

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent of: Tom W. Waugh
U.S. Reissue Patent No.: RE45,329
Issue Date: Jan. 13, 2015
Serial No.: 14/272,076
Filing Date: May 7, 2014
Title: CENTRIFUGALLY CAST POLE AND METHOD

Reissue of:
U.S. Patent No.: 8,567,155
Issue Date: Oct. 29, 2013
Serial No.: 11/458,407
Filing Date: Jul. 19, 2006

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**PETITION FOR *INTER PARTES* REVIEW OF U.S. REISSUE
PATENT NUMBER RE45,329 UNDER 35 U.S.C. §§ 311-319**

McWane, Inc. (“McWane” or “Petitioner”) hereby requests *Inter Partes* Review of Claims 10-13 in U.S. Reissue Patent Number RE45,329 (“the ’329 reissue patent,” **Exhibit 1001**) owned by Tom W. Waugh (“Patentee” or “Mr. Waugh”). A detailed statement supporting the petition follows.

The requisite fee accompanies this request. If any additional fee is necessary the Director is authorized to charge Deposit Account No. 16–0605. This

document, together with all exhibits referenced herein, has been served on the Patentee at the address of record for the '329 reissue patent as reflected in the accompanying Certificate of Service.

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EXHIBIT LIST

- 1001** U.S. Reissue Patent No. RE45,329 to Waugh
- 1002** U.S. Patent No. 5,784,851 to Waugh
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- 1010** U.S. Patent No. 3,134,147 to Johnston et al.
- 1011** U.S. Patent No. 1,551,827 to Ladd
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- 1015** Judgment–Termination of the Proceeding, IPR2014-00777, Paper No. 14.
- 1016** U.S. Patent No. 8,967,231 to Waugh
- 1017** U.S. Patent No. 1,329,295 to de Lavaud
- 1018** John F. Wallace, *Engineering Aspects of Centrifugal Casting*, 61 Transactions of the American Foundrymen’s Society 701, 702 (1953)
- 1019** U.S. Patent No. 4,095,643 to Farlow et al.
- 1020** U.S. Patent No. 6,932,143 to Noble

- 1021** U.S. Patent No. 4,370,719 to Upchurch et al.
- 1022** “Ductile Iron Pipe Versus PVC,” Ductile Iron Pipe Research Association, Mar. 1999
- 1023** “The Design Decision Model For Corrosion Control of Ductile Iron Pipelines,” Ductile Iron Pipe Research Association, Oct. 2004

I. REAL PARTY IN INTEREST UNDER 37 C.F.R. § 42.8(b)(1)

The real party in interest for Petitioner is McWane, Inc.

II. GROUNDS FOR STANDING UNDER 37 C.F.R. § 42.104(a)

Petitioner certifies that the '329 reissue patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging Claims 10-13 on the grounds identified herein.

III. RELATED MATTERS UNDER 37 C.F.R. § 42.8(b)(2)

Seamless Pole, Inc. (“Seamless Pole”) purports to be the exclusive licensee of the '329 reissue patent, which is a reissue of U.S. Patent 8,567,155 (“'155 patent”). With respect to the '155 patent, Seamless Pole previously sued McWane for infringement of original U.S. Patent 8,567,155 in the U.S. District Court for the Northern District of Alabama, Southern Division, C.A. No. 2:2013-CV-2028. This action was dismissed on Dec. 30, 2014. Additionally, McWane filed a petition for *inter partes* review of the '155 patent on May 16, 2014. Petition for *Inter Partes* Review, IPR2014-00777, Paper No. 1, pp. 2-3 (**Exhibit 1012**, “'155 IPR Petition”). The Patent Trial and Appeal Board (“the Board”) instituted the requested review on Oct. 24, 2014 and subsequently ordered adverse judgment against the Patent Owner, Tom W. Waugh, on Jan. 13, 2015. Decision to Institute, IPR2014-00777, Paper No. 8 (**Exhibit 1013**, “'155 IPR Institution Decision”);

Patent Owner and Petitioner's Joint Request for Adverse Judgment Against Patent Owner, IPR2014-00777, Paper No. 12 (**Exhibit 1014**, "155 IPR Adverse Judgment Request"); Judgment – Termination of the Proceeding, IPR2014-00777, Paper No. 14 (**Exhibit 1015**, "155 IPR Judgment").

On January 13, 2015, Seamless Pole filed suit against McWane for infringement of the '329 reissue patent in the U.S. District Court for the Northern District of Alabama, Southern Division, Case No. 2:15-CV-00051-SLB, which remains pending. Seamless Pole's complaint in this action was first served on McWane on April 22, 2015. Petitioner also notes that U.S. Application No. 13/289,430, filed Nov. 4, 2011, is a divisional of the application resulting in the original '155 patent (now issued as U.S. Patent No. 8,967,231), and pending U.S. Application No. 14/633,713, filed Feb. 27, 2015, claims the benefit of the application resulting in the original '155 patent. Petitioner is not aware of any other current judicial or administrative matters that would affect, or be affected by, a decision in this proceeding.

IV. DESIGNATION OF COUNSEL 37 C.F.R. § 42.8(b)(3) and 42.10(a)-(b)

Lead counsel for the Petitioner is Michael S. Connor of Alston & Bird LLP, USPTO Reg. No. 34,141. Backup counsel for the Petitioner is Christopher B. Kelly of Alston & Bird LLP, USPTO Reg. No. 62,573. Pursuant to 37 C.F.R. § 42.10(b), a Power of Attorney accompanies this petition.

V. SERVICE INFORMATION UNDER 37 C.F.R. § 42.8(b)(4)

Petitioner's lead counsel may be reached by phone at 704-444-1022, by email at mike.connor@alston.com, and by facsimile at 704-444-1752. Petitioner may be served at the following address: Michael S. Connor, ALSTON & BIRD LLP, 101 South Tryon Street, Suite 4000, Charlotte, NC 28280-4000.

VI. STATEMENT OF PRECISE RELIEF REQUESTED UNDER 37 C.F.R. §§ 42.22(a)(1) and 42.104(b)(1)-(2)

For the reasons presented herein, Petitioner seeks the following relief in regard to the '329 reissue patent:

(Ground #1) Invalidation of Claims 10-13 under 35 U.S.C. § 103(a) (“§ 103(a)”) as being obvious in view of U.S. Patent No. 5,784,851 to Waugh (“Waugh”) and U.S. Patent No. 2,577,423 to Ludwig (“Ludwig”);

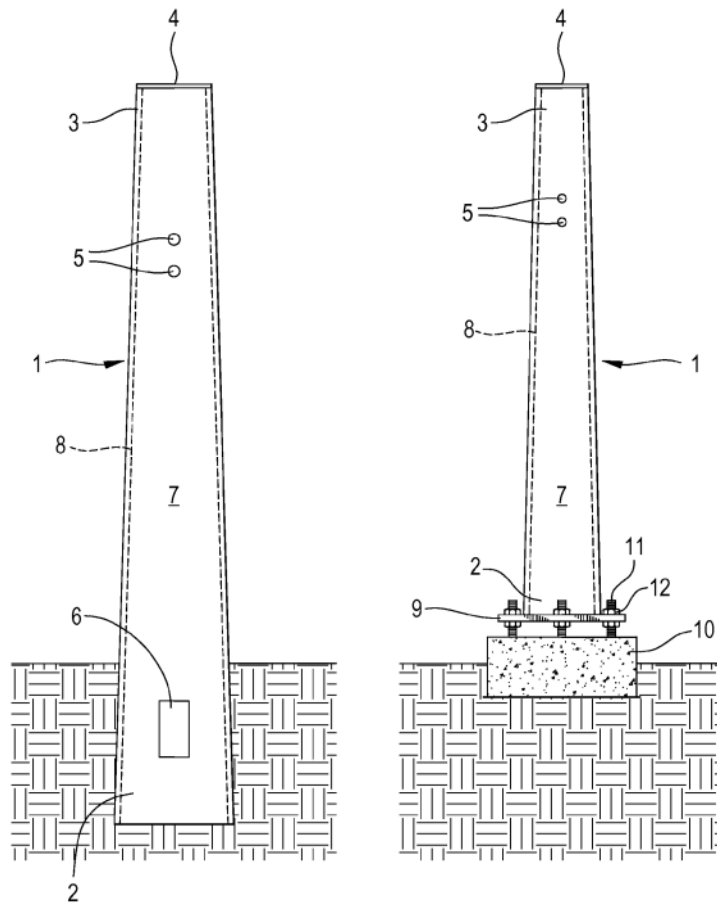
(Ground #2) Invalidation of Claims 10-13 under § 103(a) as being obvious in view of Waugh, Ludwig, and “Pipe Economy,” Clow Corporation, 1971 (“Clow”);

(Ground #3) Invalidation of Claims 10-13 under § 103(a) as being obvious in view of Waugh, Ludwig, U.S. Patent No. 1,551,827 to Ladd (“Ladd”), and U.S. Patent No. 3,134,147 to Johnston (“Johnston”); and

(Ground #4) Invalidation of Claims 10-13 under § 103(a) as being obvious in view of Waugh, Ludwig, Clow, Ladd, and Johnston.

VII. THE CLAIMS OF THE '329 REISSUE PATENT ARE NEARLY IDENTICAL TO THOSE ALREADY CONCEDED AS BEING UNPATENTABLE IN THE ORIGINAL '155 PATENT

The '329 reissue patent discloses a centrifugally cast, elongated, hollow pole having tapered external dimensions. '329 reissue, 1:13-16, 3:1-5. The patent's specification suggests this tapered pole is useful as a "utility pole," presumably for supporting overhead power or communication lines. *Id.* 3:19-25. As an example, Figures 1 and 2 of the '329 reissue patent illustrate buried and foundation-mounted embodiments of a utility pole (1), both of which are tapered from the pole butt (2) to the pole top (3). *Id.* at 4:41 to 5:24.



Figures 1 & 2 of the '329 Reissue Patent

The specification emphasizes that an “important advantage” of the utility pole is that it can be cast from molten materials, such as ductile iron, “thereby rendering the pole virtually maintenance free and impervious to . . . [various] causes of deterioration.” *Id.* at 3:26-31. In addition, the specification notes that the cast utility pole has a “substantially uniform wall thickness along the long axis of the pole,” as well as a “pimpled exterior surface.” *Id.* at 3:1-25, 53-59; 6:8-11; Fig. 6. To facilitate the joining of multiple poles, a slip joint is also provided at the pole’s butt to allow it to slidably receive the top portion of another pole. *Id.* at 3:60-67.

Each of these features have something in common: the Patentee has already conceded that none of them patentably distinguish the utility pole claimed in the ’329 reissue patent. As noted above, the ’329 patent is a reissue of U.S. Patent No. 8,567,155, which was the subject of *Inter Partes* Review Case No. IPR2014-00777 (“’155 IPR”). In the ’155 IPR, McWane asserted that all of the claims in the original ’155 patent (Claims 1-9) were unpatentable. ’155 IPR Petition, pp. 2-3. The Board agreed and issued a decision instituting review of Claims 1-9 on numerous grounds. ’155 IPR Institution Decision, p. 19. Forgoing its opportunity to prove the claims’ validity, the Patent Owner requested adverse judgment and expressly conceded that **(i)** Claims 1-9 of the ’155 patent are unpatentable and **(ii)** that the estoppel provisions of 37 C.F.R. § 42.73(d)(3) would

apply. '155 IPR Adverse Judgment Request, pp. 1-2. Honoring the request, the Board issued a Judgment terminating the '155 IPR and invalidating Claims 1-9 of the '155 patent. '155 IPR Judgment, pp. 2-4.

