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Paper 36
Entered: August 19, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COOLIT SYSTEMS, INC.,
Petitioner,

v.

ASETEK DANMARK A/S,
Patent Owner.

IPR2020-00523
Patent 10,078,354 B2

Before MICHAEL P. TIERNEY, *Vice Chief Administrative Patent Judge*, KEVIN W. CHERRY, and JASON W. MELVIN, *Administrative Patent Judges*.

MELVIN, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining All Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

CoolIT Systems, Inc. ("Petitioner") filed a Petition (Paper 2, "Pet.") requesting institution of *inter partes* review of claims 1, 4, 8, 14, 15, and 19 of U.S. Patent No. 10,078,354 B2 (Ex. 1001, "the '354 patent"). Asetek Danemark A/S ("Patent Owner") filed a Preliminary Response. Paper 6. We authorized Petitioner to file a Preliminary Reply (Paper 8). Paper 7. We instituted review. Paper 9 ("Institution Decision" or "Inst.").

Patent Owner filed a Response. Paper 21. Petitioner filed a Reply. Paper 27 ("Pet. Reply"). Patent Owner filed a Sur-Reply. Paper 30 ("PO Sur-Reply"). We held a hearing on May 24, 2021, and a transcript appears in the record. Paper 35 ("Tr.").

This is a final written decision as to the patentability of the challenged claims. For the reasons discussed below, we determine Petitioner has shown by a preponderance of the evidence that each of the challenged claims is unpatentable.

A. REAL PARTIES IN INTEREST

The Petition identifies CoolIT Systems, Inc., as the real party in interest for Petitioner. Pet. 1. Patent Owner identifies Asetek Danmark A/S, Asetek USA, Inc., Asetek A/S, and Asetek Holdings, Inc., as the real parties in interest for Patent Owner. Paper 4, 1 (Patent Owner's Mandatory Notices).

B. RELATED MATTERS

The parties identify *Asetek Danmark A/S v. CoolIT Systems, Inc.*, Case No. 3:19-cv-00410-EMC (N.D. Cal.) (complaint served on February 7, 2019, currently pending) as a related co-pending district court litigation. Pet.

1; Paper 4, 1. The parties also identify the following *inter partes* reviews involving patents that are related to the '354 patent: IPR2020-00522, *Inter Partes* Review of U.S. Patent No. 10,078,355 B2, filed on February 7, 2020; and IPR2020-00524, *Inter Partes* Review of U.S. Patent No. 9,733,681 B2, filed on February 7, 2020. Pet. 1; Paper 4, 1.

C. THE '354 PATENT

The '354 patent is titled "Cooling System for a Computer System." Ex. 1001, Code (54). It issued from an application filed June 19, 2017, as a continuation of application No. 15/347,938, which issued as Patent No. 9,715,260 and claims priority to a PCT application filed November 8, 2004, which issued as Patent No. 7,971,632. *Id.* at Code (60).

The '354 patent relates to a liquid-cooling system for a computer system. *Id.* at Code (57). 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 and risk of leakage of the cooling liquid from the system. *Id.* at 1:46–56. Thus, one object of the invention is to provide a small and compact liquid-cooling solution that is more efficient than existing air-cooling arrangements, can be produced at low cost enabling high production volumes, is 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 1:60–2:3.

An illustrative embodiment of such a system is depicted in Figures 7 and 8, reproduced below.

