

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

BLASTERS, INC.

Petitioner

v.

WATERBLASTING, LLC, D/B/A WATERBLASTING TECHNOLOGIES

Patent Owner

Case IPR2018-00504

Patent No. 7,255,116

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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I. INTRODUCTION

Claims 1-6 and 10 of U.S. Patent No. 7,255,116 (“the ‘116 Patent”) recite an obvious combination of well-known components. Every limitation found in these claims is disclosed in the prior art cited in the Petition. A person of ordinary skill in the art (“POSA”) would have been motivated to combine the cited prior art references to achieve a predictable result—the cleaning system claimed in the ‘116 Patent.

Patent Owner alleges that Petitioner has not met its burden of establishing obviousness. Patent Owner bases its allegation primarily on the following three arguments: (1) Mr. Boos’s expert opinion should be given little weight; (2) the cited prior art references do not disclose an articulating link; and (3) a POSA would not be motivated to combine the cited prior art. Each of Patent Owner’s arguments is either based on legally flawed reasoning, a mischaracterization of the facts, or both.

Mr. Boos’s expert testimony is supported by the cited prior art, the cross-examination testimony of Patent Owner’s own expert witness, and non-testimonial documentation from the leaders in the industry. The Board correctly found that the prior art cited in the Petition discloses all limitations of claims 1-6 and 10 of the ‘116 Patent. And, a POSA would have been motivated to combine the cited prior art to achieve the cleaning system recited in these claims. Therefore, claims 1-6 and 10 of

the ‘116 patent are rendered obvious by the cited prior art, and the Board should enter judgment in accordance therewith.

II. CLAIM CONSTRUCTION

In the Institution Decision, the Board found that “no terms require construction” because, under either party’s proposed construction, when combined with NLB, the prior art references cited in the Petition disclose all limitations of claims 1-6 and 10 of the ‘116 Patent. *Id.* Petitioner agrees with this finding. Nevertheless, this Reply provides construction for two claim terms: “articulating link” and “high pressure.” Construction of the term “articulating link” is important because it is the only limitation that Patent Owner alleges is missing in the cited prior art. Construction of the term “high pressure” is important because it underscores lack of credibility of Dr. King’s testimony provided in his declaration as established in Part III(B)(1) herein.

A. “high pressure”

“High pressure” should be construed as “a pressure greater than 2,000 psi.” This construction is in accordance with the industry-accepted definition as of the filing date of the ‘116 Patent. For example, at least as of February 4, 2003, the NLB Corporation, whose cleaning systems are explicitly referenced in the Background section of the ‘116 Patent, defined “high pressure” as a range from “2,000 to 20,000 psi.” Blasters-1019. Another example of definition of the term “high pressure” was

provided at the 2002 Federal Aviation Administration Technology Transfer Conference. At this conference, Donna J. Speidel of Speidel Construction, Inc. presented a conference paper entitled “Airfield Rubber Removal,” in which she stated the following: “*High-pressure waterblasting* removes rubber by means of rotary device, which moves slowly along the surface to be cleaned, using pressures from 2,000-15,000 PSI ...” Blasters-1022 at pg. 4 (emphasis added).

In fact, testimony of Patent Owner’s expert witness supports the construction proposed above. In his declaration, Dr. King stated that “high pressure,” as claimed in the ‘116 Patent, is “a pressure sufficiently high enough to be able to blast a coating off a hard surface, by severing the bond between the coating and the hard surface.” Waterblasting-2012 at ¶ 34. On cross-examination, Dr. King testified that a handheld pressure washer he personally used—and guessed to have an operating water pressure of around 2,000 psi—was capable of removing stripes from a highway. *See* Blasters-1018 at 13:3-7; 23:17-24:4.

Thus, the record establishes that the term “high pressure” should be construed as “pressure greater than 2,000 psi.”

B. “articulating link”

The technical definition of the term “articulation,” prior to the filing date of the ‘116 Patent, was as follows: “the connection of two parts in such a way (usually by a pin joint) as to permit relative movement.” Blasters-1015. The dictionary

definition of the term “link” in 2004 was as follows: “a connecting structure.” Blasters-1012. Thus, under BRI, the term “articulating link” should be construed as “a connecting structure that connects two parts in such a way as to permit relative movement.” Blasters-1009 at ¶ 33.

