

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KAZ USA, INC,
Petitioner,

v.

EXERGEN CORP.,
Patent Owner.

Case IPR2016-01437
Patent 7,346,386 B2

Before PHILLIP J. KAUFFMAN, MEREDITH C. PETRAVICK, and
WILLIAM V. SAINDON *Administrative Patent Judges*.

KAUFFMAN, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. OVERVIEW

Kaz USA (“Petitioner”) filed a Petition (Paper 2¹, “Pet.”) requesting *inter partes* review of claims 1–4, 22, and 24 of U.S. Patent No. 7,346,386 B2 (Ex. 1001, “the ’386 patent”). Pet. 1. Exergen Corporation (“Patent Owner”) filed a Preliminary Response (Paper 5, “Prelim. Resp.”) to the Petition.

Upon consideration of the record to this point, for the reasons explained below, Petitioner has demonstrated a reasonable likelihood of prevailing with respect to at least one of the challenged claims. We institute an *inter partes* review of claims 1–4, 22, and 24 of the ’386 patent.

B. RELATED PROCEEDINGS

The parties indicate that the ’386 patent is at issue in *Exergen Corp. v. Microlife Corp. et al.*, No. 1:15-cv-13387 (D. Mass). Pet. 3; Paper 4, 2.

The parties are also involved in *inter partes* review 2016-01436 (“the ’1436 IPR”) regarding U.S. Patent No. 9,194,749 B2 (“the ’749 patent”). Pet. 3; Paper 4, 2.

The ’749 patent is a continuation of application No. 12/011,467, now Pat. No. 7,787,938, which is a continuation of application No. 10/684,818, now the ’386 patent. Ex. 1001 (63); *see also* the ’1436 IPR, Ex. 1018 (63).

Our decision here differs significantly from our decision in the ’1436 IPR for several reasons. Although the ’386 patent and the ’749 patent are

¹ The first page of this paper is labeled as Paper 1 (top right), but was filed as Paper 2.

related, the subject matter of the challenged claims differs both in scope and the type of claim involved. Regarding scope, for example, claim 1 of the '1436 IPR calls for scanning the skin of the forehead over the superficial temporal artery. In this proceeding, claim 1 is broader, calling for scanning of an artery (not a specific artery or a specific location). Regarding the type of claims involved, in the '1436 IPR, the challenged claims are method claims while in the case at hand the challenged claims are apparatus claims. This also alters our analysis. For example, with apparatus claims our inquiry is whether the electronics are capable of performing the required task while with method claims our inquiry is whether such a step is disclosed. In addition to these distinctions, Petitioner's contentions and evidence differ to some degree.

C. OVERVIEW OF EVIDENCE AND GROUNDS OF UNPATENTABILITY

Petitioner asserts the following grounds of unpatentability:

Claims	§	Reference(s)
1, 2	102(b)	Pompei '813 ²
3, 4, 22, 24	103	Pompei '813 and Pompei '091 ³
1, 2	103	Pompei '813 and Amano ⁴
3, 4, 22, 24	103	Pompei '813, Amano, and Pompei '091
1, 2	103	Banke ⁵ , Houdas ⁶ , and Barnes ⁷
3, 4, 22, 24	103	Banke, Houdas, Barnes, and Pompei '091

Pet 7.

Petitioner includes the Declaration of Mr. Frederick Bowman, Ph.D. Ex. 1002; *see also* Ex. 1003 (Dr. Bowman's Curriculum Vitae).

Francesco Pompei is a named inventor of the '386 patent (Ex. 1001), Pompei '813 (Ex. 1005), Pompei '091 (Ex. 1007), and the '749 patent at issue in IPR2016-01436 ("the '1436 IPR").

² U.S. Patent No. 5,012,813, issued May 7, 1991 (Ex. 1005) ("Pompei '813").

³ U.S. Patent No. 4,636,091, issued January 13, 1987 (Ex. 1007) ("Pompei '091").

⁴ U.S. Patent No. 6,030,342, issued February 29, 2000 (Ex. 1006) ("Amano").

⁵ W.O. 93/03666, published March 4, 1993 (Ex. 1008) ("Banke").

⁶ *Human Body Temperature, Its Measurement and Regulation*, Y. Houdas and E.F.J. Ring, Plenum Press, N.Y. (1982) (Ex. 1010) ("Houdas").

