NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

ETHANOL BOOSTING SYSTEMS, LLC, MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
Plaintiffs-Appellants

v.

FORD MOTOR COMPANY,
Defendant-Appellee

2021-1949

Appeal from the United States District Court for the District of Delaware in No. 1:20-cv-00706-CFC-JLH, Judge Colm F. Connolly.

Decided: July 18, 2022

STEVEN M. SEIGEL, Susman Godfrey LLP, Seattle, WA, argued for plaintiffs-appellants. Also represented by MATTHEW ROBERT BERRY, ANDRES HEALY.

MICHAEL S. CONNOR, Alston & Bird LLP, Charlotte, NC, argued for defendant-appellee. Also represented by KIRK T. BRADLEY; NATALIE CHRISTINE CLAYTON, ANDREW JAMES LIGOTTI, New York, NY.

Before MOORE, *Chief Judge*, NEWMAN and HUGHES, *Circuit Judges*.

Opinion for the court filed by *Chief Judge* MOORE

Dissenting opinion filed by *Circuit Judge* NEWMAN

MOORE, *Chief Judge*

Ethanol Boosting Systems, LLC and Massachusetts Institute of Technology (collectively, EBS) appeal an order of the United States District Court for the District of Delaware granting judgment of non-infringement of the asserted patents in favor of Ford Motor Co. (Ford). Because the district court's judgment is based on erroneous claim construction, we vacate and remand.

BACKGROUND

The asserted patents disclose a fuel management system for enhanced operation of a spark ignition gasoline engine.[1] '580 patent at Abstract. The fuel management system controls engine knocking by injecting an anti-knock agent, which is a fuel, directly into a combustion cylinder. *Id.*; *see id.* at 1:61–65. In one embodiment, the system includes (1) a direct-injection system for directly injecting a mixture of an anti-knock agent and fuel and (2) a port-injection system for port injecting part of the fuel, which is gasoline. *Id.* at 2:9–12, claim 1. Preferably, the anti-knock agent is ethanol. *Id.* at 2:8–11. Critical to this appeal, however, the asserted patents also state, "[i]n order to obtain the highest possible octane enhancement while still maintaining combustion stability, it may be useful for *100% of the fuel to come from ethanol* with a portion being port injected, *as an alternative* to a small fraction of the port-

[1] The asserted patents are U.S. Patent Nos. 9,708,965; 10,619,580; and 10,781,760. We cite the '580 patent as representative of the asserted patents.

fueled gasoline." *Id.* at 3:34–38 (emphasis added). Claim 1 recites in relevant part:

> A fuel management system for a spark ignition engine, comprising:
>
> > a first fueling system that uses direct injection; [and]
> >
> > a second fueling system that uses port fuel injection . . . .

EBS filed this action in the District of Delaware, alleging Ford infringes several claims of the asserted patents. During claim construction proceedings, EBS argued fuel used in the direct-injection system does not need construction. Ford argued that the first fueling system requires "a fuel that contains an anti-knock agent . . . that is different from the fuel used for port injection/in the second fueling system." J.A. 23–25, 44–46.

The district court adopted Ford's construction from the bench. J.A. 44–46. It reasoned "the specification . . . makes clear that what is invented is a *dual* fuel engine." J.A. 44 at 21:16–17 (emphasis added). The district court relied on the asserted patents' titles, which are an "[o]ptimized fuel management system for direct injection ethanol enhancement of gasoline engines," '580 patent at [54], their background sections, their figures, which the district court noted do not "depict the use of a single fuel engine," J.A. 45 at 22:7–10, and their "repeated[] refer[ences] to the invention as directly injecting ethanol or another second fuel that is not gasoline," J.A. 45 at 22:11–16. Regarding the embodiment that uses 100% ethanol, the district court explained it is in the context of a dual-fuel engine and, thus, "is far different from teaching a single fuel engine." J.A. 45 at 24:2–25.

In view of the district court's construction, the parties stipulated to judgment of non-infringement of the asserted

patents. EBS appeals. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

EBS contends that the district court erred in construing the first fueling system to be limited to using fuels different than the fuel in the second system because there is no clear disclaimer of a single-fuel invention. We agree.