As a result, the Patentee has already conceded that nearly every limitation in the claims of the '329 reissue patent would have been obvious to a person of ordinary skill. Moreover, the Patentee is now barred from “taking action inconsistent with the adverse judgment,” including seeking to now obtain any claim “that is not patentably distinct” from the claims of the '155 patent. 37 C.F.R. § 42.73(d)(3); *see also* Rules of Practice for Trials Before Patent Trial and Appeal Board, 77 Fed. Reg. No. 157 at 48649 (“Paragraph (d)(3) of § 42.73 applies to . . . *inter partes* review”).

As is evident from the claim chart below, the ***only*** limitations in Claims 10-13 of the '329 reissue patent that have not already been expressly conceded as being unpatentable are the following:

- “***wherein a wall thickness at the second end is larger than the wall thickness between the first and second locations***” and
- “***the hollow pole member further comprising a running ring that extends outward from the second end.***”

As Petitioner will demonstrate herein, these features were well-known in the art at the time of the invention and do not render the '329 patent's claims patentable.

Claims of the '329 Reissue Patent	Claims of the '155 Patent Already Conceded as Unpatentable
<p>10. A centrifugally cast, hollow pole comprising:</p>	<p>1. A centrifugally cast, hollow pole comprising:</p>
<p>an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end,</p>	<p>an elongated, hollow, conically tapered pole member [4. . . . said pole member having a first end and a second end]</p>
<p>wherein the hollow pole member is formed by centrifugal casting such that it has a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end, and</p>	<p>which is formed by centrifugal casting so as to have a substantially uniform wall thickness throughout the long axis of said pole member,</p>
<p>wherein a wall thickness at the second end is larger than the wall thickness between the first and second locations, the hollow pole member further comprising a running ring that extends outward from the second end, and</p>	
<p>a plurality of asymmetric pimples extending away from an outer surface of the pole member.</p>	<p>said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting.</p>
<p>11. The apparatus of claim 10, further comprising a slip joint located along a portion of an inner diameter of the second end, the slip joint being configured to slidably receive the first end of another said pole member.</p>	<p>5. The apparatus of claim 1, said pole member having a first end and a second end, said first end having a slip joint with an internal cross-sectional dimension sufficient to allow said first end of said pole member to slidably receive the second end of another said pole member.</p>

12. The apparatus of claim 10, wherein the pole member is formed from a castable metallic material.	6. The apparatus of claim 1, wherein the apparatus is manufactured from a castable material.
13. The apparatus of claim 12, wherein said castable metallic material is selected from the group consisting of ductile iron, cast iron, steel and/or aluminum.	7. The apparatus of claim 6, said castable material is selected from the group comprised of ductile iron, cast iron, steel or aluminum.

VIII. HOW THE CHALLENGED CLAIMS ARE TO BE CONSTRUED UNDER 37 C.F.R. § 42.104(b)(3)

Claims 10-13 should be accorded their “broadest reasonable construction” in light of the ’329 reissue patent’s specification. 37 C.F.R. § 42.100(b); *see also In Re Cuozzo Speed Technologies, LLC*, No. 2014-1301, Slip. Op. at 16, 19 (Fed. Cir. Feb. 4, 2014). In accordance with this standard of claim construction, Petitioner asserts that Claims 10-13 should be construed as follows.

A. CLAIMS 10-13 ARE PRODUCT-BY-PROCESS CLAIMS NOT LIMITED BY THE TERM “CENTRIFUGAL CASTING”

As noted above, independent Claim 10 of the ’329 reissue patent is directed to a hollow pole comprising “an elongated, hollow pole member.” More specifically, however, Claim 10 recites that its elongated, hollow pole member is “***formed by centrifugal casting.***” However, despite this process language, Claim 10 is directed to a hollow pole itself and ***not*** to a method of manufacture. In other words, it is a product claim, not a method claim.

Claims reciting a product “defined in part by the process by which it is made” are considered product-by-process claims and are to be construed in accordance with MPEP § 2113. *Greenliant Systems, Inc. v. Xicor LLC*, 692 F.3d 1261, 1265 (Fed. Cir. 2012). In fact, recognizing this rule of claim construction, the Patent Trial and Appeal Board agreed that the claims of the original ’155 patent—which included the same “formed by centrifugal casting” language—were product-by-process claims. ’155 IPR Institution Decision, p. 6. As Claim 10 is directed to a hollow pole product defined in part by the process by which it is made (i.e., “centrifugal casting”), Petitioner asserts that independent Claim 10—and therefore dependent Claims 11-13—should be construed as product-by-process claims under MPEP § 2113.

For the purposes of assessing patentability, a product-by-process claim is construed such that its claimed product is not limited by the recited process. *See Greenliant*, 692 F.3d at 1267-68; *see also Atlantic Thermoplastics Co. v. Faytex Corp.*, 970 F.2d 834, 846 (Fed. Cir. 1992) (aff’d by *Abbott Laboratories v. Sandoz, Inc.*, 566 F. 3d 1282 (Fed. Cir. 2009)). Stated differently, “[i]f the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” MPEP § 2113 (quoting *In re Thorpe*, 777 F.2d 695, 698 (Fed. Cir. 1985)). Accordingly, Petitioner asserts that the recitation of “centrifugal casting”

in Claim 10 should be construed as not limiting any of Claims 10-13.¹ As explained in detail herein, the hollow pole *product* defined in Claims 11-13 would have been entirely obvious to a person of ordinary skill in view of the prior art discussed herein.

B. PROPOSED CONSTRUCTION OF “A PLURALITY OF ASYMMETRIC PIMPLES EXTENDING AWAY FROM AN OUTER SURFACE OF THE POLE MEMBER” AS RECITED IN CLAIM 10

Independent Claim 10 also recites that its pole member includes “a plurality of asymmetric pimples extending away from an outer surface of the pole member.” In relation to the phrase “plurality of [] pimples extending away from an outer surface of the pole member,” no definition of the term “pimples” is offered in the ’329 reissue patent’s specification, the prosecution history of the ’329 reissue

¹ Method claims directed to a centrifugal casting process were subject to a restriction requirement during prosecution of the original ’155 patent and were withdrawn. Prosecution History of ’155 Patent (**Exhibit 1003**, “’155 History”), Restriction Requirement dated Sept. 26, 2007, p. 2. The Patentee has obtained issued method claims via a divisional application, which—although Petitioner does not concede the claims are valid—is the appropriate means for pursuing protection of an allegedly novel method. See U.S. Patent No. 8,967,231 (**Exhibit 1016**).

patent, or the prosecution history of the original '155 patent. Although the '329 reissue patent briefly suggests the pimples could be “effective in reducing wind resistance on the face of the pole,” the specification fails to provide any explanation of how the pimples are configured to provide this allegedly improved wind resistance, and further how any such configuration would in fact reduce wind resistance. *See* '329 reissue patent, 6:8-11. In fact, the specification is devoid of any detail in regard to the shape, profile, size, or numerosity of the pimples on the surface of the pole member. Likewise, the claims themselves include no language of any kind relating to this allegedly improved wind resistance or otherwise limiting the term “pimples” to mean any particular pimple size, pimple profile, pimple configuration, or number of pimples.

Accordingly, in view of the absence of any particular definition in the specification and prosecution history, and the Board’s obligation to apply the broadest reasonable construction, Petitioner asserts that the phrase “a plurality of [] pimples extending away from an outer surface of the pole member” in Claim 10 should be construed as requiring two or more protuberances of any size extending away from the outer surface of the pole member. *See* Declaration of Mr. Lawrence S. Jones (“Jones Declaration,” **Exhibit 1004**), ¶¶ 31-33.

As noted above, Claim 10 includes an additional limitation that the plurality of pimples are “*asymmetric*.” Once again, the '329 reissue patent’s specification

offers no definition or other detail in relation to the meaning of “asymmetric pimples,” such as defining the axis or axes along which the asymmetry is assessed. *See* Jones Declaration, ¶¶ 31-33. Not only does the ’329 reissue patent’s specification not provide any description of the function or purpose of the pimple’s alleged asymmetry, but—in fact—the word “asymmetric” appears nowhere in the ’329 reissue patent’s specification.

The specification includes no reference of any kind to the symmetry (or lack thereof) of the disclosed pimples and, on the whole, there is no definitive evidence that Mr. Waugh had even conceived that the pimples should be asymmetric at the time of filing—a fact that appears to have been overlooked entirely by the Examiners during prosecution of the ’329 reissue patent and the original ’155 patent. Indeed, the only conceivable disclosure of the pimples’ asymmetry appears in Fig. 6 of the ’329 reissue patent (with no accompanying text), and it seems the asymmetry of the illustrated pimples was created as no more than a drafting convenience by the draftsman who prepared Fig. 6. In this regard, the side contours of the pole in Fig. 6 are uniformly contoured from top to bottom, yet the pimples on the illustrated face are scattered and noncontiguous, as though the draftsman used this as a shorthand rather than pimpling the entire surface.

Notwithstanding the absence of relevant information in the application, Petitioner turns to the prosecution history for guidance on the meaning of

“asymmetric.” During prosecution of the original ’155 patent, the Examiner asserted that U.S. Patent No. 4,751,804 to Cazaly (“Cazaly,” **Exhibit 1006**), which discloses a pole having an outer shell with a plurality of protuberances, rendered obvious the “asymmetric pimples” in then pending Claim 29. ’155 History, Final Office Action dated April 6, 2012, pp. 2-5. To distinguish Cazaly, the Patentee argued that Cazaly’s protuberances were symmetrical in size, shape, orientation, ***and*** location; in other words, “symmetrical in every manner.” *Id.* at Appeal Brief dated September 25, 2012 at p. 8; *see also* Jones Declaration, ¶¶ 31-33. On this basis, the Patentee asserted that Cazaly’s protuberances were not “asymmetric,” and that somehow this made the asymmetric feature patentable. *Id.*

The prosecution history thus leads to two potential interpretations of the recitation “asymmetric” pimples:

- i. Pimples that are (i) not symmetrical in shape, (ii) not symmetrical in size, (iii) not symmetrical in location, ***and*** (iv) not symmetrical in orientation, (*i.e., asymmetric in every respect*); or
- ii. Pimples that are ***one or more of*** (i) not symmetrical in shape, (ii) not symmetrical in size, (iii) not symmetrical in location, and (iv) not symmetrical in orientation (*i.e., asymmetric in at least one respect*).

Considering the Board’s obligation to apply the broadest reasonable construction, the second of these options—interpretation (ii)—is the broader reading. 37 C.F.R. § 42.100(b). Thus, the remaining question is whether

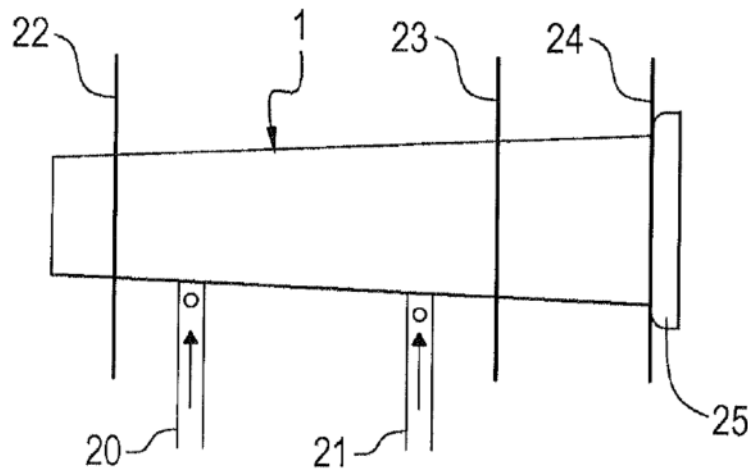
interpretation (ii) is “reasonable.” *Id.* As the Patentee’s argument that Cazaly discloses fully symmetrical protuberances would, at least under the Patentee’s theory, still distinguish Cazaly from the claims under interpretation (ii), Petitioner asserts that interpretation (ii) is reasonable.

