

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

APPLE, INC.,
Petitioner,

v.

ALIVECOR, INC.,
Patent Owner.

IPR2021-00972
Patent 10,638,941 B2

Before ROBERT A. POLLOCK, ERIC C. JESCHKE, and
DAVID COTTA, *Administrative Patent Judges*.

COTTA, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. Background

Apple, Inc. (“Petitioner”) filed a Petition for an *inter partes* review of claims 1–23 of U.S. Patent No. 10,638,941 B2 (“the ’941 patent,” Ex. 1001). Paper 2 (“Pet.”). AliveCor, Inc. (“Patent Owner”) timely filed a Preliminary Response. Paper 6 (“Prelim. Resp.”). Petitioner further filed an authorized Reply to the Preliminary Response (Paper 7, “Prelim. Reply”); Patent Owner filed a responsive Sur-reply (Paper 8, “Prelim. Sur-reply”).

B. Summary of the Institution Decision

For the reasons provided below, we determine Petitioner has satisfied the threshold requirement set forth in 35 U.S.C. § 314(a). Because Petitioner has demonstrated a reasonable likelihood that at least one claim of the ’941 patent is unpatentable, we institute an *inter partes* review of all challenged claims on each of the Grounds raised in the Petition. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018); 37 C.F.R. § 42.108(a) (2021) (“When instituting *inter partes* review, the Board will authorize the review to proceed on all of the challenged claims and on all grounds of unpatentability asserted for each claim.”).

C. Real Parties-in-Interest

Petitioner identifies itself, Apple Inc., as the real party-in-interest. Pet. 84. Patent Owner, identifies itself, AliveCor, Inc., as the real party-in-interest. Paper 4, 2.

D. Related Matters

According to Patent Owner:

U.S. Patent No. 10,638,941 has been asserted by Patent Owner against Petitioner in *AliveCor, Inc. v. Apple, Inc.*, Case No. 6:20-cv-01112-ADA, filed in the United States District Court for the Western District of Texas, and in Investigation No. 337-TA-1266 before the International Trade Commission, *In the Matter of Certain Wearable Electronic Devices with ECG Functionality and Components Thereof*. Apple also filed IPR petitions against the other patents asserted in those actions: IPR2021-00970 (USP 9,572,499) and IPR2021-00971 (USP 10,595,731).

Paper 4, 2; *see also*, Pet. 84. We refer to the above litigations as the “Texas Litigation” and the “ITC Investigation,” respectively.

The ’941 patent claims priority to, *inter alia*, a provisional application filed on May 13, 2015. Ex. 1001, code (60); *see* Prelim. Resp. 4; Pet. 1. The prior art relied upon in the Petition precedes the filing date of this provisional application. Accordingly, and solely for purposes of this Decision, we apply May 13, 2015, as the effective filing date.

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability (Pet. 1):

| Claim(s) Challenged | 35 U.S.C. § | Reference(s)/Basis |
|--------------------------------------|------------------|---|
| 1, 5, 7–9, 11, 12, 16, 18–20, 22, 23 | 103 ¹ | Shmueli, ² Osorio ³ |

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103. Based on the filing date of the ’941 patent, we apply the AIA versions of §§ 102 and 103.

² Shmueli et al., WO 2012/140559 A1, published Oct. 18, 2012, (Ex. 1004, “Shmueli”).

³ Osorio, U.S. Patent Publication No. 2014/0275840 A1, published Sept. 18, 2014, (Ex. 1005, “Osorio”).

| Claim(s) Challenged | 35 U.S.C. § | Reference(s)/Basis |
|---------------------|-------------|--|
| 2–4, 6, 13–15, 17 | 103 | Shmueli, Osorio, Lee-2013 ⁴ |
| 10, 21 | 103 | Shmueli, Osorio, Chan ⁵ |

In support of its patentability challenge, Petitioner relies on, *inter alia*, the Declaration of Dr. Bernard R. Chaitman, M.D. Ex. 1003. Patent Owner similarly relies on the Declaration of Dr. Igor Efimov, Ph.D. Ex. 2001.

F. The '941 patent

The '941 patent discloses that “[i]rregular heartbeats and arrhythmias are associated with significant morbidity and mortality in patients.” Ex. 1001, 1:17–18. According to the '941 patent, “[n]on-invasive cardiac monitoring is useful in diagnosing cardiac arrhythmia.” *Id.* at 1:21–22. In furtherance of this use, the '941 patent discloses “systems, devices, and methods for cardiac monitoring,” including, for example “portable computing devices such as smartphones, smartwatches, laptops, and tablet computers.” *Id.* at 1:26–30.

