

**United States Court of Appeals  
for the Federal Circuit**

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**GOOGLE LLC,**  
*Appellant*

v.

**IPA TECHNOLOGIES INC.,**  
*Appellee*

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2021-1179, 2021-1180, 2021-1185

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Appeals from the United States Patent and Trademark Office, Patent Trial and Appeal Board in Nos. IPR2019-00728, IPR2019-00730, IPR2019-00731.

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Decided: May 19, 2022

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NAVEEN MODI, Paul Hastings LLP, Washington, DC, argued for appellant. Also represented by ARVIND JAIRAM, STEPHEN BLAKE KINNAIRD, JOSEPH PALYS, DANIEL ZEILBERGER; MICHAEL C. HENDERSHOT, Jones Day, Palo Alto, CA.

STEVEN WAYNE HARTSELL, Skiermont Derby LLP, Dallas, TX, argued for appellee. Also represented by JAIME OLIN, PAUL SKIERMONT, SARAH ELIZABETH SPIRES; MIEKE K. MALMBERG, Los Angeles, CA.

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Before DYK, SCHALL, and TARANTO, *Circuit Judges*.

Dyk, *Circuit Judge*.

Google LLC (“Google”) appeals three inter partes review (“IPR”) decisions of the Patent Trial and Appeal Board (“Board”) concluding that Google had not shown the challenged claims in U.S. Patent Nos. 6,851,115 (“the ’115 patent”) and 7,069,560 (“the ’560 patent”) to be unpatentable. Because the Board failed to resolve fundamental testimonial conflicts in concluding that the relied-upon reference was not prior art, we vacate the decisions and remand for further proceedings consistent with this opinion.

#### BACKGROUND

The ’115 and ’560 patents relate to a “software-based architecture . . . for supporting cooperative task completion by flexible, dynamic configurations of autonomous electronic agents.” J.A. 95; *see also* J.A. 131. In particular, the patents disclose that “[c]ommunications and cooperation between agents are brokered by one or more facilitators” and that “[t]he facilitators employ strategic reasoning for generating a goal satisfaction plan to fulfill arbitrarily complex goals by users and service requesting agents.” J.A. 95. Both patents list David L. Martin and Adam J. Cheyer as inventors. Claim 22 of the ’560 patent, which is representative for purposes of the discussion in this opinion, requires, among other things, a “facilitator agent” that performs various functions. ’560 patent, col. 31, l. 61–col. 32, l. 16.

The patent applications resulting in the ’115 and ’560 patents were filed on January 5, 1999, and March 17, 1999 respectively. The underlying technology, known as the Open Agent Architecture (“OAA”), was conceived at SRI International (“SRI”) in the 1990s. Martin, Cheyer, (both SRI employees) and a third SRI employee, Dr. Douglas B. Moran, had earlier co-authored an academic paper entitled “Building Distributed Software Systems with the Open Agent Architecture” (“the Martin reference”) that

was published in the Proceedings of the Third International Conference on the Practical Application of Intelligent Agents and Multi-Agent Technology, which took place March 23–25, 1998. The Martin reference describes the OAA project developed at SRI and, significantly for present purposes, at least some of the technology embodied in the claims of the '115 and '560 patents.

During the prosecution of the '115 patent, various claims were rejected based on the Martin reference, which the examiner identified as being prior art. In response, SRI contested the prior art status of the reference by submitting inventor declarations by Martin and Cheyer under 37 C.F.R. § 1.132, asserting that Dr. Moran was “not a co-inventor of the subject matter described in the subject matter disclosed and claimed in the instant application[s].” J.A. 11172–75. If Dr. Moran was not a co-inventor of the Martin reference, the Martin reference was not prior art because it was made by the same inventive entity as the '115 and '560 patents and not “by others.” 35 U.S.C. § 102(a) (pre-AIA).<sup>1</sup> After receiving the declarations, the examiner withdrew the rejections based on the Martin reference and continued examining the applications. The patents were granted and ultimately assigned to appellee IPA Technologies, Inc. (“IPA”).

In February 2019, Google petitioned the Board for inter partes review of various claims of the '115 and '560 patents, relying primarily on the Martin reference to argue that the claims would have been obvious. Google contended that the Martin reference was prior art as work “by others” because it described the work of an inventive entity (Martin, Cheyer and Dr. Moran) different from the inventive entity of the challenged patents (Martin and Cheyer). The Board

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<sup>1</sup> Because the patents at issue were filed before March 16, 2013, pre-AIA provisions apply. 35 U.S.C. § 100 (note).

instituted review but concluded after the trial proceedings that Google “ha[d] not provided sufficient support to explain how Dr. Moran’s contribution [wa]s sufficient to establish he [wa]s an inventive entity with respect to the Martin reference by a preponderance of the evidence” and that Google thus failed to “establish[] that Martin was prior art under § 102(a) to the ’560 Patent.” J.A. 26.<sup>2</sup> Because each of Google’s grounds in its petition relied on the Martin reference, the Board concluded that Google did not establish that any of the challenged claims was unpatentable. Google appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(4)(A).