Thus, in view of the prosecution history and the broadest reasonable interpretation standard for claim construction, Petitioner asserts that the term “asymmetric” as recited in Claim 10 should require pimples that are one or more of: (i) not symmetrical in shape, (ii) not symmetrical in size, (iii) not symmetrical in location, and (iv) not symmetrical in orientation. **Accordingly, Petitioner asserts that the limitation “a plurality of asymmetric pimples extending away from an outer surface of the pole member” in Claim 10 should be construed—consistent with the Decision to Institute in the ’155 IPR—as requiring two or more protuberances, which are not symmetrical in at least one aspect of shape, size, location, or orientation, extending away from the surface of the pole member.** *See* Jones Declaration, ¶¶ 31-33; ’155 IPR Institution Decision, pp. 6-8.

C. PROPOSED CONSTRUCTION OF “A RUNNING RING THAT EXTENDS OUTWARD FROM THE SECOND END,” WHERE THE “WALL THICKNESS AT THE SECOND END IS LARGER THAN THE WALL THICKNESS BETWEEN THE FIRST AND SECOND LOCATIONS.”

Independent Claim 10 also recites that its pole member includes “a running ring that extends outward from [its] second end.” Turning first to the specification,

the '329 reissue patent characterizes the running ring as a “mold-induced flang[e]” that is “simply a larger based circle, or ring, cast at the pole’s large diameter end.” '329 reissue patent, 4:3-16. In particular, Figure 5 shows a tapered pole (1) having a running ring (25). *Id.* at 4:53-55; 5:66 to 6:7. The pole’s running ring (25) is engaged with a running rail (24) as the pole (1) is pushed along rails (22, 23, 24) through an annealing furnace by pusher chains (20, 21). *Id.* The engagement of the running ring (25) with the running rail (24) is said to enable the pole (1) to run “essentially straight through an annealing furnace” by preventing the pole (1) from “inadvertently sliding or rolling from the conveyance as the pusher chains engage and move the pole.” *Id.* at 4:9-16; 6:1-7.



Beyond the disclosure that the running ring is simply a larger based circle or ring flange, the specification offers no detail regarding the shape, size, or other necessary structural characteristics of the running ring. Additionally, neither the prosecution history of the '329 reissue patent nor that of the original '155 patent

offers any clear definition of “running ring.” Assuming the outer surface of a given pole member has a circular cross-section, any flange extending outwardly around an end of that pole member would necessarily have a ring-shaped profile. In other words, at least the inner-perimeter of the flange would be circular. Jones Declaration, ¶ 37.

Thus, given the absence of detail in the specification, the ’329 reissue patent suggests the inventor—Mr. Waugh—believed that any flange extending outwardly around the large-diameter end of the pole would be a suitable “running ring.” In view of the prosecution history and the broadest reasonable interpretation standard for claim construction, **Petitioner asserts that the phrase “running ring that extends outward from the second end” as recited in Claim 10 should be construed as requiring a flange extending outwardly around the second end of the pole member.** Jones Declaration, ¶¶ 34-38.

Claim 10 also recites that “a wall thickness at the second end [of the pole member] is larger than the wall thickness between the first and second locations.” Petitioner first notes that there is absolutely no written description of this feature in the ’329 reissue patent’s specification. At no point does the specification describe that a second end of its pole has a wall thickness larger than other portions of the pole. In fact—based on the description in the specification—the only portion of

the pole disclosed in the '329 reissue patent that could have a larger wall thickness is the pole's running ring.

As the '329 reissue patent provides no teaching of any other manner in which the second end of its pole member is provided with a larger wall thickness, Petitioner asserts that the broadest *reasonable* construction of this feature is one in which the claimed "larger" wall thickness can be imparted by the presence of the running ring itself. Accordingly, **Petitioner asserts that Claim 10's recitation that "a wall thickness at the second end [of the pole member] is larger than the wall thickness between the first and second locations" must be construed such that the claimed running ring—which "extends outward from the second end" of the pole—can itself constitute a portion of the pole having a wall thickness larger than the wall thickness between the first and second locations.** Jones Declaration, ¶¶ 39-40.

IX. REASONS FOR THE RELIEF REQUESTED UNDER 37 C.F.R. § 42.22(a)(2) and 42.104(b)(4)-(5) SHOWING THAT THERE IS A REASONABLE LIKELIHOOD THAT THE PETITIONER WILL PREVAIL UNDER 35 U.S.C. § 314(a)

As noted above in the Statement of Precise Relief Requested, Petitioner asserts that each of Claims 10-13 in the '329 reissue patent should be held invalid under § 103(a) in view of various prior art references. Petitioner will now explain in detail how the claims are unpatentable under the identified statutory grounds

with specific reference to where each element of the claims can be found in the prior art. 37 CFR § 42.104(b)(4)-(5).

A. GROUND #1: CLAIM 10 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH AND LUDWIG

Petitioner first asserts that Claim 10 is unpatentable under § 103(a) in view of the combination of U.S. Patent No. 5,784,851 to Waugh (“Waugh,” **Exhibit 1002**) and U.S. Patent No. 2,577,423 to Ludwig et al. (“Ludwig,” **Exhibit 1009**). Waugh issued on July 28, 1998, more than one year before the ’329 reissue patent’s earliest effective filing date of July 19, 2006. Thus, although Waugh was filed by the inventor of the ’329 reissue patent, Waugh is prior art under § 102(b). Likewise, Ludwig issued on Dec. 4, 1951 and so it qualifies as prior art under § 102(b).

As discussed above and indicated in the claim chart below, independent Claim 10 is directed to “a centrifugally cast, hollow pole” comprised of essentially four features:

- “an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end, . . . formed by centrifugal casting;”
- “wherein the hollow pole member . . . has a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end;”

- “a plurality of asymmetric pimples extending away from an outer surface of the pole member;” and
- “the hollow pole member further comprising a running ring that extends outward from the second end,” where the second end has “a wall thickness . . . larger than the wall thickness between the first and second locations.”

These limitations are discussed in turn below, along with a detailed explanation of how the combined disclosure of Waugh and Ludwig renders each limitation obvious.

*i. **Waugh discloses “an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end, . . . formed by centrifugal casting”***

Waugh discloses “a hollow, centrifugally cast, utility pole having tapered external linear dimensions,” and specifically describes its utility pole as being “elongated.” Waugh, Abstract, 2:66 to 3:31 and 4:27-31; Jones Declaration, ¶¶ 43-45. Waugh’s utility pole clearly has a tapered outer diameter with a first end (the “pole top”) having a smaller outer diameter than a second end (the “pole butt”). *Id.* at Figs. 1-2; 2:66 to 3:6; Jones Declaration, ¶¶ 43-45. In fact, the Patentee described Waugh as disclosing “a conically tapered pole member” during prosecution of the application leading to the ’155 patent. ’155 History, Amendment in Response dated Dec. 12, 2011, p. 8. It is not surprising then that the figures in Waugh illustrate an elongate, hollow, tapered utility pole nearly

identical to that shown in the '329 reissue patent, as indicated on the following page in a comparison of each document's Figure 1. *Id.* at Fig. 1; *c.f.*, '329 reissue patent, Fig. 1.

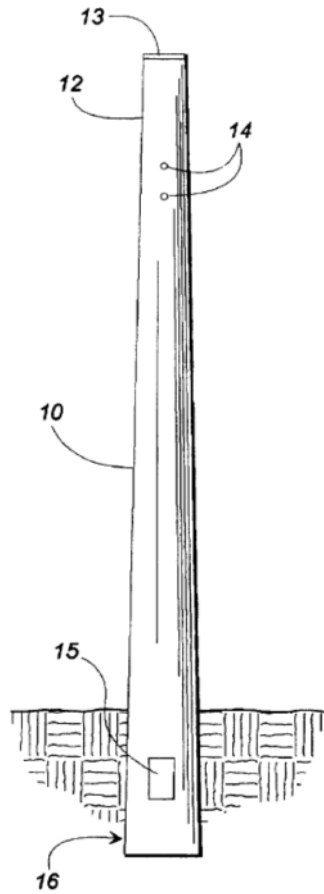


FIG. 1

Figure 1 in Waugh

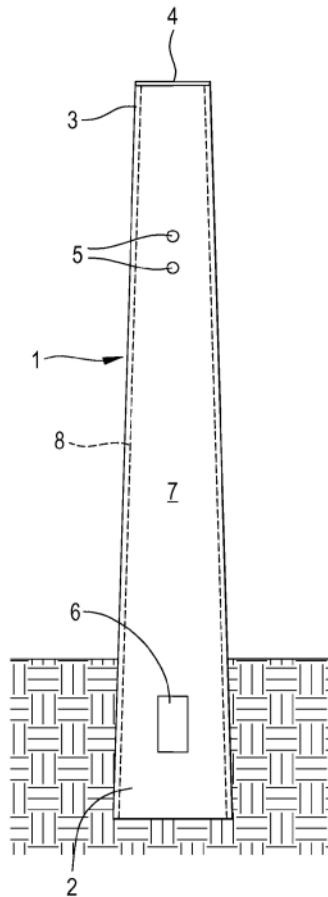


FIG. 1

Figure 1 in the '329 reissue patent

Although Petitioner asserts that Claim 10 should be construed as a product-by-process claim that is *not* limited by Claim 10's recitation of "formed by centrifugal casting," Waugh nevertheless expounds upon a centrifugal casting process for making its elongated, hollow, tapered pole member. In particular, Waugh discloses that its pole member "is formed utilizing conventional centrifugal

casting methods” and provides a detailed explanation of a centrifugal casting machine and a method of centrifugally casting its tapered pole member. Waugh, 2:1-5, 3:3-31, and 3:49 to 4:18. Accordingly, under any construction of Claim 10, Petitioner asserts that Waugh clearly discloses “an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end, . . . formed by centrifugal casting.” Jones Declaration, ¶¶ 43-45; *see also* ’155 IPR Institution Decision, p. 9.

ii. It would have been obvious based on Waugh and Ludwig to form Waugh’s utility pole with “a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end”

Independent Claim 10 also recites that its hollow pole member “has a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end.” However, as the Board agreed and the Patentee conceded in the ’155 IPR, it would have been obvious to modify Waugh’s utility pole to have a uniform wall thickness in view of the disclosure of Waugh and Ludwig. *See* ’155 IPR Institution Decision, pp. 14-15; ’155 IPR Adverse Judgment Request, p. 1.

First, Petitioner asserts that it would have been obvious based on Waugh alone to modify Waugh’s utility pole to have a uniform wall thickness.