⁷ U.S. Patent No. 3,531,642, issued September 29, 1970 (Ex. 1009) ("Barnes").

II. PRELIMINARY MATTERS

A. 35 U.S.C. § 325(d)

Patent Owner contends that the Board has authority to reject a petition, where, as here, the Office has previously considered the same or substantially the same issues. Prelim. Resp. 3 (citing 35 U.S.C. § 325(d) and *Microboards Tech., LLC v. Stratasy Inc.*, Case No. IPR2015-00287, slip op. at 11–12 (PTAB May 28, 2015) (Paper 13)). Patent Owner contends that Petitioner relies on prior art and arguments already considered by the Office. *Id.* Specifically, Patent Owner contends that in an Amendment during prosecution of the '386 patent, Applicant explicitly referenced Pompei '091 and U.S. Patent 4,993,419 (Ex. 2005, “Pompei '419”), a parent of Pompei '813.⁸ *Id.* at 4–8 (citing Ex. 1016, 6–8).

The Office did not previously consider a rejection over either Pompei '091 or Pompei '813 during the prosecution of Pompei '419. The information Patent Owner contends the Office previously considered was Applicant's remarks and not an element by element analysis of the relationship between the claims and prior art. None of the grounds of unpatentability presented here is based on Pompei '419. Further, Pompei '813 is not a continuation of Pompei '419; rather, it is a continuation in part. Ex. 1005 (63). Accordingly, Patent Owner has not shown that the same or substantially the same prior art or argument was previously considered by

⁸ Patent Owner refers to the Amendment as filed April 10, 2007 and as filed on April 12, 2007. The Amendment at Exhibit 1016 has a Patent and Trademark Office stamp dated April 12, 2007 in the top left corner. *See* the unnumbered second page of Exhibit 1016.

the Office. In view of the record before us, we decline to exercise our discretion to deny any ground of unpatentability under 35 U.S.C. § 325(d).

B. LEVEL OF SKILL IN THE ART

Petitioner contends that a person of ordinary skill in the art would have had at least a bachelor's degree (or equivalent) in mechanical engineering, biomedical engineering, electrical engineering, or physics and at least 3–5 years of experience with medical devices. In particular, a person of ordinary skill in the art (“POSITA”) at the time of the ’386 patent would have been a person having an understanding of bio-heat transfer, biomedical instrumentation, blood flow, thermodynamics, software, and general physiology/anatomy. Pet. 13 (citing Ex. 1002, ¶ 54).

If the prior art of record is not indicative of the level of skill in the art, the parties should provide argument and evidence to that effect. Any additional argument and evidence related to the level of skill in the art should focus on how that level affects the obviousness analysis. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (The “level of skill in the art is a prism or lens through which a judge, jury, or the Board views the prior art and the claimed invention.”); *Ryko Mfg. Co. v. Nu-Star, Inc.*, 950 F.2d 714, 718 (Fed. Cir. 1991) (“The importance of resolving the level of ordinary skill in the art lies in the necessity of maintaining objectivity in the obviousness inquiry”).

III. THE CLAIMED SUBJECT MATTER

A. THE '386 PATENT

The '386 patent is titled “Temporal Artery Temperature Detector,” and relates to computing internal body temperature from sensed ambient temperature and sensed surface temperature. Ex. 1001, (54), Abstract. Core temperature is deep body temperature and may be calculated from sensed skin and ambient temperature via a heat-balance approach. *Id.* at 1:29–30, 1:39–44. The heat-balance approach models heat flow through series thermal resistances from the arterial core temperature to the ear skin temperature and from the ear skin temperature to ambient temperature. *Id.* Core temperature may also be computed for oral and rectal temperatures by adjusting the weighing factor. *Id.* at 1:44–47. The '386 patent describes reading skin temperature by detecting the temperature of the forehead directly over the superficial temporal artery. *Id.* at 2:20–24.

