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Paper 7
Entered: June 7, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

JOHN CRANE, INC.,
JOHN CRANE PRODUCTION SOLUTIONS, INC. &
JOHN CRANE GROUP CORP.,
Petitioner,

v.

FINALROD IP, LLC,
Patent Owner.

Case IPR2016-00521
Patent 8,851,162 B2

Before SALLY C. MEDLEY, LYNNE E. PETTIGREW, and AMANDA F. WIEKER, *Administrative Patent Judges.*

WIEKER, *Administrative Patent Judge.*

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

I. INTRODUCTION

John Crane, Inc., John Crane Production Solutions, Inc., and John Crane Group Corp. (collectively, "Petitioner"), filed a Petition requesting an *inter partes* review of claims 1–40 of U.S. Patent No. 8,851,162 B2 (Ex. 1001, "the '162 patent"). Paper 2 ("Pet."). In response, Patent Owner, Finalrod IP, LLC, filed a Preliminary Response. Paper 6 ("Prelim. Resp."). We have jurisdiction under 35 U.S.C. § 314, which provides that an *inter partes* review may not be instituted "unless . . . the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition."

For the reasons set forth below, we deny institution of an *inter partes* review of the '162 patent.

A. Related Matter

According to Petitioner, the '162 patent is involved in the following lawsuit: *Finalrod IP, LLC v. John Crane, Inc., et al.*, Case No. 7-15-cv-00097 (W.D. Tex. 2015). Pet. 1.

B. The '162 Patent

The '162 patent relates to connectors for oil well sucker rods. Ex. 1001, 1:5–8. Specifically, the '162 patent discloses that fiberglass or fiber composite rods 200 may be connected together with end fittings 100, to form a string 24 of connected sucker rods 10. *See id.* at 2:33–44, 2:49–58, Fig. 1. Sucker rod string 24 conveys pumping action from above-ground pumping unit 20 to downhole pump 26, to extract oil from a well. *Id.* at 1:63–2:3, 2:33–37, Fig. 1.

Figure 2 of the ’162 patent is reproduced below.

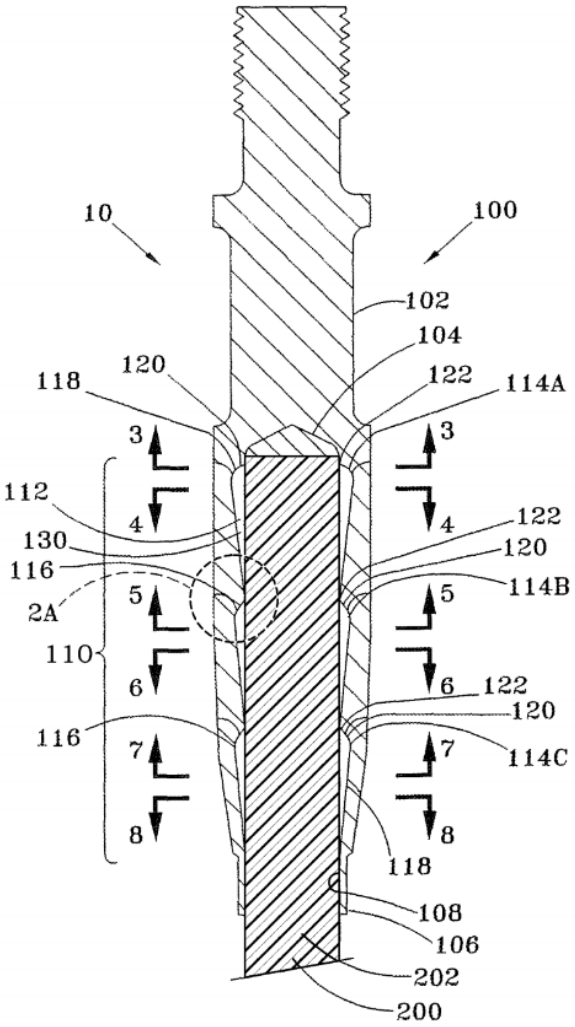


FIG.2

Figure 2 depicts a cross-sectional view of a rod and associated end fitting. *Id.* at 1:21–22. End fitting 100 includes interior surface 108, which comprises wedge system 110. *Id.* at 2:58–60. Wedge system 110 defines cavity 112 having, for example, three wedge-shaped portions 114A–114C. *Id.* at 2:60–66. The ’162 patent discloses that “[e]ach wedged-shaped portion 114 has an apex 116, a leading edge 118 and a trailing edge 120 extending from the apex 116. Each apex 116 forms a perimeter 122 within

