

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

VIKING DRILL & TOOL, INC.

Petitioner

v.

HONGJIA WANG

Patent Owner

IPR2023-00474

U.S. Patent No. 11,007,583

PATENT OWNER'S AMENDED SUR-REPLY

Viking Drill & Tool's Petition Filing Date: January 17, 2023

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I. INTRODUCTION

Viking's Reply ignores the real difference between the elements of the challenged claims of the '583 Patent, on the one hand, and the drill configurations disclosed in Zhou and Welty, elevating superficial appearances in the Figures over the actual disclosures in these two patents.

Zhou discloses a drill bit configuration in which the edges on the front portion of the bit are asymmetrical with sunken edges placed in between protruding edges, leaving only one real cutting edge per side (on either side of the top blade). This produces a wobble and uneven wear, at most, and more likely, produces alternating regions of no cutting on either side of the top blade.

Welty is an old patent that discloses gun drill having a single, straight chip-evacuating flute balanced by heels on the edges opposite the cutting blades to, thereby, center the drill and provide from a gap between much of the drill bit and the walls of the workpiece.

These two references teach little to nothing to a POSA, certainly not sufficiently close to anticipate or render obvious any of the claims of the '583 Patent.

II. THE BOARD SHOULD REAFFIRM THE WANG '583 PATENT CLAIMS VIKING CHALLENGED IN ITS PETITION

A. Viking's Claim that Its Evidence Is Unrebutted Is False

As an initial matter, Viking claims that Wang's responses to Viking's purported evidence of anticipation and obviousness are mere attorney argument and

that its evidence therefore stands un rebutted. Viking’s argument implies that only expert witness testimony can overcome a patent invalidity argument and that the evidence of record is nothing without an expert witness to validate it. This is not true.

In an *inter partes* review, “the petitioner bears the ultimate burden of persuasion on invalidity, which never shifts to the patent owner.” *Medtronic, Inc. v. Teleflex Innovations S.À.R.L.*, 68 F.4th 1298, 1303 (Fed. Cir. 2023). And, even where a party does bear the burden of proof, “[i]n many patent cases expert testimony will not be necessary because the technology will be easily understandable without the need for expert explanatory testimony.” *Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009); *Guangdong Xinbao Electrical Appliances Holdings v. Adrian Rivera*, IPR2014-00042, Paper 50 at 22-23, 2015 WL 556108 at *13 (Feb. 6, 2015) (holding the same where technology at issue was “relatively straightforward and easily understandable”).

Even the Board noted in its January 10, 2024 Order that, “[t]o be clear, we strike specifically the citations in the Response to the evidence that has, in turn, been stricken. ***We will consider other evidence cited to the extent any exists.***” The other evidence supporting Wang’s arguments abound, appearing, for example, in the prior art references themselves, the extrinsic evidence, and the secondary and tertiary evidence of record. (See, e.g., Paper 44 at p. 22 [quoting Zhou, Ex. 1007]; Welty

(Ex. 1008); and Paper 44 at 43-44 [citing and quoting from Exs. 2099-2104], to note a few).

B. Contrary to Viking's Reply, Zhou Does Not Invalidate Any Wang '583 Patent Claims, Alone or in Combination

Petitioner alleges that Zhou anticipates Claims 1, 2, 5, 8, 13-15, and 19 of the '583 Patent. Petitioner also alleges that Zhou in view of Bannister and/or Gentry and/or Durfee renders obvious Claims 1, 2, 5, 7, 8, 12-15, 18, 19 and 22 of the '583 Patent. Neither is true.

