

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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COOLIT SYSTEMS, INC.,  
Petitioner,

v.

ASETEK DANMARK A/S,  
Patent Owner.

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IPR2020-00523  
Patent 10,078,354 B2

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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 Danmark 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.

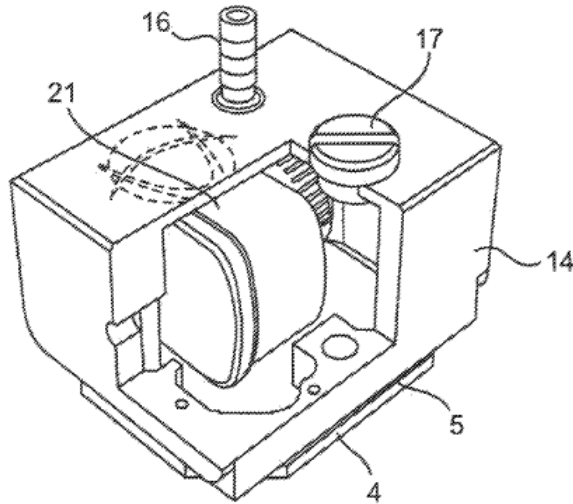
1; Paper 4, 1. The parties also identify the following *inter partes* reviews involving patents that are related to the '354 patent: IPR2020-00522, *Inter Partes* Review of U.S. Patent No. 10,078,355 B2, filed on February 7, 2020; and IPR2020-00524, *Inter Partes* Review of U.S. Patent No. 9,733,681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

### C. THE '354 PATENT

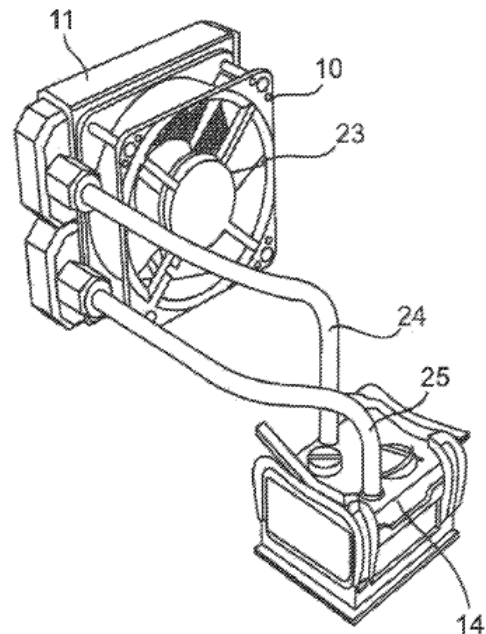
The '354 patent is titled “Cooling System for a Computer System.” Ex. 1001, Code (54). It issued from an application filed June 19, 2017, as a continuation of application No. 15/347,938, which issued as Patent No. 9,715,260 and claims priority to a PCT application filed November 8, 2004, which issued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

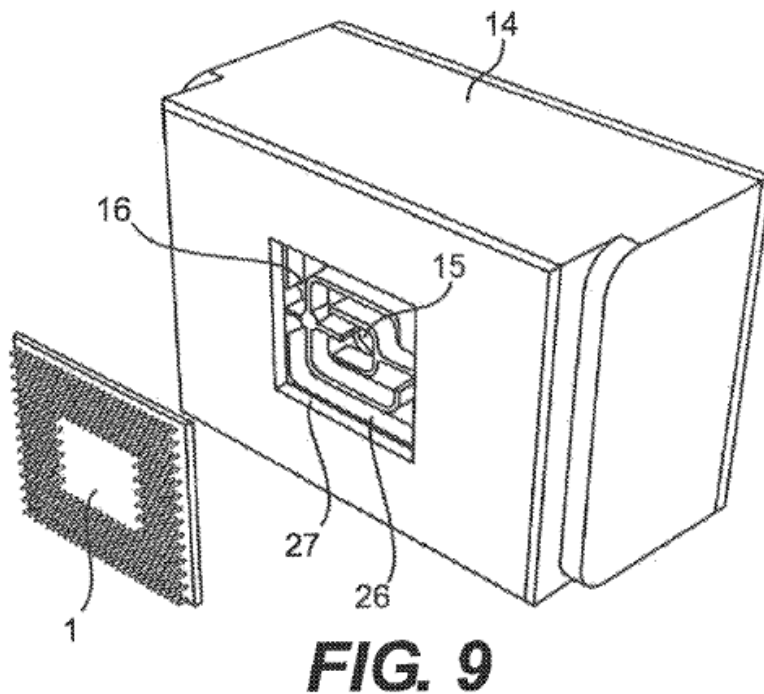


Figure 9 depicts an embodiment of reservoir housing 14 in which channels 26<sup>1</sup> are provided to direct the flow of cooling liquid from inlet 15 to outlet 16. *Id.* at 15:25–34.

<sup>1</sup> 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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