Waugh discloses that its elongated, hollow, tapered utility pole is produced to have “a gradually increasing pole wall thickness along the entire length of the pole from

the top of the pole to its butt.” Waugh, Abstract. Waugh suggests this design is advantageous in certain respects over earlier utility poles as the “controlled gradient of wall 18 thickness provides greater cross sectional strength to the pole 10 in its bottom portion.” *Id.* at 2:6-9; 3:21-24; Claim 1 (emphasis added). In other words, Waugh teaches that a greater wall thickness results in a greater cross-sectional strength at a given point along the pole’s length. Jones Declaration, ¶ 48. Moreover, Waugh suggests that the variable wall thickness of its pole is advantageous in certain respects over prior designs that must necessarily have had non-variable—that is, uniform—wall thicknesses. *See* Waugh, 1:65-2:49; 3:16-31. Thus, Waugh itself effectively confirms that poles having a uniform wall thickness were known in the art. Jones Declaration, ¶ 47.

As confirmed by the declaration of Mr. Lawrence S. Jones—an expert in centrifugal casting technology and hollow structural members—a person of ordinary skill in the design and manufacture of hollow structural members in the mid-2000’s would have had **(i)** an undergraduate degree in engineering or a technical field (e.g., mechanical engineering or materials science) and **(ii)** approximately three years of work experience in the design and manufacture of hollow structural members (e.g., ductile iron pipe), including specific experience with centrifugal casting using the de Lavaud process. Jones Declaration, ¶ 13. As such, an understanding of the basic mechanics of a utility pole, such as that

disclosed in Waugh, and an ability to select design specifications (e.g., wall thickness, diameter, material, etc.) suitable for given design requirements (e.g., cross-sectional strength, durability, cost, pole height, etc.) would have been basic traits of a person of ordinary skill in the art. *Id.* at ¶ 49.

A person of ordinary skill in the art considering the disclosure of Waugh in the mid-2000's would have readily appreciated that—while Waugh's variable wall thickness offers certain advantages—producing Waugh's utility pole with “a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end” would be an obviously viable alternative. Jones Declaration, ¶¶ 46-51. Indeed, Waugh discloses that the wall thickness of its utility pole “can be varied to accommodate virtually any application and any strength requirement.” Waugh, 2:6-9. Given Waugh's disclosure that wall thickness correlates to cross-sectional strength and that wall thickness can be varied to accommodate any application and any strength requirement, a person of ordinary skill in the art would have had sufficient skill to specify a uniform wall thickness for Waugh's utility pole to meet the design and strength requirements of a particular pole (e.g., in a scenario where a uniform thickness would provide the strength needed along the length of the pole). Jones Declaration, ¶ 50.

In fact, the '329 reissue patent itself admits in its background section that it was known that “while some applications require variable thicknesses . . . , other

applications may require uniform thicknesses for maximized structural support.” ’329 reissue patent, 2:47-52. Moreover, the ’329 reissue patent characterizes selecting between uniform and variable wall thicknesses as a “design choice” and it is one that Petitioner asserts would have been entirely obvious to a person of ordinary skill in view of Waugh. *See* ’329 reissue patent, Abstract, 3:14-18; Jones Declaration, ¶¶ 22-24; 46-51.

Nevertheless, as the Board agreed in its Decision to Institute for the ’155 IPR, Petitioner asserts that it would have been further obvious to modify Waugh’s utility pole to have a uniform wall thickness in view of Ludwig. ’155 IPR Institution Decision, p. 15. Ludwig discloses a mold used to cast hollow iron pipes by centrifugal casting. Ludwig, 1:1-16. In particular, Ludwig discloses that centrifugal forces generated by rotating the mold “distribute the molten metal to a substantially uniform wall thickness around the bore.” *Id.* (emphasis added). In other words, Ludwig expressly discloses the formation of a hollow iron pipe having a substantially uniform wall thickness by centrifugal casting. Jones Declaration, ¶ 52.

As both Ludwig and Waugh relate to centrifugal casting of elongated, hollow, cast iron products, a person of ordinary skill in the art would have been motivated to consider the disclosure of Ludwig in combination with Waugh. *See* Jones Declaration, ¶53; *see also* ’155 IPR Institution Decision, pp. 15-16. In

particular, Petitioner asserts that any person of ordinary skill interested in producing a tapered, iron utility pole would have been clearly motivated to refer to disclosures in the field of cast iron pipes (e.g., centrifugally ductile iron pipes or centrifugally cast gray iron pipes). Jones Declaration, ¶53. First, both cast iron pipes and cast iron poles can be used as hollow structural members. As an example, a person of ordinary skill would have known that cast iron pipes are commonly used as foundation piles for supporting various structures. *Id.* In fact, in discussing the long life advantages of its utility pole, Waugh itself recognizes the analogous qualities of iron pipes. *See* Waugh, 1:55-62 (“many 100+ year old cast iron water mains are still in use”); *see also* ’329 reissue patent, 2:8-13.

Indeed, there is no feature of Claim 10 that would be unique to a centrifugally cast “pole” as opposed to a “pipe.” Jones Declaration, ¶54. In the context of the ’329 reissue patent’s claims, the terms “pole” and “pipe” simply reflect a distinction without a difference. *Id.* The terms at most refer to different unclaimed end-uses. *Id.* Accordingly, a person of ordinary skill in the art would have been motivated to refer to disclosures relating to cast iron pipe—such as Ludwig—in combination with Waugh. *Id.* at ¶¶ 52-55.

Petitioner agrees with the reasoning of the Board in the ’155 IPR that “Ludwig teaches one of ordinary skill to cast a hollow iron pipe (or pole) with a ‘substantially uniform wall thickness.’” ’155 IPR Institution Decision, p. 15; *see*

also Jones Declaration, ¶ 55. Indeed, Ludwig’s teaching that centrifugal forces generated by a rotating mold distribute molten material to a “substantially uniform wall thickness” around the pipe mold is comparable to the description in the ’329 reissue patent of centrifugally casting a “hollow pole having a wall thickness which is substantially uniform along the long axis of the pole.” ’329 reissue patent, 2:65-67; *see also* ’155 IPR Institution Decision, pp. 14-15. Given Waugh’s disclosure that wall thickness correlates to cross-sectional strength and that wall thickness can be varied to accommodate any application and any strength requirement—in combination with Ludwig’s express disclosure that a pipe can be cast with a substantially uniform wall thickness—a person of ordinary skill in the art would have found it obvious to modify Waugh’s utility pole to have a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end. Jones Declaration, ¶¶ 52-55.

Although Petitioner asserts that Claim 10 should be construed as a product-by-process claim that is not limited by its recitation of “formed by centrifugal casting,” Petitioner also notes that Waugh and Ludwig would have rendered it obvious to produce *by centrifugal casting* an elongate, hollow, tapered pole member having a uniform wall thickness. Jones Declaration, ¶¶ 56-60. Waugh discloses that centrifugal casting can be used to produce an elongate, hollow, tapered pole member having a wall thickness that is

“progressively and *uniformly* increased from pole top [] to pole butt.” *See* Waugh, 2:1-5, 3:3-31, and 3:49 to 4:18 (emphasis added). Waugh also discloses that this can be accomplished using “conventional centrifugal casting methods” with a “conventional centrifugal casting mold[.]” *Id.* at Abstract, 3:49-62. In particular, Waugh notes that “[d]epending on the particular application and strength required of the pole 10, the overall wall 18 thickness of the pole 10 may be varied during the casting operation by the amount of casting material 51 allowed to enter the centrifugal casting mold 50.” *Id.* at 3:27-31; *see also* 4:13-17 (emphasis added).

This variation in the amount of material deposited into the mold during casting is of course necessary as the diameter and surface area per unit length of the mold’s “top” end is smaller than the diameter and surface area per unit length of the mold’s “butt” end. *See* Waugh, 3:37-62; Jones Declaration, ¶57. For example, if the casting material pour rate and travel speed of the mold’s carriage were all constant during casting, the wall thickness of the resulting pole would necessarily be greater near pole’s top than near the pole butt. Jones Declaration, ¶57. Thus, to produce a pole having a wall thickness that is “progressively and uniformly increased from pole top [] to pole butt,” Waugh discloses that it is necessary to deposit a gradually increasing amount of casting material from the pole’s top to the pole’s butt. *See* Waugh, 3:27-31, 4:13-17. Indeed, it is self-

evident that the increase in the amount of casting material would need to more than offset the decrease in thickness caused by the tapering. Jones Declaration, ¶57.

A person of ordinary skill in the art would immediately recognize that the same method can be used to produce a uniform wall thickness tapered pole. Jones Declaration, ¶22-24; 57-59. Any person of ordinary skill would have found it trivial that adjusting the pour rate of material into the mold such that the amount of material deposited into the mold increases proportionally with the increasing internal surface area of the mold (from the pole top to the pole butt) would result in a pole having a uniform wall thickness. *Id.* Given the disclosure in Waugh, any person of ordinary skill in the art would find this obvious. *Id.*

Moreover, as explained in the declaration of Mr. Lawrence S. Jones, a person of ordinary skill would have found it obvious to adjust various centrifugal casting variables—e.g., molten material pour rate and/or mold travel speed—in order to control the wall thickness of a hollow, conically tapered pole member. *Id.* at ¶¶ 57-59. It is a function of basic physics that these variables control the wall thickness of a centrifugally cast hollow structural member along its length and it would have been obvious to a person of ordinary skill in the art to centrifugally cast an elongate, hollow, conically tapered pole member having a uniform wall thickness. *Id.*

Finally, as even further confirmation of the above, Petitioner notes that Ludwig expressly discloses centrifugally casting a hollow pipe with a “substantially uniform thickness.” Ludwig, 1:1-16. Considering the disclosure of Ludwig in combination with Waugh, it would have been obvious to a person of ordinary skill to centrifugally cast a tapered pole with a uniform wall thickness. Jones Declaration, ¶60. Accordingly, for at least the reasons discussed above, Petitioner asserts that it would have been obvious to a person of ordinary skill in the art based on the disclosure of Waugh and Ludwig that the elongated, hollow, tapered pole member of Waugh could be formed so as to have “a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end,” as recited in Claim 10.

iii. It would have been obvious based on Waugh and Ludwig to form Waugh’s utility pole with “a plurality of asymmetric pimples extending away from an outer surface of the pole member”

Independent Claim 10 also recites that its hollow pole member includes “a plurality of asymmetric pimples extending away from [the pole member’s] outer surface.” However, as the Board agreed in its decision to institute the ’155 IPR, Petitioner asserts that it would have been obvious in view of Waugh and Ludwig to form Waugh’s utility pole with a plurality of asymmetric pimples. ’155 IPR Institution Decision, pp. 15-16.