1. Viking Oversimplifies and Misrepresents the Teachings of Zhou

Petitioner improperly oversimplifies the requirements of the claims by asserting the claims “require only ‘a major cutting edge defined by the intersection of the conical first step surface and the sidewall of the spiral flute’ and ‘a minor cutting edge defined by the intersection of the cylindrical second step and the and the sidewall of the spiral flute.’” (Paper 45 at p. 3). However, “[a]nticipation requires “that the reference describe not only the elements of the claimed invention, but also that it describe those elements ‘arranged as in the claim[.]’” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1343 (Fed. Cir. 2016). For example, in *Enfish*, the Federal Circuit reversed the District Court’s summary judgment of anticipation, where the claims required a “single table having a row defining a column in that same table.” The Federal Circuit held that the District Court erred in granting summary judgment

of anticipation, based on the “[i]dentification of one element, the row, in one table and another element, the column, in another table,” because the prior art did not recite the claimed arrangement of elements. *Id.*

Looking at the language of the claims, in a composite cutting blade group, the major cutting edge is specifically defined as “the intersection of the conical first step surface and the sidewall of the spiral flute.” (Ex. 1001, Cls. 1, 8). And, the minor cutting edge is specifically defined as “the intersection of the cylindrical second step surface and the sidewall of the spiral flute.” (*Id.*). Further, the cylindrical second step surface of the composite cutting blade group must be “immediately adjacent to a conical first step surface of a next composite cutting blade group.” (*Id.*) By contrast, Petitioner’s oversimplification ignores how the claim elements are actually arranged in the claims.

Contrary to Viking’s argument in its Reply, Wang does not argue that what Zhou lacks are features that are not claimed in the challenged ’583 Patent claims. Rather, Wang argues that Zhou does not include the arrangement of elements described in the claims. In particular, Viking acknowledges that Zhou fails to disclose both major and minor cutting edges that are formed by a intersections with a flute that is spiral. (Paper 45 at p.3 [“the claims are broad enough to allow a spiral flute that, **as in Zhou**, has a portion of its sidewall that is straight on the leading edge of the cone portion while still maintaining its generally spiral shape”])). If the

limitation of a “minor cutting edge defined by the intersection of the cylindrical second step surface and the sidewall of the spiral flute” is met, the resulting drill bit will necessarily have curved minor cutting edges. (Paper 30, p. 11).

Furthermore, Viking claims that “Zhou already incorporates step drill features on a twist drill.” (Paper 45, at p. 1). This is not true. Viking’s own expert witness, Professor Steven Schmid, testified in his deposition that Zhou disclosed a twist drill configuration with a top blade followed by just one cutting tip, provided the feed rate is below a given threshold, such as when the workpiece is hardened steel:

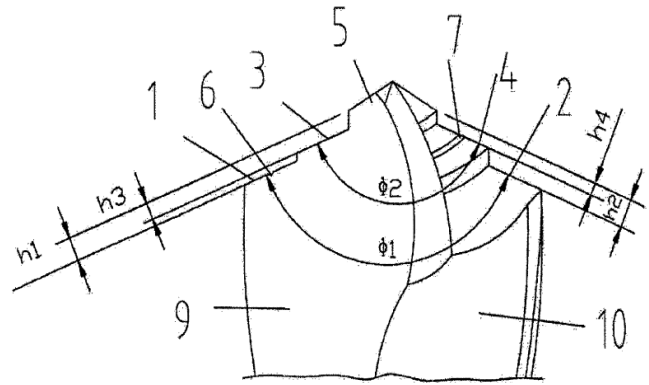


Fig. 1

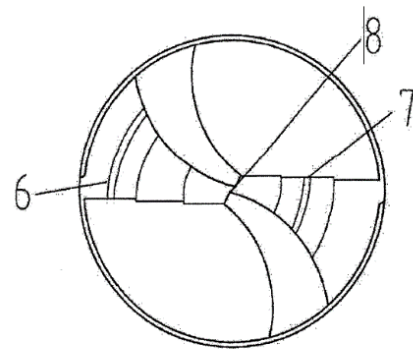


Fig. 2

■ [REDACTED]

[REDACTED]

[REDACTED]

■ [REDACTED]

■ [REDACTED]

[REDACTED]

■ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(Ex. 2118, at pp. 121:22-122:11).

That is, Professor Schmid noted that, [REDACTED]

[REDACTED] [REDACTED]

[REDACTED]. (*Id.*).