## DISCUSSION

### I

We review the Board’s legal determination de novo and any underlying factual findings for substantial evidence. *Duncan Parking Techs., Inc. v. IPS Grp., Inc.*, 914 F.3d 1347, 1357 (Fed. Cir. 2019). “[W]hether a reference is a work of others for the purposes of § 102(a) is, like that of inventorship, a question of law based on underlying facts.” *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 969 (Fed. Cir. 2014) (citing *Ethicon, Inc. v. U.S. Surgical Corp.*, 135 F.3d 1456, 1460 (Fed. Cir. 1998)).

Joint inventors need “not physically work together or at the same time, . . . make the same type or amount of contribution, or . . . make a contribution to the subject matter of every claim of the patent.” 35 U.S.C. § 116(a). A joint inventor must simply:

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<sup>2</sup> Because Google’s arguments regarding the prior art status of the Martin reference were the same across the three IPR proceedings and that is the sole issue on appeal, unless otherwise noted, we cite only the materials corresponding to IPR2019-728 challenging the ’560 patent.

(1) contribute in some significant manner to the conception or reduction to practice of the invention, (2) make a contribution to the claimed invention that is not insignificant in quality, when that contribution is measured against the dimension of the full invention, and (3) do more than merely explain to the real inventors well-known concepts and/or the current state of the art.

*In re VerHoef*, 888 F.3d 1362, 1366 (Fed. Cir. 2018) (quoting *Pannu v. Iolab Corp.*, 155 F.3d 1344, 1351 (Fed. Cir. 1998)). Accordingly, “to decide whether a reference patent is ‘by another’ . . . , the Board must”:

(1) determine what portions of the reference patent were relied on as prior art to anticipate the claim limitations at issue, (2) evaluate the degree to which those portions were conceived ‘by another,’ and (3) decide whether that other person’s contribution is significant enough, when measured against the full anticipating disclosure, to render him a joint inventor of the applied portions of the reference patent.

*Duncan Parking*, 914 F.3d at 1358 (quoting pre-AIA 35 U.S.C. § 102(e)).

Google argues that the Board improperly imposed a burden on Google to prove that the Martin reference has a different inventive entity than the challenged patents. In response, IPA argues that the Board correctly placed the burden on Google to show what Dr. Moran contributed to the Martin reference.

The term “burden of proof” has been used to describe two distinct concepts: the burden of persuasion and the burden of production. The burden of persuasion is “the ultimate burden assigned to a party who must prove something to a specified degree of certainty.” *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326 (Fed. Cir.

2008). In an IPR, “the burden of persuasion is on the petitioner to prove ‘unpatentability by a preponderance of the evidence,’ and that burden never shifts to the patentee.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (quoting 35 U.S.C. § 316(e)). In contrast, the burden of production, or “going forward with evidence,” is a shifting one, “the allocation of which depends on where in the process of trial the issue arises.” *Id.* at 1379 (quoting *Tech. Licensing*, 545 F.3d at 1327). The burden of production may be met either by “producing additional evidence” or by “presenting persuasive argument based on new evidence or evidence already of record.” *Tech. Licensing*, 545 F.3d at 1327.

With respect to the burden of production, the record contains evidence and arguments from Google and IPA in support of their respective positions on the prior art status of the Martin reference. Google, as the petitioner, had the ultimate burden of persuasion to prove unpatentability by a preponderance of the evidence and this burden never shifted. We see no error with the Board’s requiring that Google establish the Martin reference was prior art “by another” by showing that Dr. Moran made a significant enough contribution to the portions relied on to invalidate the challenged patents to qualify as a joint inventor of those portions. We next address whether Google satisfied its burden.

