. 23-47) all are asserted against all the challenged claims as detailed below.

Reference[s]	Basis
Gertz	§ 102
WOSA/XFS	§ 102
Gertz, Stewart, and Morrow	§ 103
Brown and Steger	§ 103
Brown and Govindaraj	§ 103
Brown and Gertz	§ 103
WOSA/XFS, Gertz, and Wright	§ 103
WOSA/XFS and Parker	§ 103

The ’058 patent is involved in concurrent district court litigation. On November 15, 2011, ROY-G-BIV filed an infringement complaint against ABB. *ROY-G-BIV v. ABB et al.*, 11-cv-00622 (E.D. Tex.). That proceeding has not been stayed. *Id.* The ’058 patent also was involved in prior litigation dismissed with prejudice on November 20, 2009. *ROY-G-BIV Corp. v. Fanuc Ltd et al*, 2:07-cv-00418 (E.D. Tex.). A claim construction order was issued in that case. *Id.* at Dkt. No. 194 (Aug. 25, 2009) (Ex. 2002) (“Markman Order”).

ABB also has filed Petitions in IPR2013-00062, involving U.S. Patent No. 6,516,236 (the “236 patent”), and IPR2013-00074, involving U.S Patent No. 8,073,557 (the “557 patent”). All three patents claim priority to application 08/454,736 (the “736 application”), now U.S. Patent 5,691,897. In separate decisions, we instituted trials on some of the challenged claims in both IPR2013-

00062 and IPR2013-00074. *See* IPR2013-00062, Paper 23 (“Decision IPR2013-00062”); *See* IPR2013-00074, Paper 17 (“Decision IPR2013-00074”).

For the reasons discussed below, in this case, we institute a trial on one ground, obviousness over Gertz, Stewart, and Morrow, for all of the challenged claims.

B. The Invention

The technology of the ’058 patent is described in Decision IPR2013-00062 at pages 3-5. For the purposes of this decision we adopt that prior description.

Claim 1 is reproduced below, with emphasis added:

1. A system for allowing an application program to communicate with any one of a group of supported hardware devices, the system comprising:
 - a software system operating on at least one workstation, the software system comprising
 - at least one application program comprising a set of component functions defining a desired motion sequence, the desired motion sequence being comprised of *primitive operations that are necessary to define the desired motion sequence* and non-primitive operations that may be simulated using a combination of primitive operations,
 - a core set of core driver functions, where each core driver function is associated with one of the primitive operations,*
 - an extended set of extended driver functions, where each extended driver functions is associated with one of the non-primitive operations,
 - component code associated with each of the component functions, where the component code associates at least some of the component functions with at least some of the driver functions,
 - a set of software drivers, where each software driver is associated with one of the hardware devices and comprises driver code for implementing the driver functions, and

a control command generating module for generating control commands based on the component functions of the application program, the component code associated with the component functions, and the driver code associated with the software drivers; and

a network communication protocol that allows the control commands to be communicated from the control command generating module on the at least one workstation to at least one of the supported hardware devices over a network.

C. Claim Construction

As a step in our analysis for determining whether to institute a trial, we determine the meaning of the claims. Consistent with the statute and the legislative history of the AIA, the Board will interpret claims using the broadest reasonable construction. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48756, 48766 (Aug. 14, 2012); 37 CFR § 42.100(b). ABB submits proposed interpretations for several claim terms. Pet. 24-33.

Patent Owner specifically addresses only the proposed interpretations of the terms “primitive operations” and “core driver functions.” Prelim. Resp. 21-24. Except for those two terms, Petitioner’s proposed interpretations do not appear unreasonable at this stage of the proceeding. We adopt them for the purposes of this decision.

1. Primitive Operations

Petitioner’s proposed interpretation of the claim term “primitive operation” suffers from the same problem in this petition as that described in Decision IPR2013-00062 at pages 6-9. Because the specification of the ’058 patent recites the same explicit definition of the term as the ’236 patent (col. 6, ll. 50-55), we adopt the analysis of that in Decision IPR2013-00062 for this case. Thus, for purposes of this decision, we construe the claim term “primitive operation” to be

an operation necessary for motion control and that cannot be simulated using a combination of other motion control operations.

2. Core Driver Functions

Petitioner's proposed interpretation of the claim term "core driver functions" also suffers from the same problem in this petition as described in Decision IPR2013-00062 at pages 9-10. Again, we adopt the analysis of the prior decision for this case. Thus, for purposes of this decision, we construe the claim term "core driver function" to be software associated with one of the primitive operations.