This means that, contrary to Viking’s Reply (Paper 45, at p. 1), Zhou is nothing like a step drill; it does not “incorporate step drill features on a twist drill.”

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] (Ex. 2118, pp. 108:6-¹¹¹:20, 111:23-

112:10, and 116:21-117:5). In his deposition, Viking’s own expert witness acknowledged that at a given feed rate, only protruding edges 1 and 4 would perform cutting, and sunken edges 2 and 3 would perform no cutting:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(Ex. 2118, at pp. 116:21-117:5, previously noting that, “[REDACTED]

[REDACTED]

[REDACTED]” *Id.*, at 109:14-25).

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Thus, Zhou does not include the claim elements in the manner in which they are arranged in the ‘583 Patent’s claims. It thus cannot **invalidate** any claims of the ‘583 Patent.

2. A POSA would not combine Zhou with Bannister, Gentry, and/or Durfee

Viking argued that a POSA could have readily modified the twist drill configuration of Zhou to have the plurality of spirally oriented composite cutting blade groups and spirally oriented cutting tips as recited in the claims of the ‘583 Patent, because similar structures are found in Gentry and/or Durfee. Viking, however, does not justify why it contends this other than by its claim that “Zhou already incorporates step drill features on a twist drill.” (Paper 45, at p. 1). But, as stated above, this is not true. A POSA would have no reason to combine Zhou with the teachings of Gentry or Durfee.

First, in order to modify the twist drill configuration of Zhou to have the plurality of CCBGs as shown in the step drills taught by Gentry or Durfee, the POSA would no longer have enough room on any protruding edges 1 and 4 to include the swarf separating grooves 6 and 7 and would have a very difficult manufacturing

process to retain the asymmetric protruding/sunken edges of Zhou. (Cf., **Ex. 1007**, Fig. 1 to **Ex. 1001**, Fig. 3). Viking fails to explain *how* its proposed modification would work.

Second, Viking does not explain why a POSA would have any motivation to make these modifications or have any reasonable expectation of arriving at the combination recited in the asserted claims of Wang's '583 Patent. To the contrary, a POSA would not have any motivation to make these modifications or any reasonable expectation that making these changes would result in the innovations claimed in the challenged claims of the '583 Patent. Moreover, as described in detail in Wang's Response, the real-world secondary indicia demonstrate that Wang's patented invention is non-obviousness.

C. Contrary to Viking's Reply, Welty Does Not Invalidate Any Wang '583 Patent Claims, in Combination with Bannister, Durfee, Korb, and/or Zhou

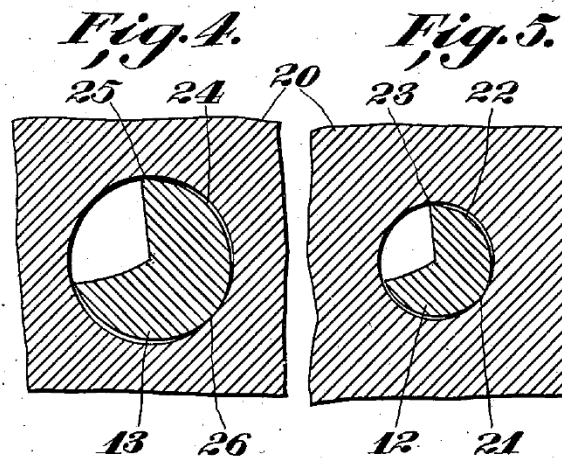
Petitioner alleges Welty in view of Bannister and Durfee and/or Korb renders obvious Claims 1, 2, 7, 19 and 22 of the '583 Patent. Petitioner further alleges Welty in view of Bannister and Durfee and/or Korb and further in view of Zhou renders obvious Claims 5, 8, 12-15, and 18 of the '583 Patent. Neither is true.