the cavity 112 that is the narrowest part of the cavity 112 associated with each wedge shaped portion 114." *Id.* at 2:66–3:4; *see also id.* at 7:19–25.

The '162 patent discloses that this arrangement of wedge-shaped portions creates a "force differential" and "force transfer continuum" that ensures "constant effectiveness between the end fitting 100 and the fiber composite rod 200." *Id.* at 3:8–41.

C. Illustrative Claim

Claims 1, 11, 20, and 31 are independent claims. Claims 2–10 depend directly or indirectly from claim 1; claims 12–19 depend directly or indirectly from claim 11; claims 21–30 depend directly or indirectly from claim 20; and claims 32–40 depend directly or indirectly from claim 31.

Claim 1, reproduced below, is illustrative:

> 1. An end fitting for a sucker rod comprising:
>
> an exterior surface, a closed end, an open end, and an interior surface,
>
> the interior surface comprising a wedge system defining a cavity, wherein the wedge system comprises three wedge shaped portions having an apex, a leading edge and a trailing edge, each apex forming a perimeter of equal dimension within the cavity that is the narrowest part of the cavity associated with each wedge shaped portion such that the leading edge is longer than the trailing edge with the leading edge facing the open end and the trailing edge facing the closed end with respect to each wedge shaped portion,
>
> wherein the leading edge is shorter at the closed end and increases progressively from the closed end to the open end thereby compensating for a compression of the sucker rod in the end fitting, the trailing edge is shorter at the closed end and increases progressively from the closed end to the open end thereby compensating for a back pressure associated with the sucker rod in the end fitting,

> wherein the first wedge shaped portion is proximate to the closed end and receives compressive forces that are greater than the compressive forces which the second wedge shaped portion receives, and wherein the second wedge shaped portion receives compressive forces that are greater than the compressive forces which the third wedge shaped portion receives, such that the compressive forces create a force differential along the wedge system greater at the closed end of the fitting and decreasing toward the open end of the fitting.

Ex. 1001, 8:33–63; *see also* Pet. 21–22 ("[C]laim 1 is representative of all elements of the independent claims other than elements [31.4] and [31.5].").

D. Prior Art Relied Upon

Petitioner relies upon the following prior art references:

Rutledge '431	US 6,193,431 B1	Feb. 27, 2001	(Ex. 1003)
Strandberg	US 4,475,839	Oct. 9, 1984	(Ex. 1004)
Morrow	US 4,662,774	May 5, 1987	(Ex. 1005)
Iwasaki	US 4,822,201	Apr. 18, 1989	(Ex. 1007)
Rutledge '560	US 4,919,560	Apr. 24, 1990	(Ex. 1008)

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

References	Basis	Challenged Claim(s)
Rutledge '431 and Strandberg	§ 103(a)	1, 6–11, 16–20, 25–28, 30, and 31
Rutledge '431, Strandberg, and Morrow	§ 103(a)	2–5, 12–15, 21–24, 32–38
Rutledge '431, Strandberg, and Iwasaki	§ 103(a)	29 and 39

Rutledge '431, Strandberg, and Rutledge '560	§ 103(a)	40

II. ANALYSIS

A. Claim Interpretation

In an *inter partes* review, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b); *see In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278–79 (Fed. Cir. 2015), *cert. granted sub nom. Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 890 (2016) (mem.). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

Petitioner proposes constructions for "the compressive forces create a force differential along the wedge system greater at the closed end of the fitting and decreasing toward the open end of the fitting" and "the maximum thickness is substantially constant and the minimum thickness is substantially constant." Pet. 13–16. Patent Owner disagrees with Petitioner's constructions, proposes its own constructions, and also proposes constructions for "apex" and "an angle associated with the apex between the leading edge and the trailing edge." Prelim. Resp. 11–20.