## II

Dr. Moran was the most senior computer scientist on the OAA team, worked on the OAA team for five years, authored five papers relating to OAA, and was named as a joint inventor on U.S. Patent No. 6,859,931 (“the ’931 patent”), which is a continuation-in-part of the application that resulted in the ’115 patent. The ’931 patent claims appear to be directed at the same computer architecture as the ’115 and ’560 patents with an additional “bridge agent” capable of communicating with and incorporating other

distributed component systems. *E.g.*, '931 patent, col. 33, l. 4–col. 34, l. 10. Although Dr. Moran did “little programming for OAA after 1995” due to a nerve injury, he claims that he “conducted code reviews and design sessions” on top of his primary responsibility for “presentations, demonstration scenarios, funding proposals and research publications.” J.A. 3665. According to Cheyer, Dr. Moran “helped solve specific problems, mostly at the application level” in the OAA project. J.A. 8790. The Board found that Dr. Moran contributed “supporting foundational concepts” to the OAA project. J.A. 17. It is evident that Dr. Moran made general technical contributions to the OAA project. But that is not the relevant inquiry. To be a joint inventor of the Martin reference, as recognized in *Duncan Parking*, he must have made an inventive contribution to the portions of the reference relied on and relevant to establishing obviousness. *See* 914 F.3d at 1358.<sup>3</sup>

Here, Google claims that the description in the Martin reference of using a facilitator is, in part, grounds for finding that the Martin reference rendered the claims obvious, and that Dr. Moran made an inventive contribution to the facilitator concept recited in the Martin reference. Specifically, Dr. Moran claimed to “play[] a significant role regarding the distributed agent-based approach, and in particular using a facilitator, as described in the [Martin reference] at

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<sup>3</sup> The portions of the reference being considered must be relied upon *and* relevant to establishing obviousness. Otherwise, a party challenging a patent could artificially alter the inventive entity for comparison by citing extraneous portions of a multi-inventor prior art reference, thereby making it “by others” even if the portions of the reference necessary for establishing obviousness had the same inventive entity as the challenged patent.

Section 4 and 4.1–4.5.” J.A. 3692.<sup>4</sup> Section 4.5 of the Martin reference states:

*Facilitation* plays a central role in OAA. At its core, our notion of facilitation is similar to that proposed by Genesereth [] and others. In short, a facilitator maintains a knowledge base that records the capabilities of a collection of agents, and uses that knowledge to assist requesters and providers of services in making contact. But our notion of facilitation is also considerably stronger in three respects.

J.A. 3954 (internal citation omitted). The reference then identifies three ways in which its facilitator differs from the prior art: “transparent delegation,” “handling of compound goals” via delegation, optimization, and interpretation, and using “strategies and advice given by the requesting agent.” J.A. 3954–55. These concepts found

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<sup>4</sup> Dr. Moran also claimed to “play[] a significant role in the approach of using recursion to decompose base goals into subgoals that were then dispatched to agents, e.g., as described in the [Martin reference] at Sections 2.5 and 4.1–4.2.” J.A. 3692. For our purposes, it is unnecessary to address this claim because a joint inventor need not contribute to every aspect of a prior art reference, but rather need only make a “contribution [] significant enough, when measured against the full anticipating disclosure, to render him a joint inventor of the applied portions of the [prior art] reference.” *Duncan Parking*, 914 F.3d at 1358. If, on remand, joint inventorship is not found as to the relied-on portions of the Martin reference for the facilitator claim limitation, the Board may have to address the recursion portions of the reference, including Dr. Moran’s role in those portions and what bearing those portions have on the challenged patent claims.

their way into the specification of the '560 patent. *See* '560 patent, col. 19, ll. 14–62.

When asked about Dr. Moran's contributions to OAA, Cheyer acknowledged Dr. Moran's assistance with technical problems "at the application level" but stated that Dr. Moran did not "influenc[e] core OAA architecture or structure." J.A. 8790–91. Cheyer describes Dr. Moran's statements about "having multiple facilitator architectures and a recursive structure" as a "mischaracterization of his role" because those concepts "clearly existed before he ever became involved with the project," dating back to "the very first OAA paper." J.A. 8819–22.

Martin testified that he and Cheyer were responsible for the technical details in the Martin reference, and that Dr. Moran's role on OAA was "administrative." J.A. 8889. When presented with other articles relating to technical aspects of OAA listing Dr. Moran as an author, Martin acknowledged that Dr. Moran "may have made contributions to the technological development of either interfaces for use with OAA, agents used with OAA, or systems based on OAA" but with the caveat that these were topics that were "not necessarily part of OAA per se." J.A. 8907.

The testimony of Dr. Moran, if credited, might well establish that he was a co-inventor of the particular portions of the Martin reference relied on by Google in, and relevant to, the challenge to particular claims. However, the Board did not complete the full *Duncan* analysis. Instead, it appears to have concluded that Dr. Moran's testimony was insufficiently corroborated, "agree[ing] with Patent Owner that Dr. Moran's [claimed contributions to the Martin reference were] . . . not supported by additional evidence at trial," and that the "record lack[ed] sufficient supporting evidence to establish the contributions of Dr. Moran and Messrs. Cheyer and Martin, beyond the Rule 1.132 declarations." J.A. 22–23.