Petitioner proports that a POSA would have made wholesale modifications to Welty's drill, changing its core principles of operation and rendering it inoperable without significant redesign. In this and its other alleged Grounds for rejection,

Petitioner seems to argue that if a modification to the prior art is even barely within the realm of extreme possibilities, then there exists a motivation for a POSA and a POSA would even have a reasonable expectation of success at arriving at Wang's claimed invention. The Board, however, has found no motivation to combine when the "... proposed modification to [the primary reference] would, absent a significant redesign, result in an inoperable assembly." *Shaw Industries Group, Inc. v. Automated Creel Systems, Inc.*, Case Nos. IPR2013-00132 at 20 (PTAB, July 24, 2014). Furthermore, there is no motivation to combine when the "combination of references would require a substantial reconstruction and redesign of the elements ... as well as a change in the basic principles under which the [primary reference] construction was designed to operate." *Application of Ratti*, 270 F.2d 810, 813 (C.C.P.A. 1959). The Board also has held that, "the redesign may, by hindsight, seem to be obvious to one having ordinary skills in the [relevant] art."

The proposed modifications to Welty that would be required to fulfill each and every element of the claims would make it inoperable unless Welty's basic principles of operation were changed through significant redesign.

Indeed, Viking minimizes the “cylindrical second step surface” limitation by equating a twist drill industry-standard of radial relief with a deep bore drill having a heel, or as Viking describes an “area having slightly increased radius.” Paper 45 at pp. 13-14. The heels 21 and 26 in Welty (shown in Welty’s Figs. 4 and 5, reproduced below) are more than just an “area having slightly increased radius”, instead the cross-section is ovate with protruding cutting edges 23 and 25, heels 21 and 26, and sunken portions (near areas 13 and 24 in Fig. 4, and near areas 12 and 22 in Fig. 5):



The heels 21 and 26 and protruding cutting edges 23 and 25 create a non-cylindrical shape, and are necessary for the single flute design, where “the heels 21 and 26 of boring portions 12 and 13, respectively, will not only retain the cutting edges 23 and 25 of boring portions 12 and 13, respectively, in contact with the work but will retain the cutting edge 27 of boring portion 64 in contact with the work and also retain the body portion 28 in spaced relation with the work”. Welty, p. 1, col. 2,

ll. 26-32. Welty's misshapen boring portions 12 and 13 are not merely slight increases in diameter; they are fundamentally different than the claimed "cylindrical second step surface." Thus, Welty in view of the cited prior art does not teach this limitation.

Furthermore, each of Viking's Welty grounds includes the step drill references Durfee and Korb. Viking does not justify why it contends that a POSA would think to modify the gun drill configuration taught by Welty to have the spiral flutes and plurality of CCBGs of step drills, Durfee and/or Korb, along with their plurality of cutting tips formed in a spiral pattern along the spiral flutes. First, in order to modify the gun drill configuration of Welty to have the plurality of CCBGs as shown in the step drills taught by Gentry or Durfee with a plurality of cutting tips formed in a spiral pattern, the POSA would have to form spiral flutes along the length of the very long gun drill, and possibly would no longer have enough room for the pressurized lubricant passage, and would have a very difficult manufacturing process to retain the lubricant passage of the gun drill in Welty.

Viking does not explain why a POSA would have any motivation to make these modifications or have any reasonable expectation of arriving at the combination recited in the asserted claims of Wang's '583 Patent. Moreover, as described in detail in Wang's Response, the real-world secondary indicia demonstrate that Wang's patented invention is non-obviousness.

Further, contrary to Viking’s position in its Reply, Viking’s own expert witness conceded that Welty was old and likely to mean something different to a POSA in 2016. That is, during his deposition, Viking’s technical expert witness, Professor Schmid, stated that:

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

(Ex. 2118, at pp. 83:25-84:7).

This raises serious doubts about why the POSA would have been motivated to modify Welty (a gun drill) with the teachings of a step drill—drills that serve wholly opposite purposes—if not for improper hindsight. (Ex. 2003, ¶38). The evidence shows that there are well-established techniques for swarf removal in the field of gundrilling, using “high-pressure coolant” pushed through a large, straight, single flute. (Ex. 2100, pp. 3-4 [34-35]; *see also* Ex. 2099, pp.5, 11-12 [216, 222-23]; Ex. 2101, p.9, ¶¶3.1.1, 3.1.2; Ex. 2102, p.1). Viking makes no showing that its proposed addition of spiral flutes is compatible with the purposes of Welty.