As noted above, Waugh discloses a centrifugal casting process for making its elongated, hollow, tapered pole member. As noted above, Waugh discloses that its pole member “is formed utilizing conventional centrifugal casting methods” and provides a discussion of a centrifugal casting machine (100), which is shown below in Figure 4. Waugh, Abstract, 3:49 to 4:17, 4:45-63. The casting machine (100) includes an internally tapered chill-type mold (50) that rotates as molten casting material (51) is deposited into the mold (50). *Id.* As a result of the centrifugal forces generated by the mold’s rotation, the casting material (51) is distributed against the walls of the mold (50) where it cools into the shape of an elongated, hollow, tapered pole. *Id.*

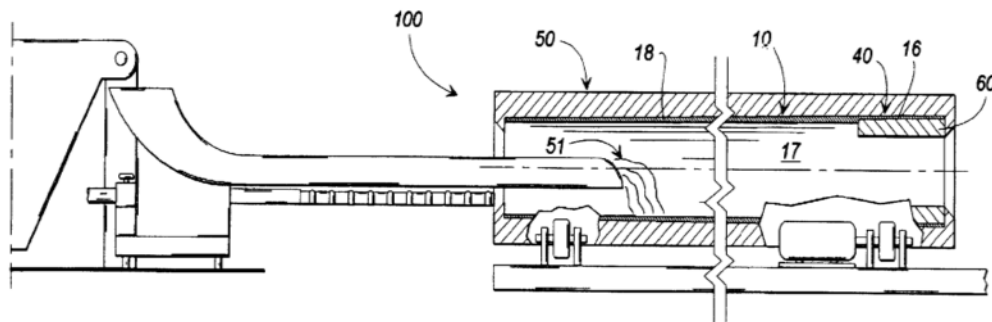


FIG. 4

Figure 4 of Waugh

As noted in the Jones Declaration, a person of ordinary skill in the art would recognize this as a classic De Lavaud centrifugal casting machine and method, which has been used to cast hollow members since the 1920’s. Jones Declaration, ¶ 15-29; 61-62. Waugh also notes that its mold (50) is “similar to conventional centrifugal casting molds with the exception of the tapered internal linear

dimensions.” Waugh, 3:53-57 (emphasis added). As such, a person of ordinary skill would immediately recognize that the chill-type mold (50) disclosed in Waugh would include a conventional “peened” interior surface comprised of a plurality of asymmetric dimples designed to anchor the molten casting material to the interior surface of the mold. Jones Declaration, ¶¶61-64. Indeed, a person of ordinary skill would know that this peening is important to prevent the molten material from slipping against the spinning mold surface and causing casting defects. *Id.*

Additionally, a person of ordinary skill would have recognized that the peened interior surface of the mold would impart a pronounced peen pattern on the surface of the cast member comprising a plurality of asymmetric pimples. *Id.* Quite simply, a person of ordinary skill in the art would have known that it would be challenging—if not impossible—to centrifugally cast Waugh’s utility pole using a chill-type mold (50) without a peened interior surface. *Id.* Moreover, it would not be possible to cast Waugh’s utility pole using a peened chill-type mold (50) without imparting a plurality of asymmetric pimples to the surface of the pole. *Id.* at ¶63.

This is further confirmed by the disclosure of Ludwig, which relates to metal molds “used in the manufacture of cast iron pipes by . . . centrifugal casting” and teaches a “mold having its interior molding surface area cold worked . . . to

establish a pattern of indentations of appreciable depth.” Ludwig, 1:1-4, 2:21-24. According to Ludwig, these indentions can be provided by texturing the interior surface of the mold with an “automatic peening hammer” and result in the exterior surface of the cast pipe “tak[ing] on an overall . . . finish complementary to the particular indentation pattern worked into the mold surface.” *Id.* at 3:2-12; 3:40-74. Not surprisingly, this is the process for obtaining surface pimples described in the ’329 reissue patent: “An important improvement to the present invention is the provision of a texturing process during casting that augments the strength of the pole. A mold with a textured interior wall surface may be utilized, thereby producing a final product with a pimples exterior surface.” ’329 reissue patent, 3:53-57 (emphases added).

Ludwig also elaborates on the various patterns the indentations can impart to the resulting surface of the cast pipe. As an example, Ludwig’s Figure 5 illustrates a mold having an indentation pattern that would clearly result in a plurality of pimples being formed on the surface of its cast pipe (*Id.* at 2:18-39, 4:38-64):

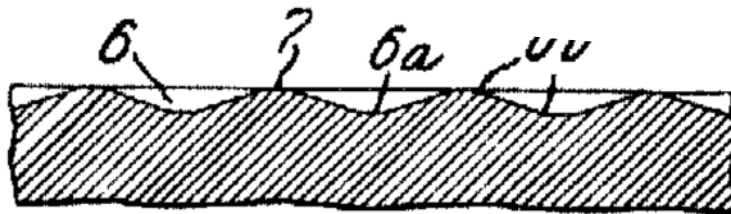


Figure 5 of Ludwig

Ludwig also notes that the indentations may be modified in numerous ways depending on the pattern desired to be imparted to the surface of the pipe. In particular, the indentations may be “indiscreetly arranged and irregularly contoured” (e.g., such that they are asymmetric), the depth of the indentations may be varied (e.g., “If a rather bold pebble finish on the pipes cast in the mold is desired, the indentations will be . . . deep”), the tops and bottoms of the indentations may be “rounded off,” and the indentations may have “arcuate peripheries such as circular and elliptical.” *Id.* at 3:39-63; 4:53-57; 5:25-32; Figs. 2-6. In other words, Ludwig clearly discloses that the peening indentations in the mold may be configured to provide a plurality of asymmetric pimples on the surface of a resulting cast member. Jones Declaration, ¶¶ 65-69. More particularly, Ludwig renders it obvious to have provided “two or more protuberances, which are not symmetrical in at least one aspect of shape, size, location, or orientation, extending away from the surface of [Waugh’s] pole member.” *See id.*

As discussed above, both Ludwig and Waugh generally relate to centrifugal casting of elongated, hollow, cast iron products and so a person of ordinary skill in the art would have been motivated to consider the disclosure of Ludwig in combination with Waugh. Jones Declaration, ¶65. Given Waugh’s disclosure that its utility pole is cast using “conventional centrifugal casting molds,” a person of

ordinary skill in the art would have readily appreciated that the centrifugal casting mold of Waugh should be peened as disclosed in Ludwig and would thereby impart the pronounced peen patterns also disclosed in Ludwig to the surface of Waugh's pole member. *See* Waugh, 3:49 to 4:17; *see also* Jones Declaration, ¶ 69. Moreover, a person of ordinary skill would have also been motivated to do so in light of Ludwig's disclosure of the peening indentation's various advantages, including their ability to "hold the molten material as it comes in contact with rotating mold surface," which Ludwig correctly characterizes as being of "great importance," and their ability to pre-stress and strengthen the mold. Ludwig, 2:24-3:12; Jones Declaration, ¶69.

As such, Petitioner asserts that a person of ordinary skill in the art would have found it obvious to impart "a plurality of asymmetric pimples extending away from an outer surface of the pole member" to Waugh's tapered pole in view of Waugh and Ludwig. Jones Declaration, ¶¶ 65-69.

iv. It would have been obvious based on Waugh and Ludwig to form Waugh's utility pole with "a running ring that extends outward from the second end," where the second end has "a wall thickness . . . larger than the wall thickness between the first and second locations"

Claim 10 also recites that its hollow pole member includes "a running ring that extends outward from the second end," where the second end has "a wall thickness . . . larger than the wall thickness between the first and second locations."

As discussed above, Petitioner asserts that the claimed “running ring” should be construed as requiring a flange extending outwardly around the second end of the pole member. Indeed, the ’329 reissue patent provides no disclosure to suggest that anything more is structurally required of the claimed running ring.

Waugh discloses an embodiment of its utility pole in which a flange (20) is cast around the larger-diameter end of the pole (i.e., the pole butt 16). Waugh, Fig. 2, 2:54-56, 3:32-36. According to Waugh, the flange (20) is cast as part of the pole during the centrifugal casting process. *Id.* at 4:60-63.

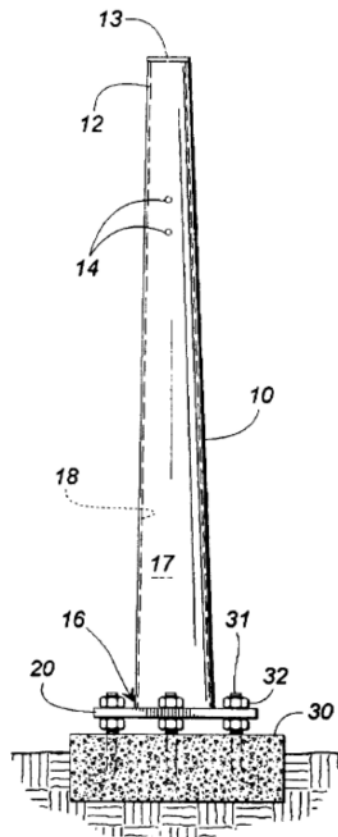
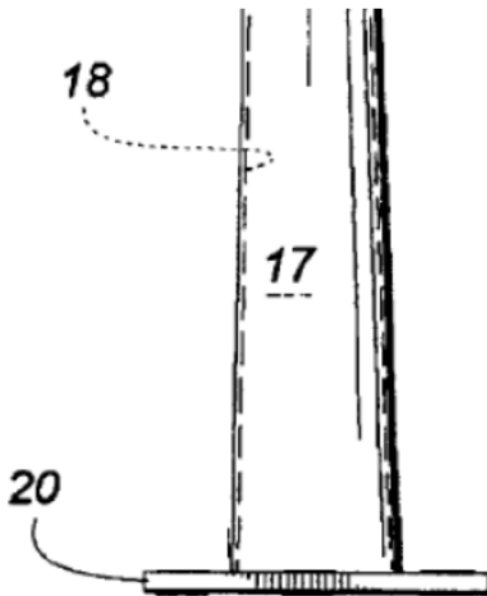
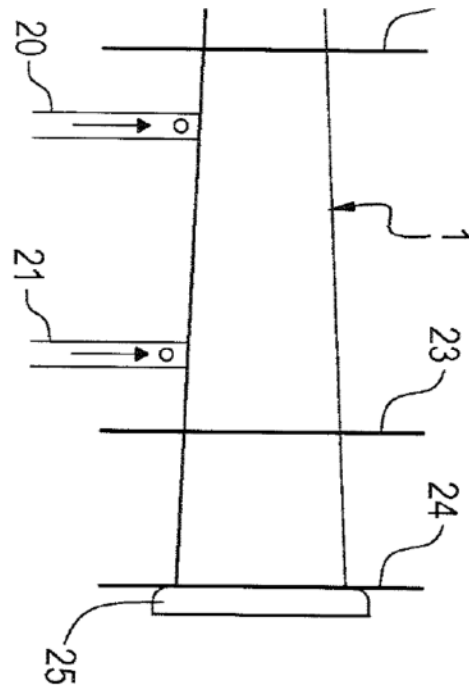


Figure 2 of Waugh

In the illustrated embodiment of Figure 2, Waugh's utility pole (10) is shown with bolts and nuts (31, 32) used to secure the flanged portion (20) of the pole to a foundation (30). Waugh, 3:32-36. However, if one removes the bolts, nuts, and foundation from Figure 2, it becomes readily apparent that the flange (20) disclosed in Waugh is the same structural feature as the running ring (25) disclosed in the '329 reissue patent. Jones Declaration, ¶¶72-73. Waugh's flange (20) is clearly a flange extending outwardly around the second end of the pole member. *Id.* A comparison of Waugh's Fig. 2 with the illustrated bolts and nuts removed by the Petitioner and Figure 5 of the '329 reissue patent is provided below.



**Figure 2 of Waugh
(bolts / nuts removed)**



**Figure 5 of '329
Reissue Patent**

As is readily apparent from the comparison above, there is no patentably significant difference between Waugh's flange (20) and the '329 reissue patent's

running ring (25). Jones Declaration, ¶¶72-74. To the extent there is any structural difference between the illustrated flanges, it is that Waugh's flange (20) is shown with a wider diameter relative to its pole (10) in comparison to the running ring (25) shown in the '329 reissue patent. However, this difference is not claimed, is not discussed at all in the '329 reissue patent's specification, and there is no indication that Figure 5 of the '329 patent was illustrated to scale or with any deliberate detail.

