**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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|---|---|
| In re Patent of: | Tom W. Waugh |
| U.S. Patent No.: | 8,567,155 |
| Issue Date: | October 29, 2013 |
| Serial No.: | 11/458,407 |
| Filing Date: | July 19, 2006 |
| Title: | CENTRIFUGALLY CAST POLE AND METHOD |

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**PETITION FOR *INTER PARTES* REVIEW**
**OF U.S. PATENT NUMBER 8,567,155 UNDER 35 U.S.C. §§ 311-319**

McWane, Inc. ("McWane" or "Petitioner") hereby requests *Inter Partes* Review of Claims 1-9 in U.S. Patent Number 8,567,155 ("the '155 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 '155 patent as reflected in the accompanying Certificate of Service.

# TABLE OF CONTENTS

# EXHIBIT LIST

| | |
|---|---|
| **1001** | U.S. Patent No. 8,567,155 to Waugh |
| **1002** | U.S. Patent No. 5,784,851 to Waugh |
| **1003** | Prosecution History of USPN 8,567,155 |
| **1004** | Declaration of Mr. Gene Oliver, Ph.D., P.E. |
| **1005** | Prosecution History of Pending U.S. Application No. 13/289,430 |
| **1006** | U.S. Patent No. 4,751,804 to Cazaly |
| **1007** | U.S. Patent No. 6,739,103 to Noirot |
| **1008** | U.S. Patent No. 5,175,971 to McCombs |
| **1009** | U.S. Patent No. 2,577,423 to Ludwig et al. |
| **1010** | "Ductile Iron Pipe Versus PVC," Ductile Iron Pipe Research Association (DIPRA), Mar. 1999. |
| **1011** | Seamless Pole Webpage: "Frequently Asked Questions," entries dated from March 1-6, 2006 at www.seamlesspole.com/Seamless_Pole_Inc./Frequently_Asked_Questions/Frequently_Asked_Questions.html |
| **1012** | U.S. Patent No. 1,329,295 to De Lavaud |
| **1013** | John F. Wallace, *Engineering Aspects of Centrifugal Casting*, 61 Transactions of the American Foundrymen's Society 701 (1953) |
| **1014** | U.S. Patent No. 4,095,643 to Farlow et al. |
| **1015** | U.S. Patent No. 2,420,298 to Breakefield et al. |
| **1016** | U.S. Patent No. 6,932,143 to Noble |
| **1017** | U.S. Patent No. 4,370,719 to Upchurch et al. |
| **1018** | "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 '155 patent is available for *inter partes* review and that Petitioner is not barred or estopped from requesting an *inter partes* review challenging Claims 1-9 on the grounds identified herein.

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

Seamless Pole, Inc. has sued McWane, Inc. for infringement of the '155 patent in the U.S. District Court for the Northern District of Alabama, Southern Division, C.A. No. 2:2013-cv-02028 ("the litigation"), which remains pending. Seamless Pole, Inc. purports to be the exclusive licensee of the '155 patent. Additionally, U.S. Application No. 13/289,430, filed Nov. 4, 2011, is a divisional of the application resulting in the '155 patent and remains pending, and unpublished U.S. Application No. 14/272,076, filed May 7, 2014, claims the benefit of the application resulting in the '155 patent and remains pending. 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 Jason P. Cooper of Alston & Bird LLP, USPTO Reg. No. 38,114. 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 404-881-4831, by email at jason.cooper@alston.com, and by facsimile at 404-253-8231. Petitioner may be served at the following address: Jason P. Cooper, ALSTON & BIRD LLP, 1201 West Peachtree Street, Atlanta, GA 30309-3424.

## 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 '155 patent:

**(Ground #1)** Invalidation of Claims 1-9 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");

**(Ground #2)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh and U.S. Patent No. 6,739,103 to Noirot ("Noirot");

**(Ground #3)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh, Noirot, and U.S. Patent No. 5,175,971 to McCombs ("McCombs");

**(Ground #4)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh and U.S. Patent No. 2,577,423 to Ludwig ("Ludwig");

**(Ground #5)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh, Noirot, and Ludwig;

**(Ground #6)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh, Noirot, McCombs, and Ludwig;

**(Ground #7)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh, Ludwig, and "Ductile Iron Pipe Versus PVC," Ductile Iron Pipe Research Association ("DIPRA"), Mar. 1999;

**(Ground #8)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh, Noirot, Ludwig, and DIPRA;

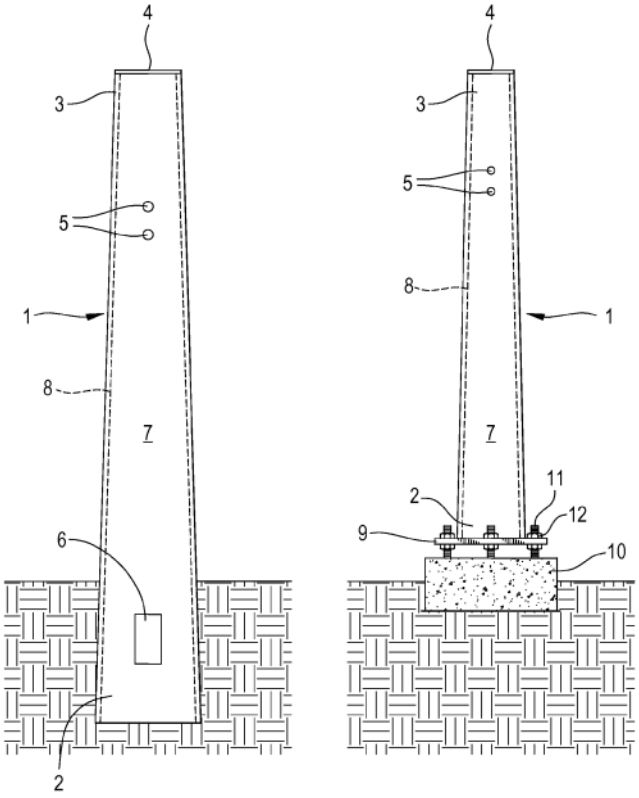
**(Ground #9)** Invalidation of Claims 1-9 under § 103(a) as being obvious in view of Waugh, Noirot, McCombs, Ludwig, and DIPRA; and

**(Ground #10)** Invalidation of Claims 1-3, 5-7, and 9 under 35 U.S.C. § 102(a) ("§ 102(a)") as being anticipated by "Frequently Asked Questions," entries dated from March 1-6, 2006 at www.seamlesspole.com/Seamless_Pole _Inc./Frequently_Asked_Questions/Frequently_Asked_Questions.html (collectively "Seamless Pole Webpage"

## VII. SUMMARY OF THE '155 PATENT AND ITS PROSECUTION HISTORY

The '155 patent is generally directed to an elongated, hollow pole having tapered external dimensions. '155 patent, 1:7-10. More particularly, the patent's specification suggests the pole is useful as a "utility pole," presumably for

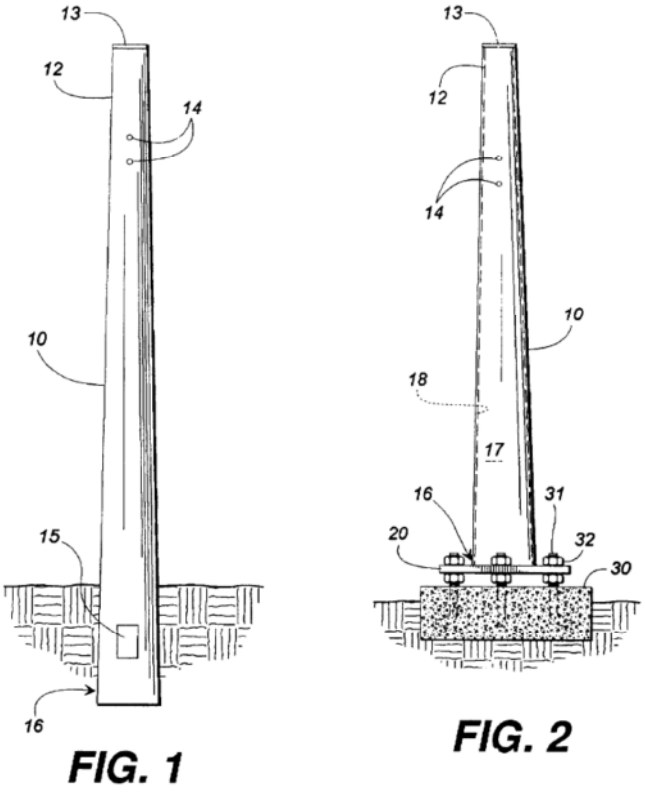
supporting overhead power or communication lines. *Id*. 3:14-20. As an example, Figures 1 and 2 of the '155 patent illustrate buried and foundation-mounted embodiments of a utility pole (1), both of which are tapered from the pole butt (2) to the pole top (3). *Id*. at 4:36-67.




***Figures 1 & 2 of the '155 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 3:21-26. However, the '155 patent admits not only

that tapered utility poles are nothing new, but also that tapered utility poles cast from ductile iron and other molten materials have long been known.




***Figures 1 & 2 of Waugh***

In particular, the patent's background section mentions U.S. Patent No. 5,784,851 ("Waugh," **Exhibit 1002**), which issued on July 28, 1998 to the same inventor of the '155 patent—Mr. Tom W. Waugh—and is prior art to the '155 patent. Waugh discloses "a hollow, centrifugally cast, utility pole having tapered external linear dimensions," which can be formed from ductile iron and other metallic materials. Waugh, Abstract and 2:17-22. As can be readily appreciated from Figures 1 and 2 above, Waugh's utility pole is nearly identical to the pole disclosed in the '155 patent. In fact, the disclosure of the '155 patent adds little to

the disclosure of Waugh. It is almost as if the '155 patent resulted from a continuation-in-part application that claimed priority to Waugh. But Waugh was issued years before the application that led to the '155 patent was filed, thus precluding a claim of priority and leaving Waugh as prior art under 35 U.S.C. § 102(b).