We review claim construction based solely upon the intrinsic record de novo. *Intell. Ventures I LLC v. T-Mobile USA, Inc.*, 902 F.3d 1372, 1377 (Fed. Cir. 2018). Claim terms are generally given their ordinary and customary meaning, i.e., the meaning that the terms would have to a person of ordinary skill in the art when read in the context of the specification and prosecution history. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). We depart from the ordinary and customary meaning in only two instances: lexicography and disavowal. *GE Lighting Solutions, LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014). Only disavowal is relevant to this appeal. The standard for disavowal is exacting. *Id.* Disavowal requires that "the specification [or prosecution history] make[] clear that the invention does not include a particular feature." *Id.*

There is nothing in the claim language that requires the use of different fuels in the direct-injection system and the port-injection system. Ford does not argue otherwise. Respondent's Br. 44 ("Although the claims themselves may be silent as to the specific 'fuel that is to be injected . . . ."'); Oral Arg. 23:40–23:53.[2] Ford, instead, argues that the specification and prosecution history compel such a result.

---

[2] *Available at* https://oralarguments.cafc.uscourts.gov/default.aspx?fl=21-1949_04072022.mp3.

The asserted patents' specifications do not impose a single-fuel requirement either. To the contrary, they disclose an embodiment in which "100% of the fuel . . . come[s] from ethanol with a small fraction being port injected." '580 patent at 3:34–38. The district court's construction requiring two different fuels would exclude this disclosed embodiment. Moreover, even if Ford and the district court were correct that the specification discloses only dual-fuel systems, "we have expressly rejected the contention that if a patent describes only a single embodiment, the claims of the patent must be construed as being limited to that embodiment." *Phillips*, 415 F.3d at 1323.

Ford argues that the specification disavows single-fuel systems because it describes "the invention" as requiring a direct-injection fuel different than a port-injection fuel. Appellee's Br. 33 (citing '580 patent at 1:31–34, 2:9–11, 13:26–28, 16:26–28). None of the cited passages, however, amount to a clear and unmistakable disavowal of single-fuel systems. For example, Ford cites the statement, relied on by the district court, that "[t]his invention relates to an optimized fuel management system for use with spark ignition gasoline engines in which an anti-knock agent which is a fuel is directly injected." '580 patent at 1:31–34. At best, this background statement merely contemplates using the invention with a gasoline engine to directly inject an anti-knock agent, which the parties agree is not gasoline for purposes of this appeal. Critically, the statement does not *require* using gasoline in either fueling system or disavow systems that use other fuels. Such a requirement would be inconsistent with the 100% ethanol embodiment, *id.* at 3:34–38, and the specification's disclosure that the "port injected fuel can be *either gasoline or ethanol*," *id.* at 7:27–28 (emphasis added). *See Cont'l Cirs. LLC v. Intel Corp.*, 915 F.3d 788, 798 (Fed. Cir. 2019) (holding descriptions of the "present invention" were not limiting "where other portions of the intrinsic evidence do not support applying the limitation to the entire patent"). Because these

statements do not describe all embodiments, they do not describe the invention as a whole. *See Regents of Univ. of Minnesota v. AGA Med. Corp.*, 717 F.3d 929, 936 (Fed. Cir. 2013) ("When a patent thus describes the features of the 'present invention' as a whole, this description limits the scope of the invention." (quoting *Verizon Servs. Corp. v. Vonage Holdings Corp.*, 503 F.3d 1295, 1308 (Fed. Cir. 2007))). We conclude that Ford has not established that the specification disavows single-fuel systems in the asserted patents.

Ford also cites, as the district court did, the asserted patents' titles. Appellee's Br. 35; J.A. 44 at 21:17–21. "[I]f we do not read limitations into the claims from the specification that are not found in the claims themselves, then we certainly will not read limitations into the claims from the patent title." *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1312 (Fed. Cir. 1999). In any event, the titles' reference to "ethanol enhancement of gasoline engines" is not a clear and unmistakable disavowal of single-fuel systems, particularly in view of the disclosed 100% ethanol embodiment. Accordingly, the patents' titles do not support the district court's imported claim requirement of two different fuels.

Our construction of the claims is not inconsistent with our decision in *Ethanol Boosting Systems, LLC v. Ford Motor Co.*, 831 F. App'x 505 (Fed. Cir. 2020) (non-precedential) (*EBS I*). There, we summarily affirmed the district court's claim construction requiring dual fuels for the *EBS I* patents, which derive from the parent application of the asserted patents.[3] *Id.* at 505. Ford argues *EBS I* compels the same claim construction here. *See* Appellee's Br. 52–57. The *EBS I* patents, however, are different from the patents-in-suit. For example, the *EBS I* patents, e.g., '519

[3] The EBS *I* patents are U.S. Patent Nos. 8,069,839; 9,255,519; 9,810,166; and 10,138,826.

patent at 5:46–57 (describing direct injection of ethanol), do not disclose 100% ethanol being port injected and direct injected as an alternative to port-injected gasoline. When related patents have different specifications, and as in this case different disclosures which are directly relevant to the claim term at issue, different claim constructions can result.