As discussed above, the '329 reissue patent provides absolutely no detail of any kind as to how wide its running ring should be, how thick its running ring should be, what the cross-sectional profile of its running ring should be, or how sharp the edges of its running ring should be. Given the Patentee's obligation to fully enable the invention and disclose the best mode of carrying out the invention, it should be assumed that the inventor Mr. Waugh did not consider any of these attributes to be important. *See* 35 U.S.C. § 112 (pre-AIA). In sum, the '329 reissue patent discloses only that the running ring is a flange cast around the pole's larger diameter end—a structural feature clearly disclosed in Waugh years earlier. *See* '329 reissue patent, 4:3-16 and 53-55, 5:66 to 6:7; *c.f.*, Waugh, Fig. 2, 2:54-56, 3:32-36, 4:60-63; see also Jones Declaration, ¶¶ 70-75.

Petitioner also reiterates that Claim 10 is directed to an apparatus and not a method. Although Waugh does not disclose a method step of using its flange (20)

to guide its pole (10) through a furnace, it is well settled that “claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function.” *In re Schreiber*, 128 F.3d 1473, 1477-78 (Fed. Cir. 1997). This is because “apparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*, 909 F.2d 1464, 1469 (Fed. Cir. 1990) (emphasis in original); *see also Paragon Solutions LLC v. Timex Corp.*, 566 F.3d 1075, 1090 (Fed. Cir. 2009). Indeed, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987). As articulated above, Petitioner asserts that Waugh teaches all of the claimed structural limitations of Claim 10’s “running ring.” That Waugh does not expressly disclose its flange (20) can be used to guide its pole (10) through a furnace—simply a different end-use of the same structural feature—is immaterial to the patentability of Claim 10.

Claim 10 also recites that its second end has “a wall thickness . . . larger than the wall thickness between the first and second locations.” First, as noted above, Waugh discloses that its flange (20) is cast “during the centrifugal casting operation.” Waugh, 4:59-63. In other words, Waugh discloses that the flange (20) can be cast as a continuously formed part of the utility pole (10). Petitioner asserts

that the flange (20) itself constitutes an increased wall thickness portion of the utility pole (10) at the pole's larger-diameter end. Jones Declaration, ¶¶ 76-79; (the running ring itself can itself constitute a portion of the pole having a wall thickness larger than the wall thickness between the first and second locations). As noted above, it would have been obvious to form Waugh's utility pole (10) with a substantially uniform wall thickness and—given the disclosure of Waugh's flange (20)—it would have been further obvious to form the pole (10) with “a wall thickness . . . larger than the wall thickness between the first and second locations,” as recited in Claim 10. Jones Declaration, ¶¶ 76-79.

Second, even ignoring that Waugh's flange (20) increases the wall thickness of its pole at that point along the pole's length, Waugh also discloses that the wall thickness of its pole (10) can be varied to meet a given requirement for cross-sectional strength. *See* Waugh, 2:6-9, 3:21-31, 4:13-17. It would have been obvious to a person of ordinary skill in the art to provide an increased wall thickness at the larger-diameter end of Waugh's utility pole independently from the flange (20) (e.g., for the purpose of increasing strength at that location). Jones Declaration, ¶ 77. Thus, under any construction, Waugh's disclosure alone would render it obvious to a person of ordinary skill in the art to provide the larger-diameter end of Waugh's utility pole with “a wall thickness . . . larger than the wall thickness between the first and second locations.” Jones Declaration, ¶¶ 76-79.

Accordingly, Petitioner asserts that Claim 10 is obvious under § 103(a)

in view of the combination of Waugh and Ludwig. See Jones Declaration, ¶¶

42-79. A detailed claim chart showing where each limitation of independent Claim 10 can be found in Waugh and Ludwig now follows.

Claim 10 of the '329 Reissue	Disclosure of Waugh & Ludwig
10. A centrifugally cast, hollow pole comprising:	Waugh discloses a “hollow, centrifugally case, utility pole.” Abstract.
an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end,	Waugh discloses that its utility pole comprises “an elongated, hollow pole member which is formed by centrifugal casting so as to have an externally tapered shape.” 2:66 to 3:31; 4:27-31. Waugh’s pole has a smaller diameter end (“pole top”) and a larger diameter end (“pole butt”). <i>Id.</i> , Figs. 1-2.
wherein the hollow pole member is formed by centrifugal casting such that it has a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end, and	Waugh’s utility pole is formed by centrifugal casting. See Abstract, 2:1-5, 3:3-31, 3:49 to 4:18. Waugh discloses the wall thickness of its utility pole “can be varied to accommodate virtually any application and any strength requirement.” 2:6-9; see also 2:1-5; 3:3-31, 3:49 to 4:18. Waugh recognizes implicitly that utility poles may have a uniform wall thickness in its discussion of the advantages of variable wall thickness poles. See 1:65-2:41; 3:16-31. Ludwig discloses a mold used to cast hollow iron pipes by centrifugal casting and discloses that molten material can be distributed “to a substantially uniform wall thickness” around the interior of the mold. 1:1-16.

<p>wherein a wall thickness at the second end is larger than the wall thickness between the first and second locations,</p>	<p>Waugh discloses a flange (20), which is formed during the centrifugal casting process, thereby imparting a larger wall thickness at the larger-diameter end. 4:60-63, Fig. 2, 2:54-56, 3:32-36. Waugh also discloses that the wall thickness of its pole can be varied (e.g., made larger) to meet a given cross-sectional strength requirement. 2:6-9, 3:21-31, 4:13-17.</p>
<p>the hollow pole member further comprising a running ring that extends outward from the second end, and</p>	<p>Waugh discloses a flange (20)—a running ring—at the larger-diameter end of its pole (10). Fig. 2, 2:54-56, 3:32-36.</p>
<p>a plurality of asymmetric pimples extending away from an outer surface of the pole member.</p>	<p>Waugh discloses that its pole member “is formed utilizing conventional centrifugal casting methods;” specifically a tapered chill-type mold (50), which would be understood to impart a peened surface to the pole member comprising a plurality of asymmetric pimples extending away from the pole member. 3:49 to 4:17, 4:45-63; Fig. 4.</p> <p>Ludwig discloses centrifugally casting hollow, cast iron members with a mold having a peen pattern, thereby imparting a plurality of pimples extending away from the outside surface of the cast member. 1:1-4, 2:18-3:12; 3:39-74; 4:38-64; 5:25-32; Figs. 2-6. Ludwig discloses these pimples can be asymmetric by being indiscreetly arranged and/or irregularly contoured. 3:40-74.</p>

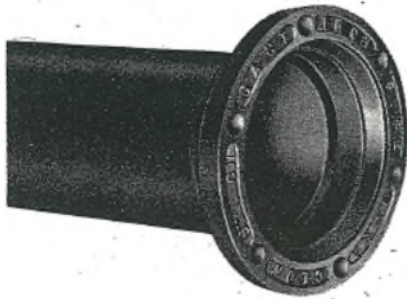
B. GROUND #2: CLAIM 10 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, LUDWIG, AND CLOW

For the reasons discussed above, Petitioner asserts that Claim 1 is obvious in view of Waugh and Ludwig. However, Waugh does not provide a clear three-dimensional illustration of its flange (20). Accordingly, in the event the Board considers the disclosure of Waugh and Ludwig insufficient, Petitioner also asserts that Claim 10 is further obvious in view of the combination of Waugh, Ludwig, and Pipe Economy (Clow Corp. 1971) (“Clow,” **Exhibit 1007**). Clow is a catalog and reference book for engineers, buyers, and users of cast iron pipe published by Clow Corporation in 1971 and so it qualifies as prior art under § 102(b).

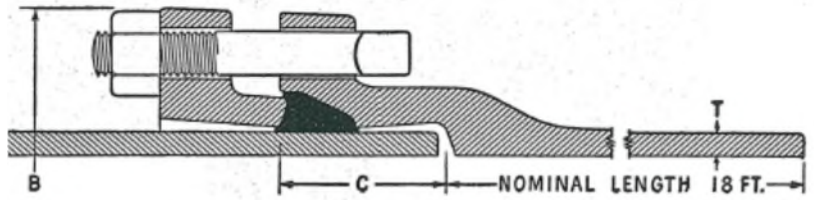
Clow discloses ductile iron pipes centrifugally cast with a uniform wall thickness. *See* Clow, 13, 20-21. In particular, the ductile iron pipes disclosed in Clow are provided with a variety of ring-shaped flanges extending outwardly from their respective ends. *Id.* at 22-23. As two examples, Petitioner notes Clow’s disclosure of a “mechanical joint” and a “flanged joint” for ductile iron pipes. *Id.* at 22-23, 37-40, 62-64.

Illustrations of Clow’s mechanical joint are provided below and labeled as Figures A, B, and C. *Id.* at 22 (Figure A), 40 (Figure B), and 37 (Figure C). As shown in these figures, Clow’s mechanical joint includes a ring-shaped flange that extends outwardly around an end of a ductile iron pipe. As illustrated in Figure A, the pipe flange of Clow’s mechanical joint has both a circular inner perimeter (i.e.,

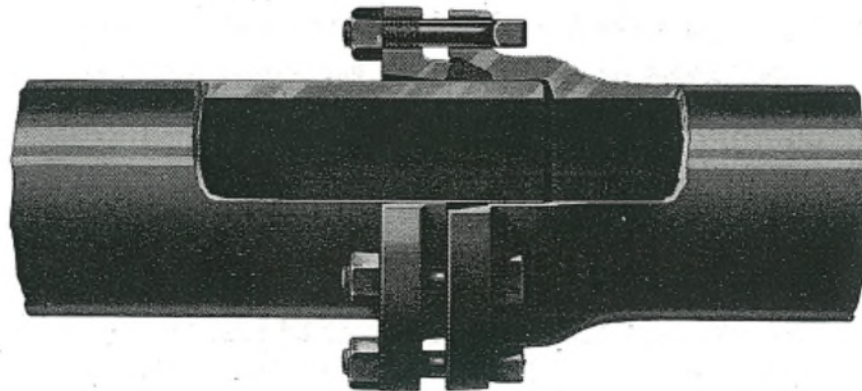
the inner perimeter of the flange adjacent the pipe body) and outer perimeter (i.e., the outer perimeter of the flange furthest from the pipe body in a radially extending direction). *Id.* at 22; Jones Declaration, ¶¶ 80-83. As the pipe flange in Clow’s mechanical joint extends outwardly around an end of the ductile iron pipe, this flange constitutes “a running ring that extends outward from [a] second end.” Jones Declaration, ¶¶80-83. Moreover, Clow provides clear disclosure of a “running ring” even under a claim construction narrower than that proposed in this Petition (e.g., a claim construction requiring the running ring to have a circular inner and outer perimeter).