Figure 1 follows:

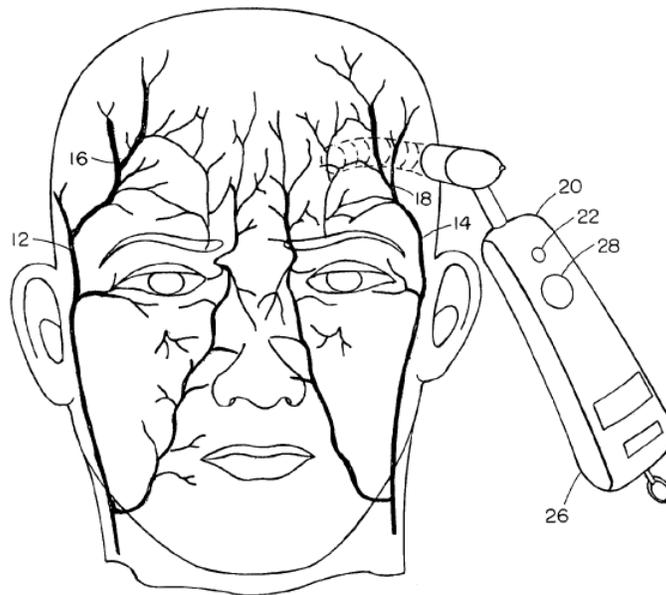


FIG. 1

Figure 1 illustrates an infrared thermometer scanning the temporal artery in the forehead. *Id.* at 3:59–61. Temporal arteries 12 and 14 extend upwardly toward the side of the human face and bifurcate at 16 and 18 in the forehead region. *Id.* at 4:10–12. A user scans temperature/radiation detector 20 across the side of the forehead over the temporal artery while electronics in the detector search for the peak reading which indicates the temporal artery. *Id.* at 4:23–27, 32–33. This reading is then further processed in accordance with an algorithm specific to the temporal artery for providing a display temperature that may correspond to core temperature. *Id.* at 4:27–31.

In one embodiment, the sensor is scanned across the forehead, preferably in the vicinity of the temporal artery, to obtain a peak temperature reading. *Id.* at 3:3–6. At least three readings per second, and preferably ten, should be made during the scan. *Id.* at 3:6–8; *see also* 6:45–48 (disclosing that taking at least three and preferable ten readings per second avoids cooling of the forehead through the detector).

B. ILLUSTRATIVE CLAIM

Claims 1 and 22 are independent, and read as follows:

1. A body temperature detector comprising:

a temperature detector;

electronics which measure peak temperature from at least three readings per second during scan of the temperature detector across an artery and which process the detected peak temperature to provide a temperature display based on a model of heat balance relative to a detected arterial temperature.

22. A body temperature detector comprising:

a radiation sensor which views a target surface area;

a reflective cup through which the radiation sensor views the target surface area, the cup having a proximal window at the base of the cup through which the radiation sensor views the target and an open distal diameter larger than the window and closer than the window to the target surface, the cup proximal to the radiation sensor being out of the field of view of the sensor; and

electronics which measure peak temperature from at least three readings per second during scan of the temperature detector across the target surface area, the electronics processing the detected peak temperature to provide a temperature display based on a model of heat balance relative to the detected temperature.

Claims 2–4 depend from claim 1 and claim 24 depends from claim 22.

C. CLAIM INTERPRETATION

1. *Applicable standard*

In an *inter partes* review, the Board interprets claim terms in an unexpired patent according to the broadest reasonable interpretation in light of the specification of the patent in which they appear. 37 C.F.R.

§ 42.100(b); *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016) (upholding the use of the broadest reasonable interpretation approach).

For the purposes of this decision, and on this record, we determine that only the following claim term needs express interpretation. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (only those terms which are in controversy need to be construed, and only to the extent necessary to resolve the controversy).

During this proceeding, the parties may further develop argument and evidence regarding claim construction as appropriate.

2. “*detected arterial temperature*” — *claim 1*

Petitioner construes “detected arterial temperature” as recited in claim 1 as “detected surface temperature of skin directly over an artery.” Pet. 10–13. Patent Owner “does not agree,” with this claim construction, but accepts it for purposes of the Preliminary Response. Prelim. Resp. 2–3. We adopt this interpretation for purposes of this decision.

Petitioner contends that the remaining terms should be given a broadest reasonable construction. Pet. 13.