Likewise, statements made during the prosecution of a different EBS patent do not require importing a limitation into the district court's construction in this case. *See* Appellee's Br. 47–48 (citing U.S. Patent App. No. 11/758,157). That patent, like the *EBS I* patents, is different from the asserted patents. For example, its claims explicitly recite different fuel types in each fueling system. *See* J.A. 4015. There is no inconsistency between our holding today and the prosecution history of a different patent with different claim language.

CONCLUSION

The district court erred in construing the claims to require a dual-fuel system. We therefore vacate the district court's non-infringement judgment premised on that erroneous construction and remand for further proceedings.

VACATED AND REMANDED

COSTS

Costs are awarded to EBS.

NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

ETHANOL BOOSTING SYSTEMS, LLC, MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
Plaintiffs-Appellants

v.

FORD MOTOR COMPANY,
Defendant-Appellee

2021-1949

Appeal from the United States District Court for the District of Delaware in No. 1:20-cv-00706-CFC-JLH, Judge Colm F. Connolly.

NEWMAN, *Circuit Judge*, dissenting.

I respectfully dissent. The panel majority departs from the rule that patent claims are construed in accordance with the invention described in the specification. Claims cannot be construed to cover subject matter different from what the patentee described as the invention. "Ultimately, '[t]he only meaning that matters in claim construction is the meaning in the context of the patent.'" *Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1003 (Fed. Cir. 2016) (quoting *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1363 (Fed. Cir. 2016)); *see*

also Trs. of Columbia, 811 F.3d at 1363 ("claims must be read in view of the specification, of which they are a part" (quoting *Markman v. Westview Instruments*, Inc., 52 F.3d 967, 978 (1995) (en banc))). The district court so construed the claims.

The specification describes a system using both directly-injected fuel and port-injected fuel, where the directly-injected fuel includes an anti-knock agent such as ethanol, and the port-injected fuel is different from the directly-injected fuel. The panel majority errs in construing the claims to include a system in which the fuels are not different. The district court correctly rejected that construction.[1] I respectfully dissent from my colleagues' erroneous claim construction, and their incorrect departure from the law of claim construction.

DISCUSSION

Ethanol Boosting Systems and MIT (collectively "EBS") own United States Patents No. 9,708,965; 10,619,580; and 10,781,760. The three patents are titled "Optimized Fuel Management System for Direct Injection Ethanol Enhancement of Gasoline Engines," and the specifications are substantially the same. The patents describe and claim a fuel system having both direct injection and port injection systems, where the direct injection fuel contains both gasoline and an anti-knock agent such as ethanol, and is different from the fuel in the port-injection

---

[1] *Ethanol Boosting Systems, LLC v. Ford Motor Co.*, No. 1:20-cv-00706-CFC-JLH, ECF 71 (D. Del. Mar. 25, 2021) Reasoning for the district court's claim construction is articulated in the transcript of the court's March 16, 2021 *Markman* hearing ("Claim Construction"), Appx39–84.

system. *See, e.g.*, '580 patent; Claim Construction at 21:18; (Appx44).

EBS sued Ford Motor Company for infringement, and the district court construed the term "fuel" in the claim clause "directly injected/first fueling system," as "a fuel that contains an anti-knock agent that is not gasoline and that is different from the fuel used for port injection in the second fueling system." Claim Construction at 29:2–4; (Appx46). After the district court adopted this construction, the parties stipulated to non-infringement.

My colleagues now hold that the claims should be construed to include systems where the same fuel is used for both direct injection and port injection. The panel majority's claim construction departs from the specification and contradicts the prosecution history.

The district court observed that the specification "recognizes that the engine has an ethanol system and that when ethanol has been exhausted, the engine can operate in a lower performance gasoline-only mode, but it gives specific strategies for avoiding this lower performance mode . . . ." Claim Construction at 25:6–9; (Appx45). The district court referred to an example in the specification that used 100% ethanol in both the port- and direct-injection systems, stating:

> from this we can discern that taken in context, this first passage is merely discussing how this dual fuel engine can adjust the relative amounts of ethanol and gasoline used and contemplating the fact that under certain conditions, the use of ethanol may go up to 100 percent.

Claim Construction at 24:7–11; (Appx45). The district court was reciting how the dual-fuel engine operates; the court was not changing the claims to include 100 percent ethanol in both the direct injection and the port injection systems.

The district court construed the claims in light of the specification and the prosecution history, to require that the direct injection system uses a mixture of gasoline and ethanol. Claim Construction at 24–29; (Appx45–46). The district court took into account the title of the patents, in construing the claims. *Id.* at 21:18–21; (Appx44).