Clow – Figure A



Clow – Figure B

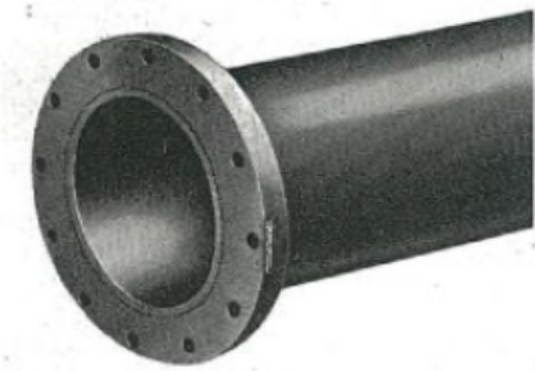


Clow – Figure C

As indicated in Figures B and C, the ring-shaped pipe flange in Clow's mechanical joint also defines a number of holes extending through the flange and configured to receive bolts. *Id.* at 37-40. The flange is also cast adjacent an end of the pipe defining a slip joint for receiving the end of another pipe. *See id.* at 22, 37-40. Figures B and C, for example, show Clow's ring-shaped flange cast integrally with the pipe and imparting a wall thickness to the pipe that is greater than the pipe's uniform thickness along its length. *Id.* at 37-40, *see also* 13. As such, the pipe flange of Clow's mechanical joint provides its pipe with a larger wall thickness at its end. Thus, with respect to its mechanical joint, Petitioner also asserts that Clow provides clear disclosure of "a running ring that extends outward from the second end," where the second end has "a wall thickness . . . larger than the wall thickness between the first and second locations," as recited in Claim 10. Jones Declaration, ¶¶ 80-83.

Petitioner also notes Clow's disclosure of a flanged joint, which is shown below and labeled Figures D and E. Clow, 23 (Figure D) and 62 (Figure E). As shown in Figures D and E, Clow's flanged joint also makes use of a ring-shaped flange that extends outwardly around an end of a ductile iron pipe. *Id.* In particular, the pipe flange of Clow's flanged joint has both a circular inner perimeter and outer perimeter. *Id.* at 23. As the pipe flange in Clow's flanged joint extends outwardly around an end of the ductile iron pipe, this flange also

constitutes “a running ring that extends outward from [a] second end.” Jones Declaration, ¶¶ 84-85. Moreover, Clow again provides clear disclosure of a “running ring” even under a claim construction narrower than that proposed in this Petition (e.g., a claim construction requiring the running ring to have a circular inner and outer perimeter).



Clow - Figure D



Clow - Figure E

The ring-shaped pipe flange in Clow’s flanged joint also defines a number of holes extending through the flange and configured to receive bolts. *Id.* at 23, 62-65. In addition, Figure E shows that the pipe flange of Clow’s flanged joint is screwed on to a threaded end of the pipe. *Id.* at 62-64. In particular, Figure E shows that the flange imparts a wall thickness to the pipe that is greater than the pipe’s uniform thickness along its length. *Id.*, *see also* 13. As such, the pipe flange of Clow’s flanged joint also provides its pipe with a larger wall thickness at its end. Thus, with respect to its flanged joint, Petitioner asserts that Clow

provides clear disclosure of “a running ring that extends outward from the second end,” where the second end has “a wall thickness . . . larger than the wall thickness between the first and second locations,” as recited in Claim 10. Jones Declaration, ¶¶ 84-85.

A person of ordinary skill would have been motivated to consider the disclosure of Clow in combination with Waugh and Ludwig as—like those references—Clow relates to centrifugal casting of elongated, hollow, ductile iron products. *See* Jones Declaration, ¶¶ 86-88; *see also* ’155 IPR Institution Decision, pp. 15-16 (person of ordinary skill would consider disclosure relating to ductile iron pipe in combination with Waugh). As noted above with respect to the combination of Waugh and Ludwig, a person of ordinary skill interested in producing a tapered, ductile iron utility pole—as disclosed in Waugh—would have been clearly motivated to refer to disclosures in the field of ductile iron pipes. Both ductile iron pipes and ductile iron poles are fundamentally elongated, hollow members, both can be used as structural members, and both are manufactured using a centrifugal casting process. Jones Declaration, ¶ 87. Waugh itself recognizes these similarities, pointing to the analogous qualities of cast iron pipes in discussing its iron utility pole. Waugh, 1:55-62 (“many 100+ year old cast iron water mains are still in use”).

In addition, Waugh discloses that its centrifugally cast, ductile iron utility pole can be provided with a flange (20) disposed at the pole butt (16) “to enable the pole (10) to be mounted and secured to a foundation (30).” Waugh, 3:32-36. This is accomplished by inserting bolts (31) through the flange (20) and securing them with nuts (32). *Id.* Similarly, both the flanges of Clow’s mechanical joint and flanged joint are positioned at ends of their respective centrifugally cast pipes and are configured to receive bolts in order to secure the flange to another object. Clow, pp. 22-23, 37-40, 62-65; Jones Declaration, ¶ 86-88.

The above-referenced disclosure in Clow would have made clear to a person of ordinary skill that flanges having holes for receiving bolts can be ring-shaped, can have both a circular inner and outer perimeter, and can be integrally cast or separately attached to the end of a centrifugally cast, elongated, hollow, ductile iron member. Jones Declaration, ¶ 86. Indeed, Clow’s disclosure would indicate to a person of ordinary skill that these attributes would have been well-known in the ductile iron pipe industry at least as early as 1971. *Id.* For at least these reasons, it would have been obvious to a person of ordinary skill to form the flange (20) of Waugh’s utility pole to resemble the ring-shaped flanges disclosed in Clow. *Id.* at ¶ 89-90. In other words, it would have been obvious to form Waugh’s utility pole with a “a running ring that extends outward from the second end,” where the

second end has “a wall thickness . . . larger than the wall thickness between the first and second locations,” as recited in Claim 10. *Id.* at ¶ 89-90.

Accordingly, for the reasons discussed above, Petitioner asserts that Claim 10 is obvious under § 103(a) in view of Waugh, Ludwig, and Clow. *See* Jones Declaration, ¶¶ 80-90. A detailed claim chart showing where each limitation of independent Claim 10 can be found in Waugh, Ludwig, and Clow now follows.

Claim 10 of the '329 Reissue	Disclosure of Waugh, Ludwig, & Clow
10. A centrifugally cast, hollow pole comprising:	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i>
an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end,	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i>
wherein the hollow pole member is formed by centrifugal casting such that it has a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end, and	<i>See disclosure of Waugh & Ludwig identified above. Supra, pp. 40-41.</i> Clow discloses ductile iron pipes centrifugally cast with a uniform wall thickness. <i>See</i> pp. 13, 20-23.
wherein a wall thickness at the second end is larger than the wall thickness between the first and second locations,	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i> Clow discloses ring-shaped flanges that are cast integrally with the pipe or attached to an end of the pipe via threading, both of which impart a wall thickness to an end of the pipe that is greater than the pipe’s uniform thickness along its length. Pp. 22-23, 37-40, 62-65.
the hollow pole member further comprising a running ring that extends outward from the second	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i>

end, and	Clow discloses ductile iron pipes provided with a variety of ring-shaped flanges extending outwardly from their respective ends. <i>See</i> pp. 22-23, 37-40, 62-65 (e.g., Clow’s mechanical joint and flanged joint each include a ring-shaped pipe flange extending outwardly around an end of a ductile iron pipe).
a plurality of asymmetric pimples extending away from an outer surface of the pole member.	<i>See disclosure of Waugh & Ludwig identified above. Supra, pp. 40-41.</i>

C. GROUND #3: CLAIM 10 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, LUDWIG, LADD, AND JOHNSTON; AND

GROUND #4: CLAIM 10 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, LUDWIG, CLOW, LADD, AND JOHNSTON

As discussed above, Petitioner asserts that the end-use of the recited “running ring” is immaterial to the patentability of Claim 10 as it is an apparatus claim. However, as none of Waugh, Ludwig, or Clow expressly disclose the use of flanges for guiding a pole along rails, Petitioner also asserts that Claim 10 is nevertheless obvious under §103(a) based on the disclosure of Waugh, Ludwig, and/or Clow, in further view of U.S. Patent No. 1,551,827 to Ladd (“Ladd,” **Exhibit 1011**) and U.S. Patent No. 3,134,147 to Johnston et al. (“Johnston,” **Exhibit 1010**). Ladd and Johnston each qualify as prior art under § 102(b).

Ladd is generally directed to an annealing furnace “especially adapted for the treatment of centrifugal cast pipes in which metal has been chilled during the casting operation.” Ladd, 1:12-34; Figs. 1 and 2. As a person of ordinary skill

would have appreciated, the cast pipes in Ladd could have been made from cast iron. *See id.* at 1:12-16 (assignee: “United States Cast Iron Pipe and Foundry Company” (emphasis added)); Jones Declaration, ¶¶92-94. As Ladd relates to a furnace for annealing centrifugally cast, elongated, hollow pipes, a person of ordinary skill would have been motivated to consider its disclosure in combination with Waugh, Ludwig, and/or Clow, which relate to centrifugally cast poles and pipes. Jones Declaration, ¶¶92-94.

Ladd’s Figure 3 shows a pipe (R) being rolled through the interior of the furnace on tracks (E), while Figure 5 shows the pipe (R) rolling out of the furnace on rails (F²). *Id.* at 1:71-2:60, 2:120-127. As shown in Figures 3 and 5, the pipe (R) includes a ring-shaped flange (R¹) at its bell end, which is positioned outside of one the tracks/rails (E, F²). *Id.*

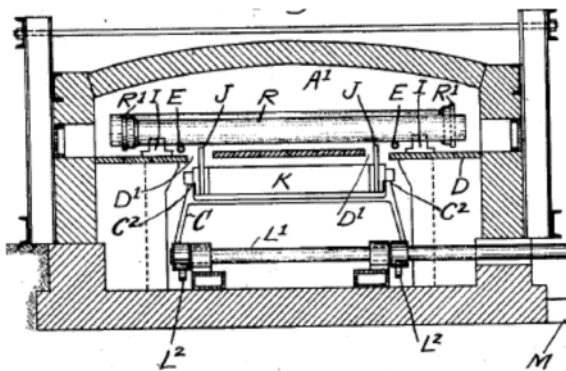


Figure 3 of Ladd

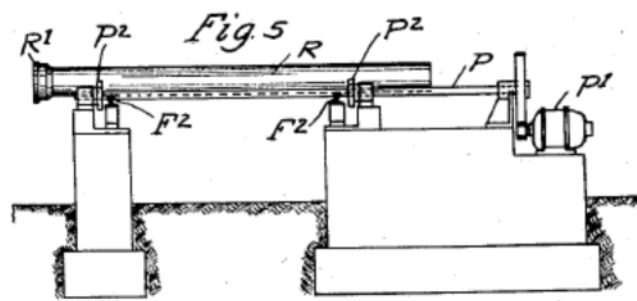


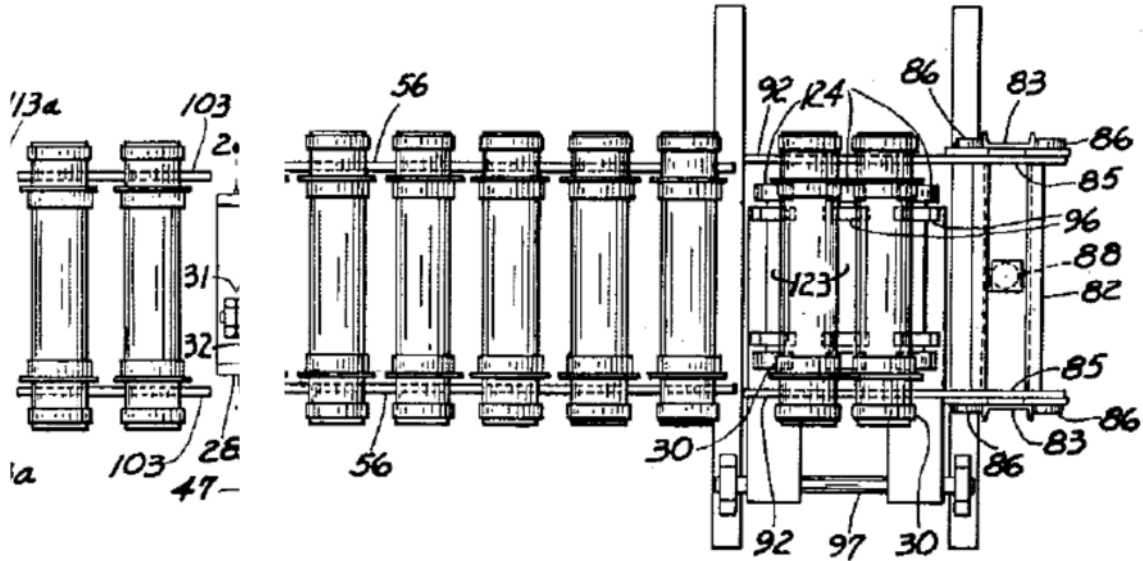
Figure 5 of Ladd

Comparing Ladd’s pipe (R) and tracks/rails (E, F²) to that disclosed in Figure 5 of the ’329 reissue patent, there appears to be no significant difference with respect to the ’329 reissue patent’s “running ring.” Rather, the only

difference in the disclosures is the addition of an extra rail (24) in the '329 reissue patent. The '329 reissue patent's rail (24), however, is not claimed and has no bearing on the patentability of the utility pole apparatus in Claim 10. Although Petitioner certainly does not concede the patentability of adding the rail (24) in a process context, it is clear the rail (24) cannot patentably distinguish Claim 10's utility pole.