D. ANALYSIS OF ASSERTED GROUNDS OF UNPATENTABILITY

1. *Anticipation by Pompei ’813*

a) *Introduction*

Petitioner contends that claims 1 and 2 are unpatentable under 35 U.S.C. § 102(b) as anticipated by Pompei ’813. Pet. 21–26.

b) *Claim 1*

Petitioner contends that Patent Owner previously admitted that Pompei ’813 discloses forehead thermometry for invalidity purposes. Specifically, Petitioner contends that Patent Owner’s argument in prior litigation that forehead thermometers infringe claim 7 of Pompei ’813 (Ex. 1005) “necessarily suggests Patent Owner agrees that Pompei ’813 discloses forehead thermometry for invalidity purposes.” Pet. 21–21 (citing *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1330 (Fed. Cir. 2003)).

Petitioner misapplies *Amgen*. In *Amgen*, the Federal Circuit held that claims are construed the same for invalidity and infringement. *See Amgen*

Inc. v. Hoechst Marion Roussel, Inc., 314 F.3d at 1330. It does not follow necessarily from that holding that an assertion that a product infringes a claim of a patent functions as an admission that the patent discloses that product. We agree with Patent Owner’s explanation of why the prior assertion that claim 7 of Pompei ’813 reads on forehead thermometry is not an admission that Pompei ’813 discloses a method of providing an internal body temperature approximation of the human body that includes scanning a detector across the forehead skin surface over the superficial temporal artery. *See* Prelim. Resp. 18–20.

The proper inquiry for this ground of unpatentability based on anticipation is whether Petitioner has demonstrated that the reference discloses each limitation of the challenged claim. *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987). Although Patent Owner’s assertion that claim 7 of Pompei ’813 was infringed by a forehead type thermometer is not an admission that forehead thermometers disclose the method of claim 10, in the analysis that follows we address specific statements by Patent Owner that are proffered by Petitioner.

(1) A body temperature detector comprising: a temperature detector

Petitioner contends that Pompei ’813 discloses a body temperature detector comprising a temperature detector as claimed in the form of a thermopile or radiation detector that measures tympanic temperature and adjusts it “to provide an indication of core temperature.” Pet. 22; *see also* Pet. 13–15 (providing an overview of the reference).

(2) electronics which measure peak temperature from at least three readings per second during scan of the temperature detector across an artery and which process the detected

peak temperature to provide a temperature display based on a model of heat balance relative to a detected arterial temperature

Petitioner contends that Pompei '813 discloses providing an internal body temperature approximation of a human body using a thermopile or radiation detector that measures tympanic temperature and adjusts it to provide an indication of core temperature. Pet. 22. Petitioner contends that Pompei '813 discloses electronics that: obtain a digital reading of the radiation sensor (or thermopile) nine times a second, process these measurements, and display the highest indication of the body's core temperature. *Id.* at 23. Petitioner contends that the displayed temperature is calculated based on a model of heat balance. *Id.* at 24.

Petitioner contends that Pompei '813 discloses scanning of: cutaneous tissue, the skin surface within the ear canal, and the tympanic membrane. *Id.* at 23–24; *see also id.* at 14 (contending that Pompei '813 discloses rotating the detector probe to scan the ear canal and obtain a maximum temperature). Petitioner contends that the tympanic membrane includes arteries so that scanning of the ear canal, to include the tympanic membrane, necessarily includes scanning across arteries. *Id.* at 24–25 (Ex. 1002 ¶ 31, 67–68; Ex. 1015, 1373, 1519).

Patent Owner argues that Petitioner fails to show that Pompei '813 discloses electronics that scan across an artery or detect arterial temperature. Prelim. Resp. 10. Patent Owner makes several contentions in support of this argument. First, Patent Owner contends that Petitioner has provided no proof that there are arteries on the tympanic membrane. *Id.* at 11–13. In particular, Patent Owner mentions that Petitioner and Petitioner's expert, Dr. Bowman, cite entire pages without providing quotations from those

pages so that it is difficult to discern whether arteries are on the tympanic membrane as opposed to arteries that supply or are associated with the tympanic membrane. *Id.* at 12 (referring to Dr. Bowman’s testimony (Ex. 1002 ¶ 32) as conclusory and entitled to little weight under 37 C.F.R. § 42.65(a)). Second, Patent Owner contends that Petitioner has not demonstrated that Pompei ’813 discloses scanning an artery as claimed because Petitioner insufficiently demonstrates: the field of view of the scanner (in a relatively large field of view an artery would not move in and out of the field and therefore would not be scanned across), the location and dimensions of the arteries on the tympanic membrane, and the scan trajectory. Prelim. Resp. 13–14.

