

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COOLER MASTER CO., LTD.,
Petitioner,

v.

ASEKTEK DANMARK A/S.,
Patent Owner.

IPR2023-00667
Patent 8,240,362 B2

Before WILLIAM V. SAINDON, KEVIN W. CHERRY, and
JASON W. MELVIN, *Administrative Patent Judges*.

CHERRY, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314
Granting Motion for Joinder
35 U.S.C. § 315(c)

I. INTRODUCTION

Cooler Master Co., Ltd. (“Petitioner”) filed a Petition (Paper 3, “Petition” or “Pet.”) to institute an *inter partes* review of claims 1 and 3–19 (the “challenged claims”) of U.S. Patent No. 8,240,362 B2 (Ex. 1001, “the ’362 patent”). Concurrently, Petitioner filed a Motion for Joinder seeking to join Petitioner as party to *ShenZhen Apaltek Co., Ltd. v. Asetek Danmark A/S*, Case IPR2022-01316 (PTAB) (“the Apaltek IPR”). Paper 1 (“Mot.”). Asetek Danmark A/S (“Patent Owner”) waived its Preliminary Response in this proceeding.

We have authority under 37 C.F.R. § 42.4(a) and 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted unless the information presented in the Petition “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

Having considered the arguments and the associated evidence presented in the Petition and the Motion, for the reasons described below, we institute *inter partes* review of all challenged claims and grant Petitioner’s Motion.

II. BACKGROUND

A. Related Matters

Petitioner identifies the following district-court proceedings as related matters involving the ’362 patent: *Cooler Master Co., Ltd. et al v. Asetek Danmark A/S*, Case No. 5:21-cv-04627-EJD (N.D. Cal.) and *Asetek Danmark A/S v. Shenzhen Apaltek Co.*, Case No. 3:22-cv-06179-WHO (N.D. Cal.). Pet. 86. The Petitioner also identifies the following pending petitions for *inter partes* review involving patents that are related to the ’362

patent: IPR2020-00522 (U.S. Patent No. 10,078,355 B2); IPR2020-00523 (U.S. Patent No. 10,078,354 B2); IPR2020-00524 (U.S. Patent No. 9,733,681 B2); IPR2021-01195 (U.S. Patent No. 10,613,601 B2); and IPR2021-01196 (U.S. Patent No. 10,599,196 B2). *Id.* We note that IPR2020-00522 and IPR2020-00523 are currently on appeal to the U.S. Court of Appeals for the Federal Circuit as *Asetek Danmark A/S v. Vidal*, Case Nos. 22-1049, 22-1050.

B. Real Parties in Interest

Petitioner identifies itself (Cooler Master Co., Ltd. or “CMC”) as the real party-in-interest. Pet. 1, 85. Patent Owner identifies Asetek Danmark A/S, Asetek USA, Inc., Asetek A/S, and Asetek Holdings, Inc. as its real parties-in-interest. Paper 5, 1.

C. Overview of the '362 Patent

The '362 patent is titled “Cooling System for a Computer System.” Ex. 1001, Code (54). The '362 patent issued from Application Serial No. 12/826,768, filed June 30, 2010. *Id.* at Codes (21), (22). The '768 application is a division of Application Serial No. 10/578,578, filed on May 5, 2006, which is a U.S. national phase application of PCT/DK2004/000775, filed November 8, 2004, which claims priority to provisional application 60/517,924, filed November 7, 2003. *Id.* at Code (60), (62); 1:4–8. The '578 application issued as U.S. Patent No. 7,971,632. *Id.* at Code (62).

The '362 patent relates to a liquid-cooling system for a computer system. *Id.* at Code (57). The specification explains, at the time of the invention, air cooling arrangements were the most-used cooling system for cooling central processing units (CPUs) in computer systems. *Id.* at 1:17–33. An alternative design known at the time of the invention was to use a

cooling liquid circulating inside a closed system by means of a pumping unit with a heat exchanger past which the cooling liquid circulates. *Id.* at 1:34–38. The specification contends that liquid cooling is generally more efficient and quieter than air cooling, but that a liquid cooling design consists of “many components,” which increases the total installation time, size, and risk of leakage of the cooling liquid from the system. *Id.* at 1:39–49. Thus, it is one object of the invention to provide a small and compact liquid-cooling solution, which is more efficient than existing air-cooling arrangements and which can be produced at low cost enabling high production volumes, be easy-to-use and implement, can be used with existing CPU types and computer systems, and requires a low level of maintenance or no maintenance at all. *Id.* at 1:53–63. An illustrative embodiment of such a device is depicted in Figures 7 and 8, reproduced below.