Johnston discloses a foundry apparatus in which hollow flasks (29) are configured to roll along spaced apart rails (103, 56). Johnston, 2:49-71, 6:47 to 7:22. In particular, the flasks (29) are provided with “flanged steel tires 30” extending outwardly around ends of the flasks (29). *Id.* at 2:49-71. The steel tires (30) are configured to “engage the rails 103 to inhibit undesired traveling of the flasks transversely of the rails.” *Id.* (emphasis added). In other words, Johnston discloses that a ring-shaped flange (30) extending outwardly from an elongated, round object (29) can be used to engage rails (103, 56) for the purpose of guiding the object along a straight path. Jones Declaration, ¶95-96.

As is evident from the disclosure of Johnston, the concept of using a ring-shaped flanged in order to guide a cylindrical object along rails is nothing new. As any person of ordinary skill would recognize, Johnston's steel tires (30) are each flanges extending outwardly around an end of one of the flasks (29) and are therefore running rings. Jones Declaration, ¶95-96.



Johnston – Portions of Fig. 2

A person of ordinary skill in the art would have been motivated to consider the disclosure of Johnston in combination with Waugh, Ludwig, Clow, and/or Ladd. Johnston discloses that its foundry apparatus “is especially adaptable to a foundry in which elongated hollow articles such as pipes are centrifugally cast.” *Id.* at 1:17-21. As discussed earlier herein, a person of ordinary skill in the art interested in producing a tapered, ductile iron utility pole—as disclosed in Waugh—would have been clearly motivated to refer to disclosures in the field of centrifugally cast iron pipes, such as Ludwig, Ladd, and Johnston. Jones Declaration, ¶ 96.

Considering the disclosure of Ladd and Johnston in combination with Waugh and Ludwig, Petitioner notes that Waugh discloses that its tapered, ductile iron utility pole is formed using a typical centrifugal casting machine. Waugh,

3:49-62. A person of ordinary skill in the art would have recognized that a heat treating furnace of the type disclosed in Ladd—which is especially adapted for centrifugally cast products—could be used to heat treat Waugh’s centrifugally cast utility pole to increase the pole’s strength and toughness. Ladd, 1:12-34, Figs. 1 and 2; Jones Declaration, ¶97.

It would have been further obvious to a person of ordinary skill in the art to provide a ring-shaped flange resembling Johnston’s steel tire (30) on the end of Waugh’s tapered utility pole for the purpose of guiding the utility pole along one or more rails. Jones Declaration, ¶98-99. For example, Ladd discloses that its tracks/rails (E, F²) are configured to support and guide pipes through its annealing furnace. Ladd, 1:71-95, 2:120 to 3:7. Analogously, Johnston discloses that its flasks (29) are configured to roll along “tracks or rails 103” and that steel tires (30) are provided on the flasks (29) to “engage the rails 103 to inhibit undesired traveling of the flasks transversely of the rails.” Johnston, 2:49-71, *see also* 8:6-50. Thus, Johnston discloses that a ring-shaped flange (e.g., a steel tire (30)) extending outwardly from an elongated, round object (e.g., the flask (29)) can be used to engage tracks or rails (e.g., 103, 56) for the purpose of guiding the object along a straight path. Jones Declaration, ¶98.

Setting aside Waugh’s disclosure of its flange (20), it would have been obvious to a person of ordinary skill to modify Waugh’s utility pole to include a

ring-shaped flange as disclosed in Johnston for the purpose of enabling guiding of the utility pole along rails through an annealing furnace of the type disclosed in Ladd. Jones Declaration, ¶99. The ring-shaped flange provided in this modified version of Waugh's utility pole would constitute a "running ring" and would also necessarily impart "a wall thickness at the second end [of Waugh's pole member] larger than the wall thickness between the first and second locations" (the uniform thickness section of the modified Waugh pole). *See also* Jones Declaration, ¶99. **Accordingly, Petitioner asserts that Claim 10 is obvious under § 103(a) in view of the combination of Waugh, Ludwig, Ladd, and Johnston.** *See* Jones Declaration, ¶¶ 91-99.

Considering the disclosure of Ladd and Johnston in combination with Waugh, Ludwig, and Clow, Petitioner again notes that Clow discloses that ring-shaped flanges can be provided with both a circular inner and outer perimeter, and can be integrally cast or separately attached to the end of an elongated, hollow, ductile iron member. Based on this disclosure in Clow, it would have been further obvious to a person of ordinary skill that a flange resembling the tire (30) disclosed in Johnston could be integrally cast or otherwise attached to the larger end of Waugh's utility pole. Jones Declaration, ¶100. A person of ordinary skill would have been motivated to do this for the reasons discussed above. **Accordingly, Petitioner asserts that Claim 10 is further obvious under § 103(a) in view of**

the combination of Waugh, Ludwig, Clow, Ladd, and Johnston. See Jones

Declaration, ¶¶ 99-100.

Claim 10 of the '329 Reissue	Disclosure of Waugh, Ludwig, & Clow
10. A centrifugally cast, hollow pole comprising:	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i>
an elongated, hollow pole member having a tapered outer diameter with a first end and a second end, the first end having a smaller outer diameter than the second end,	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i>
wherein the hollow pole member is formed by centrifugal casting such that it has a substantially uniform wall thickness from a first location adjacent the first end to a second location adjacent the second end, and	<i>See disclosure of Waugh & Ludwig identified above. Supra, pp. 40-41.</i> <i>See disclosure of Clow identified above. Supra, pp. 48-49</i>
wherein a wall thickness at the second end is larger than the wall thickness between the first and second locations,	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i> <i>See disclosure of Clow identified above. Supra, pp. 48-49</i> See disclosure of Ladd and Johnston referenced below on p. 56
the hollow pole member further comprising a running ring that extends outward from the second end, and	<i>See disclosure of Waugh identified above. Supra, pp. 40-41.</i> <i>See disclosure of Clow identified above. Supra, pp. 48-49</i> Ladd discloses a pipe (R) being rolled through the interior of a furnace on tracks (E), and rolling out of the furnace on rails (F ²). <i>Id.</i> at 1:71-2:60, 2:120-127, Figs. 3-

	<p>5. The pipe (R) includes a ring-shaped flange (R¹) at its bell end, which is positioned outside of one the tracks/rails (E, F²). <i>Id.</i></p> <p>Johnston discloses a foundry apparatus in which hollow flasks (29) are configured to roll along spaced apart rails (103, 56). Johnston, 2:49-71, 6:47 to 7:22. The flasks (29) are provided with “flanged steel tires 30” extending outwardly around ends of the flasks (29). <i>Id.</i> at 2:49-71. The steel tires (30) are configured to “engage the rails 103 to inhibit undesired traveling of the flasks transversely of the rails.” <i>Id.</i></p>
<p>a plurality of asymmetric pimples extending away from an outer surface of the pole member.</p>	<p><i>See disclosure of Waugh & Ludwig identified above. Supra, pp. 40-41.</i></p>

D. CLAIMS 11-13 ARE ALSO OBVIOUS UNDER §103(A) UNDER GROUNDS #1, #2, #3, AND #4

Dependent Claims 11-13 each depend—either directly or indirectly—from independent Claim 10. As indicated in the detailed claim chart provided below, the limitations recited in Claims 11-13 are clearly disclosed in Waugh and, in many cases, are disclosed *verbatim*. Jones Declaration, ¶ 101-103.

Accordingly, for these reasons and those discussed above in relation to Claim 10, Petitioner asserts that each of Claims 11-13 is obvious under § 103(a) in view of Waugh and Ludwig; each of Claims 11-13 is obvious under § 103(a) in view of Waugh, Ludwig, and Clow; each of Claims 11-13 is obvious

under § 103(a) in view of Waugh, Ludwig, Ladd, and Johnston; and each of Claims 11-13 is obvious under § 103(a) in view of Waugh, Ludwig, Clow, Ladd, and Johnston. A detailed claim chart showing where each limitation in Claims 11-13 can be found in Waugh, Ludwig, Clow, Ladd, and Johnston now follows.

Claim 11 of the '329 Reissue	Disclosure of Prior Art
11. The apparatus of claim 10,	<i>See generally disclosure of Waugh, Ludwig, Clow, Johnston, and Ladd. Supra, pp. 1-56.</i>
further comprising a slip joint located along a portion of an inner diameter of the second end, the slip joint being configured to slidably receive the first end of another said pole member.	Waugh discloses that one end of its pole member may include a slip-joint (40) “wherein the internal core 17 diameter of the pole . . . has been cast to have internal dimensions which allow the butt 16 of the pole 10 to slidably engage the top portion 12A of another centrifugally cast tapered pole 10A.” Fig. 3; 3:37-49.
Claim 12 of the '329 Reissue	Disclosure of Prior Art
12. The apparatus of claim 10,	<i>See generally disclosure of Waugh, Ludwig, Clow, Johnston, and Ladd. Supra, pp. 1-56.</i>
wherein the pole member is formed from a castable metallic material.	Waugh discloses that its pole member is centrifugally cast from a castable material, such as ductile iron. 2:17-35.
Claim 13 of the '329 Reissue	Disclosure of Prior Art
13. The apparatus of claim 12,	<i>See notes re Claim 12 above.</i>
wherein said castable metallic material is selected from the group consisting of ductile iron, cast iron, steel and/or aluminum.	Waugh specifically discloses that its pole member may be cast from ductile iron. 2:17-35; Claim 1.

X. CONCLUSION

For the foregoing reasons, *inter partes* review of Claims 10-13 of the '329 reissue patent is requested.

Respectfully Submitted,

November 25, 2015

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Certificate of Service

The undersigned certifies service pursuant to 37 C.F.R. §§ 42.6(e) and 42.105(b) on Nixon & Vanderhye, PC by UPS Overnight of a copy of this Petition for *Inter Partes* Review at the following address:

Attn: John C. Eisenhart, Esq.
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901 North Glebe Road, 11th Floor
Arlington, VA 22203

Dated: November 25, 2015

/Michael S. Connor/

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