

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

NETAPP, INC. and HEWLETT PACKARD ENTERPRISE CO.,
Petitioner,

v.

KOM SOFTWARE, INC.,
Patent Owner.

Case IPR2019-00591
Patent 6,438,642 B1

Before KIMBERLY McGRAW, DANIEL J. GALLIGAN, and
BRENT M. DOUGAL, *Administrative Patent Judges*.

GALLIGAN, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

NetApp, Inc. and Hewlett Packard Enterprise Co. (collectively “Petitioner”) filed a Petition requesting *inter partes* review of claims 1–7, 10, 16, 17, and 20 of U.S. Patent No. 6,438,642 B1 (“the ’642 patent,” Ex. 1001). Paper 3 (“Pet.”). KOM Software, Inc. (“Patent Owner”) filed a Preliminary Response. Paper 9 (“Prelim. Resp.”). Under 37 C.F.R. § 42.4(a), we have authority to determine whether to institute review.

The standard for instituting an *inter partes* review is set forth in 35 U.S.C. § 314(a), which provides that an *inter partes* review may not be instituted unless the information presented in the Petition and the Preliminary Response shows “there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

After considering the Petition, the Preliminary Response, and associated evidence, we institute an *inter partes* review as to all challenged claims and on all grounds raised in the Petition.

A. *Related Matters*

As required by 37 C.F.R. § 42.8(b)(2), the parties identify various related matters. Pet. 69–70; Paper 5, 2–3; Paper 8, 2–3.

B. *Real Parties in Interest*

The parties identify themselves as the real parties in interest. Pet. 69; Paper 5, 2; Paper 8, 2.

C. *The ’642 Patent and Illustrative Claim*

The ’642 patent relates to computer storage and discloses various purported problems in the art. Ex. 1001, 1:14–65. For example, the ’642 patent explains that computers have limited storage in their hard drives and

that increasing storage may require adding a hard drive, which can be costly and inconvenient. Ex. 1001, 1:14–45. To address this and other purported drawbacks of the art, the '642 patent discloses providing a virtual storage medium that is made up of physical storage media and that can be upgraded without affecting users. Ex. 1001, 1:66–2:1. Figures 2 and 3 of the '642 patent are reproduced below.

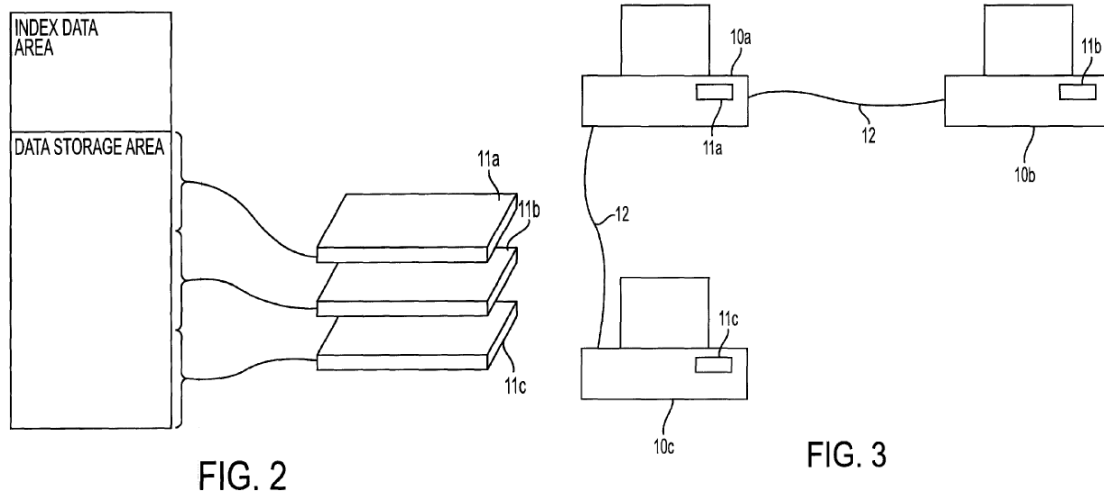


Figure 2, reproduced above on the left, depicts a virtual storage device having an index data area and having a data storage area made up of three hard disk drives, denoted 11a, 11b, and 11c. Ex. 1001, 3:26–40. The index data area stores information used to locate data stored in the virtual storage medium. Ex. 1001, 3:41–54. Figure 3, reproduced above on the right, shows a network of three computers, 10a, 10b, and 10c, having disk drives 11a, 11b, and 11c that are used to form a single virtual storage medium. Ex. 1001, 3:57–62. The '642 patent explains that each of the disk drives has an area for local file storage for the user of that computer and another area that forms part of the virtual storage medium. Ex. 1001, 3:62–64.