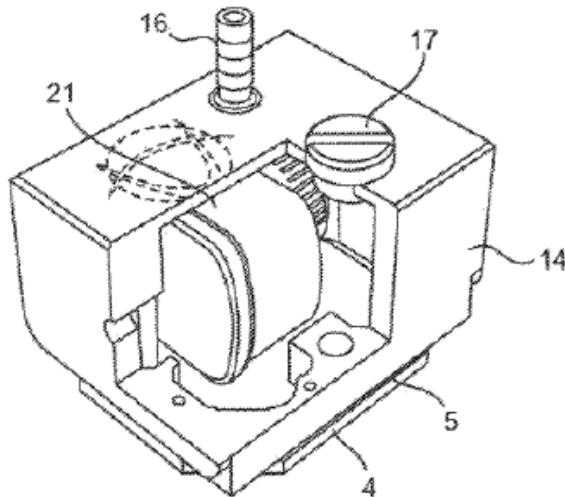


FIG. 7

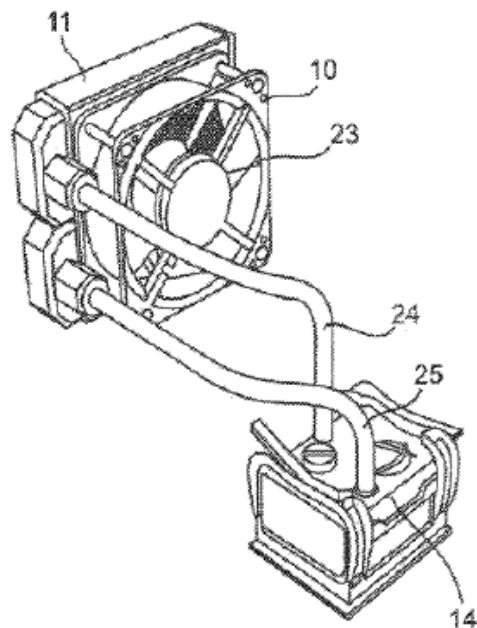


FIG. 8

Figure 8 is a perspective view of the cooling system showing reservoir housing 14 with the heat exchanging surface 4 (shown in Figure 7) and the pump 21 (shown in Figure 7) inside the reservoir. *Id.* at 13:28–30. Figure 8 is a cut-out view into reservoir housing 14, when the reservoir, pump 21, and heat exchanging surface 4 are situated inside the reservoir. *Id.* at 12:62–64. The reservoir has a tube inlet connection (not shown in Figure 7) through which the cooling liquid enters the reservoir. *Id.* at 12:64–66. From the tube inlet connection, the cooling liquid flows through the reservoir passing heat exchanging surface 4 and enters the inlet of the pump. *Id.* at 12:67–13:2. After the cooling liquid flows through the pump, the cooling liquid passes out of the outlet of the pump and further out through tube outlet connection 16. *Id.* at 13:2–4. As shown in Figure 8, tube inlet connection and tube outlet connection 16 are connected to heat radiator 11 by means of connecting tubes 24 and 25. *Id.* at 13:30–34. Cooling liquid flows into and out of the reservoir and the heat radiator through connecting tubes 24 and 25, respectively. *Id.* Within heat radiator 11 (shown in Figure 8), the cooling liquid passes a number of channels for radiating the heat carried in the cooling fluid from heat exchanging surface 4 (shown in Figure 7). *Id.* at 13:34–38. Air fan 10 (with propeller 23) of Figure 8 blows air past the channels of the heat radiator in order to cool the radiator and thereby cooling the cooling liquid flowing inside the channels through the heat radiator and back into the reservoir. *Id.* at 13:38–41.