For the reasons that follow, these contentions are not persuasive on this record. Patent Owner chose to challenge the specificity of Petitioner’s citations rather than address the merits of Petitioner’s assertion. *See id.* at 12. Although citing to a reference with greater specificity than page number may be useful, citation by page number is adequate. Further, contrary to Patent Owner’s contention that Petitioner has provided “no proof,” Petitioner provides proof that there are arteries on the tympanic membrane. *See, e.g.*, Ex. 1015, 1519, *Branches of the first part, Anterior tympanic artery* (describing the anterior tympanic artery as “on the interior of the tympanic membrane”) (cited at Pet. 24). Somewhat similarly, Patent Owner does not challenge the merits of Dr. Bowman’s testimony; rather, Patent Owner characterizes the testimony as conclusory and lacking citation to the facts and data underlying that opinion. *See* Prelim. Resp. 12. Dr. Bowman provides an explanation to include an illustration, and cites to the facts and

data underlying his opinion. *See* Ex. 1002 ¶ 31 (citing Ex. 1015 at 1015, 1518, 1519).

Petitioner provides reasoned analysis supported by evidence that the detector of Pompei '813 is configured so that it may be rotated to scan a target, such as the tympanic membrane and the ear canal. Pet. 14–15, 23–24 (citing Ex. 1005, 3:44–51); *see also* Ex. 1013, 65 (asserting in litigation that Pompei '813 discloses “a technique of scanning a radiation detector across a target to measure the maximum emitted radiation” and “swiping a radiation detector across a target.”) (cited at Pet. 15). Further, as mentioned above, Petitioner provides reasoned analysis supported by evidence that this target area includes arteries.

We are persuaded by Petitioner’s contentions based on the record to this point. Consequently, Petitioner has demonstrated a reasonable likelihood of prevailing in the contention that claim 1 is unpatentable as anticipated by Pompei '813.

c) Claim 2

Claim 2 depends from claim 1 and additionally recites, “wherein the temperature detector comprises a radiation sensor which views a target surface area of the forehead.” Therefore, claim 2 requires electronics capable of detecting arterial temperature by scanning across an artery of the forehead.

Petitioner contends that Pompei '813 discloses scanning of “surface tissue,” and scanning of “biological surface tissue.” Pet. 25 (citing Ex. 1005 at 2:49–51; 3:16–21, 3:44–51, 14:50-66; Ex. 1002, ¶¶ 67, 94). In support, Dr. Bowman explains that Pompei '813 is not limited to scanning the tympanic membrane; rather it is capable of scanning “surface tissue,” target

biological tissue, and the ear canal. Ex. 1002 ¶ 67. Based on this, Petitioner asserts that Pompei '813's device is capable of scanning forehead skin over an artery as required by claim 2.

Patent Owner argues that Pompei '813's reference to scanning surface tissue does not correspond to scanning at the forehead as claimed. Prelim. Resp. 17. To some extent, Patent Owner's argument is premised on the wrong inquiry. Pompei '813 need not disclose the action of scanning an artery of the forehead—this is not a method claim. The proper inquiry is whether Pompei '813's device is structurally capable of scanning an artery of the forehead as claimed. There is no evidence or reasoning that suggests it is not, and Patent Owner's argument does not persuasively address Petitioner's contentions.⁹

On the record before us, Petitioner has demonstrated a reasonable likelihood of prevailing in the contention that claim 2 is unpatentable as anticipated by Pompei.

2. *Obviousness over Pompei '813 and Pompei '091*

Petitioner contends that claims 3, 4, 22, and 24 are unpatentable over Pompei '813 and Pompei '091. Pet. 26–34.

⁹ We do not rely upon Petitioner's contention that Patent Owner's prior assertion in litigation is an admission that Pompei '813 discloses a device that scans the forehead skin as claimed. *See* Pet. 21–22. Consequently, we need not address Patent Owner's related argument. *See* Prelim. Resp. 17–20.

a) Claim 3 and 22

Claims 3 depends from claim 2 and adds that the radiation sensor views the target through a reflective cup. Claim 22 is similar.