Of the challenged claims, claims 1 and 16 are independent. Claim 1 is illustrative and is reproduced below.

1. A method of providing automated file management comprising the steps of storing data in a virtual file-based non-volatile storage medium comprising:

providing said virtual file-based non-volatile storage medium having a file-based automated file management file system interfacing with a plurality of file system storage partitions of a plurality of corresponding physical non-volatile storage media associated therewith, locations within each physical non-volatile storage medium of said plurality of corresponding physical non-volatile storage media corresponding to locations within said virtual file-based non-volatile storage medium;

providing data for storage in said virtual file-based non-volatile storage medium using said file-based automated file management file system;

determining any free space at said locations within said virtual file-based non-volatile storage medium, said free space sufficient for storing the provided data, locations having said any free space corresponding to said locations within said plurality of corresponding physical non-volatile storage media having available non-volatile storage space therein;

storing the provided data at said locations having said any free space; and

storing index information for the stored data.

D. References

Petitioner relies upon the following references:

Cannon	US 5,983,239	Nov. 9, 1999, filed Oct. 29, 1997	Ex. 1008
Carter	US 5,987,506	Nov. 16, 1999, filed May 2, 1997	Ex. 1005
Frey	US 6,029,168	Feb. 22, 2000, filed Jan. 23, 1998	Ex. 1006
Mutalik	US 6,161,111	Dec. 12, 2000, filed Mar. 31, 1998	Ex. 1007

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Reference(s)	Basis ¹	Claim(s)
Carter	§ 103	1, 2–6, and 16
Carter and Frey	§ 103	5
Carter and Mutalik	§ 103	3–5
Carter, Frey, and Mutalik	§ 103	5
Carter and Cannon	§ 103	7, 10, 17, and 20

II. ANALYSIS

A. Claim Construction

The Petition was accorded a filing date of January 24, 2019. Paper 4, 1. In an *inter partes* review for a petition filed on or after November 13, 2018, a claim “shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b); *see* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018).

Neither party asserts that any construction of claim terms is required to resolve issues in dispute. For purposes of this Decision, we do not find it necessary to construe expressly any claim terms. *See, e.g., Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (“[W]e need only construe terms ‘that are in controversy, and

¹ The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. §§ 102 and 103 that became effective after the filing of the application for the ’642 patent. Therefore, we apply the pre-AIA versions of these sections.

only to the extent necessary to resolve the controversy’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

B. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) any secondary considerations,² if in evidence. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art

Citing the testimony of its declarant, Dr. Darrell Long, Petitioner asserts the following:

A person of ordinary skill at the time of the purported invention of the ’642 patent would have held either a bachelor’s degree in computer engineering or computer science with two years of experience in the field of data storage management or a master’s degree in either discipline with an emphasis on data storage management.

Pet. 11 (citing Ex. 1002 ¶ 30). Patent Owner states that it “does not take issue with Petitioners’ proposed definition of a person of ordinary skill in the

² Patent Owner does not present arguments or evidence of such secondary considerations in the Preliminary Response.

art at this time.” Prelim. Resp. 5. For purposes of this Decision, we adopt Petitioner’s assessment.

*D. Alleged Obviousness over Carter
(Claims 1, 2–6, and 16)*

Petitioner asserts claims 1, 2–6, and 16 of the ’642 patent are unpatentable under 35 U.S.C. § 103 as obvious over the teachings of Carter. Pet. 11, 21–51.

1. Carter

Carter discloses a globally addressable storage environment that allows data to be shared among various computers on multiple networks. Ex. 1005, [57]. Carter discloses creating a “virtual storage space” that spans each storage device connected to a network such that “all data stored on the network can be stored within the virtual space and the actual physical location of the data can be in any of the storage devices connected to the network.” Ex. 1005, 3:10–17.