The reservoir may be provided with channels or segments for establishing a certain flow-path for the cooling liquid through the reservoir to prevent the cooling liquid passing the reservoir too quickly to take up a

sufficient amount of heat from the heat exchanging surface. *Id.* at 13:62–14:10. Figure 9 is reproduced below:

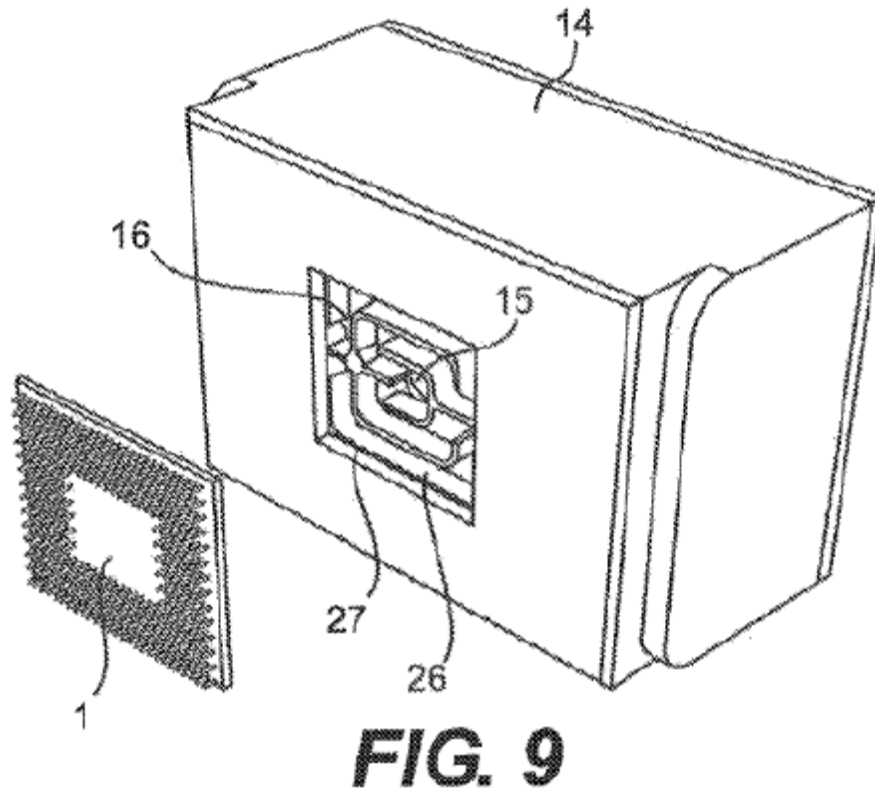


Figure 9 depicts an embodiment of reservoir housing 14 in which channels 26¹ are provided to direct the flow of cooling liquid from inlet 15 to outlet 16. *Id.* at 15:22–30.

D. The Challenged Claims

Petitioner challenges claims 1 and 3–19 of the '362 patent. Pet. 1. Of the challenged claims, claims 1, 14, and 17 are independent. Claim 1, reproduced below with Petitioner's identifiers for the claim limitations, is illustrative of the subject matter recited in the challenged claims.

¹ Although the text refers to “channels 25,” that designation appears to be in error and we understand the structure labeled “26” in Figure 9 to depict the described channels. *See* Ex. 1001, 15:22–30.

- [1-PRE]** A cooling system for a computer system processing unit, comprising:
- [1-a]** an integrated element including a heat exchanging interface, a reservoir, and a pump;
 - [1-b]** wherein the reservoir is configured to receive a cooling liquid from outside the reservoir through an inlet and pass the cooling liquid to the outside through an outlet,
 - [1-c]** the reservoir including an upper chamber and a lower chamber, the upper chamber and the lower chamber being vertically displaced chambers
 - [1-d]** that are separated from each other by at least a horizontal wall and fluidly coupled together by a plurality of substantially circular passages, at least one of the plurality of substantially circular passages being positioned on the horizontal wall,
 - [1-e]** a boundary wall of the lower chamber being formed by the heat exchanging interface;
 - [1-f]** the heat exchanging interface is adapted to provide separable thermal contact between the processing unit and the cooling liquid such that heat is dissipated from the processing unit to the cooling liquid as the cooling liquid passes through the lower chamber of the reservoir; and
 - [1-g]** the pump is adapted to direct the cooling liquid through the upper chamber and the lower chamber of the reservoir, the pump including a motor having a rotor, a stator and an impeller having a plurality of curved blades, the impeller being positioned within the reservoir;
 - [1-h]** a heat radiator spaced apart from the integrated element, the heat radiator being fluidly coupled to the outlet and the inlet of the reservoir, the heat radiator being configured to circulate the cooling liquid therethrough and exhaust heat from the cooling liquid; and
 - [1-i]** a fan configured to direct air through the heat radiator, the fan being driven by a motor separate from the motor of the pump.

Id. at 18:50–19:18. Independent claims 14 and 17 recite similar limitations.