Petitioner contends that Pompei '813 discloses the elements of claim 3 except a reflective cup and concludes that it would have been obvious to add a reflective cup as taught by Pompei '091. Pet. 26 (citing Ex. 1007, 1:36–39, 4:50–54, Fig. 3; Ex. 1002 ¶ 101). Petitioner contends that combining the identified elements of Pompei '813 and Pompei '091 would have been an application of a known technique to a known device ready for improvement to yield predictable results. Pet. 28. Petitioner reasons that a person of ordinary skill would recognize that the modification would provide more accurate and rapid surface temperature measurements by eliminating the effects of skin emissivity and background radiation during measurement of exposed skin. Pet. 28–30; Ex. 1002 98; Ex. 1007, Abstract, 1:33–47, 1:50–61, 3:47–66. Further, according to Petitioner, a person of ordinary skill in the art would recognize that measuring at sites other than the ear is more comfortable for the patient. Pet. 30 (citing Ex. 1002 ¶ 99; Ex. 1005, 3:40–43 as evidence of a concern for patient comfort).

Patent Owner repeats the arguments in support of claim 1 and 2. Prelim. Resp. 20. These arguments are unpersuasive for the reasons given in the analysis of the previous ground of unpatentability.

Patent Owner also contends that Petitioner has not provided an adequate reason for combining the references because a reflective cup such as disclosed by Pompei '091 adds no value to a device used in an ear canal. Prelim. Resp. 21. This argument is inapposite because, as discussed above,

the combined device is structurally capable of scanning locations other than the ear canal.

Patent Owner argues that Pompei '091 discloses scanning from a distance, not scanning with the reflective cup in contact with a target surface, and for that reason, the proposed combination would create a device that scans from a distance rather than in contact with a surface. Prelim. Resp. 21–23. Patent Owner's argument is not commensurate in scope in that claim 3 requires scanning the temperature detector across an artery and does not require that the detector be in contact with the skin surface. Further, Patent Owner's argument is to some extent an individual attack on Pompei '091, ignoring that the ground of unpatentability relies upon a device as disclosed by Pompei '813 in combination with a reflective cup as disclosed by Pompei '091. *See* Pet. 26 (contending that Pompei '813 discloses a device as claimed except a reflective cup). Patent Owner's argument also does not take into account that Pompei '091's device is suitable for surface temperature measurements directly against a surface. Ex. 1007, Abstract, 1:50–53; Pet. 28–30.

On the record before us, Petitioner has demonstrated a reasonable likelihood of prevailing in the contention that claims 3 and 22 are unpatentable over Pompei '813 and Pompei '091.

b) Claim 4 and 24

Claim 4 depends from claim 3 and adds that the reflective cup is spaced from the target surface by a smooth lip of low thermal conductivity material. Claim 24 depends from independent claim 22 and adds a similar limitation.

Petitioner contends that the end of Pompei '813's thermal probe is rounded to avoid patient discomfort and is formed of a plastic material of low thermal conductivity. Pet. 32; Ex. 1005, 3:40–43, 5:13–15, 6:5–8, 6:15–19; Ex. 1002 ¶ 99; Pet. 34 (relying on the analysis of claim 4). Petitioner reasons that for patient comfort and accurate measurements, a person of ordinary skill would have modified Pompei '091's cup to include a rounded lip of low thermal conductivity material. Pet. 32, 34.

Patent Owner contends that there is “no suggestion in the cited references” of a smooth lip of low conductivity material. Prelim. Resp. 26. Patent Owner's argument that the teaching must be found in the references is a rigid application of the teaching, suggestion, or motivation test, and the Supreme Court has rejected strict application of this test. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 418-419 (2007). Petitioner provides sufficient reasons for the proposed modification (i.e., patient comfort and accuracy), and Patent Owner's argument is unpersuasive because it does not address these reasons.

On the record before us, Petitioner has demonstrated a reasonable likelihood of prevailing in the contention that claims 4 and 24 are unpatentable as over Pompei '813 and Pompei '091.

3. *Obviousness over Pompei '813 and Amano*

Petitioner contends that claims 1 and 2 are unpatentable under 35 U.S.C. § 103 as obvious over Pompei '813 and Amano. Pet. 34–41. Petitioner contends that to the extent that the Board concludes that Pompei '813 does not disclose a device that is capable of scanning across an artery and the forehead as recited in claims 1 and 2, such limitation would have been obvious over the combination of Pompei '813 and Amano. Pet. 34. In

other words, Petitioner asserts this ground if we determine that Pompei '813 does not disclose the subject matter of claims 1 and 2. As explained above, we determine that Petitioner has made a sufficient showing with regard to anticipation of claims 1 and 2 by Pompei '813. Consequently, Petitioner does not assert this alternative ground of unpatentability.