2. Independent Claim 1

a. Providing virtual non-volatile storage medium

Independent claim 1 recites “[a] method of providing automated file management comprising the steps of storing data in a virtual file-based non-volatile storage medium comprising” five steps recited in the claim. The first step of claim 1 recites the following:

providing said virtual file-based non-volatile storage medium having a file-based automated file management file system interfacing with a plurality of file system storage partitions of a plurality of corresponding physical non-volatile storage media associated therewith, locations within each physical non-volatile storage medium of said plurality of corresponding physical non-volatile storage media corresponding to locations within said virtual file-based non-volatile storage medium.

Petitioner contends Carter’s virtual storage space teaches the claimed “virtual file-based non-volatile storage medium.” Pet. 22–24. Carter discloses that “[t]he environment in which the invention operates includes systems that create and manage a *virtual storage space* shared by each computer on a network.” Ex. 1005, 3:10–12 (emphasis added). Petitioner contends Carter teaches that its virtual storage space is “non-volatile,” as recited in claim 1, “because it comprises hard disks that store data in a persistent form, which is how a person of ordinary skill in the art would have understood the term ‘non-volatile’ at the time the ’642 patent was filed.” Pet. 22–23 (citing Ex. 1002 ¶ 49; Ex. 1005, 3:50–54, 3:65–4:5, 4:17–37, 4:62–67, 7:20–38). Patent Owner argues Carter discloses using both volatile and non-volatile memory and, therefore, does not teach “an exclusively non-volatile storage space,” as allegedly required in claim 1. Prelim. Resp. 12–13 (citing Ex. 1005, 3:10–13). Claim 1, however, does not prohibit the presence of volatile memory. Rather, it affirmatively recites “non-volatile storage,” and Petitioner relies on Carter’s disclosure of persistent data storage to teach non-volatile storage. *See, e.g.*, Pet. 23 n.4 (citing Ex. 1002 ¶ 49) (“*Carter’s* shared memory system may include both volatile and non-volatile storage devices, but only its non-volatile storage devices are used for persistent data storage.”). Referring to Figure 1, Carter discloses that

shared memory subsystems provide the network nodes with access to an addressable shared memory space, wherein at least a portion of that space is assigned to at least a portion of one or more of the *persistent storage memory devices* (e.g., *hard disks*) to allow the nodes addressably to store and retrieve data to and from the one or more persistent storage memory devices.

Ex. 1005, 7:28–34 (emphasis added). On this record, we are persuaded Carter’s disclosure of storing data in persistent storage devices such as hard disks teaches “non-volatile storage.”

Petitioner also contends Carter’s virtual storage space is “file-based,” as recited in claim 1, because Carter discloses that its system can be a file system that is used to store files. Pet. 23–24 (citing Ex. 1005, 5:13–23, 6:3–5, 6:22–30, 8:25–60; Ex. 1002 ¶¶ 49–51). Patent Owner argues Carter discloses a directory manager rather than file-based storage. Prelim. Resp. 13 (citing Ex. 1005, 17:45–64, 18:6–7). Patent Owner’s argument, however, ignores Carter’s disclosure of storing files in a file system. For example, Carter discloses that “FIG. 2 is a diagram of one possible embodiment of the system of FIG. 1, namely a distributed addressable shared memory file system providing storage for computer files such as source code files, wordprocessing documents files, etc.” Ex. 1005, 5:13–17. On this record, we are persuaded by Petitioner’s contention that Carter teaches “file-based non-volatile storage.”

Petitioner also contends Carter’s disclosure that its file system has certain automatic features teaches “a file-based automated file management file system,” as recited in claim 1. Pet. 21 (citing Ex. 1005, 8:43–46, 10:8–9; Ex. 1002 ¶ 47). For example, Carter discloses that file system 60 of Figure 2 “automatically replicates data for redundancy and fault tolerance” and “automatically and dynamically migrates data to account for varying network usage and traffic patterns.” Ex. 1005, 8:42–50. Patent Owner cites various disclosures of the ’642 patent, such as automated file sharing, optimization, and archiving, in an attempt to distinguish Carter’s disclosure from the claimed subject matter. Prelim. Resp. 9–10 (citing Ex. 1001, 4:29,