In an effort to distinguish Waugh, the Patentee limited independent Claims 1 and 9 of the '155 patent to hollow poles comprised of a pole member with **(i)** a "substantially uniform wall thickness" and **(ii)** a plurality of "pimples extending away" from the pole member. For reference, the '155 patent's independent claims are copied below with these features emphasized.

| **Claim 1 of the '155 Patent** | **Claim 9 of the '155 Patent** |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | 9. A centrifugally cast, hollow pole comprising: |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | an elongated, hollow, conically tapered pole member which is formed by centrifugal casting |
| so as to have ***a substantially uniform wall thickness throughout the long axis of said pole member***, | so as to have ***a substantially uniform wall thickness throughout the long axis of said pole member***, |
| said pole member ***comprising a plurality of asymmetric pimples extending away therefrom***, that is formed by centrifugal casting. | said pole member ***comprising an outer surface comprising a plurality of pimples extending away therefrom***, said plurality of pimples are formed during the centrifugal casting of said member. |

Recognizing that Waugh discloses—almost entirely *verbatim*—every other limitation in Claims 1-9, the Examiner of the application leading to the '155 patent issued a series of Office Actions rejecting the earlier pending claims. *See generally* Prosecution History of '155 Patent ("'155 History," **Exhibit 1003**): Office Actions dated Dec. 26, 2007; April 9, 2008; July 21, 2008; Nov. 24, 2008; July 8, 2009; and Dec. 19, 2011. In response, the Patentee first attempted to distinguish Waugh by arguing that Waugh only discloses walls having a variable wall thickness and that Waugh fails to disclose poles having a "uniform wall thickness." *See e.g.*, '155 History: Applicant Reply dated Feb. 13, 2008 and Appeal Brief dated Apr. 27, 2009. However, this approach was rejected during prosecution by the Board of Patent Appeals and Interferences ("BPAI"), which held that modifying Waugh's pole to have a uniform wall thickness would have been plainly obvious to a person of ordinary skill and is taught by the prior art. '155 History: BPAI Decision on Appeal dated Oct. 12, 2011, pp. 2-3.

With the obviousness of a uniform wall thickness affirmed by the BPAI, the Patentee next endeavored to distinguish Waugh by focusing on feature **(ii)**—the requirement for "pimples extending away" from the pole member. Arguing that the prior art relied upon by the Examiner merely disclosed poles having symmetrical protuberances or aesthetic textures, the Patentee persuaded the Examiner to allow the claims as amended to include the pimples feature. *See e.g.*,

Appeal Brief dated Sept. 25, 2012, pp. 4-8 and Notice of Allowance dated June 28, 2013. However, the '155 patent's prosecution history indicates that the Examiner was unaware of a critical fact: **that centrifugally cast hollow structural members—such as ductile iron pipes—have had pimples extending away from their surface *as a direct result of the known centrifugal casting process proposed in the '155 patent* for decades**.

As explained in the attached declaration of Mr. Gene Oliver ("Oliver Declaration," **Exhibit 1004**), an expert in the design and manufacture of hollow structural members with over 30 years of experience in centrifugally casting hollow ductile iron members, pimples are produced on the surfaces of centrifugally cast hollow structural members as a direct and necessary result of "peening" on the interior of centrifugal casting molds. Oliver Declaration, ¶¶ 27-31, 54-58; *see also* U.S. Patent No. 2,577,423 to Ludwig et al. ("Ludwig," **Exhibit 1009**) 1:1-4, 2:18-3:12; 3:39-74; 4:38-64; 5:25-32; Figs. 2-6. The peening technique has been used for many years to provide an asymmetrically dimpled inner surface in centrifugal casting molds, which increases the friction between the inner mold surface and the molten material deposited into the spinning mold. Oliver Declaration, ¶ 28. This increased friction ensures that the molten material adheres to the inside surface of the mold and prevents the molten material from slipping against the spinning mold surface, which can lead to defects in the resulting cast product if it is not prevented.

*Id*. As a result of the dimpled inner surface of the peened mold, asymmetric pimples are imparted to the surface of centrifugally cast hollow structural members. *Id*. at ¶ 29, 57.

Indeed, the '155 patent itself states that "[a] mold with a textured interior wall surface may be utilized, thereby producing a final product with a pimpled exterior surface." '155 patent, 3:48-54. And yet, the Patentee failed to make the Examiner aware that hollow members, such as ductile iron pipes, have been centrifugally cast with pimpled surfaces for decades.

As confirmed in the declaration of Mr. Oliver, a person of ordinary skill in the design and manufacture of hollow structural members would have been well aware not only of the process for centrifugal casting hollow metallic members, but also of the pimpled surface caused by this process. *Id*. at 21-31, 55-57. Indeed, a person of ordinary skill would have expected the pole described in Waugh to have a plurality of asymmetric pimples on its surface as a direct result of the centrifugal casting process Waugh proposes for its manufacture. *Id*.

For these reasons and those presented in the detailed analysis which follows, Petitioner respectfully requests invalidation of Claims 1-9 in the '155 patent.

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

Claims 1-9 should be accorded their "broadest reasonable construction" in light of the specification of the '155 patent. 37 C.F.R. § 42.100(b). In accordance

with this standard of claim construction, Petitioner asserts that Claims 1-9 should be construed as follows.

### A. CLAIMS 1-9 ARE PRODUCT-BY-PROCESS CLAIMS NOT LIMITED BY THE TERM "CENTRIFUGAL CASTING"

As noted above, Claims 1-9 of the '155 patent are directed to a hollow pole comprising "an elongated, hollow, conically tapered pole member." More specifically, however, Claims 1 and 9 each recite that their elongated, hollow, conically tapered pole member is "*formed by centrifugal casting*." In addition, Claims 1 and 9 recite that their respective pole members include a plurality of pimples formed "by" (Claim 1) or "during" (Claim 9) "centrifugal casting." However, despite this process language, both Claims 1 and 9 are directed to a hollow pole itself and ***not*** to a method of manufacture. In other words, they are product claims, not method claims.

Generally, 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). Recognizing this rule of claim construction during prosecution of the application leading to the '155 patent, ***both the Examiner and the BPAI expressly construed the earlier pending versions of Claims 1-9 as product-by-process claims under § 2113***. *See e.g.,* '155 History: BPAI Decision on Appeal dated Oct. 12, 2011, p. 4 and Examiner's Answer dated July 8, 2009,

pp. 4-5. Moreover, ***the Patentee did not dispute this product-by-process claim construction during prosecution***. *See generally* '155 History. As independent Claims 1 and 9 are each directed to a hollow pole product defined in part by the process by which it is made (i.e., "centrifugal casting"), Petitioner asserts the USPTO's prior determinations were correct and that independent Claims 1 and 9—and therefore dependent Claims 2-8 as well—should remain construed as product-by-process claims under MPEP § 2113. Indeed, it would be improper for the Board to now reverse the construction adopted by the BPAI and not disputed by the Patentee in light of this intrinsic evidence. *See Tempo Lighting, Inc. v. Tivoli, LLC*, 742 F.3d 973, 977-978 (Fed. Cir. 2014) (PTO should consider intrinsic evidence from prosecution history in claim construction).

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)).

There are, however, two recognized exceptions where process steps in a product-by-process claim can be considered limiting when assessing patentability: **(i)** "where the product can ***only*** be defined by the process steps by which the product is made," and **(ii)** "where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product" (herein "the product-by-process exceptions"). MPEP § 2113 (citing *In re Garnero*, 412 F.2d 276, 279 (CCPA 1979)); *see also Amgen Inc. v. F. Hoffman-La Rohce Ltd.*, 580 F.3d 1340, 1369-70 (Fed Cir. 2009). Accordingly, Claims 1-9 must be construed as not limited by the recited processes unless either of the recognized product-by-process exceptions applies. In this case, neither of the exceptions applies to Claims 1-9.

The intent of the product-by-process exceptions is to enable patentees to recite patentably distinctive product features that are otherwise difficult to describe in structural terms. *See id*; *see also SmithKline Beecham Corp. v. Apotex Corp.*, 439 F. 3d 1312, 1315-1316 (product-by-process claims enable inventors to claim features that "resist[] definition by other than the process by which it is made"). In the case of independent Claims 1 and 9, the claimed hollow pole product is ***not*** one that is difficult to describe in structural, non-process terms. Oliver Declaration, ¶¶ 33-37. Quite clearly, the features the Patentee argued during prosecution as

distinguishing the claimed pole product (e.g., pimples) were easily described in structural terms. *Id*.

In addition, the centrifugal casting process recited in the claims is ***not*** one that would be expected to impart distinctive structural characteristics to the final product—it is simply a known method by which a hollow member (e.g., a pipe or a pole) can be efficiently produced. *Id*. As discussed in the attached declaration of Mr. Gene Oliver—an expert in the design and manufacture of hollow structural members—a hollow pole having the features recited in Claims 1-9 and manufactured by centrifugal casting would not be structurally distinguishable from a hollow pole having the features of Claims 1-9 and manufactured by various other methods. *Id*. at ¶¶ 35-36. There is no structural feature recited in Claims 1-9 that could ***only*** be obtained via centrifugal casting and, in fact, the hollow poles described in the '155 patent could be manufactured using a number of different manufacturing processes, including static casting and a lost-foam process. *Id*. Indeed, the specification of the '155 patent itself recognizes that there are "alternative production techniques" to centrifugal casting, such as "metal forming." '155 patent, 2:9-10.