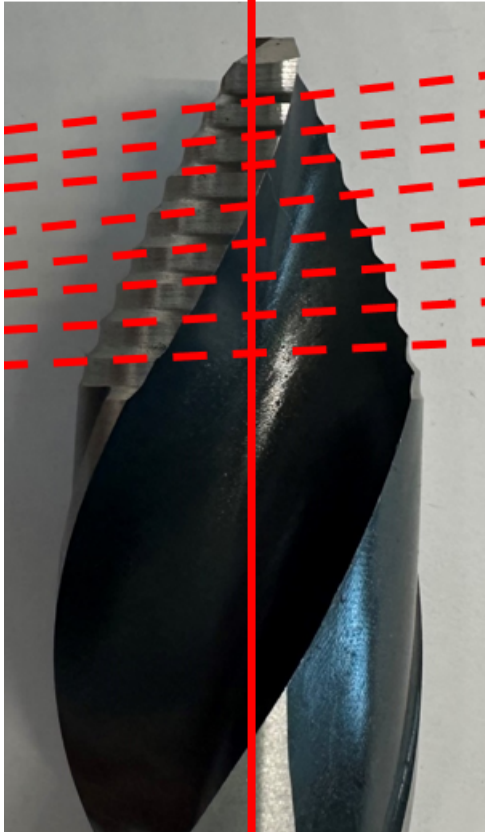
III. STRONG EVIDENCE OF SECONDARY CONSIDERATIONS OVERCOMES VIKING’S OBVIOUSNESS CHALLENGES

Secondary considerations must be considered in every case where present. *Apple Inc. v. Samsung Elecs. Co., Ltd.*, 839 F.3d 1034, 1048 (Fed. Cir. 2016).

A. Wang Is Entitled To A Presumption Of Nexus

Wang is entitled to a presumption of nexus. Wang presented considerable evidence that the Hyper-Step drills are covered by the challenged claims, including extensive claim charts submitted along with the report of his expert, William Endres. (Ex. 2034, ¶¶125-148; Exs. 2074-2089; Exs. 2090-2097). These claim charts unambiguously show that the Easy Boost drill bits (which include Matco’s Hyper-Step and Astro’s TurboStep drill bits) embody the patent claims and are co-extensive with them. The claim charts likewise demonstrate that Viking’s Vortex Point drill bits infringe the ‘583 Patent’s claims.

Viking claims that Endres “was unable to testify that the Hyper-Step drills have axial relief because he never took measurements of the drills.” (Paper 45 at 22 [citing Ex. 1046, 33:6-8]). Endres never so testified. Viking’s cited portion of Endres transcript has nothing to do with the proposition that they cite it for. (Ex. 1046, 33:6-8 [“applying the flutes 4, the flank surface is largely replaced with the flutes 4. Q Can I ask you now to look at figure 8?”]). In any case, the fact that the Easy Boost drill bits exhibit axial relief is readily apparent from a visual examination, and Endres confirmed that the products he provided claim charts for exhibit axial relief. (Ex. 2034, ¶¶125-148).



Viking completely misstates the requirement for demonstrating that the Hyper-Step products are co-extensive with the claims. Co-extensiveness requires a showing that there are no critical unclaimed features that “materially impacts the product's functionality. *Fox Factory, Inc. v. SRAM, LLC*, 944 F.3d 1366, 1375 (Fed. Cir. 2019). Viking argues that co-extensiveness is not met because the “alleged differences between the claims and the prior art at issue are extremely minor.” (Paper 45 at 22). This has nothing to do with co-extensiveness. Tellingly, Viking fails to point to a single unclaimed feature of the product that materially affects the product’s functionality, pointing instead to marketing and a warranty which is offered by Astro and Matco—but not Viking.