The '941 patent explains that “certain parameter values may be conveniently sensed continuously such as, for example, heart rate and activity level, and analyzed to predict or determine the presence of an arrhythmia.” *Id.* at 1:58–61. For example, the '941 describes analyzing heart rate and activity level and identifying discordance between these two parameters to determine the presence or the future onset of an arrhythmia.

⁴ Jinseok Lee et al., *Atrial Fibrillation Detection using a Smart Phone*, 15:1 INT’L J. OF BIOELECTROMAGNETISM 26–29 (2013) (Ex. 1011, “Lee-2013”).

⁵ Chan et al., U.S. Patent No. 7,894,888 B2, issued Feb. 22, 2011 (Ex. 1048, “Chan”).

Id. at 1:61–66. If the presence or the future onset of an arrhythmia is identified, an electrocardiogram (ECG) may be initiated. *Id.* at 2:1–3.

Figure 7 of the '941 patent is reproduced below.

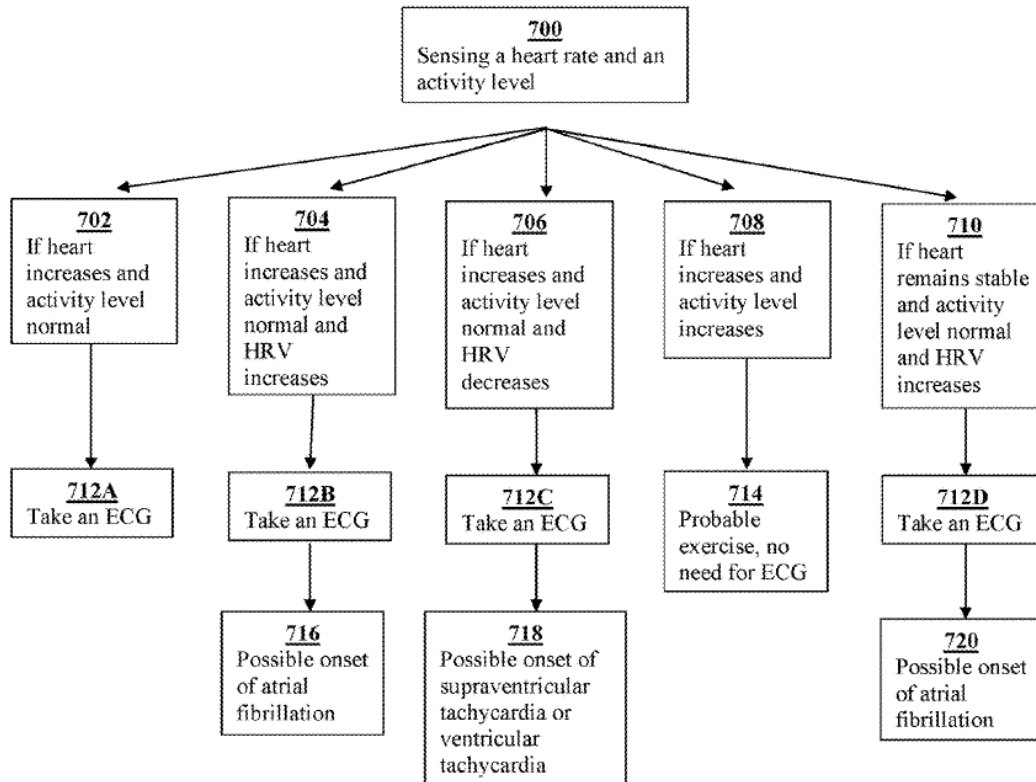


FIG. 7

Figure 7 schematically depicts “an algorithm for discordance monitoring.” *Id.* at 3:53–54. The '941 patent explains that a heart rate and an activity level are sensed in step 700. *Id.* at 14:49–51. The '941 patent describes sensing an activity level with a gyroscope or an accelerometer and sensing heart rate using “light based or other commonly used heart rate sensors.” *Id.* at 14:51–54. Figure 7 depicts various possible outcomes from the sensing of heart rate and activity level. *Id.* at Fig. 7, elements 702, 704, 706, 708, 710. For example, in step 702, the sensors detect “an increased heart rate . . . together with a normal or resting activity level.” *Id.* at 14:59–60. This result

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