

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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APPLE INC.,  
Petitioner,

v.

MASIMO CORPORATION,  
Patent Owner.

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IPR2020-01521  
Patent 10,292,628 B1

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Before JOSIAH C. COCKS, ROBERT L. KINDER, and  
AMANDA F. WIEKER, *Administrative Patent Judges*.

COCKS, *Administrative Patent Judge*.

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

## I. INTRODUCTION

### *A. Background*

Apple Inc. (“Petitioner”) filed a Petition (Paper 2, “Pet.”) pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claims 1–30 (“challenged claims”) of U.S. Patent No. 10,292,628 B1 (Ex. 1001, “the ’628 patent”). We instituted the petitioned review (Paper 7, “Institution Decision” or “Inst. Dec.”).

Masimo Corporation (“Patent Owner”) filed a Patent Owner Response (Paper 15, “PO Resp.”) to oppose the Petition. Petitioner filed a Reply (Paper 17, “Pet. Reply”) to the Patent Owner Response. Patent Owner filed a Sur-reply (Paper 20, “Sur-reply”) to the Reply. We conducted an oral hearing on January 19, 2022. A transcript has been entered into the record (Paper 32, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b)(4) and § 318(a). This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of claims 1–30 of the ’628 patent. We determine Petitioner has shown by a preponderance of the evidence that those claims are unpatentable.

### *B. Related Matters*

The parties identify the following matters related to the ’628 patent: *Masimo Corporation v. Apple Inc.*, Civil Action No. 8:20-cv-00048 (C.D. Cal.) (filed Jan. 9, 2020);

*Apple Inc. v. Masimo Corporation*, IPR2020-01520 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,258,265 B1);

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*Apple Inc. v. Masimo Corporation*, IPR2020-01523 (PTAB Sept. 9, 2020) (challenging claims of U.S. Patent No. 8,457,703 B2);  
*Apple Inc. v. Masimo Corporation*, IPR2020-01524 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,433,776 B2);  
*Apple Inc. v. Masimo Corporation*, IPR2020-01526 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 6,771,994 B2);  
*Apple Inc. v. Masimo Corporation*, IPR2020-01536 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,588,553 B2);  
*Apple Inc. v. Masimo Corporation*, IPR2020-01537 (PTAB Aug. 31, 2020) (challenging claims of U.S. Patent No. 10,588,553 B2);  
*Apple Inc. v. Masimo Corporation*, IPR2020-01538 (PTAB Sept. 2, 2020) (challenging claims of U.S. Patent No. 10,588,554 B2); and  
*Apple Inc. v. Masimo Corporation*, IPR2020-01539 (PTAB Sept. 2, 2020) (challenging claims of U.S. Patent No. 10,588,554 B2).  
Pet. 98, Paper 3, 1.

Patent Owner further identifies numerous issued and abandoned applications that are said to claim priority to, or share a priority claim with, the '628 patent. Paper 3, 3.

### *C. The '628 Patent*

The '628 patent is titled “Multi-Stream Data Collection System for Noninvasive Measurement of Blood Constituents,” and issued on May 21, 2019, from U.S. Patent Application No. 16/261,326, filed January 29, 2019. Ex. 1001, codes (21), (22), (45), (54). The '628 patent discloses a two-part data collection system including a noninvasive sensor that communicates with a patient monitor. *Id.* at 2:31–33. The sensor includes a sensor housing, an optical source, and several photodetectors, and is used to

measure a blood constituent or analyte, e.g., oxygen or glucose. *Id.* at 2:55–3:5. The patient monitor includes a display and a network interface for communicating with a handheld computing device. *Id.* at 2:38–40.

Figure 1 of the '628 patent is reproduced below.