Viking's claim is also a gross over-simplification of the claim features that distinguish the '583 patent from the prior art. The '583 patent's novelty lies in its unique drill tip configuration, which combines the conical portion of a twist drill with the plurality of composite cutting blades of a step drill. What Viking describes as "minor differences in the geometry" (in combination with the other claimed features) are in fact crucial to the operation of the claimed invention and directly relate to why the '583 patent is more than simply placing a step drill on the top of a twist drill.

Dependent claims 18 and 22 recite the limitation that "the cutting tips of the plurality of composite cutting blade groups are formed spirally on a cone portion exterior from a front end of the cone portion to a rear end of the cone portion." This spiral sweep is critical to the dispersal of cutting force between the various cutting blades. It is why the claimed invention is able to achieve its highly touted functions of a faster cutting time, improved durability, improved chip evacuation, and reduced drill bit walking. (**Ex. 1001**, p. 14, col. 9:14-31; **Ex. 2034**, ¶ 164). Notably, even according to Viking, Wang's benefits are over and above those that may be provided by a simple split point tip geometry (which is also claimed by dependent claim 5 and independent claim 8). [REDACTED]

[REDACTED]

[REDACTED] (Ex. 2059

at p.4 [REDACTED]; Ex. 2025 at p.1 [VORTEX-POINT tip design cuts 45% faster...]). Even Mr. Fulk acknowledges as much. (Ex. 2119 at 112:25:113:8).

Numerous claimed features are absent from these specialty drill bits as well as the other references that Viking characterizes as twist drills, including this element. Similarly, it is undisputed that numerous claimed features are absent from each of Viking's step drill references, including the following limitations:

- “the diameter of the last composite cutting blade group located at the rear end of the cone portion immediately adjacent to the cylinder portion is equal to the cylinder portion diameter” (Claim 1[O], 8[O]),
- “the operation portion is configured to disperse a cutting force on each of the plurality of composite cutting blade groups within a drill hole of a workpiece when a least a portion of the cylinder portion is also within the workpiece” (Claim 14).
- “the cylinder portion is longer than the cone portion” (Claims 15 and 19).

(Ex. 2119 at 20:2-21:14).

Contrary to Viking's arguments, each of these limitations is diametrically opposed to the cutting operation of a step drill. Viking has argued that “faster cutting with reduced torque” was known in the drilling art, because step drills were well

recognized for providing these advantages. (Ex. 1045, ¶24). But, step drills have a completely different cutting application from twist drills. (Ex. 2118 at 16:14-21). Contrary to Viking's claim, end users do not use step drills to reduce the torque relative to standard-tipped twist drill bits. Rather, end users use step drills to drill holes of a predetermined diameter in thin workpieces. They necessarily do so slowly to feel the number of steps that pass through the workpiece to determine the resulting hole diameter. (*Id.*). Step drills are not recognized for their cutting speed by POSAs, particularly not when drilling through the thick and hardened workpieces that the '583 Patent is directed to. (Ex. 2119 at 104:19-106:17) Viking's arguments in this regard are absurd.

Thus, contrary to Viking's claim, even if Wang is not entitled to a presumption of nexus (which is is), the evidence indicates that "the evidence of secondary considerations is the direct result of the unique characteristics of the claimed invention." *Fox Factory* at 1375.

B. The Evidence Of Secondary Considerations Is Strong

1. Copying

Viking attempts to overcome Wang's strong evidence of secondary considerations by relying on the self-serving, largely unfounded, and unpersuasive testimony of its own Director of Engineering, Taylor Fulk. (Ex. 1045). *Ashland Oil, Inc. v. Delta Resins & Refractories, Inc.*, 776 F.2d 281, 294 (Fed. Cir. 1985)

(noting that a witness's interest in the outcome of the case is a factor in assessing the probative value of a witness's opinion). Notably in this regard, Viking fails to establish that Mr. Fulk would qualify as a POSA and does not offer Mr. Fulk as an expert.