Moreover, hollow poles manufactured via centrifugal casting are not inherently stronger, lighter, or otherwise structurally different from poles made to the same specification via other manufacturing processes. Oliver Declaration,

¶ 35. Although the '155 patent suggests that centrifugal casting produces "stronger" poles, the specification also admits that this improved strength is attributable to the "seamless" construction of the pole. '155 patent, 2:9-23. Such seamless construction, however, could also be achieved using other manufacturing methods and is a structural feature not inextricably tied to centrifugal casting. Oliver Declaration, ¶¶ 34-35. The recited centrifugal casting process does not impart any distinctive characteristics to the pole itself that could not be described in strictly structural terms. *Id*. at ¶¶ 33-36. In other words, Claims 1 and 9 could be easily rewritten without reference to a centrifugal casting process to define a structurally indistinguishable hollow pole product.[1]

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[1] Petitioner notes that method claims directed to a centrifugal casting process were subject to a restriction requirement during prosecution of the '155 patent and were withdrawn. Restriction Requirement dated Sept. 26, 2007, p. 2. The Patentee is currently pursuing such method claims in a divisional application, which—although the method claims stand rejected—is the proper means for pursuing protection of an allegedly novel method. *See* Prosecution History of U.S. Application No. 13/289,430 ("'430 Appl. History," **Exhibit 1005**), Final Office Action dated Oct. 22, 2013.

Accordingly, for the reasons discussed above, the hollow poles recited in Claims 1-9 are ***not*** products that "can only be defined by the process steps by which [they are] made" and the centrifugal casting process recited in the claims would ***not*** "be expected to impart distinctive structural characteristics" to the recited pole members aside from those features otherwise recited in the claims. *See* MPEP § 2113. Thus, as Claims 1-9 are product-by-process claims and do not fall within either of the recognized product-by-process exceptions, **Petitioner asserts that the recitations of "centrifugal casting" in independent Claims 1 and 9 should be construed as *not* limiting any of Claims 1-9.**

### B. Proposed Construction Of "A Plurality of Asymmetric Pimples Extending Away Therefrom" As Recited In Claim 1 And "A Plurality Of Pimples Extending Away Therefrom" As Recited in Claim 9

Independent Claim 1 also recites that its pole member includes "a plurality of asymmetric pimples extending away therefrom," while independent Claim 9 recites that its pole member comprises "an outer surface comprising a plurality of pimples extending away therefrom." In relation to the phrase "***plurality of [] pimples extending away therefrom***," the '155 patent's specification and prosecution history offer no definition of the term "pimples." Although the '155 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* '155 Patent, 6:10-13. 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 therefrom" in Claims 1 and 9 should be construed as requiring two or more pimples of any size extending away from the surface of the pole member**.

As noted above, Claim 1 includes an additional limitation that its "pimples extending away therefrom" are "***asymmetric***." Once again, the '155 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* Oliver Declaration, ¶¶ 38-39. Not only does the '155 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 '155 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 Examiner. Indeed, the asymmetry of the pimples is disclosed only in Fig. 6 (with no accompanying text), and it seems the asymmetry of the illustrated pimples was created as no more than a drafting convenience by the draftsperson 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 draftsperson used this as a shorthand rather than pimpling the entire surface. Further, the addition of "asymmetric" to Claim 1 appears likely to have been the result of the Patentee's attorney searching the specification's figures and to find any perceived difference over the prior art that could be claimed and argued to the Examiner and without any regard for the nonobviousness of the perceived difference.

Notwithstanding the absence of relevant information in the application, Petitioner turns to the prosecution history for guidance on the meaning of "asymmetric." During prosecution, 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" feature of Claim 1 (then 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* Oliver Declaration, ¶ 39. On this basis, the Patentee asserted that Cazaly's protuberances were not "asymmetric", and that somehow this made the asymmetric feature patentable. *Id*.[2]

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

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[2] In the Patentee's Appeal Brief of September 25, 2012—which led to the allowance the application—the Patentee argued independent Claims 1 and 9 together, emphasizing the asymmetric feature. And yet, Claim 9 does not include the "asymmetric" limitation of Claim 1—another fact that appears to have been overlooked entirely by the Examiner.

**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.

Accordingly, 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 1 should be construed as requiring 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.**

## 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 1-9 in the '155 patent should be held invalid under §§

102(a) and 103(a) in view of one or more prior art references. Petitioner will now explain in detail how the claims as construed above 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. CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH

Petitioner first asserts that Claim 1 is unpatentable over U.S. Patent No. 5,784,851 to Waugh, which issued on July 28, 1998, more than one year before the '155 patent's earliest effective filing date of July 19, 2006. Thus, although Waugh was filed by the inventor of the '155 patent, Waugh is prior art under § 102(b). As explained below, Petitioner asserts that independent Claim 1 is obvious in view of Waugh under § 103(a).

As discussed above and indicated in the claim chart below, independent Claim 1 is directed to "a centrifugally cast, hollow pole" comprised of three features:

- "an elongated, hollow, conically tapered pole member which is formed by centrifugal casting;"
- "so as to have a substantially uniform wall thickness throughout the long axis of said pole member," and
- "said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting."

These limitations are discussed in turn below, along with a detailed explanation of how Waugh expressly discloses or renders obvious each limitation.

### *i. Waugh discloses "an elongated, hollow, conically tapered pole member which is formed by centrifugal casting"*

Waugh expressly 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; Oliver Declaration, ¶¶ 41-42. In addition, Waugh's utility pole is clearly conically tapered. *Id*. at Figs. 1-2; 2:66 to 3:6; Oliver Declaration, ¶ 41. 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 (emphasis added). It is not surprising then that the figures in Waugh illustrate an elongate, hollow, conically tapered utility pole nearly identical to that shown in the '155 patent, as indicated on the following page in a comparison of each document's Figure 1. *Id*. at Fig. 1; *c.f.*, '155 patent, Fig. 1.

Although Petitioner asserts that Claim 1 should be construed as a product-by-process claim that is *not* limited by Claim 1's recitation of "which is formed by centrifugal casting," Waugh nevertheless expounds upon a centrifugal casting process for making its elongated, hollow, conically 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 1, Petitioner asserts that Waugh clearly discloses "an elongated, hollow, conically tapered pole member which is formed by centrifugal casting." *See* Oliver Declaration, ¶¶ 41-42.

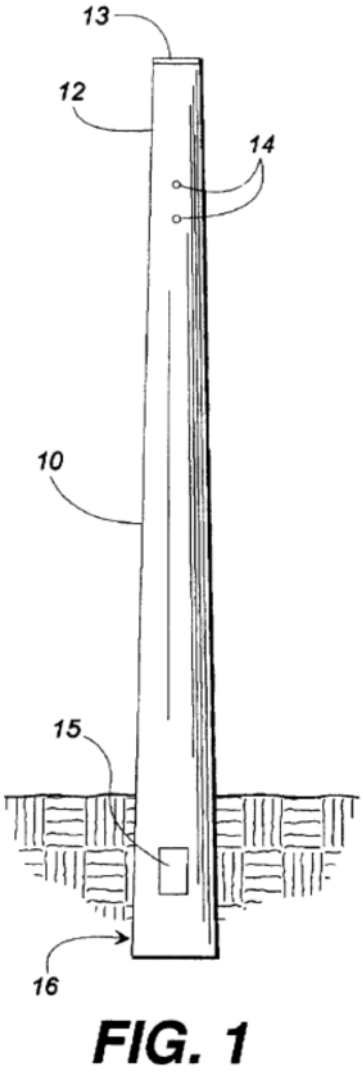



FIG. 1

***Figure 1 in Waugh***

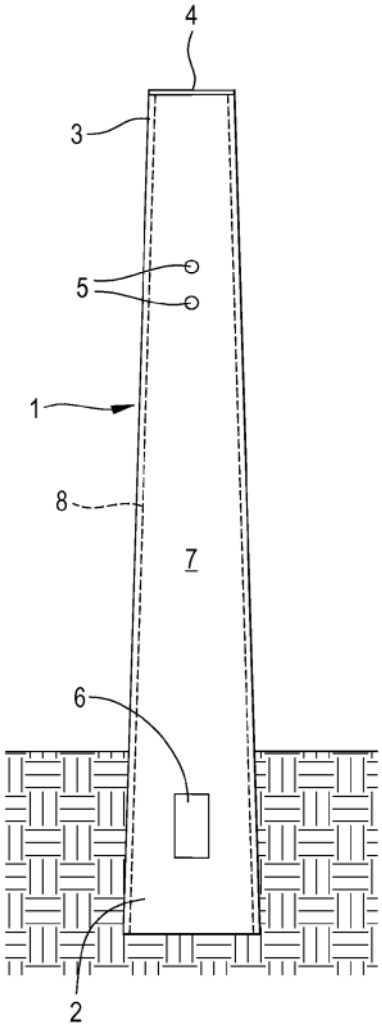



FIG. 1

***Figure 1 in the '155 patent***

### *ii. It would have been obvious based on Waugh alone to form Waugh's utility pole "so as to have a substantially uniform wall thickness throughout the long axis of said pole member"*

Waugh also discloses that its elongated, hollow, conically 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 3:21-24. In other words, 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, or "*uniform*," wall thicknesses. Thus, Waugh itself confirms that poles having a uniform wall thickness were known in the art. Oliver Declaration, ¶ 46.

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 throughout [its] long axis" would be an obviously viable alternative. Oliver Declaration, ¶¶ 43-53. At no point does Waugh suggest that a pole having a uniform wall thickness is unworkable or unuseable, only that its variable thickness pole can provide "greater cross sectional strength to the pole 10 in its bottom portion" in scenarios where such strength is

necessary. *See* Waugh, 3:21-24. 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. Moreover, the '155 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." '155 patent, 2:43-48.