4:64–67, 5:8–11, 5:13–29, Fig. 7). Claim 1, however, does not recite these features, and, therefore, these arguments are not commensurate with the scope of claim 1. Patent Owner also argues that “Carter’s reference to a ‘file’ is merely to indicate a directory manager (that can be used by a file system), which manages ‘directory pages,’ or file sets, containing signals or pointers for data storage locations—not managing the files themselves.” Pet. 11 (citing Ex. 1005, 6:21–25, 9:3–9, 10:6–24). Carter, however, discloses using filesets for file system management, noting that “[a] benefit of breaking up the file system 60 into filesets 66-74 is that it provides more flexible file system management for users of the system 60.” Ex. 1005, 9:10–12. Thus, we disagree with Patent Owner’s argument that Carter does not teach file management. On this record, we are persuaded Carter’s disclosure of a file system having certain automated functions teaches “a file-based automated file management file system,” as recited in claim 1.

Petitioner also contends Carter teaches that its virtual storage system “interface[es] with a plurality of file system storage partitions of a plurality of corresponding physical non-volatile storage media associated therewith, locations within each physical non-volatile storage medium of said plurality of corresponding physical non-volatile storage media corresponding to locations within said virtual file-based non-volatile storage medium,” as recited in claim 1. Pet. 25–28. In particular, Petitioner relies on Carter’s disclosure that the virtual storage space is made up of storage from multiple computers. Pet. 25–27 (citing Ex. 1005, 3:1–4:17, 6:4–14, 7:27–34, 9:1–4; Ex. 1002 ¶¶ 55–59). Petitioner also relies on Carter’s disclosure of mapping the virtual storage space to persistent storage devices on the network. Pet. 27–28 (citing Ex. 1005, 8:34–39, 16:12–16, 16:21–2; Ex. 1002 ¶ 60).

Referring to Figure 1, Carter discloses that a portion of the shared memory space “is assigned to at least a portion of one or more of the persistent storage memory devices (e.g., hard disks) to allow the nodes addressably to store and retrieve data to and from the one or more persistent storage memory devices.” Ex. 1005, 7:27–34. Carter further discloses that

file system 60 manages the mapping of a directory and file structure onto a distributed addressable shared memory system 20 which has at least a portion of its addressable space mapped or assigned to at least a portion of one or more persistent storage devices (e.g., hard disks) on the network.

Ex. 1005, 8:32–39.

On this record, we are persuaded Carter teaches

providing said virtual file-based non-volatile storage medium having a file-based automated file management file system interfacing with a plurality of file system storage partitions of a plurality of corresponding physical non-volatile storage media associated therewith, locations within each physical non-volatile storage medium of said plurality of corresponding physical non-volatile storage media corresponding to locations within said virtual file-based non-volatile storage medium,

as recited in claim 1.

b. Providing data for storage

Claim 1 recites “providing data for storage in said virtual file-based non-volatile storage medium using said file-based automated file management file system.” Petitioner contends Carter’s disclosure of a user storing data in the shared memory system teaches this subject matter.

Pet. 28–29 (citing Ex. 1005, 6:56–68, 7:43–60, 7:65–8:4, 8:17–21, 8:25–30, Fig. 1; Ex. 1002 ¶¶ 63–65). Referring to Figure 1, Carter discloses that “a system user at node 12a can direct object 50a to be inserted at a set location

within the data store 28.” Ex. 1005, 8:17–19. On this record, we are persuaded Carter teaches this subject matter.

c. Determining free space

Claim 1 recites “determining any free space at said locations within said virtual file-based non-volatile storage medium, said free space sufficient for storing the provided data, locations having said any free space corresponding to said locations within said plurality of corresponding physical non-volatile storage media having available non-volatile storage space therein.” Petitioner contends Carter’s disclosure that its file system determines free space available for allocation teaches this subject matter. Pet. 30–32 (citing Ex. 1005, 3:36–40, 12:40–43, 12:59–13:3; Ex. 1002 ¶¶ 66–72). Carter discloses the following:

Similar to the [WindowsNT File System (NTFS)], which controls the allocation of each disk partition and therefore can quickly determine the free volume space available for allocation, the file system 60 requests the total available space information and uses this information to quickly determine whether to proceed with the allocation processing. If the total available space is less than the required allocation size, the request is denied immediately. Otherwise, the file system 60 will proceed to allocate the pages to satisfy the request.