Far from discounting Wang's evidence, Mr. Fulk's testimony confirms what was clear from the documents: Viking copied the Hyper-Step drill bits [REDACTED]
[REDACTED]
[REDACTED]. (Ex. 1045, ¶¶4, 6, 9).

Viking's self-serving and post-hoc claim that they "did not consider the product to be particularly unique" is uncorroborated by contemporaneous evidence and belied by the fact that their own customer's statement [REDACTED]
[REDACTED] (Ex. 2055, p.1). [REDACTED]
[REDACTED]
[REDACTED]. (Ex. 2059 at p.4). Viking cannot simply hand-waive these documents out of existence.

Nor can Viking's attempts to point to minor differences in step lengths, step diameters, overall tool length, and flute length undue Viking's admission that it, in fact, copied the Hyper-Step design. (Ex. 1045, ¶11). Notably, none of these features have anything to do with the claims of the '583 patent, and are among the features

that a POSA would expect to vary depending on drill bit diameter. (Ex. 2034, ¶¶152, 157-159). Further, Viking disingenuously points to a variation in the 7/64” drill bit, one of the six smallest sizes which Wang acknowledges do not practice the claimed invention. (Ex. 1045, ¶13).

2. Industry Praise

Here, the best evidence of industry praise comes from Viking and Kimball themselves. Viking’s only attempt to overcome this evidence is to argue that “these internal documents do not praise technology captured by the challenged claims, but the product as a whole.” (Paper 45 at 19). But, as noted above, the Hyper-Step product embodies the claims of the ‘583 patent and is co-extensive with it. There is thus no difference between the “technology captured by the challenged claims” and the “product as a whole,” particularly where [REDACTED] [REDACTED] (See, e.g., Ex. 2055). As explained above, the benefits of the claimed invention that Kimball and Viking acknowledge are directly tied to the claim elements which differentiate the ‘583 patent from the prior art. Indeed, according to Viking, the patented products have the following benefits (Ex. 2025, p.1):

- Stays sharp up to 4x longer compared to conventional and other specialty tip designs

- Multi-stepped tip acts like a step drill, allowing for laser like holes through sheet metal and prevents walking on curved surfaces
- VORTEX-POINT tip design cuts 45% faster & excels and sheet metal and hardened metals like broken fasteners.

Each of these benefits describes the merits of the claimed invention, over and above that of the prior art. (Ex. 2034, ¶¶163-164, 179-180).

C. Commercial Success

Viking attempts to argue against the commercial success of the Hyper-Step and Vortex Point products by arguing that Wang failed to contextualize these sales to those of the twist drill industry as a whole. This is not required to demonstrate commercial success. *See J.T. Eaton & Co., Inc. v. Atlantic Paste & Glue Co.*, 106 F.3d 1563, 1566, 1572 (Fed. Cir. 1997) (affirming a finding that “sales evidence ... shows [strong commercial] success,” where the “sales evidence” consisted solely of the patentee’s “\$17 million of sales from 1979 through 1984, and its \$4 million of annual sales from 1985 through 1989”).

In support of its position, Viking again offers the completely unsupported testimony of its Director of Engineering. Viking claims that the overall twist drill market is conservatively estimated to be over \$300 million per year. (Ex. 1045, ¶16).

The problem with Viking’s argument is that

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Viking’s attempts to diminish the commercial success of the patent-practicing products ignores several key points: (1) the products are sold as “specialty” products and do not compete with standard, general use twist drills (*see* Ex. 2025, p.1 [comparing Vortex Point bits to “conventional and other specialty tip designs”]); (2) the products are sold at a much higher asking price, even as compared to other specialty twist drill products (Ex. 2036, ¶11); and (3) the profit per sale for the practicing products is considerably higher, even than other specialty twist drill designs; and (4) despite the price premium, demand for the patented drill bits has increased year-over-year during a time when overall drill bit sales were decreasing (*Id.*, ¶¶12-14; Ex. 2039). *Transocean Offshore Deepwater Drilling, Inc. v. Maersk*

Drilling USA, Inc., 699 F.3d 1340, 1350 (Fed. Cir. 2012) (market premium for patented product over prior art demonstrated commercial success).