A person of ordinary skill in the art would have had sufficient skill to specify a uniform *or* variable wall thickness for Waugh's utility pole depending on the design requirements of a particular pole. Oliver Declaration, ¶¶ 44-45. As confirmed by in the declaration of Mr. Gene Oliver, a person of ordinary skill in the art would have experience in the design and manufacture of hollow structural members, including experience with centrifugally casting hollow members, and would have an undergraduate engineering degree or equivalent industry experience. *Id*. at ¶¶ 14, 44. 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 ¶ 44.

The advantages of the variable wall thickness noted in Waugh relate to utility poles having particular strength or raw material requirements. *See* Waugh,

1:7-13 and 3:6-8; Oliver Declaration, ¶ 45. However, a person of ordinary skill would have recognized that Waugh's pole could be formed with a uniform wall thickness and adapted for other uses in which the attributes of a variable wall thickness are unnecessary (e.g., for a small flag pole or home light post) or insufficient (e.g., where uniformly high strength is needed along the entire length of the pole). Oliver Declaration, ¶ 45. Quite simply, a skilled artisan would have selected a uniform wall thickness for Waugh's centrifugally cast utility pole where the design requirements for a given pole product rendered it appropriate. *Id*. at 44-45. In fact, the '155 patent itself 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* '155 patent, Abstract, 3:8-13; Oliver Declaration, ¶¶ 43-53.

Although Petitioner asserts that Claim 1 should be construed as a product-by-process claim that is *not* limited by its recitation of "formed by centrifugal casting," Waugh also renders it obvious to produce *by centrifugal casting* an elongate, hollow, conically tapered pole member having a uniform wall thickness. Oliver Declaration, ¶¶ 47-53. Waugh discloses that centrifugal casting can be used to produce an elongate, hollow, conically 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. 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.

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; Oliver Declaration, ¶ 49. For example, if the casting material pour rate, spin speed of the mold, 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 the pole butt. Oliver Declaration, ¶ 49. 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. 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.

As such, a person of ordinary skill in the art would immediately recognize that the same method can be used to produce a uniform wall thickness pole. Oliver Declaration, ¶ 50. 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 top to the butt) would result in a pole having a uniform wall thickness. *Id*. at 47-53. 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. Gene Oliver, a person of ordinary skill would have found it obvious to adjust *numerous* centrifugal casting variables—e.g., molten material pour rate, mold spin speed, and mold travel speed—in order to control the wall thickness of a hollow, conically tapered pole member. *Id*. at 51-52. 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*.

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 alone that the elongated, hollow, conically tapered pole member of Waugh could be formed "so as to have a substantially uniform wall thickness throughout the long axis of [the] pole member."

### *iii. A person of ordinary skill in the art would have understood Waugh's centrifugally cast utility pole to have "a plurality of asymmetric pimples extending away therefrom"*

As noted above, Waugh discloses a centrifugal casting process for making its elongated, hollow, conically tapered pole member. In particular, 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 eventually cools into the shape of an elongated, hollow, conically tapered pole. *Id*.

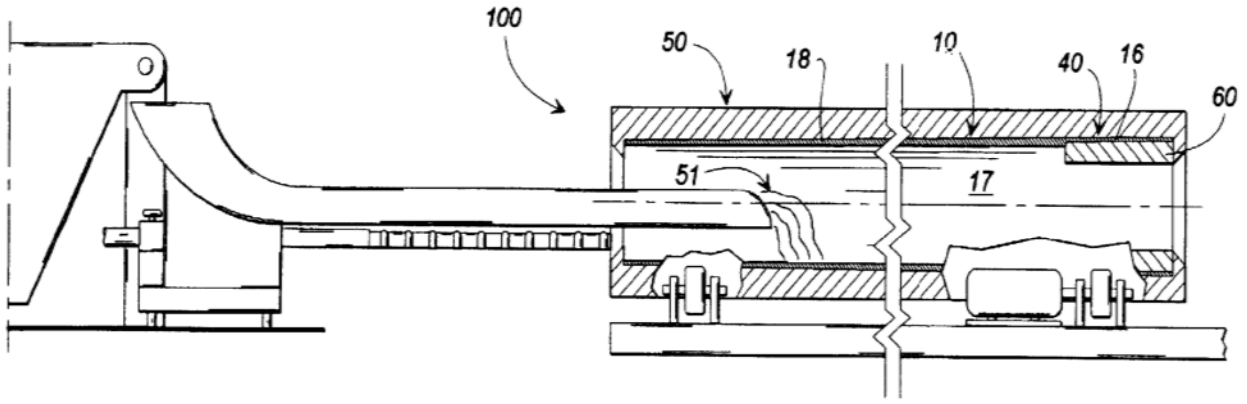



FIG. 4

***Figure 4 of Waugh***

As noted in the attached Oliver 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. Oliver Declaration, ¶ 55, 19-23. 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. Oliver Declaration, ¶¶ 55-58. 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 not be possible to centrifugally cast Waugh's utility pole using a chill-type mold (50) *without* a peened interior surface, and 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 ¶¶ 56-57.

Although these peened molds are described in detail in various prior art references herein, a person of ordinary skill would have immediately recognized

that the mold (50) disclosed in Waugh would have a peened inner surface and that any pole member made using the mold (50) would likewise include a plurality of asymmetric pimples extending away from the pole member. *Id*. at ¶¶ 54-58, 27-31. In other words, based on the centrifugal casting process disclosed for producing Waugh's utility pole, a person of ordinary skill would have found it obvious to impart a plurality of asymmetric pimples extending away from the surface of pole. *Id*.

Accordingly, Petitioner asserts that **Claim 1** is obvious under § 103(a) in view of Waugh alone. A detailed claim chart showing where each limitation of independent Claim 1 can be found in Waugh now follows.

| Claim 1 of the '155 Patent | Disclosure of Waugh |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | Waugh discloses a "hollow, centrifugally case, utility pole." Abstract. |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | 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." 4:27-31. Waugh's elongated, hollow utility pole is conically tapered and described at length as being formed by centrifugal casting. *See* Abstract, 2:66 to 3:31; Figs. 1-2 (hollow, conically tapered); *see also* 2:1-5, 3:3-31, and 3:49 to 4:18 (centrifugally cast). |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | Waugh implicitly discloses that utility poles may have a uniform wall thickness in its discussion of the advantages of variable wall thickness poles. *See* Abstract, 1:7-13, 2:43-48, 3:6-8, 3:21-24. Waugh discloses the wall thickness of its |

| | |
|---|---|
| | utility pole "can be varied to accommodate virtually any application and any strength requirement." Waugh, 2:6-9. *See also* 2:1-5; 3:3-31, 3:49 to 4:18; 4:13-17. |
| said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting. | Waugh discloses that its pole member "is formed utilizing conventional centrifugal casting methods;" specifically a tapered chill-type mold (50), which would impart a peened surface to the pole member comprising a plurality of asymmetric pimples extending away from the pole member. Waugh, 3:49 to 4:17, 4:45-63; Fig. 4. |

### B. CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH AND NOIROT

For the reasons discussed above, Petitioner asserts that Claim 1 is obvious in view of Waugh alone. However, Petitioner notes for the Board's consideration additional references providing an even clearer disclosure of a pole member having a "substantially uniform wall thickness throughout [its] long axis." In particular, Petitioner asserts that independent Claim 1 is obvious in view of the combination of Waugh and U.S. Patent No. 6,739,103 to Noirot ("Noirot," **Exhibit 1007**). Noirot issued on May 25, 2004, more than one year before the '155 patent's earliest effective filing date of July 19, 2006, and so it qualifies as prior art under § 102(b).

Noirot discloses an elongated, centrifugally cast, hollow column having "a substantially uniform wall thickness throughout [its] periphery and straight sides." Noirot, 1:47-49. Stated differently, Noirot's column clearly has "a substantially

uniform wall thickness throughout [its] long axis," as recited in Claim 1. Oliver Declaration, ¶ 60. Noirot suggests in particular that a hollow column having such a uniform wall thickness throughout its long axis is advantageous because it allows less casting material to be used to make a column with a given minimum desired wall thickness. *Id*. at 3:55-57. Noirot also discloses that its uniform-thickness hollow column can be used as an "architectural structure" or as a "vertical support member[]." *Id*. at 1:11-14.

Petitioner asserts that, because Waugh and Noirot both relate to centrifugally cast hollow structural members and both disclose that such hollow members can be adapted for use as vertically oriented support structures, a person of ordinary skill in the art would have been motivated to refer to each of their disclosures in combination. Oliver Declaration, ¶ 60. More particularly, a person of ordinary skill would have found it plainly obvious to modify the elongated, hollow, conically tapered pole member disclosed in Waugh to have "a substantially uniform wall thickness throughout [its] long axis" in view of Noirot. *Id*. at ¶¶ 59-63. As discussed above in relation to Waugh, a person of ordinary skill in the art would have been motivated to select a uniform wall thickness where the design requirements of a particular pole member render the enhanced bottom-portion strength provided by the variable wall thickness embodiment of Waugh unnecessary or insufficient. *Supra*, pp. 24-25. Given Noirot's express disclosure

of a uniform wall thickness and its suitability in a centrifugally cast, vertically-oriented support structure, this selection would have been even more clearly obvious. *See* Noirot, 1:11-14, 47-49; Oliver Declaration, ¶¶ 59-63.

