



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/218,095	08/25/2011	J. David Smith	0492611-1166	7218
24280	7590	11/23/2018	EXAMINER	
CHOATE, HALL & STEWART LLP TWO INTERNATIONAL PLACE BOSTON, MA 02110			PATTERSON, MARC A	
			ART UNIT	PAPER NUMBER
			1782	
			NOTIFICATION DATE	DELIVERY MODE
			11/23/2018	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@choate.com  
jnease@choate.com

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* J. DAVID SMITH, KRIPA K. VARANASI,  
GARETH H. MCKINLEY, ROBERT E. COHEN, ADAM J. MEULER,  
and HARRISON L. BRALOWER

---

Appeal 2017-010620  
Application 13/218,095  
Technology Center 1700

---

Before TERRY J. OWENS, MARK NAGUMO, and JANE E. INGLESE,  
*Administrative Patent Judges.*

Opinion for the Board by INGLESE, *Administrative Patent Judge.*

Opinion dissenting by NAGUMO, *Administrative Patent Judge.*

INGLESE, *Administrative Patent Judge.*

DECISION ON APPEAL

Appellants<sup>1</sup> request our review under 35 U.S.C. § 134(a) of the Examiner's decision to reject claims 1–4, 6, 9–11, and 13–19<sup>2</sup>. We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

---

<sup>1</sup> Appellants identify the Massachusetts Institute of Technology as the real party in interest. Appeal Brief filed April 21, 2016 (“App. Br.”), 2.

<sup>2</sup> Appellants cancelled claim 5 in an amendment filed November 23, 2015, and the Examiner confirmed entry of the amendment in an Office communication dated September 15, 2016.

We REVERSE.

#### STATEMENT OF THE CASE

Appellants' invention "relates generally to preventing the formation of hydrates in oil and gas pipelines." Spec. ¶ 2. "Hydrates are crystalline structures consisting of a lattice of cages of water molecules that entrap hydrocarbon molecules at elevated pressures and low temperatures." Spec. ¶ 4. Hydrates can plug oil lines, and can form dangerous projectiles within an oil line if subjected to large differential pressures. *Id.* According to the Specification, "hydrates were a key reason for the failure of the containment box approach to oil recovery after the 2010 Gulf spill as they clogged the opening of the box near the sea floor and prevented oil from being siphoned to boats on the surface." *Id.* The article of Appellants' invention "reduc[es] the adhesive strength between a hydrate and the interior surface of a deep sea pipeline or portions thereof," preventing "catastrophic failures in deep-sea oil and gas operations." Spec. ¶ 2, *see also* ¶ 7.

Independent claims 1 and 10 illustrate the subject matter on appeal and are reproduced below with contested language italicized:

1. *An article for use in a deep sea oil and/or gas recovery operation, the article comprising*  
a surface having receding contact angle of water,  $\theta_{rec}$  of no less than  $100^\circ$ ,  
wherein *the article is a fuel gas line or instrument gas line and*  
wherein the surface is a hydrate-phobic surface that inhibits hydrate adhesion thereupon in the presence of oil and/or gas.
  
10. *An article for use in a deep sea oil and/or gas recovery operation,*

the article having a surface comprising fluorodecyl polyhedral oligomeric silsesquioxane,  
the surface having receding contact angle of water,  $\theta_{rec}$  of no less than  $100^\circ$ ,  
wherein *the article is a fuel gas line or instrument gas line* and  
wherein the surface is a hydrate-phobic surface that inhibits hydrate adhesion thereupon in the presence of oil and/or gas.

App. Br. 11–12 (Claims Appendix) (emphasis and indentations added).

The Examiner sets forth the following rejections in the Non-Final Office Action entered August 21, 2015 (“Office Act.”), and maintains the rejections in the Examiner’s Answer entered June 8, 2017 (“Ans.”):

I. Claims 1, 2, and 9 under 35 U.S.C. § 102(b) as anticipated by Extrand<sup>3</sup> as evidenced by Luzinov<sup>4</sup> and Hatton<sup>5</sup>;

II. Claims 3, 4, 6, 10, and 11 under 35 U.S.C. § 103(a) as unpatentable over Extrand as evidenced by Luzinov and Hatton in view of Yamahiro<sup>6</sup>; and

III. Claims 13–19 under 35 U.S.C. § 103(a) as unpatentable over Extrand as evidenced by Luzinov and Hatton in view of Yamahiro and Filho<sup>7</sup>.