There is a second, independent reason for not instituting on this ground of unpatentability. Petitioner's proposed "modification" is to employ the device of Pompei '813 using the technique disclosed by Pompei '091, namely, to scan across an artery. *See* Pet. 35 (asserting that Pompei '091 discloses measuring surface temperature of skin above an artery). Claims 1 and 2 are apparatus claims, and the apparatus of Pompei '813 is not altered by how it is used (e.g., scanning over an artery as taught by Pompei '091). Consequently, this ground of unpatentability does not propose to modify Pompei '813, and is no different from an assertion that Pompei '813 anticipates claims 1 and 2. Given that we institute on the ground of unpatentability of claims 1 and 2 as anticipated by Pompei '813, it serves no purpose to institute on the ground at hand.

Consequently, we do not institute on this ground of unpatentability.

4. *Obviousness over Pompei '813, Amano, and Pompei '091*

Petitioner contends that claims 3, 4, 22, and 24 are unpatentable over Pompei '813, Amano, and Pompei '091. Pet. 42–46. Petitioner does not modify the combination based on Amano; rather, Petitioner relies on a method of use disclosed in Amano. Our analysis here parallels that of the previous ground of unpatentability. Given that we institute on claims 3, 4, 22, and 24 based on obviousness over Pompei '813 and Pompei '091, it

serves no purpose to institute on the ground at hand. Consequently, we do not institute on this ground of unpatentability.

5. *Obviousness over Banke, Houdas, and Barnes*

Petitioner contends that claims 1 and 2 are unpatentable over Banke, Houdas, and Barnes. Pet. 46–52.

Petitioner contends that Banke discloses the limitations of claims 1 and 2 except for the forehead limitation (*i.e.*, scanning an artery in the target surface area of the forehead) and the “heat balance” limitation. *See* Ex. 1002 ¶ 122 (cited at Pet. 46); Pet 46–49. Petitioner relies on Barnes for the location on the body where the sensed skin temperature is obtained, and relies on Houdas for the “heat balance.” Pet. 46–49. Petitioner does not actually modify the combination of Banke and Houdas based on Barnes because Petitioner only relies upon Barnes for a *use* of the device (scanning an artery in the forehead). Accordingly, we consider this ground is effectively obviousness over Banke and Houdas. For that reason, we need not address Patent Owner’s argument related to the disclosure of Barnes or the rationale supporting the alleged modification in view of Barnes.

Petitioner contends that Banke discloses an infrared thermometer that determines a patient’s body temperature using a thermopile to measure the surface temperature of a target surface such as the eardrum. Pet. 49–50 (citing Ex. 1008, Abstract, 2:1–10, 3:2–8, 6:23–7:15, 11:26–12:19); Ex. 1002 ¶¶ 122–125. Petitioner contends that Banke discloses electronics that measure peak temperature from at least three readings per second and that process the detected peak temperature to provide a temperature display. Pet. 50; Ex. 1002, ¶¶ 122-125; Ex. 1008, 16:11–15, 12:7–14. Petitioner contends

that Banke's device is capable of scanning an artery because the tympanum contains arteries. Pet. 51.

Petitioner contends that Houdas discloses how to compute a person's core temperature from a measured skin temperature and a known ambient temperature. Pet. 47, 49 (citing Ex. 1010, 34, 40–41, 95–97, 108–111, 143–145); Ex. 1002 ¶ 93. In support, Dr. Bowman opines that Houdas discloses that heat produced by the core is transferred to the skin and the environment removes that heat at an equal rate. Ex. 1002 ¶ 93. Dr. Bowman further explains that knowing this, a person of ordinary skill can determine a core temperature calculation dependent on the ambient temperature and skin temperature. *Id.*

Petitioner concludes that a person of ordinary skill in the art would have modified Banke to determine a person's core temperature with heat-balance equations as taught by Houdas so that temperature may be measured at less invasive and more convenient body locations than the ear canal. Pet. 47. Petitioner adds that a person of ordinary skill would have recognized that the heat-balance model disclosed in Houdas could be determined for any location on the body given the heat transfer coefficient for that location. *Id.* .