Notably, ***this position has already been affirmed by the Board's predecessor body, the BPAI***. During prosecution of the application leading to the '155 patent, the Patentee appealed rejections of the pending claims, which included the "substantially uniform wall thickness" language of Claim 1. *See* '155 History: Office Action dated Nov. 14, 2008 and Appeal Brief dated April 27, 2009. In the Examiner's Answer to the Patentee's Appeal Brief, the Examiner reiterated his position that "[i]t would have been obvious to one of ordinary skill in the art to modify the Waugh centrifugally cast hollow pole so as to include the claimed uniform wall thickness as taught by Noirot, since both relate to the technology of centrifugally casting a hollow pole and since such would have facilitated the user's formation of a pole with a uniform wall thickness." *Id*. at Examiner's Answer dated July 8, 2009, pp. 3-4. Affirming each of the Examiner's rejections, the BPAI held that "**Noirot's straight sides 3 have a substantially uniform wall thickness throughout the entire side including 'throughout the long axis' thereof."** BPAI Decision on Appeal dated Oct. 12, 2011, pp. 2-3 (citations omitted, emphasis added); *see also* Final Office Action dated April 6, 2012, pp. 2-3 (conically tapered pole member having uniform wall thickness disclosed by Waugh and Noirot).

Petitioner agrees with the BPAI's characterization of Noirot and submits that, in light of this intrinsic evidence, it would be improper for the Board to now adopt a position contrary to that of its predecessor in relation to the "substantially uniform wall thickness" limitation of Claim 1. *See Tempo Lighting*, 742 F.3d at 977-78. Moreover, although Petitioner asserts that Claim 1 is a product-by-process claim, Noirot clearly discloses that its uniform thickness pole is formed *by centrifugal casting*. Noirot, Abstract, 2:39-4:29; Oliver Declaration, ¶ 62. Thus, it would have been obvious in view of Noirot to form Waugh's pole with a uniform wall thickness by centrifugal casting.

Accordingly, for the reasons discussed above, Petitioner asserts that **Claim 1** is obvious under § 103(a) in view of Waugh and Noirot. A detailed claim chart showing where each limitation of independent Claim 1 can be found in Waugh and Noirot now follows.

| Claim 1 of the '155 Patent | Disclosure of Waugh & Noirot |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | *See disclosure of Waugh identified above. Supra, pp. 30-31.*<br><br>Noirot discloses an elongated, centrifugally cast, hollow column having "a substantially uniform wall thickness throughout [its] periphery and straight |

| | |
|---|---|
| | sides." Noirot, 1:47-49; 2:39-4:29. Noirot also discloses that its uniform-thickness hollow column can be used as an "architectural structure" or as a "vertical support member[]." *Id*. at 1:11-14. *See also* 3:55-57. |
| said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting. | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |

### C. CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, NOIROT, AND MCCOMBS

Should the Board consider the combined disclosure of Waugh and Noirot lacking in regard to Claim 1's recitation of "a substantially uniform wall thickness throughout the long axis of said pole member," Petitioner asserts that Claim 1 is nevertheless obvious under §103(a) in view of Waugh, Noirot, and U.S. Patent No. 5,175,971 to McCombs ("McCombs," **Exhibit 1008**). McCombs issued on January 5, 2003, more than one year before the '155 patent's earliest effective filing date of July 19, 2006, and so it qualifies as prior art under § 102(b).

As discussed above, Petitioner asserts that it would have been obvious to a person of ordinary skill to modify Waugh's elongated, hollow, conically tapered pole member to have "a substantially uniform wall thickness throughout [its] long axis" in view of Waugh alone or in view of Noirot's express disclosure of a uniform wall thickness column. McCombs, however, specifically teaches that *utility poles* can be structurally supported by walls of a uniform thickness *or* a

variable thickness depending on the design requirements for a given pole. *See* McCombs, 5:64 to 6:16; Oliver Declaration, ¶¶ 64-68.

McCombs generally discloses a utility power pole (10) comprised of a hollow primary pole (20) and a hollow liner (30) inserted into (or around) the primary pole (20) to adjust the overall load bearing capability of the power pole. *Id*. at Abstract, 3:55 to 4:3, and 5:51-63. McCombs discloses that "the liner 30 is of *uniform wall thickness and extends the entire length of the primary pole 20*," or—alternatively—"the wall thickness of the liner 30 can be thicker toward the bottom of the primary pole 20 and thinner toward the top of the primary pole 20 so that the . . . utility power pole . . . has more resistance to tipping or bending toward its bottom." *Id*. at 5:64 to 6:3. McCombs also notes that "the primary pole may be used singly," or that "[a]ny combination of inner liners and outer liners can be used to effect the desired strength and bending resistance of the primary pole 20." *Id*. at 3:55-54 and 6:14-16

In sum, McCombs discloses that the effective wall thickness of a utility pole can be adjusted in any number of ways—including by providing a uniform wall thickness—in order to provide different strength and bending resistance characteristics. Oliver Declaration, ¶ 67. Because McCombs relates to a hollow utility pole, a person of ordinary skill would have been motivated to refer to its disclosure in combination with that of Waugh and Noirot. *Id*. at ¶ 66. A person of

ordinary skill would have found it obvious to modify Waugh's elongated, hollow, conically tapered pole member to have a substantially uniform wall thickness throughout its long axis in view of Noirot's disclosure of a centrifugally-cast, uniform wall thickness pole and McCombs disclosure that a uniform wall thickness may be selected as an alternative to a variable wall thickness based on design requirements for a utility pole. *Id*. at ¶¶ 67-68.

Accordingly, Petitioner asserts that **Claim 1** is obvious under § 103(a) in view of Waugh, Noirot, and McCombs. A detailed claim chart showing where each limitation of independent Claim 1 can be found in Waugh, Noirot, and McCombs now follows.

| **Claim 1 of the '155 Patent** | **Disclosure of Waugh, Noirot, and McCombs** |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | *See disclosure of Waugh and Noirot identified above. Supra, pp. 30-31, 34-35.*<br><br>McCombs discloses that utility poles can be structurally supported by walls of a uniform thickness or a variable thickness depending on the design requirements for a given pole. *See* McCombs, 5:64 to 6:16. McCombs particularly discloses a utility power pole (10) comprised of a hollow primary pole (20) and a hollow, tapered liner (30), which is of *uniform wall* |

| | |
|---|---|
| | *thickness and extends the entire length of the primary pole 20*," or—alternatively—"can be thicker toward the bottom of the primary pole 20 and thinner toward the top of the primary pole 20." *Id*. at Abstract, 3:55 to 4:3, and 5:51-63; 5:64 to 6:16. |
| said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting. | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |

### D. CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH AND LUDWIG; CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, NOIROT, AND LUDWIG; AND CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, NOIROT, MCCOMBS, AND LUDWIG

As explained above, Petitioner asserts that Claim 1 is obvious in view of Waugh alone. However, Petitioner notes for the Board's consideration additional references providing an even clearer disclosure of a pole member comprising "a plurality of asymmetric pimples extending away therefrom," as recited in Claim 1. In particular, Petitioner asserts that independent Claim 1 is obvious in view of the combination of Waugh and U.S. Patent No. 2,577,423 to Ludwig et al. ("Ludwig," **Exhibit 1009**). Ludwig issued on Dec. 4, 1951, well over one year before the '155 patent's earliest effective filing date of July 19, 2006, and so it qualifies as prior art under § 102(b). Notably, Ludwig was ***not*** before the Examiner during prosecution of the '155 patent.

Ludwig's disclosure 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 peaning 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 '155 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 pimpled exterior surface." '155 patent, 3:48-55 (emphases added); Oliver Declaration, ¶ 70.

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):

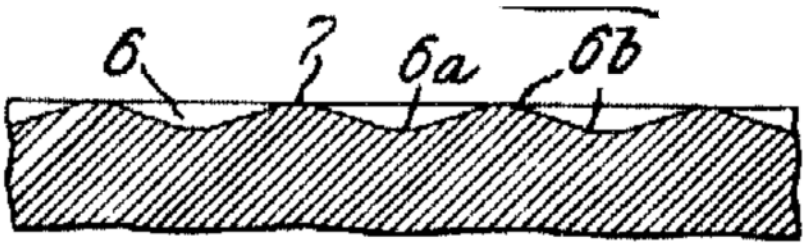



Fig. 5.

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. Oliver Declaration, ¶¶ 70-72.

As both Ludwig and Waugh generally relate to centrifugal casting of elongated, hollow, ductile 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 id*. at ¶¶ 73-74. In particular, Petitioner asserts that any person of ordinary skill interested in producing a tapered, ductile iron utility pole would have been clearly motivated to refer to disclosures in the field of ductile iron pipes. *Id*.

First, both ductile iron pipes and ductile iron poles can be used as hollow structural members. As an example, a person of ordinary skill would have known that ductile 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, the '155 patent itself recognizes the analogous qualities of iron pipes. *See* '155 patent, 2:2-8 ("many 100+ year old ductile iron water mains are still in use").

Indeed, there is no feature of Claim 1 that would be unique to a centrifugally cast "pole" as opposed to a "pipe." Oliver Declaration, *Id*. at 73-74. In the context of the '155 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 ductile iron pipe—such as Ludwig—in combination with Waugh. *Id*.

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 would be peened and thereby impart the pronounced peen patterns disclosed in Ludwig to the surface of Waugh's pole member. *See* Waugh, 3:49 to 4:17; *see also* Oliver Declaration, ¶¶ 75-76. 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; Oliver Declaration, ¶¶ 75-76. 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 Waugh's tapered pole in view of Ludwig. Oliver Declaration, ¶¶ 75-76.