On the record before us, we need not construe explicitly these terms and phrases in reaching our Decision. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). Accordingly, we provide the terms and phrases their ordinary and customary meaning as understood

by a person of ordinary skill in the art in light of the ’162 patent Specification.

B. Asserted Grounds of Obviousness over Rutledge ’431 and Strandberg

Petitioner contends that claims 1, 6–11, 16–20, 25–28, 30, and 31 are unpatentable under 35 U.S.C. § 103(a) as obvious over Rutledge ’431 and Strandberg. Pet. 4. Petitioner contends also that dependent claims 2–5, 12–15, 21–24, 29 and 32–40 are unpatentable under 35 U.S.C. § 103(a) as obvious over Rutledge ’431 and Strandberg, in further combination with Morrow, Iwasaki, or Rutledge ’560. *Id.* To support these contentions, Petitioner provides explanations and claim charts specifying how claim limitations are disclosed or suggested purportedly in the references and why one skilled in the art would have found it obvious to combine the references. *Id.* at 17–60. Petitioner also cites the Declaration of Gary R. Wooley (Ex. 1010) in support. *Id.* Patent Owner challenges Petitioner’s contentions. Prelim. Resp. 21–60.

For the reasons that follow, we determine that the information presented in the Petition fails to establish a reasonable likelihood that any of the challenged claims are unpatentable under 35 U.S.C. § 103(a) over Rutledge ’431 and Strandberg, together or in further combination with other cited prior art references.

1. Rutledge ’431

Rutledge ’431 discloses a connector for connecting together fiberglass sucker rods. Ex. 1003, Abstract. Figure 25 is reproduced below.

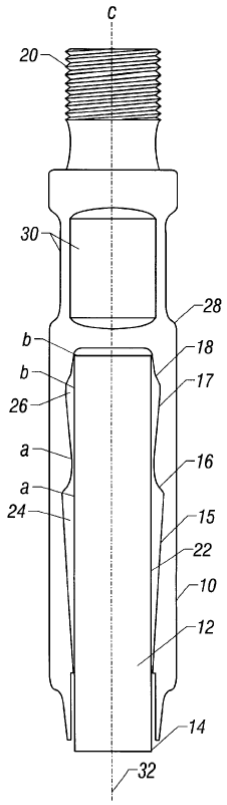


FIG. 25

Figure 25 presents a cross-sectional view of a sucker rod and connector. *Id.* at 7:39–40, 44–46. As shown, connector 10 includes axial receptacle 12 for receiving sucker rod 14, wherein the receptacle includes a plurality of wedge-shaped annuluses 24, 26. *Id.* at 7:48–55.

2. Strandberg

Strandberg discloses a fitting for connecting together fiberglass sucker rods. Ex. 1004, Abstract, 2:45–46. Figure 2 is reproduced below.

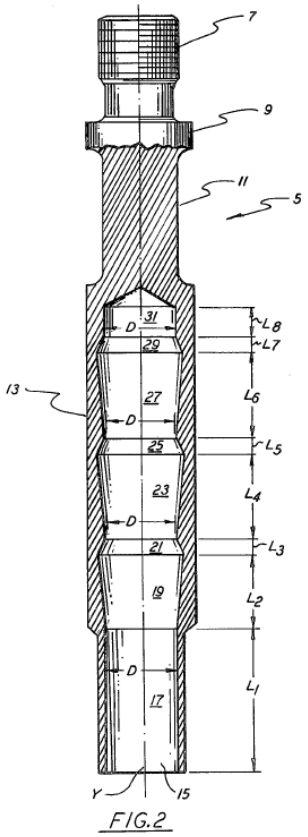


Figure 2 presents a side view of a fitting. *Id.* at 2:40–41. As shown, fitting 5 includes central bore 15 for receiving a sucker rod, wherein central bore 15 comprises various sections 17, 19, 21, 23, 25, 27, 29, 31 of various diameters D, which together define bore 15. *Id.* at 3:11–60.