Patent Owner argues that the references do not disclose scanning of an artery to obtain a body temperature measurement. Prelim. Resp. 34. To the contrary, we are persuaded by Petitioner's contention that Banke's device is capable of scanning across an artery, such as those in the eardrum, to obtain an arterial temperature.

Patent Owner argues that the references do not suggest using the model of heat balance to obtain a body temperature measurement. Prelim. Resp. 34. This contention is somewhat of an individual attack on the

references. Petitioner does not contend that any one reference discloses using heat balance to obtain a core body temperature. Rather, as explained above, Petitioner contends that in light of Banke device that can detect an arterial temperature and Houdas discloses that core temperature can be computed from ambient and skin temperatures, it would have been obvious to modify Banke's device to calculate core temperature in such a manner. At this point in the proceeding, we are persuaded by Petitioner's contentions.

Patent Owner argues that the references do not suggest making a measurement across the surface area of the forehead. *Id.* at 34. This argument is premised on the claim interpretation that the claims require the device to be scanned across the forehead. This is an apparatus claim, not a method claim, and requires that the device includes electronics capable of scanning across an artery to detect a peak temperature, and processing that temperature based on a model of heat balance relative to a detected arterial temperature—it does not require a step of scanning across the forehead.

Based on the record to this point in the proceeding, Petitioner has demonstrated a reasonable likelihood of prevailing in the contention that claims 1 and 2 would have been unpatentable over Banke and Houdas.

6. *Obviousness over Banke, Houdas, Barnes, and Pompei '091*

Petitioner contends that claims 3, 4, 22, and 24 are unpatentable over Banke, Houdas, Barnes, and Pompei '091. Pet. 52–57. For the reasons given in the analysis of the previous ground of unpatentability, this ground of unpatentability is obviousness over Banke, Houdas, and Pompei '091.

Petitioner proposes to modify the combination of the previous ground of unpatentability (i.e., Pompei '813 and Amano) by adding a reflective cup as taught by Pompei '091. *Id.* at 52–53.

Patent Owner repeats the arguments regarding Banke and Houdas for the previous ground of unpatentability and repeats the argument relating to adding a reflective cup as taught by Pompei '091 from the earlier ground of unpatentability based on Pompei '091. Prelim. Resp. 34–35. Our analysis of these arguments above is equally applicable here.

Based on the record to this point, Petitioner has demonstrated a reasonable likelihood of prevailing in the contention that claims 3, 4, 22, and 24 are unpatentable as obvious over Banke, Houdas, and Pompei '091.

IV. CONCLUSION

For the foregoing reasons, we do not institute on the following grounds of unpatentability:

- (1) Claims 1 and 2 as obvious over Pompei '813 and Amano
- (2) Claims 3, 4, 22, and 24 as obvious over Pompei '813, Amano, and Pompei '091.

We institute on the remaining asserted grounds as detailed in the order below.

At this stage of the proceeding, the Board has not made a final determination as to the patentability of any challenged claim or any underlying factual and legal issues.

V. ORDER

For the reasons given, it is:

ORDERED that *inter partes* review is *instituted* with respect to the following grounds of unpatentability:

(1) claims 1 and 2 as unpatentable under 35 U.S.C. § 102(b) as anticipated by Pompei '813;

(2) claims 3, 4, 22, and 24 as unpatentable under 35 U.S.C. § 103(a) as obvious over Pompei '813 and Pompei '091;

(3) claims 1 and 2 as unpatentable under 35 U.S.C. § 103(a) obvious over Banke and Houdas; and

(4) claims 3, 4, 22, and 24 as unpatentable under 35 U.S.C. § 103(a) obvious over Banke, Houdas, and Pompei '091.

FURTHER ORDERED that no other ground of unpatentability is authorized for this *inter partes* review; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '386 patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

Case IPR2016-01437

Patent 7,346,386 B2

PETITIONER:

Kirt S. O'Neil

Daniel L. Moffett

Jayant K. Tatachar

AKIN GUMP STRAUSS HAUER & FELD LLP

koneil@akingump.com

dmoffett@akingump.com

jtatachar@akingump.com

PATENT OWNER:

James M. Smith

Lawrence P. Cogswell III, Ph.D.

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

james.smith@hbsr.com

lawrence.cogswell@hbsr.com