## DISCUSSION

---

<sup>3</sup> (U.S. 2004/0206410 A1, published October 21, 2004).

<sup>4</sup> (U.S. 7,985,451 B2, issued July 26, 2011).

<sup>5</sup> (WO 2011/163190 A1 published December 29, 2011).

<sup>6</sup> (U.S. 7,687,593 B2, issued March 30, 2010).

<sup>7</sup> (U.S. 5,154,741, issued October 13, 1992).

Upon consideration of the evidence relied upon in this appeal and each of Appellants' contentions, we reverse the Examiner's rejection of claims 1, 2, and 9 under 35 U.S.C. § 102(b), and the Examiner's rejections of claims 3, 4, 6, 10, 11, and 13–19 under 35 U.S.C. § 103(a), for the reasons set forth in the Appeal Brief and below.

### Rejection I

Claim 1 recites, *inter alia*, a fuel gas line or instrument gas line for use in a deep sea oil and/or gas recovery operation.

The Examiner finds that Extrand discloses a pipe having an ultraphobic surface for conveying fluids. Office Act. 3 (citing Extrand ¶¶ 48, 51). The Examiner finds that although Extrand does not explicitly disclose that the pipe is a gas fuel line, a “fuel gas line” is an “intended use of the claimed invention.” Office Act. 3; Ans. 6. The Examiner finds that Extrand's pipe for conveying a fluid “meets the structural limitations of a pipe for conveying fuel gas” and “can accomplish the function” of conveying fuel gas. Ans. 6. The Examiner also relies on Hatton's disclosure that “a surface of a conduit [] that is hydrophobic inhibits hydrate adhesion in the presence of gas because the wall will [prefer] hydrocarbons to water.” Office Act. 3 (citing Hatton pg. 2, ll. 27–29; pg. 3, ll. 6–15). The Examiner finds that this disclosure in Hatton evidences that Extrand's pipe having an ultraphobic surface “has utility as a gas fuel line.” Office Act. 3.

Appellants argue that one of ordinary skill in the art would appreciate that a fuel gas line or instrument gas line used in deep sea oil and/or gas recovery operations possesses certain properties that make it particularly suitable for the harsh operating conditions of the deep sea. Reply Br. 5. Appellants assert that “those of ordinary skill in the art would appreciate that

not just any pipe may be used in deep sea oil and/or gas recovery operations.” Reply Br. 5. Appellants argue that Extrand does not disclose a fuel gas line or an instrument gas line, much less “such a pipe for deep sea oil and/or gas recovery operations.” App. Br. 7; Reply Br. 5.

Because Appellants rely on the intended use recited in the preamble of claim 1—“for use in a deep sea oil and/or gas recovery operation”—to distinguish Extrand, we treat the preamble of claim 1 as a functional limitation of the claim. *Catalina Mktg. Int’l Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808–09 (Fed. Cir. 2002) (holding that “clear reliance on the preamble during prosecution to distinguish the claimed invention from the prior art transforms the preamble into a claim limitation because such reliance indicates use of the preamble to define, in part, the claimed invention”).

The initial burden of proof during *ex parte* patent examination rests with the Examiner “to produce the factual basis for [] rejection of an application under sections 102 and 103.” *In re Piasecki*, 745 F.2d 1468, 1472 (Fed. Cir. 1984). Although claims directed to an apparatus must be distinguished from the applied prior art in terms of structure rather than function, to satisfy the functional limitations in an apparatus claim, the Examiner has the burden of establishing that an apparatus taught by the prior art is capable of performing the recited function. *See, e.g., In re Schreiber*, 128 F.3d 1473, 1477–78 (Fed. Cir. 1997).