3. Motion Control Device

Neither party explicitly addresses the interpretation of the claim term "motion control device." However, Patent Owner argues that motion control devices "perform operations relating to, among other things, positioning, velocity, and acceleration." Prelim. Resp. 39. Patent Owner provides several exemplary motion control functions, and states those examples with relatively preclusive effect, leaving us with the clear implication that motion control devices would not also include extensions related to opening and closing the shutter of an ATM machine. *Id.* (citing '058 patent Exhibit B). Patent Owner, however, does not point to any language in the '058 patent that restricts the broadest reasonable interpretation of the term to exclude the movement of an ATM shutter. We are not persuaded that the interpretation of motion control devices should be so limited.

The specification explicitly states that the basic components of a motion control device are "a controller and a mechanical system" where "[t]he mechanical system translates signals generated by the controller into movement of an object." '058 patent, col. 1, ll. 25-28. This definition reasonably comports with the plain and ordinary meaning of a motion control device. Thus, for purposes of this

decision, we construe the claim term “motion control device” to include any hardware device with a controller and a mechanical system that translates signals generated by the controller into the movement of an object.

II. ANALYSIS

A. Overview

For the reasons described below, we institute *inter partes* review on claims 1-5 only for the ground of obviousness over the combination of Gertz, Stewart, and Morrow.

B. Priority Date for the '058 Patent Claims

On its face, the '058 patent claims priority to application No. 08/454,736 (the “'736 application”), filed May 30, 1995, now U.S. Patent 5,691,897 (the “'897 patent”). Petitioner asserts that the challenged claims are not entitled under 35 U.S.C. § 120 to the filing date of the '736 application because the claimed limitations “network communication protocol” and “over a network” (collectively, the “networking elements”) were not properly supported until February 27, 2001, the filing date of application 09/795,777, from which the '058 patent issued.¹ Pet. 9-13.

In this case, whether the '058 patent is entitled to an effective filing date of May 30, 1995 is relevant because at least one of the asserted references post-dates the '736 application. In particular, Petitioner cites Brown in challenging the patentability of the '058 patent. Brown is a PCT application that also claims priority to the '736 application. It also shares the same two inventors—David W.

¹ The Petition actually states that: “These elements are not disclosed by the Priority Applications.” Pet. 9. We assume that, although undefined, “Priority Applications” refers to all the applications to which the '058 patent claims priority—defined as “Prior Applications”—on page 3 of the Petition.

Brown and Jay S. Clark—and the same assignee—Patent Owner, Roy-G-Biv Corporation—as the '058 patent. Because Brown's effective filing date is presumptively that of the '736 application, May 30, 1995, it is only eligible as prior art if the '058 patent is not entitled to claim priority back to the '736 application.

Petitioner contends that the '736 application does not disclose a “network communication protocol that allows the control commands to be communicated from the control command generating module on the at least one workstation to at least one of the supported hardware devices over a network” and therefore the claims of the '058 patent do not have written description support in the '736 application. Pet. 9-10. Petitioner bases this contention on arguments made to the Office during prosecution of the '058 patent. Pet. 10-11. The pertinent prosecution history is summarized below.

During prosecution, the Examiner rejected claims 1-5 of the '058 patent under 35 U.S.C. § 103 as obvious over Brown combined with U.S. Patent 5,764,155 (“Kertesz”). Ex. 1022 (Non-Final Office Action mailed May 6, 2002 (“Office Action”)) at 2. The Examiner found that Brown disclosed all the limitations of the claims except “a network communication protocol that allowed communication over a network.” *Id.* at 3. The Examiner relied on Kertesz for teaching the network communication protocol. *Id.* On August 8, 2002, the applicants responded to the rejection, explaining that the application claims priority to the '736 application, and therefore Brown is not eligible prior art. Ex. 1023 (“Response”) at 1. The response also stated that the '736 application uses the term “OLE” to refer to the claimed network communications protocol, and that “‘OLE’ refers to a cross-platform system object model and is well known to skilled artisans as a reference to a component . . . that allows communications between separate software processes,” including “between processes running on separate processes

running on separate computers that communicate over a network.” *Id.* at 2. Applicants added that “release 2.0 of the OLE system was adapted in approximately 1994 for use in a networked environment.” *Id.* Applicants then quote from several references that “support the Applicant’s [sic] contention that the ’736 application as filed contained support for claims 1-5 as presented.” *Id.* at 2-4. The Office mailed a Notice of Allowance of claims 1-5 on August 27, 2002.