Id. at 19:55–20:19, 20:28–56. Claims 8 and 19 indirectly depend from claims 1 and 17, respectively.

E. Evidence

Petitioner submits the following evidence:

Evidence	Exhibit No.
Declaration of Georgios Karamanis, Ph.D.	1003
Batchelder, US 6,019,165 (issued Feb. 1, 2000, filed May 18, 1998) (“Batchelder”)	1006
Shin, Japanese Published Patent Application 2002-151638, (published May 24, 2002) (“Shin”) ²	1007
Nakano et al., US 6,915,653 (issued Jul. 12, 2005, filed Apr. 8, 2004) (“Nakano”)	1008

F. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability.

Claims Challenged	35 U.S.C. §	Reference(s)
1, 3–11, 13, 17–19	103 ³	Batchelder, Shin
12, 14–16	103	Batchelder, Shin, Nakano

Pet. 2. Patent Owner has not filed a Preliminary Response in this proceeding.

² The record includes a certified English translation of Shin. All citations will be to the certified English translation.

³ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. § 103. The ’362 patent claims benefit of a November 7, 2003, filing date, which is before the effective date of the applicable AIA amendments. Ex. 1001, (60). Petitioner states that it “does not concede that the ’362 patent is entitled to a priority date of November 7, 2003. . .but assumes that this date applies for purposes of this Petition.” Pet. 5. Thus, we refer to the pre-AIA version of 35 U.S.C. § 103. Our decision would be the same were we to apply the AIA version of the statute.

III. DISCUSSION

Joinder in an *inter partes* review is subject to the provisions of 35 U.S.C. § 315(c):

(c) JOINDER.—If the Director institutes an inter partes review, the Director, in his or her discretion, may join as a party to that inter partes review any person who properly files a petition under section 311 that the Director, after receiving a preliminary response under section 313 or the expiration of the time for filing such a response, determines warrants the institution of an inter partes review under section 314.

Thus, to join a petitioner to an instituted proceeding, the Board first determines whether the Petition “warrants” institution under § 314. *See Facebook, Inc. Windy City Innovations, LLC*, 973 F.3d 1321, 1332 (Fed. Cir. 2020).

The Board next determines whether to exercise “discretion to decide whether to ‘join as a party’ the joinder applicant,” who is the Petitioner in this proceeding. *Id.* As moving party, Petitioner bears the burden of proving that it is entitled to the requested relief. 37 C.F.R. § 42.20(c). A motion for joinder should (1) set forth the reasons joinder is appropriate; (2) identify any new grounds of unpatentability asserted in the petition; and (3) explain what impact (if any) joinder would have on the trial schedule for the existing review. *See Kyocera Corp. v. SoftView, LLC*, IPR2013-00004, Paper 15 at 4 (PTAB Apr. 24, 2013). In addition, a motion for joinder must be filed “no later than one month after the institution date of any *inter partes* review for which joinder is requested.” 37 C.F.R. § 42.122(b).

A. Institution of Inter Partes Review

Petitioner represents that the “Petition is essentially a copy of the petition filed in” the Apaltek IPR and that the Petition “includes identical grounds.” Mot. 1. Our independent review of the Petition and the Apaltek IPR petition confirms Petitioner’s representations, and that the Petitions in the two proceedings are substantially the same.

Having already considered the merits of those challenges and the evidence in the Apaltek IPR and having determined that the threshold for institution of *inter partes* review has been met, we determine that the Petition here also presents a reasonable likelihood of prevailing on the challenges to at least one claim. Therefore, for the same reasons stated in our Decision to Institute in the Apaltek IPR, we institute *inter partes* review in this proceeding on the grounds presented in the Petition. *See Apaltek IPR, Paper 7.*

B. Motion for joinder

Petitioner timely filed its Motion for Joinder on March 6, 2023, which was no later than one month after the institution of the Apaltek IPR on February 6, 2023. *See 37 C.F.R. § 42.122(b).*

We determine that Petitioner has met its burden of showing that joinder is appropriate because, as set forth above, the Petition is substantially identical to the petition in the Apaltek IPR, contains the same grounds based on the same evidence, and relies on the same declaration of Georgios Karamanis, Ph.D. (Ex. 1003). Petitioner also represents that joinder will not impact the Apaltek IPR schedule. Mot. 3 (“Petitioner agrees to the deadlines set forth in the Apaltek IPR Scheduling Order”).