Although the Examiner relies on Extrand’s disclosure of a pipe for conveying a fluid having an ultraphobic surface, the Examiner does not identify any disclosure in Extrand indicating that the pipe is a fuel gas line, or indicating that the pipe is suitable for use as a fuel gas line. Nor does the

Examiner provide sound technical reasoning grounded in objective evidence establishing that Extrand’s pipe is capable of being used as a fuel gas line in deep sea oil and/or gas recovery operations. The Examiner’s assertion that Hatton evidences that Extrand’s pipe having an ultraphobic surface “has utility as a gas fuel line”—based on Hatton’s disclosure that a hydrophobic conduit surface inhibits hydrate adhesion in the presence of gas—amounts to an assertion that any conduit having a hydrophobic surface could be used as a gas fuel line in deep sea oil and/or gas recovery operations. The Examiner, however, does not provide objective evidence or sound technical reasoning to support this assertion.

Consequently, the Examiner does not provide a sufficient factual basis to show that the pipe disclose in Extrand is capable of functioning as a fuel gas line in a deep sea oil and/or gas recovery operation.<sup>8</sup> *Piasecki*, 745 F.2d at 1472. It follows that the Examiner does not establish that Extrand anticipates the article of claim 1 within the meaning of 35 U.S.C. § 102(b). *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992) (“[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a prima facie case of unpatentability”)

We accordingly do not sustain the Examiner’s rejections of claims 1, 2, and 9 under 35 U.S.C. § 102(b).

---

<sup>8</sup> Although the Examiner asserts that “Appellant has not demonstrated that the pipe of Extrand could not be used as a fuel gas line, and Appellant has not demonstrated through the use of objective evidence that the pipe of Extrand is incapable of functioning as a fuel gas line” (Ans. 6), the Examiner bears the initial burden of providing a factual basis to support the rejection under § 102(b). *Piasecki*, 745 F.2d at 1472. Only if the Examiner meets this initial burden of establishing a prima facie case of unpatentability does the burden shift to the Appellants to show otherwise. *Id.*

Rejections II and III

Because the Examiner does not rely on any disclosure in the additional prior art references applied in these rejections that cures the deficiencies of the Examiner's reliance on Extrand discussed above (Office Act. 4–6), we also do not sustain the Examiner's rejections of claims 3, 4, 6, 10, 11, and 13–19 under § 103(a).

DECISION

We reverse the Examiner's rejection of claims 1, 2, and 9 under 35 U.S.C. § 102(b), and the Examiner's rejections of claims 3, 4, 6, 10, 11, and 13–19 under 35 U.S.C. § 103(a).

REVERSED

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

*Ex parte* J. DAVID SMITH, KRIPA K. VARANASI,  
GARETH H. MCKINLEY, ROBERT E. COHEN, ADAM J. MEULER,  
and HARRISON L. BRALOWER

---

Appeal 2017-010620  
Application 13/218,095  
Technology Center 1700

---

Before TERRY J. OWENS, MARK NAGUMO, and JANE E. INGLESE,  
*Administrative Patent Judges.*

NAGUMO, *Administrative Patent Judge, dissenting.*

Because I disagree with the holding that the preamble recitation, “[a]n article for use in a deep sea oil and/or gas recovery operation” gives life and meaning to the claim,<sup>9</sup> and because I find in Appellants’ arguments no citation of evidence of record supporting their statements regarding the understanding of a person having ordinary skill in the art of the terms “a fuel gas line” or “instrument gas line,” I would affirm the appealed rejections.