3. The Challenged Claims

a. Claims 1, 6–11, 16–20, 25–28, 30, and 31

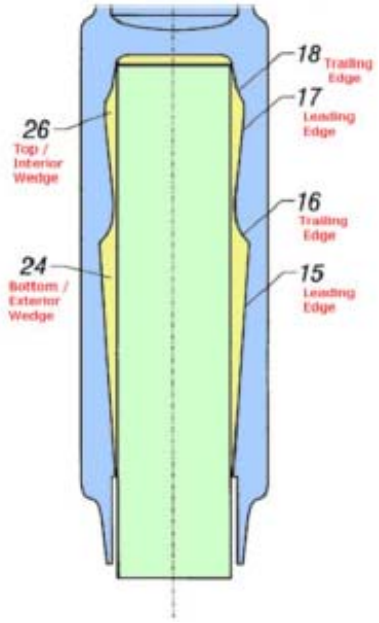
Independent claims 1, 11, 20, and 31 each recite, in substantially similar language, that:

> the wedge system comprises three wedge shaped portions having an apex, a leading edge and a trailing edge, *each apex forming a perimeter of equal dimension within the cavity that is the narrowest part of the cavity associated with each wedge shaped portion such that the leading edge is longer than the trailing edge* with the leading edge facing the open end and the

> trailing edge facing the closed end with respect to each wedge shaped portion.

Ex. 1001, 8:37–45 (emphasis added); *see also id.* at 9:38–46, 10:37–48, 11:43–54. In other words, each independent claim requires that, for each wedge-shaped portion, the perimeter formed by that portion's apex impacts the lengths of the leading edge and the trailing edge, such that the leading edge is longer than the trailing edge. *Id.* at 8:39–43 (". . . each apex forming a perimeter . . . that is the narrowest part of the cavity associated with each wedge shaped portion *such that* the leading edge is longer than the trailing edge . . . .") (emphasis added).

Petitioner contends that Rutledge '431 discloses a wedge system comprising at least two wedges 24, 26. Pet. 26. Regarding the claimed leading edges and trailing edges, Petitioner provides a colored and annotated version of Figure 25 of Rutledge '431, which is reproduced below.

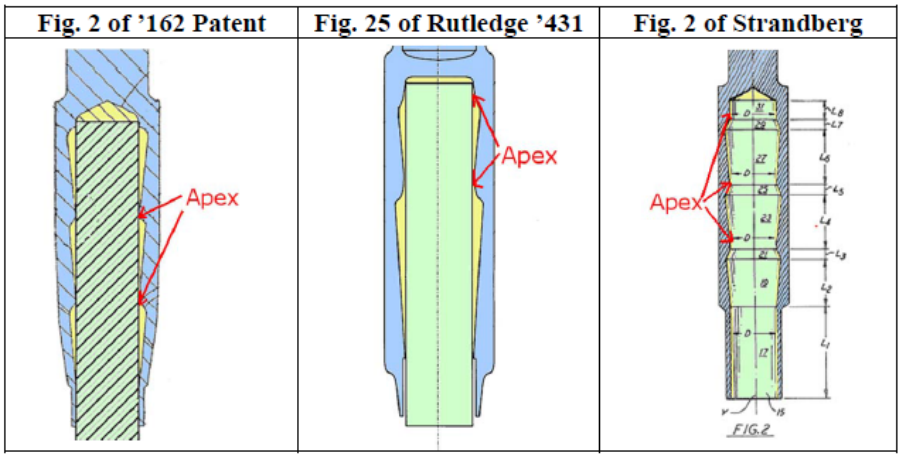


Id. at 26. These annotations identify the claimed leading edges as elements 15, 17 and identify the claimed trailing edges as elements 16, 18. *Id.* at 26–

27; *see also id.* at 22–23. Petitioner contends that a person of ordinary skill in the art "would understand Figure 25 to confirm that the Rutledge '431 Patent's leading edges are longer than the trailing edges." *Id.* at 27 (citing Ex. 1010 ¶ 107).