Additionally, Petitioner represents that it is willing to accept a limited, “understudy role” to ShenZhen Apaltek Co., Ltd. (the original petitioner in the Apaltek IPR) “as long as Apaltek remains a party to the Apaltek IPR.” *Id.* at 4. Specifically, Petitioner represents that in its understudy role, it agrees that the following conditions will apply:

- (a) Petitioner will not make any substantive filings and shall be bound by the filings of Apaltek, unless a filing concerns termination and settlement, or issues solely involving Petitioner.
- (b) Petitioner will not present any argument or make any presentation at oral hearing unless an issue solely involves Petitioner, or when addressing Board-approved motions that do not affect Apaltek.
- (c) Petitioner will not seek to cross-examine or defend the cross-examination of any witness, unless the topic of cross-examination concerns issues solely involving Petitioner, within the time permitted by Apaltek alone and with Apaltek’s agreement.
- (d) Petitioner will not seek discovery from Patent Owner, unless issues arise that are unique to, and only applicable to, Petitioner.
- (e) Petitioner will not rely on expert testimony beyond that submitted by Apaltek unless and until Apaltek is terminated as party to the proceedings, prior to any necessary depositions. Petitioner’s expert, Dr. Karamanis, is the same expert used in the Apaltek IPR, and his expert declaration submitted herein is substantively identical to the declaration he submitted in the Apaltek IPR.

Id. at 4–5.

Patent Owner has not filed an opposition to Petitioner’s Motion. Thus, Petitioner’s Motion stands unopposed.

Under these circumstances, we agree with Petitioner that joinder is appropriate and will not unduly impact the ongoing trial in the Apaltek IPR. We limit Petitioner's participation in the Apaltek IPR proceeding, as follows: (1) Apaltek alone is responsible for all petitioner filings in the proceeding until such time that it is no longer an entity in the proceeding, and (2) Petitioner is bound by all filings by Apaltek in the Apaltek IPR proceeding, except for (a) filings regarding termination or settlement, and (b) filings where Petitioner receives permission to file an independent paper. Petitioner must obtain prior Board authorization to file any paper or take any action on its own in the proceeding, so long as Apaltek remains as a non-terminated petitioner in the proceeding. This arrangement promotes the just and efficient administration of the ongoing trial in the Apaltek IPR and protects the interests of Apaltek as original petitioner in IPR2022-01316 and of Patent Owner.

IV. CONCLUSION

For the foregoing reasons, we institute *inter partes* review of the challenged claims of the '362 patent based on the grounds of unpatentability set forth in the Petition. We *grant* Petitioner's Motion for Joinder and join Petitioner to IPR2022-01316, with the limitations set forth herein.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that pursuant to 35 U.S.C. § 314, *inter partes* review is instituted as to the challenged claims of the '362 patent with respect to all grounds of unpatentability presented in the Petition;

FURTHER ORDERED that, pursuant to 35 U.S.C. § 315(c) and 37 C.F.R. § 42.122, Petitioner's Motion for Joinder is granted, and Petitioner is joined as a petitioner to the IPR2022-01316 proceeding, subject to the above-described limitations on Petitioner's participation in that proceeding;

FURTHER ORDERED that the asserted grounds of unpatentability on which the Board instituted *inter partes* review in IPR2022-01316 are unchanged and remain the only instituted grounds;

FURTHER ORDERED that the Scheduling Order entered in IPR2022-01316, including any schedule changes agreed by the parties in that proceeding pursuant to the Scheduling Order, shall govern the trial schedule in IPR2022-01316;

FURTHER ORDERED that the case caption in IPR2022-01316 for all further submissions shall be modified to add Cooler Master Co., Ltd. as a named Petitioner, and to indicate by footnote the joinder of Petitioner to that proceeding, as indicated in the attached sample case caption; and

FURTHER ORDERED that a copy of this Decision be entered into the record of IPR2022-01316.

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FOR PETITIONER:

James Ryerson
Heath Briggs
GREENBERG TRAURIG, LLP
ryersonj@gtlaw.com
briggsh@gtlaw.com

FOR PATENT OWNER:

Eric P. Raciti
Arpita Bhattacharyya
Finnegan, Henderson, Farabow, Garrett, & Dunner LLP
eric.raciti@finnegan.com
arpita.bhattacharyya@finnegan.com

[Sample Case Caption]

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Patent 8,240,362 B2

* Cooler Master Co., Ltd., which filed a petition in IPR2023-00667, has been joined as a party to this proceeding.