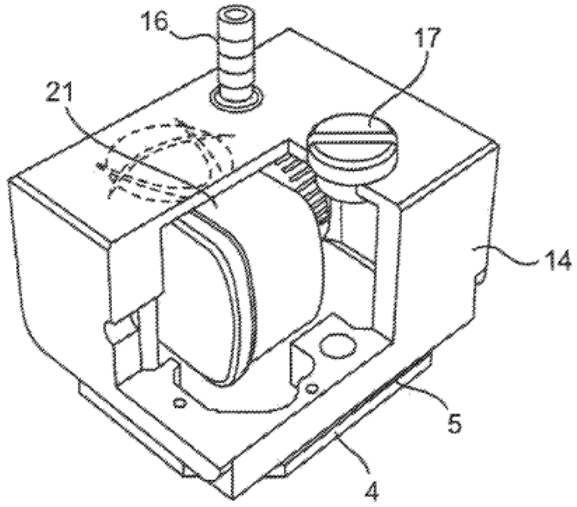

FIG. 7

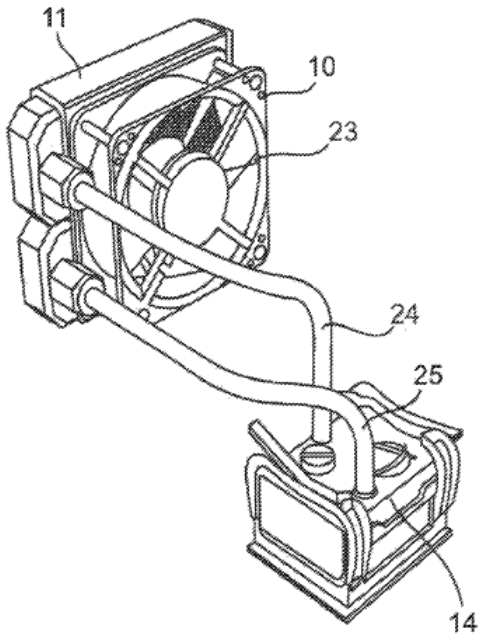

FIG. 8

Figure 8 is a perspective view of the cooling system showing reservoir housing 14 with heat exchanging surface 5 (shown in Figure 7) and pump 21 (shown in Figure 8) inside the reservoir. *Id.* at 13:29–31. Figure 7 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 tube inlet connection 15 (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 15 and tube outlet connection 16 are connected to heat radiator 11 by means of connecting tubes 24 and 25. *Id.* at 13:32–35. Cooling liquid flows into and

out of the reservoir and the heat radiator through connecting tubes 24 and 25, respectively. *Id.* Heat radiator 11 (shown in Figure 8) cools the cooling liquid before it passes back into the reservoir. *Id.* at 13:35–43.

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 from passing the reservoir too quickly to take up a sufficient amount of heat from the heat exchanging surface. *Id.* at 13:63–14:12. Figure 9 is reproduced below:

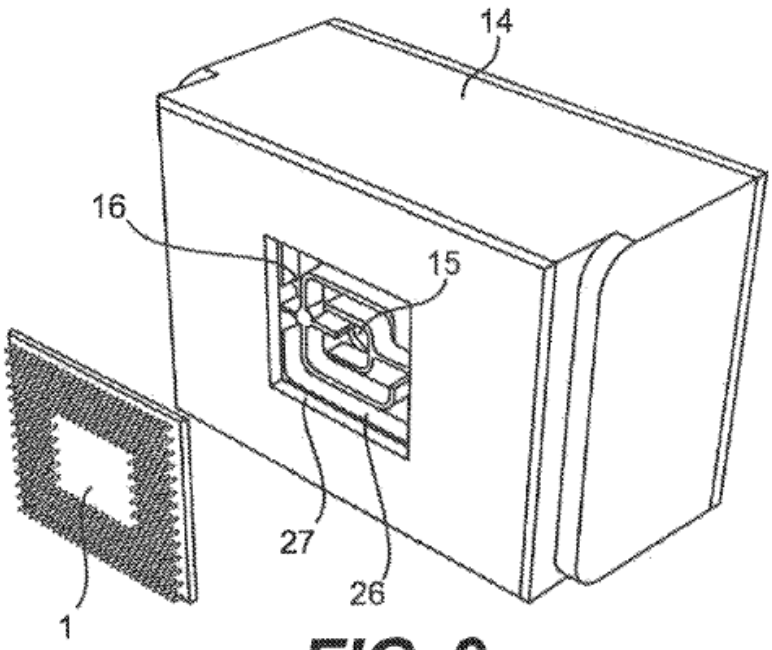

FIG. 9

Figure 9 depicts an embodiment of reservoir housing 14 in which channels 26[1] are provided to direct the flow of cooling liquid from inlet 15 to outlet 16. *Id.* at 15:25–34.

[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, 15:25–34.

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