Both parties appear to agree that the Board held Dr. Moran's testimony was insufficiently corroborated. Contrary to the Board's decision, the record reveals more than adequate corroboration of Dr. Moran's testimony. While the majority of corroboration cases involve issued patents, our cases have also required corroboration of testimony that an individual is an inventor of a potentially invalidating prior art reference that is not a patent. *Allergan*, 754 F.3d at 969. While "corroborating an inventor's testimony is a well-established principle in our case law" for purposes of determining inventorship, it is not the case that "an inventor must produce contemporaneous documentary evidence . . . to support his or her declaration" or that a "high degree of corroboration . . . is required across the board." *EmeraChem Holdings, LLC v. Volkswagen Grp. of Am., Inc.*, 859 F.3d 1341, 1346–47 (Fed. Cir. 2017). Although co-authorship does not presumptively make a co-author a co-inventor, e.g., *In re Katz*, 687 F.2d 450, 455 (CCPA 1982); *Allergan*, 754 F.3d at 969, it is significant corroborating evidence that a co-author contributed to the invention. Here, Dr. Moran's testimony as to his technical contributions was sufficiently corroborated by his being named as a co-author on the Martin reference, his role within the OAA project, Cheyer's acknowledgement of Dr. Moran's technical contributions to the OAA project, and Dr. Moran's being named on the related '931 patent.

The issue in this case was not lack of corroboration for Dr. Moran's testimony, but rather whether his testimony should ultimately be credited over Cheyer and Martin's conflicting testimony during the IPR proceedings.<sup>5</sup> Instead of resolving the conflicts, the Board stated that it found

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<sup>5</sup> The § 1.132 declarations by Martin and Cheyer, standing alone, were insufficiently focused on the *Duncan* question to raise a fact issue. See *EmeraChem*, 859 F.3d at 1345–46.

“the testimony of Dr. Moran, Mr. Martin, and Mr. Cheyer credible with respect to the facts cited herein.” J.A. 17 n.10; *see also* IPA Br. at 37 (“The Board found all the witnesses credible . . .”); *id.* at 66 (The Board found that “all the witnesses, including [Dr.] Moran, were ‘credible.’”). This was not a tenable position for the Board to take. The Board was required to resolve this highly relevant evidentiary conflict and make appropriate findings of fact.

### III

IPA argues that we can nonetheless affirm because it is inconsistent for Google to claim “that [Dr.] Moran allegedly contributed invalidating subject matter to the Martin [reference], yet is correctly excluded as a named inventor of the Patents-at-Issue” because “[i]f the Martin [reference] discloses the key limitations of the inventions claimed in the Patents-at-Issue and [Dr.] Moran, in fact, contributed to the inventive subject matter in the Martin [reference], then, by extension, [Dr.] Moran would have also contributed inventive subject matter to the Patents-at-Issue.” IPA Br. at 46. Of course, if Dr. Moran were a joint inventor on both the Martin reference and the patents-at-issue, then the Martin reference would no longer be prior art “by another.” But the named inventors on the patents, Cheyer and Martin, are presumptively “the true and only inventors.” *Ethicon*, 135 F.3d at 1460. IPA cannot raise this argument as a defense without actually seeking correction of inventorship of the patents, which it has not. *See Pannu*, 155 F.3d at 1350 (“[A] patent with improper inventorship does not avoid invalidation simply because it *might* be corrected under section 256. Rather, the patentee must claim entitlement to relief under the statute and the court must give the patentee an opportunity to correct the inventorship.”); *Horizon Meds. LLC v. Alkem Labs. Ltd.*, 2021 WL 5315424, at \*3 (Fed. Cir. 2021) (effort to correct

inventorship of issued patent to avoid pre-AIA 35 U.S.C. § 102(a) prior art).<sup>6</sup>

CONCLUSION

We vacate the Board's decisions and remand for further proceedings consistent with this opinion.

**VACATED AND REMANDED**

COSTS

No costs.

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<sup>6</sup> The Manual of Patent Examining Procedure ("MPEP") similarly advises applicants that a pre-AIA 35 U.S.C. § 102(a) rejection can be overcome "by adding the coauthors as inventors to the application" assuming the statutory requirements are met. MPEP § 2132.01(I) (9th ed. Rev. 10, June 2020).