Ex. 1005, 12:59–67. As discussed above, Carter discloses that file system 60 uses persistent storage devices of computers on the network to store data. Ex. 1005, 7:27–34, 8:32–39.

On this record, we are persuaded Carter teaches “determining any free space at said locations within said virtual file-based non-volatile storage medium, said free space sufficient for storing the provided data, locations having said any free space corresponding to said locations within said

plurality of corresponding physical non-volatile storage media having available non-volatile storage space therein.”

Petitioner also argues that Carter teaches this subject matter “if one were to interpret ‘free space’ as requiring storage locations that have either never held data or have had any residual data expunged.” Pet. 33. Although claim 1 is not so limited, we have reviewed Petitioner’s contentions, and we are persuaded, on this record, that Carter teaches the subject matter under this narrower interpretation.

d. Storing the provided data

Claim 1 recites “storing the provided data at said locations having said any free space.” Petitioner contends Carter teaches storing data at locations with free space. Pet. 34–35 (citing Ex. 1005, 7:67–8:4, 9:51–56, 12:66–67, Fig. 4; Ex. 1002 ¶¶ 74–76). As discussed above, Carter discloses that a user can instruct the system to store a data object. Ex. 1005, 8:17–19. Carter further discloses that “data control program 32a can generate a set of commands that will present a stream of data to the shared memory subsystem 34a and the shared memory subsystem 34a will employ the data stream to store an object within the structured store of data 28.” Ex. 1005, 7:67–8:4. On this record, we are persuaded that Carter’s disclosure of storing an object teaches “storing the provided data at said locations having said any free space.”

e. Storing index information

Claim 1 recites “storing index information for the stored data.” Petitioner contends Carter’s storage of information that is used to access the stored data teaches this subject matter. Pet. 36–40 (citing Ex. 1005, 3:37–40, 7:23–28, 9:34–65, 11:34–50, Figs. 3, 4; Ex. 1002 ¶¶ 77–84). The

following passage of Carter discloses using various pieces of data to access files:

Referring to FIG. 3, in the disclosed embodiment of the file system 60, a directory 126 (such as the directory 80 of FIG. 2) is accessed by starting at a directory Inode or descriptor 128 containing an address that points to a directory entries stream descriptor 130. This descriptor 130 is a pointer to a block of data containing directory entries for files File 1 through File 3. The directory entry for File 1 has a number of entries; one of the entries is a string containing the name of the file and another entry is the address of the Inodes and stream descriptors 132. The stream descriptors for File 1 are used to locate and retrieve the various 4 kilobyte pages in the addressable shared memory space 20 that constitute File 1. Other files are retrieved and constructed from the addressable shared memory space 20 in the same fashion.

Ex. 1005, 9:34–48. On this record, we are persuaded Carter’s disclosure of stored data that is used to retrieve stored files teaches “storing index information for the stored data.”

f. Threshold determination for claim 1

On this record, Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that the subject matter of claim 1 would have been obvious over the teachings of Carter.

3. Independent Claim 16 and Dependent Claims 2–6

Petitioner also contends the subject matter of independent claim 16 and dependent claims 2–6 would have been obvious over the teachings of Carter. Pet. 40–51. Patent Owner argues Petitioner has not shown a reasonable likelihood of prevailing as to these claims for the reasons given for claim 1, which we address above. Prelim. Resp. 9–14. We have reviewed Petitioner’s contentions that the subject matter of claims 2–6 and 16 would have been obvious based on Carter, and we are persuaded

Petitioner's arguments and evidence are sufficient to show a reasonable likelihood Petitioner would prevail in proving unpatentability of these claims.