Accordingly, for these reasons and those discussed above in relation to the Waugh, Noirot, and McCombs references, Petitioner asserts that **Claim 1** is obvious under § 103(a) in view of Waugh and Ludwig; **Claim 1** is obvious under §103(a) in view of Waugh, Noirot, and Ludwig; and **Claim 1** is obvious under §103(a) in view of Waugh, Noirot, McCombs, and Ludwig. A detailed claim chart showing where each limitation of independent Claim 1 can be found in Waugh, Noirot, McCombs, and Ludwig now follows.

| **Claim 1 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, and Ludwig** |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | *See disclosure of Waugh, Noirot, and McCombs identified above. Supra, pp. 30-31, 34-35, 37-38.* |

| | |
|---|---|
| said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting. | *See disclosure of Waugh identified above. Supra, pp. 30-31.*<br><br>Ludwig discloses centrifugally casting hollow, ductile 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. *See* Ludwig, 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. *Id*. at 3:40-74. |

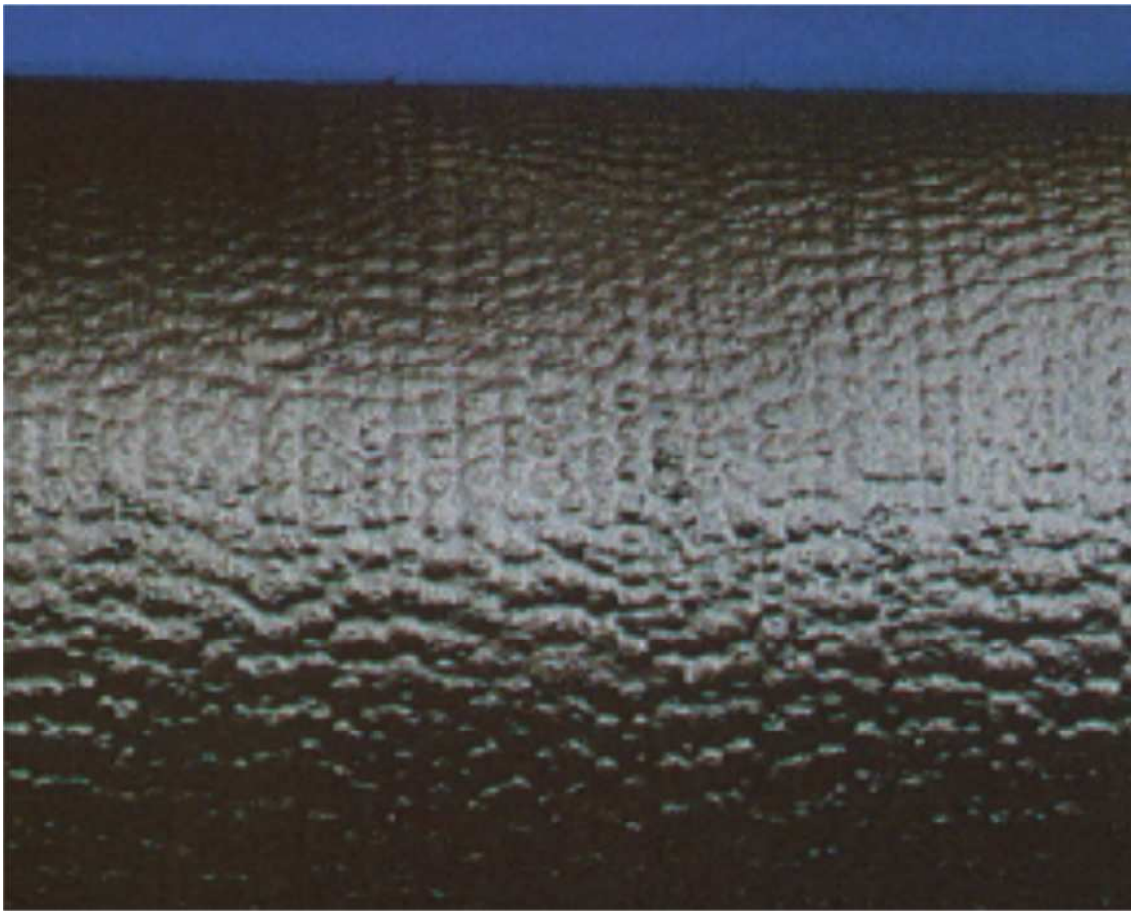
### E. CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, LUDWIG, AND DIPRA; CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, NOIROT, LUDWIG, AND DIPRA; AND CLAIM 1 IS OBVIOUS UNDER §103(A) IN VIEW OF WAUGH, NOIROT, MCCOMBS, LUDWIG, AND DIPRA

Although Petitioner asserts that a person of ordinary skill in the art would have found it obvious—and indeed a necessary consequence—to impart "a plurality of asymmetric pimples extending away" from Waugh's tapered pole in view of the peen pattern provided by the mold of Ludwig, Petitioner notes that Ludwig does not provide a specific illustration of asymmetric pimples on the pole/pipe surface itself. Accordingly, Petitioner also notes the disclosure of "Ductile Iron Pipe Versus PVC," published by the Ductile Iron Pipe Research Association ("DIPRA," **Exhibit 1010**). DIPRA was published in March of 1999, more than one year before the '155 patent's earliest effective filing date of July 19, 2006, and so it is prior art under § 102(b).

DIPRA discloses various cast ductile iron pipes having pronounced peen patterns on their surface. DIPRA, pp. 12-13, 17; Oliver Declaration, ¶ 79. As can be appreciated from the DIPRA images provided below, the peen pattern on the surface of the ductile iron pipes clearly comprises "a plurality of asymmetric pimples extending away" from the surface of the pipe, as recited in Claim 1. *See id*.; Oliver Declaration, ¶ 79. Indeed, the pimples shown in the DIPRA images clearly extend away from the surface of the pipe and are asymmetric in at least location and size. Oliver Declaration, ¶ 79. As confirmed by the declaration of Mr. Oliver, a person of ordinary skill would readily appreciated that the pimples on the surfaces of the pipes illustrated in DIPRA result from the conventional peen pattern used on conventional centrifugal casting molds. Oliver Declaration, ¶¶ 77-81.

As DIPRA, Ludwig, and Waugh each relate to elongated, hollow, ductile iron products, a person of ordinary skill in the art would have been motivated to consider the disclosure of DIPRA in combination with Ludwig and Waugh. *See* Oliver Declaration, ¶ 80. As noted above, 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 would have a peened interior and would impart a peen pattern to the surface of Waugh's pole member (as confirmed by Ludwig). *See* Waugh, 3:49 to

4:17; Ludwig, 1:1-4, 2:18-3:12; 3:39-74; 4:38-64; 5:25-32; Figs. 2-6; *see also* Oliver Declaration, 54-58, 69-76. Further, in view of DIPRA's disclosure that the peen pattern imparted to the surface of centrifugally cast hollow structural members comprises a plurality of asymmetric pimples extending away from the member's surface, a person of ordinary skill in the art would have recognized that Waugh's utility pole itself would include a surface peen pattern comprising "a plurality of asymmetric pimples extending away" from the cast product (as disclosed in Ludwig and DIPRA). Oliver Declaration, ¶¶ 77-81.



***Ductile Iron Pipe–DIPRA, p. 12***

***Photograph of Ductile Iron Pipe – DIPRA, p. 17***

Accordingly, for these reasons and those discussed above in relation to the Waugh, Noirot, McCombs, and Ludwig references, Petitioner asserts that **Claim 1** is obvious under § 103(a) in view of Waugh, Ludwig, and DIPRA; **Claim 1** is obvious under §103(a) in view of Waugh, Noirot, Ludwig, and DIPRA; and **Claim 1** is obvious under §103(a) in view of Waugh, Noirot, McCombs, Ludwig, and

DIPRA. A detailed claim chart showing where each limitation of independent Claim 1 can be found in Waugh, Noirot, McCombs, Ludwig, and DIPRA now follows.

| Claim 1 of the '155 Patent | Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | *See disclosure of Waugh identified above. Supra, pp. 30-31.* |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | *See disclosure of Waugh, Noirot, and McCombs identified above. Supra, pp. 30-31, 34-35, 37-38.* |
| said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting. | *See disclosure of Waugh and Ludwig identified above. Supra, pp. 30-31, 42-43.*<br><br>DIPRA discloses various cast ductile iron pipes having pronounced surface peen patterns comprising a plurality of asymmetric pimples extending away from the surface of the pipe. *See* DIPRA, p. 12-13, 17 (photographs) |

### F. CLAIMS 2-8 ARE OBVIOUS UNDER §103(A)

Dependent Claims 2-8 each depend—either directly or indirectly—from independent Claim 1. As indicated in the detailed claim chart provided below, the limitations recited in Claims 2-8 are clearly disclosed in Waugh and, in many cases, are disclosed *verbatim*. Oliver Declaration, ¶ 82.