Regarding the claimed apexes, Petitioner contends that a person of ordinary skill in the art "would understand the Rutledge '431 Patent's description to form 'similar' wave-shaped 'transition surfaces' between the wedges [24, 26] to disclose apexes of equal dimension." Pet. 27 (citing Ex. 1003, 5:46–55;[1] Ex. 1010 ¶ 109) (emphasis omitted). Petitioner also contends that "Strandberg discloses a similar wedge design where all three wedges have 'the same inner diameter D at [their] narrowest part.'" *Id.* (citing Ex. 1004, 3:17–44); *see also id.* at 22–23.

The Petition includes the following colored and annotated figure:



Id. at 28. This figure compares Figure 2 of the '162 patent with Figure 25 of Rutledge '431 and Figure 2 of Strandberg. The figure's annotations identify the apexes in Rutledge '431 and Strandberg as the topmost parts of each wedge-shaped portion, i.e., located between adjacent wedge-shaped portions and located at the narrowest points on the wedge systems. *Id.* at 27–28; *see*

[1] The Petition cites Ex. 1004, which appears to be in error. Pet. 27.

also id. at 52–53 ("[T]he 'apex' in each of these claims is the 'narrowest' part of the cavity, between two wedge shaped portions."). Petitioner contends that a person of ordinary skill in the art "would find the combination of the Rutledge '431 and Strandberg patents to disclose 'each apex forming a perimeter of equal dimension within the cavity that is the narrowest part of the cavity associated with each wedge shaped portion.'" *Id.* at 28 (citing Ex. 1010 ¶¶ 109–112).

Although the Petition identifies prior art elements that correspond purportedly to the claimed apexes, leading edges, and trailing edges, the Petition does not address whether these elements are arranged as required by the claims. Specifically, the Petition does not address the claim language requiring that, for each wedge-shaped portion, "each apex form[s] a perimeter . . . that is the narrowest part of the cavity associated with each wedge shaped portion *such that* the leading edge is longer than the trailing edge." *See, e.g.*, Ex. 1001, 8:39–43 (emphasis added). It is not sufficient to merely identify where these structures are shown purportedly in the prior art. The claimed relationship between the structures must be shown also.

The Petition does not show sufficiently that the apexes taught by the combination of Rutledge '431 and Strandberg form perimeters that impact the lengths of the leading and trailing edges such that the leading edge is longer than the trailing edge. Rather, the Petition contends that each apex is located at the topmost part of a wedge-shaped portion, e.g., between adjacent wedge-shaped portions, and does not show sufficiently that an apex at this location forms a perimeter *such that* the leading edge is longer than the trailing edge. Therefore, the Petition fails to establish a reasonable

likelihood that the prior art renders obvious this aspect of claims 1, 11, 20, and 31.

For these reasons, we determine that the information presented in the Petition fails to establish a reasonable likelihood that it would prevail in showing that independent claims 1, 11, 20, and 31 are unpatentable over Rutledge '431 and Strandberg. Likewise, and for the same reasons, we determine that the information presented in the Petition fails to establish a reasonable likelihood that it would prevail in showing that dependent claims 6–10, 16–19, 25–28, and 30 are unpatentable over Rutledge '431 and Strandberg.

b. Claims 2–5, 12–15, 21–24, 29, and 32–40

Petitioner does not contend that Morrow, Iwasaki, or Rutledge '560 cures the deficiencies noted above with respect to independent claims 1, 11, 20, and 31. Pet. 47–60. Therefore, for the same reasons discussed above with respect to those claims, we determine that the information presented in the Petition fails to establish a reasonable likelihood that it would prevail in showing that dependent claims 2–5, 12–15, 21–24, 29, and 32–40 are unpatentable over Rutledge '431 and Strandberg, in further combination with Morrow, Iwasaki, or Rutledge '560.

III. CONCLUSION

For the foregoing reasons, we conclude that there is not a reasonable likelihood that Petitioner would prevail in showing that claims 1–40 of the '162 patent are unpatentable.

IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that the Petition is denied as to all challenged claims, and no trial is instituted.

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