According to Petitioner, the ’736 application fails to supply proper written description for the networking limitations of the ’058 patent because: (1) OLE did not have network communication capability on May 30, 1995, the asserted priority date (Pet. 11 (citing Ex. 1028 (DEVELOPERS GET A PEEK AT NETWORK OLE, CNET News.com, March 11, 1996 (“CNET”))); and (2) nothing in the specification discloses that OLE is used to convey “control commands” to “hardware devices” as claimed (Pet. 11-12). We address these arguments in turn.

First, we are not persuaded by Petitioner’s argument that OLE did not have the required network communication capability until the arrival of Network OLE (also referred to as Distributed COM or DCOM). As evidence of this assertion Petitioner cites to a two-page article from March 1996 discussing “Network OLE technology.” This article states that prior to the implementation of Network OLE, “users could move the objects [defined by OLE] over a network,” however, “the network couldn’t keep track of where the objects were stored.” CNET at 1. This is evidence that prior to 1996, OLE objects *could*, in fact, be communicated over a network. Nothing in the claims requires anything more than that. The other references cited by Petitioner similarly make clear that Network OLE addressed functionality beyond mere communication over a network. Therefore, the date on which Network OLE was developed and publicly available is irrelevant to the claims at issue. Petitioner also does not address the evidence referred to in the

Response as supporting the contention that prior to May 30, 1995, OLE 2.0 supported communication over a network. Thus, we are not persuaded that Petitioner has shown sufficiently that OLE did not have the required network communication capability on May 30, 1995.

Second, we are not persuaded that the specification fails to disclose that OLE is used to convey “control commands” to “hardware devices” as claimed. To support this assertion, Petitioner argues that: “In the Prior Applications, the streams 28 convey control commands to motion control device(s) and there is no mention of OLE in association with the streams 28. At most, these simply describe the software system operating on a single personal computer. (*See, e.g., '058, Fig. 1.*)” Pet. 11-12. We agree that the '058 specification discloses that streams 28 transmit control commands to the motion control devices. '058, col. 6, ll. 5-8; '736 application p. 14, ll. 12-16. However, we find language in the '736 application (the relevant figures and language in the '736 application is identical to the '058 specification) that describes OLE in association with those streams. For example, Figure 33 shows a “CStreamObject” in conjunction with a “Standard OLE 2.0 Interface.” '058 patent, Fig. 33. That figure is described in the specification as “an interface map of the objects comprising the stream shown in FIG. 22” and Figure 22 in turn “is a module interaction map of the streams used by the system shown in FIG. 1.” '058 patent, col. 4, ll. 40-48. Thus, we are not persuaded that the specification of the '736 application fails to disclose the network elements as claimed.

Petitioner also contends that the '736 application fails to enable the networking elements of the '058 patent because “Network OLE (DCOM) was proprietary to Microsoft until summer 1996” and the applications filed after 1996 “did not identify DCOM, let alone enable the ordinary artisan to implement

systems using it.” Pet. 12-13. As discussed above, we are not persuaded that the claims require the use of Network OLE. Thus, we are not persuaded that the ’736 application fails to enable the claimed invention.

Because we are not persuaded by Petitioner’s contention that the challenged claims are not eligible under 35 U.S.C. § 120 for the filing date of the ’736 application, Petitioner has not shown sufficiently that Brown is eligible as prior art for purposes of this decision. Thus, we decline to institute *inter partes* review based on obviousness over Brown combined with Steger, Govindaraj, or Gertz.

C. Gertz

The Gertz reference is described in Decision IPR2013-00062 at page 12. For the purposes of this decision we adopt that prior description.

1. Whether Gertz is Cumulative

Patent Owner argues that Gertz is the same or substantially the same as the references considered during the original prosecution, and the *Inter Partes* Reexamination of the ’058 patent. Prelim. Resp. 35-37. As explained in Decision IPR2013-00062 at page 13, we decline to reject the petition solely on the ground that a reference related to the operating system upon which Gertz’s system is based is included on an eight-page list of references on the ’058 patent reexamination certificate.

2. Anticipation

Petitioner asserts that Gertz discloses each and every element of all the challenged claims. Pet. 2, 23-33. Patent Owner responds that Gertz does not disclose “primitive operations” or “core driver functions” as required by all the claims. Prelim. Resp. 28-33. For the reasons explained in Decision IPR2013-00062 at pages 13-15, we are not persuaded that Petitioner has shown that the

operations performed by the control tasks in Gertz are primitive operations. We also are not persuaded that Petitioner has shown that control tasks are core driver functions that are “associated with one of the primitive operations.”