Accordingly, for these reasons and those discussed above in relation to Claim 1, Petitioner asserts that each of **Claims 2-8** is obvious under § 103(a) in

view of Waugh; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh and Noirot; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh, Noirot, and McCombs; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh and Ludwig; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh, Noirot, and Ludwig; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh, Noirot, McCombs, and Ludwig; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh, Ludwig, and DIPRA; each of **Claims 2-8** is obvious under § 103(a) in view of Waugh, Noirot, Ludwig, and DIPRA; and each of **Claims 2-8** is obvious under § 103(a) in view of Waugh, Noirot, McCombs, Ludwig, and DIPRA. A detailed claim chart showing where each limitation in Claims 2-8 can be found in Waugh, Noirot, McCombs, Ludwig, and DIPRA now follows.

| **Claim 2 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA** |
|---|---|
| 2. The apparatus of claim 1, | *See generally disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified above. Supra, pp. 1-47.* |
| said pole member having a variable outside cross-sectional dimension that varies perpendicularly to said pole member's long axis. | Waugh discloses that its utility pole has a "variable outside cross-sectional dimensions . . . [that] vary perpendicularly to the member's long axis." Claim 1; *see also* Figs. 1-2, col. 2, ll. 1-5. |
| **Claim 3 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA** |
| 3. The apparatus of claim 1, | *See generally disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified above. Supra, pp. 1-47.* |

| | |
|---|---|
| said pole member having a first end and a second end, | Waugh's pole member includes a first end proximate its end cap (13) and a second end proximate its flange (20). Figs. 1-2, col. 3, ll. 9-36. |
| said first end having an end cap. | Waugh discloses that one end of its pole member "further comprises an end cap." Claim 2; *see also* Figs. 1-2, col. 3, ll. 9-11. |
| **Claim 4 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA** |
| 4. The apparatus of claim 1, | *See generally disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified above. Supra, pp. 1-47.* |
| said pole member having a first end and a second end, | Waugh's pole member includes a first end proximate its end cap (13) and a second end proximate its flange (20). Figs. 1-2, col. 3, ll. 9-36. |
| said second end being flanged. | Waugh discloses that a second end of its pole member includes a flange (20). Claim 3; *see also* Fig. 2, col. 3, ll. 32-36. |
| **Claim 5 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA** |
| 5. The apparatus of claim 1, | *See generally disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified above. Supra, pp. 1-47.* |
| said pole member having a first end and a second end, | Waugh's pole member includes a first end and a second end. Figs. 1-2, col. 3, ll. 9-36. |
| 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. | 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; col. 3, ll. 37-49. |

| Claim 6 of the '155 Patent | Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA |
|---|---|
| 6. The apparatus of claim 1, | *See generally disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified above. Supra, pp. 1-47.* |
| wherein the apparatus is manufactured from a castable material. | Waugh discloses that its pole member is centrifugally cast from a castable material, such as ductile iron. Col. 2, ll. 17-35. |
| **Claim 7 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA** |
| 7. The apparatus of claim 6, | *See disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified immediately above.* |
| said castable material is selected from the group comprised of ductile iron, cast iron, steel or aluminum. | Waugh specifically discloses that its pole member may be cast from ductile iron. Col. 2, ll. 17-35; Claim 1. |
| **Claim 8 of the '155 Patent** | **Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA** |
| 8. The apparatus of claim 1, | *See generally disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA identified above. Supra, pp. 1-47.* |
| said pole member including a panel to allow access to the hollow interior of said pole member. | Waugh discloses "an access panel 15. Said panel 15 is located near the bottom of the pole 10 and provides access to the hollow interior or core 17 of the pole 10 in situations where internal hardware such as cables or wires have been installed within said hollow core 17." Fig. 1; col. |

### G. CLAIM 9 IS OBVIOUS UNDER §103(A)

As reflected in the claim chart below, independent Claim 9 includes each of the limitations recited in independent Claim 1, with the exception that it requires "a plurality of pimples extending away [from said pole member]," as opposed to Claim 1's recitation of "a plurality of *asymmetric* pimples extending away [from said pole member.]" Accordingly, for the detailed reasons presented above in

relation to Claim 1, Petitioner asserts that **Claim 9** is obvious under § 103(a) in view of Waugh; **Claim 9** is obvious under § 103(a) in view of Waugh and Noirot; **Claim 9** is obvious under § 103(a) in view of Waugh, Noirot, and McCombs; **Claim 9** is obvious under § 103(a) in view of Waugh and Ludwig; **Claim 9** is obvious under § 103(a) in view of Waugh, Noirot, and Ludwig; **Claim 9** is obvious under § 103(a) in view of Waugh, Noirot, McCombs, and Ludwig; **Claim 9** is obvious under § 103(a) in view of Waugh, Ludwig, and DIPRA; **Claim 9** is obvious under § 103(a) in view of Waugh, Noirot, Ludwig, and DIPRA; and **Claim 9** is obvious under § 103(a) in view of Waugh, Noirot, McCombs, Ludwig, and DIPRA. *See* Oliver Declaration, ¶¶ 83-84.

A detailed claim chart showing where each limitation in Claim 9 can be found in Waugh, Noirot, McCombs, Ludwig, and DIPRA now follows.

| Claim 9 of the '155 Patent | Disclosure of Waugh, Noirot, McCombs, Ludwig, and DIPRA |
|---|---|
| 9. A centrifugally cast, hollow pole comprising: | Waugh discloses a "hollow, centrifugally case, utility pole." Abstract. |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | 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." 4:27-31. Waugh's elongated, hollow utility pole is conically tapered and described at length as being formed by centrifugal casting. *See* Abstract, 2:66 to 3:31; Figs. 1-2 (hollow, conically tapered); *see also* 2:1-5, 3:3-31, and 3:49 to 4:18 (centrifugally cast). |

| | |
|---|---|
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | Waugh implicitly discloses that utility poles may have a uniform wall thickness in its discussion of the advantages of variable wall thickness poles. *See* Abstract, 1:7-13, 3:6-8, 3:21-24. Waugh discloses the wall thickness of its utility pole "can be varied to accommodate virtually any application and any strength requirement," which a person of ordinary skill would understand includes uniform wall thicknesses. Waugh, 2:6-9.<br><br>Noirot discloses an elongated, centrifugally cast, hollow column having "a substantially uniform wall thickness throughout [its] periphery and straight sides." Noirot, 1:47-49. Noirot also discloses that its uniform-thickness hollow column can be used as an "architectural structure" or as a "vertical support member[]." *Id*. at 1:11-14.<br><br>McCombs discloses that utility poles can be structurally supported by walls of a uniform thickness or a variable thickness depending on the design requirements for a given pole. *See* McCombs, 5:64 to 6:16. McCombs particularly discloses a utility power pole (10) comprised of a hollow primary pole (20) and a hollow, tapered liner (30), which is of *uniform wall thickness and extends the entire length of the primary pole 20*," or—alternatively—"can be thicker toward the bottom of the primary pole 20 and thinner toward the top of the primary pole 20." *Id*. at Abstract, 3:55 to 4:3, and 5:51-63; 5:64 to 6:3. |
| said pole member comprising an outer surface comprising a plurality of pimples extending away therefrom, said plurality of | Waugh discloses that its pole member "is formed utilizing conventional centrifugal casting methods;" specifically a tapered chill-type mold (50), which would impart a |

| | |
|---|---|
| pimples are formed during the centrifugal casting of said member. | peened surface to the pole member comprising a plurality of asymmetric pimples extending away from the pole member. Waugh, 3:49 to 4:17, 4:45-63; Fig. 4.<br><br>Ludwig discloses centrifugally casting hollow, ductile 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. *See* Ludwig, 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. *Id*. at 3:40-63.<br><br>DIPRA discloses various cast ductile iron pipes having pronounced surface peen patterns comprising a plurality of asymmetric pimples extending away from the surface of the pipe. *See* DIPRA, p. 12-13, 17 (photographs) |

### H. CLAIMS 1-3, 5-7, AND 9 ARE ANTICIPATED UNDER § 102(A) BY SEAMLESS POLE WEBPAGE

Petitioner also asserts that each of Claims 1-3, 5-7, and 9 are anticipated under § 102(a) by a series of web-page entries entitled "Frequently Asked Questions" dated from March 1-6, 2006 and available at www.seamlesspole.com/Seamless_Pole_Inc./Frequently_Asked_Questions/Frequently_Asked_Questions.html (collectively "Seamless Pole Webpage," **Exhibit 1011**). The dates printed in the Seamless Pole Webpage indicate that various entries were published between

March 1 and March 6 of 2006, prior to the '155 patent's earliest effective filing date of July 19, 2006. *See* MPEP 2128 ("Prior art disclosures on the Internet or on an on-line database are considered to be publicly available as of the date the item was publicly posted").[3] In addition, the Seamless Pole Webpage was published by Seamless Pole Inc., which qualifies as being published "by another" under § 102(a) as **(i)** Seamless Pole Inc. is not the same entity as the sole inventor of the '155 patent—Mr. Tom W. Waugh—and **(ii)** the Seamless Pole Webpage does not state that it is describing Mr. Waugh's work. *See* MPEP 2132.01 ("A *prima facie* case is made out under 35 U.S.C. 102(a) if, within 1 year of the filing date, the invention, or an obvious variant thereof, is described in a "printed publication" whose authorship differs in any way from the inventive entity unless it is stated within the publication itself that the publication is describing the applicant's work.") (citing *In re Katz*, 687 F.2d 450, 215 USPQ 14 (CCPA 1982)).

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[3] Petitioner notes that **Exhibit 1011** provides a copy of the referenced webpage obtained on January 10, 2014. Petitioner asserts that any and all entries in **Exhibit 1011** dated prior to July 19, 2006 (the '155 patent's earliest effective filing date) constitute prior art under § 102(a). As used herein, "Seamless Pole Webpage" refers <u>only</u> to those webpage entries in **Exhibit 1011** dated prior to July 19, 2006.

As indicated in the detailed claim chart below, the Seamless Pole Webpage discloses each of the limitations of Claims 1-3, 5-7, and 9. For example, the Seamless Pole Webpage discloses an elongated, hollow, centrifugally cast, ductile iron pole that is "round and uniformly tapered over [its] entire length." Seamless Pole Webpage, 4-5 and 8. In other words, the pole is an elongated, hollow, conically tapered pole member. Additionally, the Seamless Pole Webpage notes that its cast pole has a uniform wall thickness of 0.22 inches. *Id*. at 7.

The Seamless Pole Webpage also discloses that the surface of its pole includes "an engineered surface that causes microturbulences across the surface of the pole," thereby providing the pole with a lower drag for the same reasons "a dimpled golf ball goes twice as far as a smooth golf ball." *Id*. at 3. In particular, the image below shows the surface of the pole, in which a plurality of asymmetric pimples extending away from the pole surface are visible. *Id*. As shown below, the pimples are clearly protuberances extending away from the pole surface are asymmetric (at least) with respect to their locations on the pole surface. *Id*.