Indeed, between 2019 and 2021, [REDACTED]

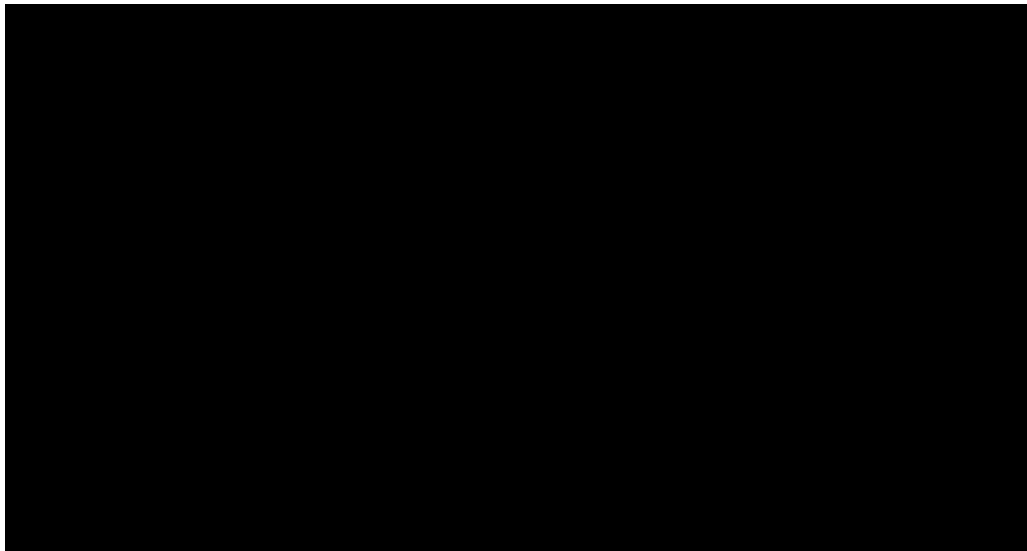
[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]



Even Viking's President of Sales admitted that



Ex. 2071 at 87:2-17.



The Easy-Boost and

Vortex Point drill bits are certainly commercially successful. (Ex. 2036, ¶11; Ex. 2119 at 84:6-85:17).

This is especially impressive, due to the premium price of the patent-practicing drill bits. For example, Kimball Midwest sells its sets of Ultra Step Drill Bits (a white-label of Viking's Vortex Point drill bits) for \$385.00 and its 4 and 8-piece sets of the Silver & Deming sizes for \$404 and \$854, respectively. (Ex. 2058,

pp. 2, 10). By contrast, Kimball’s “standard” maintenance length drill sets retail for \$294, and its “standard” 4 and 8-piece sets of the Silver & Deming sizes retail for \$294 and \$554. (*Id.*, pp. 10-11). In other words, Kimball charges a 30-50% premium for its patent-practicing products. This is consistent with the premiums charged by Tsteigen, Astro, and Matco. (*See, e.g.*, Ex. 2071 at 87:19-24; Ex. 1048 at 69:2-15 [REDACTED] and 85:23-85:2 [REDACTED] [REDACTED]).

IV. CONCLUSION

For the foregoing reasons, Mr. Wang respectfully requests the Board find that Viking failed to demonstrate by a preponderance of evidence that the challenged claims are unpatentable.

Dated: March 12, 2024

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CERTIFICATE OF WORD COUNT

Pursuant to 37 C.F.R. §§ 42.24(a)(1)(i), 42.24(b)(1), and 42.24(d), the undersigned certifies that, according to the “Word Count” tool in Microsoft Word, which was used to prepare this paper, the number of words in this **PATENT OWNER’S SUR-REPLY** is 5,308.

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CERTIFICATE OF SERVICE UNDER 37 CFR § 42.6(e)

I hereby certify that a true copy of the foregoing **PATENT OWNER'S AMENDED SUR-REPLY** has been served in its entirety this 22nd day of March 2024, by electronic mail on Petitioner's lead counsel, as follows:

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