Thus, we are not persuaded that there is a reasonable likelihood that Petitioner would prevail on a challenge of anticipation over Gertz, and we therefore decline to institute *inter partes* review based on this ground.

3. Obviousness over Gertz, Stewart, and Morrow

Petitioner asserts that all the challenged claims would have been obvious over the combination of Gertz, Stewart, and Morrow. Pet. 40-42. Stewart is a Ph.D. dissertation describing the “design and analysis of reconfigurable real-time software . . . based on modelling software modules as dynamically reconfigurable port-based objects.” Stewart 11. Morrow is a paper describing a “sensorimotor command layer” for integrating sensors into robot systems. Morrow Abstract. It discloses “trajectory primitives” that “encapsulate[] . . . robot trajectory specifications” including “movedx.” *Id.* at § 2.

Petitioner relies on Stewart as describing the provision of device drivers for use with a motion control system, and Morrow for the use of motion primitives and their combination to create complex trajectories. Pet. 40. Morrow uses terminology similar to the '058 patent, describing “trajectory primitives.” Morrow § 2. We agree with Petitioner that Morrow’s description of the implementation of three trajectory primitives: movedx that “applies a Cartesian velocity over time to achieve the specified Cartesian differential motion,” ldither that “implements a linear sinusoidal velocity signal at the specified frequency for the specified number of cycles,” and rdither that “implements a rotary sinusoidal velocity signal at the specified frequency for the specified number of cycles,” implies that these operations are required to operate the relevant motion control device, and that they

cannot be simulated using other motion control operations. *Id.* Thus, these three trajectory primitives are equivalent to the claimed “primitive motion operations.” Morrow also describes non-primitive operations as “[c]omplex trajectories” that “can be specified by combining trajectory primitives” for example “to implement an ‘exploration’ of an area.” *Id.* These “complex trajectories” are equivalent to the claimed “non-primitive motion operations,” and further demonstrate that Morrow’s trajectory primitives are indeed equivalent to the motion primitives of the ’058 patent. Thus, Morrow’s trajectory primitives qualify as the recited primitive operations.

Patent Owner responds that neither Morrow nor Stewart discloses core driver functions because they rely on “port based objects,” which are not actually functions because they rely on shared memory for communication. Prelim. Resp. 55-56. Patent Owner also argues that Morrow lacks driver functions and instead discloses only robot-specific commands. *Id.* This argument is not persuasive. Petitioner relies on *Gertz* (not Morrow or Stewart) for the disclosure of core driver functions. *Gertz* describes control tasks, which are functions associated with motion operations. *See Gertz* § 3.3. We are persuaded that there is a reasonable likelihood that the combination of Morrow’s trajectory primitives and *Gertz*’s disclosure of functions that are associated with motion operations would have made the claimed “primitive operations” and “core driver functions” obvious to a person of ordinary skill. We also find persuasive Petitioner’s reasoning that the remaining limitations of independent claims 1 and 4 and dependent claims 2, 3, and 5 are disclosed by *Gertz* and Stewart. *See Pet.* 47-58.

Petitioner asserts that a person of ordinary skill would have combined the three references in order to reduce the cost of motion control applications. *Pet.* 42. In addition, the three references were written at the same research center at about

the same time. *Id.* Patent Owner argues that Gertz teaches away from primitive operations because it operates at a much higher level than that of primitives. Prelim. Resp. 56 (citing Gertz § 2.2). We are not persuaded by this argument. First, we are not persuaded that Gertz operates at a “much higher level” than the recited primitives. Gertz describes many different levels that build upon each other—some of these levels are described as low-level. *See* Gertz § 3.2. While, as discussed above, we have not been directed to language in Gertz disclosing that the operations performed by control tasks are necessarily primitive operations as claimed, it does not follow that Gertz is at a “much higher level.” To support its position, Patent Owner points to language in Gertz that describes prior art textual languages as introducing “built-in” commands that “eliminate[] the need to develop code for motion primitives.” Prelim. Resp. 27-28 (quoting Gertz § 2.2). However, this language in Gertz does not support Patent Owner’s contention that Gertz is at a “much higher level” than motion primitives. Instead, the context of that language makes it clear that Gertz was distinguishing itself from the prior art textual languages, in that programs created with Gertz’s system are not difficult to read and are not robot-specific like the prior art. *See* Gertz § 2.2. Nothing in the cited section of Gertz leads to a conclusion that the system described by Gertz does not have a need to develop code for motion primitives. Thus, we are not persuaded that Gertz teaches away from using primitive operations as claimed.