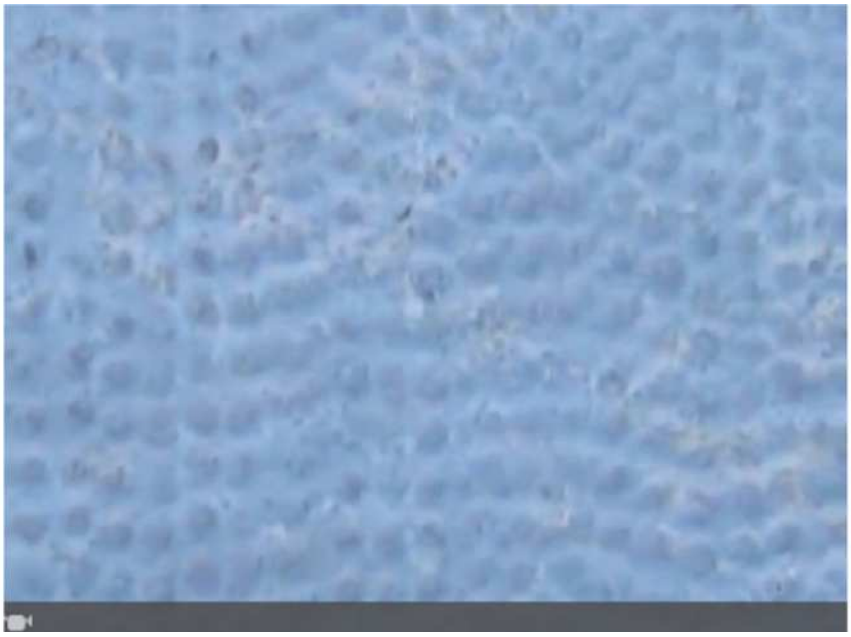
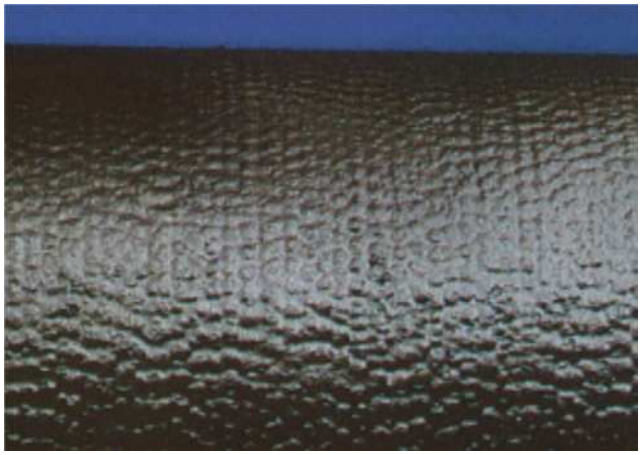
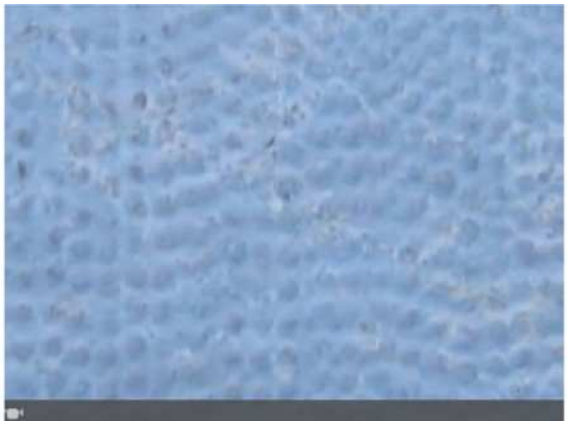


***Image of Pimpled Pole Surface - Seamless Pole Webpage, p. 3***

Additionally, Petitioner notes that the "engineered surface" of the pole shown in the Seamless Pole Webpage is nearly identical to the peen pattern on the surface of the pipes shown in DIPRA. *See* DIPRA, p. 12; *c.f.*, Seamless Pole Webpage, p. 3.



***DIPRA, p. 12***



***Seamless Pole Webpage, p. 3***

For the foregoing reasons and those presented in the claim chart below, Petitioner asserts that each of **Claims 1-3, 5-7, and 9** are anticipated § 102(a) by Seamless Pole Webpage. A detailed claim chart showing where each limitation of Claims 1-3, 5-7, and 9 can be found in the Seamless Pole Webpage now follows.

| Claim 1 of the '155 Patent | Disclosure of Seamless Pole Webpage |
|---|---|
| 1. A centrifugally cast, hollow pole comprising: | Seamless Pole Webpage discloses a pole that is "centrifugally cast" and hollow. pp. 5, 7 (image showing a hollow pole and disclosure of "wall thickness" for a hollow construction). |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | Seamless Pole Webpage discloses that its pole is cast in 20.6 ft sections with a tip diameter of 6 inches (i.e., elongated). pp. 2, 8. Seamless Pole Webpage also discloses that its pole is hollow and is conically tapered. pp. 2, 5, 7, 8 (pole is round and "continuous[ly]" and "uniformly tapered over [its] entire length"). Seamless Pole Webpage also discloses that its pole is "centrifugally cast." p. 5. |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | Seamless Pole Webpage discloses that its pole has a uniform wall thickness of 0.22" throughout its long axis. *See* p. 7. |
| said pole member comprising a plurality of asymmetric pimples extending away therefrom, that is formed by centrifugal casting. | Seamless Pole Webpage discloses that its pole has "an engineered surface that causes micro turbulences across the surface of the pole" and discloses an image of the pole surface showing asymmetrical pimples extending away from its pole. p. 3. |
| **Claim 2 of the '155 Patent** | **Disclosure of Seamless Pole Webpage** |
| 2. The apparatus of claim 1, | Seamless Pole Webpage discloses the features of Claim 1 as indicated above. |
| said pole member having a variable | Seamless Pole Webpage discloses that its |

| | |
|---|---|
| outside cross-sectional dimension that varies perpendicularly to said pole member's long axis. | pole is uniformly tapered such that it necessarily has a variable outside cross-sectional dimension that varies perpendicularly to its pole's long axis. pp. 2, 7, 8. |
| **Claim 3 of the '155 Patent** | **Disclosure of Seamless Pole** |
| 3. The apparatus of claim 1, | Seamless Pole Webpage discloses the features of Claim 1 as indicated above. |
| said pole member having a first end and a second end, | Seamless Pole Webpage discloses that its pole member has a first end (e.g., at the wide end of the tapered pole) and a second end (e.g., at the narrow end of the tapered pole). pp. 2, 7, 8. |
| said first end having an end cap. | Seamless Pole Webpage discloses that its pole member includes a "pole cap" which can be fitted to the first end of the pole. p. 7 |
| **Claim 5 of the '155 Patent** | **Disclosure of Seamless Pole Webpage** |
| 5. The apparatus of claim 1, | Seamless Pole Webpage discloses the features of Claim 1 as indicated above. |
| said pole member having a first end and a second end, | Seamless Pole Webpage discloses that its pole member has a first end (e.g., at the wide end of the tapered pole) and a second end (e.g., at the narrow end of the tapered pole). pp. 2, 7, 8. |
| 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. | Seamless Pole Webpage discloses that its pole member includes a "a press fit tapered joint" for receiving the second end of another pole member and providing "an exact and proper joint fit" (i.e., a slip joint for slidably receiving a second end of another pole member). pp. 2, 8. |
| **Claim 6 of the '155 Patent** | **Disclosure of Seamless Pole Webpage** |
| 6. The apparatus of claim 1, | Seamless Pole Webpage discloses the features of Claim 1 as indicated above. |
| wherein the apparatus is manufactured from a castable material. | Seamless Pole Webpage discloses that its pole is cast from ductile iron (i.e., a castable material). pp. 4-6. |

| Claim 7 of the '155 Patent | Disclosure of Seamless Pole Webpage |
|---|---|
| 7. The apparatus of claim 6, | Seamless Pole Webpage discloses the features of Claim 1 as indicated above. |
| said castable material is selected from the group comprised of ductile iron, cast iron, steel or aluminum. | Seamless Pole Webpage discloses that its pole is cast from ductile iron (i.e., a castable material). pp. 4-6. |
| **Claim 9 of the '155 Patent** | **Disclosure of Seamless Pole Webpage** |
| 9. A centrifugally cast, hollow pole comprising: | Seamless Pole Webpage discloses a pole that is "centrifugally cast" and hollow. pp. 5, 7 (image showing a hollow pole and disclosure of "wall thickness" for a hollow construction). |
| an elongated, hollow, conically tapered pole member which is formed by centrifugal casting | Seamless Pole Webpage discloses that its pole is cast in 20.6 ft sections with a tip diameter of 6 inches (i.e., elongated). pp. 2, 8. Seamless Pole Webpage also discloses that its pole is hollow and is conically tapered. pp. 2, 5, 7, 8 (pole is round and "continuous[ly]" and "uniformly tapered over [its] entire length"). Seamless Pole Webpage also discloses that its pole is "centrifugally cast." p. 5. |
| so as to have a substantially uniform wall thickness throughout the long axis of said pole member, | Seamless Pole Webpage discloses that its pole has a uniform wall thickness of 0.22" throughout its long axis. *See* p. 7. |
| said pole member comprising an outer surface comprising a plurality of pimples extending away therefrom, said plurality of pimples are formed during the centrifugal casting of said member. | Seamless Pole Webpage discloses that its pole has "an engineered surface that causes micro turbulences across the surface of the pole" and discloses an image of the pole surface showing pimples extending away from its pole. p. 3. |

## X. CONCLUSION

For the foregoing reasons, *inter partes* review of Claims 1-9 of the '155 patent is respectfully requested.

Respectfully Submitted,

May 16, 2014

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*Inter Partes* Review of U.S. Patent No. 8,567,155

**Certificate of Service**

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

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Dated: May 16, 2014

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