Claim 1—Appellants offer distinct substantive arguments only on the basis of recitations in claim 1—does not require that the article be used

---

<sup>9</sup> *Kropa v. Robie*, 187 F.2d 150, 152 (CCPA 1951) (a preamble is limiting when it is “necessary to give life, meaning and vitality to the claims or counts.”)

under conditions at which hydrates form, or even under conditions at which hydrates are stable or metastable. Rather, it only requires that some unspecified surface of the article have a greater than a specified receding contact angle with water, and that hydrate adhesion be inhibited “in the presence of oil and/or gas.” Without further express limitations, these are merely characteristics of that surface of the article. Moreover, in my view, on the present record, the Examiner’s characterizations of the fuel gas line or instrument gas line as mere intended uses is supported by the plain language of the claim. It is improper to argue patentability on the basis of limitations that are neither recited nor inherent in a claim. *In re Hiniker*, 150 F.3d 1362, 1368 (Fed. Cir. 1998) (“Although operational characteristics of an apparatus may be apparent from the specification, we will not read such characteristics into the claims when they cannot be fairly connected to the structure recited in the claims. See *In re Self*, 671 F.2d 1344, 1348 . . . (CCPA 1982).”)

Furthermore, Appellants have not directed our attention to definitions in the Specification or in the prior art of record of the terms “fuel gas lines” or “instrument gas lines” that distinguish them from the “fluid handling components” described by Extrand.<sup>10</sup> What a person having ordinary skill in the art would have understood a term to mean is a question of fact. *E.g.*, *In re Beattie*, 974 F.2d 1309, 1311 (Fed. Cir. 1992) (“[w]hat a reference teaches is a question of fact”) (citation omitted). Questions of fact are resolved according to the preponderance of the evidence of record. *In re Epstein*, 32 F.3d 1559, 1564 (Fed. Cir. 1994) (“Preponderance of the evidence is the standard that must be met by the PTO in making rejections.”)

---

<sup>10</sup> See Extrand, ¶¶ 3, 48, for general descriptions.

(internal quote and citation omitted). Mere attorney argument will not suffice when supporting evidence is required. *In re Walters*, 168 F.2d 79, 80 (CCPA 1948) (“statements of counsel in a brief cannot take the place of evidence.”) (citations omitted).<sup>11</sup> Moreover, Appellants have not shown good cause why the elaborated arguments in the Reply Brief were not made in the principal Brief on Appeal. 37 C.F.R. § 41.37(c)(1)(iv) (2015).

While it is of course true that the PTO—hence, the Examiner (and the Board)—must establish a prima facie case of unpatentability, it has long been the practice, as before other administrative agencies, that on appeal from a final decision by a Primary Examiner, the initial burden is on the Appellants to demonstrate harmful error by the Examiner in that rejection. *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (“even assuming that the

---

<sup>11</sup> The reliance by the Majority on *Catalina Mktg Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801 (Fed. Cir. 2002) (Op. 5) for the proposition that statements made during prosecution are relevant to claim interpretation is inapt, as that case concerned the interpretation of claims of an issued patent, not claims in an original application. While reliance on the prosecution history to interpret a patented claim may be appropriate, the purpose of examination is to recognize ambiguities, explore the scope and breadth of language, and to “fashion claims that are precise, clear, correct, and unambiguous.” *In re Zletz*, 893 F.2d 319, 321–22 (Fed. Cir. 1989). However, when, as here, the prosecution history does not reveal *evidence* of a definition of a disputed term, Appellants’ mere reliance on their claim interpretation is of little probative value because such statements do not serve as evidence of what a person having ordinary skill in the art would have understood a term to mean. *Cf. In re Morris*, 127 F.3d 1048, 1057 (Fed. Cir. 1997) (Plager, J.) (finding in that case “[t]he prosecution history . . . unhelpful in divining the interpretation sought by appellants. . . . Never do the appellants particularly distinguish their *claimed* invention (as compared with their ‘inventive concept,’ whatever that means) from the prior art.”).

Appeal 2017-010620  
Application 13/218,095

examiner had failed to make a prima facie case, the Board would not have erred in framing the issue as one of “reversible error.”) (citing *Ex parte Frye*, Appeal 2009–006013, at 9–10, 2010 WL 889747 (BPAI Feb. 26, 2010) (precedential), *available at* <http://www.uspto.gov/ip/boards/bpai/decisions/prec/fd09006013.pdf>).

In the present case, Appellants have failed to demonstrate harmful error in the appealed rejection. I would therefore affirm, and I must, with respect, dissent from the Decision of the Majority.