We have reviewed Petitioner’s contentions and are persuaded that Petitioner has shown a reasonable likelihood of prevailing on the ground of obviousness over Gertz, Stewart, and Morrow for claims 1-5.

C. WOSA/XFS

WOSA/XFS is described in Decision IPR2013-00062 at pages 19-20. For the purposes of this decision we adopt that prior description.

1. Whether WOSA/XFS is Cumulative

Patent Owner argues that WOFA/XFS is the same or substantially the same as the references considered during the original prosecution, and in the *Inter Partes* Reexamination of the '058 patent. Prelim. Resp. 51-53. As explained in the prior Decision at page 20, we decline to reject the petition here solely on the ground that allegedly similar references may have been considered during the prosecution and reexamination of the '058 patent or that another reference made reference to WOSA/XFS.

2. Anticipation

Petitioner asserts that WOFA/XFS discloses each and every element of all the challenged claims. Pet. 2, 33-40. Patent Owner responds that WOSA/XFS does not disclose “primitive operations” or “core driver functions” as required by all the claims. Prelim. Resp. 33-39. For the reasons explained in Decision IPR2013-00062 at pages 20-21, we are not persuaded that Petitioner has shown that the operations performed by OPEN_SHUTTER and CLOSE_SHUTTER in WOSA/XFS are primitive operations. We are not persuaded also that Petitioner has shown that the corresponding SPI functions are core driver functions that are “associated with one of the primitive operations.”

Thus, we are not persuaded that there is a reasonable likelihood that Petitioner would prevail on a challenge of anticipation over WOSA/XFS and we decline to institute *inter partes* review based on this ground.

3. Obviousness over WOSA/XFS, Gertz, and Wright

Petitioner asserts that all the challenged claims would have been obvious over the combination of WOSA/XFS, Gertz, and Wright. Pet. 45-46. Petitioner relies on Wright as disclosing “how middleware technology can improve motion

control systems, providing further motivation [sic] modify WOSA (a middleware system) for motion control devices (i.e., to create WOSA/XFS and/or combine it with Gertz).” *Id.* at 46.

For the reasons articulated above, we find that Petitioner has not shown that either Gertz or WOSA/XFS discloses primitive operations as claimed. Because Petitioner does not point to any disclosure in Wright for this limitation, we decline to institute an *inter partes* review on the basis that the challenged claims would have been obvious over the combination of WOSA/XFS, Gertz, and Wright.

4. Obviousness over WOSA/XFS and Parker

Petitioner asserts that all the challenged claims would have been obvious over a combination of WOSA/XFS and Parker. Pet. 46-47. Petitioner appears to rely on Parker for additional support for controlling motion control devices over a network. *Id.* at 46; *see also* 53, 55, 56. Petitioner does not explain how Parker discloses primitive operations as claimed. Therefore, we are not persuaded that Parker makes up for the deficiencies described in WOSA/XFS above.

Thus, we decline to institute an *inter partes* review on the basis that the challenged claims would have been obvious over the combination of WOSA/XFS and Parker.

D. Conclusion

ABB has demonstrated that there is a reasonable likelihood of prevailing on its challenge to the patentability of the claims 1-5 as obvious over Gertz combined with Stewart and Morrow. ABB has not demonstrated a reasonable likelihood of prevailing on any of the other asserted grounds.

ORDER

It is

ORDERED that the Petition is *granted* as to claims 1-5 of the '058 patent on the alleged ground of obviousness over Gertz, Stewart, and Morrow under U.S.C. § 103;

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), a trial for *inter partes* review of the '058 patent is hereby instituted, commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of trial;

FURTHER ORDERED that the trial is limited to the one above-stated ground of obviousness directed to claims 1-5, and that no other ground for any claim is authorized for trial; and

FURTHER ORDERED that an initial conference call with the Board is scheduled for **2 PM ET on June 27, 2013**; the parties are directed to the Office Trial Practice Guide, 77 Fed. Reg. 48756, 48765-66 (Aug. 14, 2012) for guidance in preparing for the initial conference call, and should come prepared to discuss any proposed changes to the Scheduling Order entered herewith and any motions the parties anticipate filing during the trial.

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