The title is a factor in the construction of claims. In *Corning v. Burden*, the Supreme Court determined that the case turned on the question: "Is the plaintiff's patent for a process or a machine?" 56 U.S. 252, 267 (1853). The Court explained that since the title was for a machine, it would constitute error "to construe his claim as for the function, effect, or result of his machine." *Id.* at 269. *See In re Fong*, 288 F.2d 932, 936 (CCPA 1961) (reading the specification "from its title to its end . . . .").

The panel majority holds that the claims are not limited by the title, citing *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298 (Fed. Cir. 1999) for its statement that "if we do not read limitations into the claims from the specification that are not found in the claims themselves, then we certainly will not read limitations into the claims from the patent title." *Id.* at 1312. This statement, whatever its applicability on the facts of *Pitney Bowes*, cannot change the law that claims are construed in light of the specification, and the specification starts with the title.

A title is required by statute. 35 U.S.C. § 154(a)(1) ("Every patent shall contain a short title of the invention . . ."). In *Exxon Chem. Patents, Inc. v. Lubrizol Corp.*, 64 F.3d 1553, 1557 (Fed. Cir. 1995), the court looked first to the title and specification "as [an] interpretive aid," (citing *Titanium Metals Corp. of Am. v. Banner*, 778 F.2d 775, 780 (Fed. Cir. 1985)). In *UltimatePointer, L.L.C. v. Nintendo Co.*, 816 F.3d 816 (Fed. Cir. 2016), the court addressed a patent titled "Easily–Deployable Interactive Direct Pointing System," and observed that the title

showed that the claimed invention was limited to a direct pointing system. *Id* at 823. The court stated:

> The specification repeatedly emphasizes that the invention is directed to a direct-pointing system. The title of the invention explicitly states that the invention is an "Easily–Deployable Interactive *Direct Pointing* System . . .".

Id. (citing *Exxon*, 64 F.3d at 1557 (emphasis original)). In *Ruckus Wireless,* 824 F.3d at 1003, the court applied the title, "Communicating Information Packets Via Telephone Lines," to construe the claims as excluding wireless communication. *See also, e.g.*, *Endo Pharms. Inc. v. Teva Pharms. USA, Inc.*, 919 F.3d 1347, 1353 (Fed. Cir. 2019) ("Consistent with the claims, the abstract, patent title, and summary of the invention all describe the invention as a 'method of treating pain' in patients with renal impairment."); *Bondyopadhyay v. United States*, 748 F. App'x 301, 306 (Fed. Cir. 2018) ("The title of the patent and its specification further support the notion that the only phased array antenna structure claimed is in the shape of a geodesic sphere.").

The panel majority errs in discarding the title and adopting a claim construction that departs from the description in the specification. The panel majority states that the specification discloses systems where the same fuel is used for both direct injection and port injection systems, requiring that the claims be construed to cover such systems. However, as Ford explains, the comparative data are included in the specification for purpose of comparison, to demonstrate the advantages of the claimed dual fuel system. Ford states:

> Thus, far from describing a single-fuel embodiment where only ethanol is both direct injected and port injected, as EBS posits, Table 2 merely provides data for port injection of ethanol in order to compare those results to the results achieved by

> directly injecting ethanol at different times (late versus early). ['580 patent], 5:44–6:41. In fact, Table 2 confirms the "negligible impact" of port injection of ethanol over the "[c]onventional gasoline engines" of the prior art. ['580 patent], 5:41–44, 6:18–21 (1.05 bar for port injection of ethanol), 6:31–37 (1 bar for "[c]onventional gasoline engines").

Ford Br. 14. As Ford observes, where a specification "repeated[ly] disparages" prior art devices, the skilled artisan would not "read the claims of the patents-in-suit to cover such devices. . . ." *Openwave Sys. v. Apple Inc.*, 808 F.3d 509, 517 (Fed. Cir. 2015)).

The prosecution history conforms to the district court's construction. In prosecuting a parent application with the same specification, EBS distinguished a reference on the ground that the reference used only a single fuel. Appx4022. "Beyond the notice function and reliance-based aspects of a patent's prosecution history, it 'provides evidence of how the [PTO] and the inventor understood the patent.'" *Biogen Idec, Inc. v. GlaxoSmithKline LLC*, 713 F.3d 1090, 1095 (Fed. Cir. 2013). While the parties in *Biogen* focused on the question of disclaimer, the prosecution history here shows how the patentee viewed the dual fuel system as a distinction from the prior art.

Construing the claims to include a single-fuel engine disregards both the specification and the prosecution history. The majority errs in applying a claim construction that is not supported by the record. The district court correctly construed the claims, whereas the panel majority's claim construction contravenes the rules of claim construction. I respectfully dissent.