E. Remaining Grounds
(Claims 3–5, 7, 10, 17, and 20)

Petitioner also asserts certain claims are unpatentable under 35 U.S.C. § 103 based on the teachings of Carter in combination with Frey, Mutalik, Frey and Mutalik, or Cannon. Pet. 11, 51–69. In its contentions, Petitioner explains how the cited art allegedly teaches the claimed subject matter and why a person of ordinary skill in the art allegedly would have combined the references in the manner asserted. *See* Pet. 51–69. For example, with respect to the combination of Carter and Frey, Petitioner argues that Frey discloses various advantages of storing data across multiple drives using “striping” and that a person of ordinary skill in the art would have been motivated to store subparts of data on different physical media, as allegedly taught in Frey’s disclosure of striping, “to take advantage of beneficial parallel processing effects of striping.” Pet. 52–54 (citing Ex. 1006, 1:50–56, 2:52–54, 5:43–52, 5:62–6:11, 6:24–31; Ex. 1002 ¶¶ 43, 108–110, 112–114). Rather than addressing Petitioner’s asserted reasoning, Patent Owner simply argues Petitioner provides no explanation or reasoning. For example, Patent Owner argues that “Petitioner[] provide[s] no explanation why a person of skill in the art would combine the teachings of Carter with Frey to perform any of the limitations of the independent claims or dependent claim 5,” that Petitioner “rel[ies] exclusively on generic and conclusory statements,” and that Petitioner does not “provid[e] any supporting reasons for” its assertion that a person of ordinary skill in the art would have been motivated to combine the references to take advantage of

the benefits of striping. Prelim. Resp. 14–15. These arguments, however, do not address the evidence cited by Petitioner, such as the advantages of striping taught in Frey. *See* Ex. 1006, 1:50–56 (disclosing that “[a] striped network file system with multiple servers offers the potential to achieve very high performance using multiple collections of inexpensive computers and disks” and that “distributing file data across a plurality of servers and storage devices provides the potential for improved data recovery in the event of a failure of any server or storage device if redundancy is added to critical data”).

Petitioner also explains why a person of ordinary skill in the art allegedly would have combined Carter and Mutalik and Carter and Cannon. *See* Pet. 56–57 (discussing combination of Carter and Mutalik), 64–65 (discussing combination of Carter and Cannon). As to these obviousness contentions, Patent Owner provides similar arguments as those relating to the combination of Carter and Frey, namely that Petitioner fails to explain why a person of ordinary skill in the art would make the combination and that Petitioner “rel[ies] exclusively on generic and conclusory statements.” Prelim. Resp. 15–17.

We have reviewed Petitioner’s contentions for the obviousness grounds based on the teachings of Carter in combination with Frey, Mutalik, Frey and Mutalik, and Cannon. On this record, we are persuaded Petitioner has presented sufficient reasons to combine the teachings of Carter with Frey, Mutalik, Frey and Mutalik, and Cannon, and we are persuaded Petitioner has shown sufficiently for the purposes of institution that the asserted combinations of these references teach the subject matter of the claims against which they are cited. Therefore, Petitioner has demonstrated

a reasonable likelihood that it would prevail in showing that (1) the subject matter of claim 5 would have been obvious over the combined teachings of Carter and Frey; (2) the subject matter of claims 3–5 would have been obvious over the combined teachings of Carter and Mutalik; (3) the subject matter of claim 5 would have been obvious over the combined teachings of Carter, Frey, and Mutalik; and (4) the subject matter of claims 7, 10, 17, and 20 would have been obvious over the combined teachings of Carter and Cannon.

III. CONCLUSION

For the foregoing reasons, we determine that the information presented in the Petition establishes that there is a reasonable likelihood that Petitioner would prevail in challenging at least one claim of the '642 patent. At this stage of the proceeding, we have not made a final determination with respect to the patentability of any of the challenged claims or the construction of any claim term. Because Petitioner has satisfied the threshold for institution as to one claim, we institute *inter partes* review on all claims and all grounds raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018) (holding that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition); *see also* USPTO's "Guidance on the impact of SAS on AIA trial proceedings"³ (April 26, 2018) (stating that, "if the PTAB institutes a trial, the PTAB will institute on all challenges raised in the petition").

³ <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>.

IV. ORDER

Accordingly, it is

ORDERED that pursuant to 35 U.S.C. § 314(a) and 37 C.F.R. § 42.4, an *inter partes* review is hereby instituted as to all claims challenged (1–7, 10, 16, 17, and 20 of the '642 patent) and on all challenges raised in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial, which will commence on the entry date of this decision.

IPR2019-00591
Patent 6,438,642 B1

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