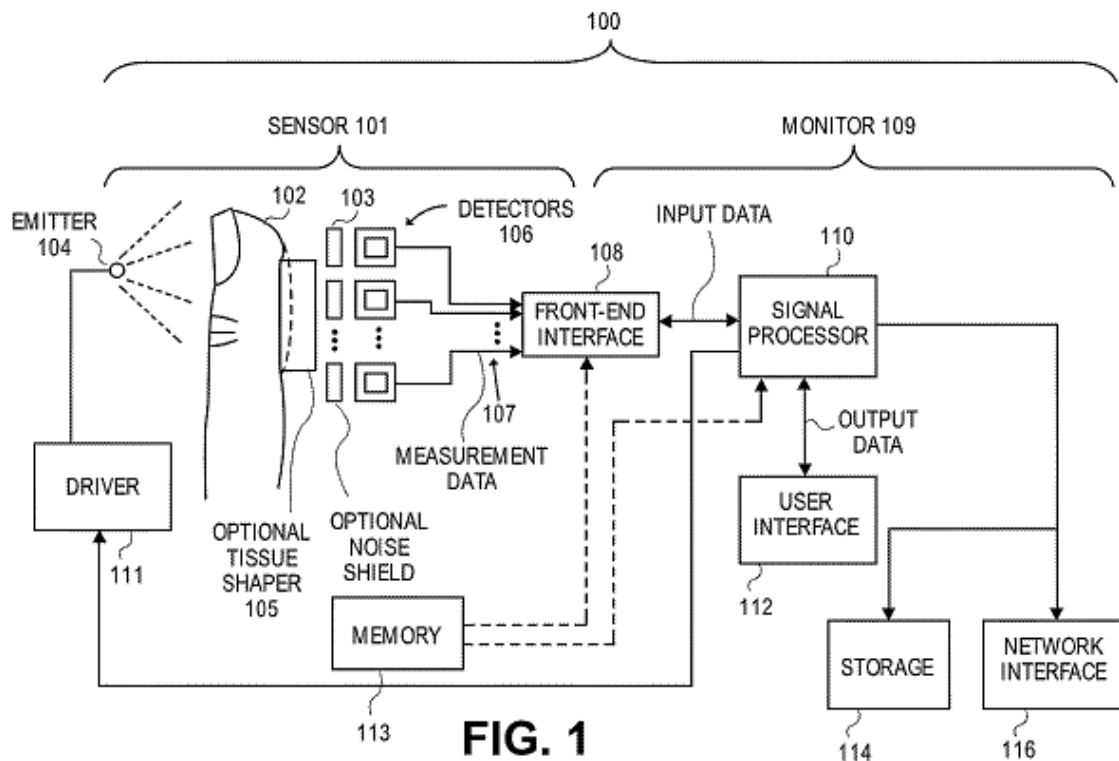
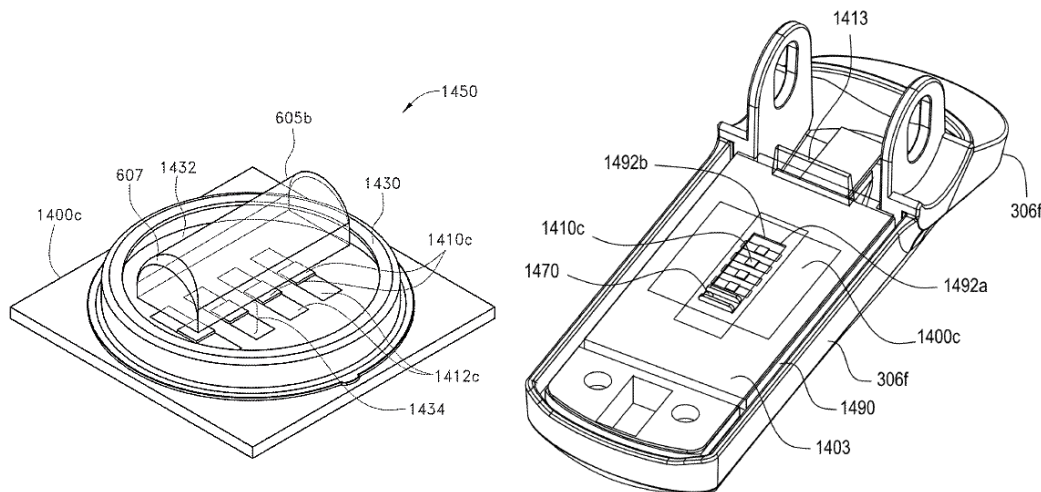


Figure 1 illustrates a block diagram of data collection system 100 including sensor 101 and monitor 109. *Id.* at 5:26–29, 11:36–37. Sensor 101 includes optical emitter 104 and detectors 106. *Id.* at 11:48–50. Emitters 104 emit light that is attenuated or reflected by the patient’s tissue at measurement site 102. *Id.* at 13:60–64. Detectors 106 capture and measure the light attenuated or reflected from the tissue. *Id.* In response to the measured light, detectors 106 output detector signals 107 to monitor 109 through front-end interface 108. *Id.* at 13:64–67, 14:16–22. Sensor 101 also may include tissue shaper 105, which may be in the form of a convex surface that:

(1) reduces the thickness of the patient's measurement site; and (2) provides more surface area from which light can be detected. *Id.* at 10:51–11:3.

Monitor 109 includes signal processor 110 and user interface 112. *Id.* at 15:6–8. “[S]ignal processor 110 includes processing logic that determines measurements for desired analytes . . . based on the signals received from the detectors 106.” *Id.* at 15:10–14. User interface 112 presents the measurements to a user on a display, e.g., a touch-screen display. *Id.* at 15:38–42. The monitor may be connected to storage device 114 and network interface 116. *Id.* at 15:52–16:3.

The '628 patent describes various examples of sensor devices. Figures 14D and 14F, reproduced below, illustrate sensor devices.



**FIG. 14D**

**FIG. 14F**

Figure 14D illustrates portions of a detector submount and Figure 14F illustrates portions of a detector shell. *Id.* at 6:34–37. As shown in Figure 14D, multiple detectors 1410c are located within housing 1430 and under transparent cover 1432, on which protrusion 605b (or partially cylindrical protrusion 605) is disposed. *Id.* at 36:15–35. Figure 14F illustrates a detector shell 306f including detectors 1410c on substrate 1400c.

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