Patent Owner argues that “articulating link” should be narrowly construed as a “structure . . . [that] allows the blast head to have at least two transitional degrees of freedom and at least one rotational degree of freedom.” PO Response at pg. 12. As the Board correctly noted, “[a]ny special definition for a claim term must be set forth in the specification with reasonable clarity, deliberateness, and precision.” Institution Decision at pg. 8 (citation omitted). The specification of the ‘116 Patent does not meet this high standard to support Patent Owner’s proposed construction. The ‘116 Patent discloses examples of various blast head movements that could be enabled by the articulating link. *See* ‘116 Patent at 4:11-46. However, the specification of the ‘116 Patent does not provide a specific limiting definition for this term and does not mandate that the articulating link must enable *all* of the recited exemplary movements. Thus, Patent Owner’s proposed construction is untenably narrow.

For these reasons, the Board should construe “articulating link” as “a connecting structure that connects two parts in such a way as to permit relative movement.”

III. CREDIBILITY OF EXPERT WITNESSES

Although obviousness of claims 1-6 and 10 of the ‘116 Patent does not hinge on which expert the Board finds more credible, this Section of Petitioner’s Reply addresses the issue of expert credibility. Patent Owner argues that Mr. Boos lacks credibility and that his declaration lacks rationale for combining the cited prior art references. These attacks are constructed on speculation and false statements. This Section of the Reply also establishes Dr. King’s lack of expertise and points out multiple instances in which Dr. King’s declaration contradicts both his cross-examination testimony and non-testimonial evidence of third party industry experts.

A. Patent Owner’s attack on Mr. Boos’s credibility is based on speculation and contradicts the record

Patent Owner attempts to discredit Mr. Boos’s expert opinion by alleging that Mr. Boos is unable to provide an objective testimony because of his relationship with Petitioner. *See* PO Response at 5. Patent Owner failed to provide any factual evidence supporting this allegation. This argument is founded on a speculation, rather than concrete facts.

Mr. Boos’s testimony is based on his expertise in the field of waterblasting technologies. Mr. Boos has been actively involved in this industry for over 37 years. Blasters-1017 at 1. In fact, at the time the ‘116 Patent was filed, Mr. Boos was the president of Blasters, Inc.—a company whose stripe removal systems are explicitly

referenced as pertinent prior art in the Background section of the ‘116 Patent. Moreover, Mr. Boos supports the testimony provided in his declaration with citations to the prior art and documentation published by industry leaders prior to the filing date of the ‘116 Patent.

Patent Owner also alleges that Mr. Boos did not “articulate a rationale as to why a person of ordinary skill in the art would have modified the references in the Petition to achieve the invention disclosed in the ‘116 patent.” PO Response at 6. This allegation contradicts the record. For example, Section IX(A)(1) of Mr. Boos’s Declaration provides a three-page summary explaining why a POSA would have been motivated to modify Jones in view of the Breither and further in view of NLB. Blasters-1009 at ¶ 58-63. Likewise, paragraph 121 of Mr. Boos’s Declaration explains why a POSA would have been motivated to combine Jones, Breither, and NLB with Herhold; paragraphs 128-132 and 140 explain motivation for further combining these prior art references with Schrunk; paragraphs 142-147 explain motivation for combining Clemons with NLB; and paragraphs 191, 196, 198, 199, and 201 explain motivation for combining Clemons and NLB with Schrunk. *Id.* Clearly, Mr. Boos articulated ample explanation for each combination of the prior art used to establish that claims 1-6 and 10 of the ‘116 Patent are obvious.

B. The board should afford little to no weight to Dr. King’s testimony provided in his declaration

1. Dr. King’s cross-examination testimony contradicts his declaration

Dr. King’s cross-examination testimony contradicts the testimony he provided in his declaration with respect to multiple key issues. Some examples of such contradictions are provided in the table below:

Declaration (Waterblasting-2012)	Cross-examination (Blasters-1018)
High-pressure is greater than 25,000 psi. ¶ 34.	Pressure as low as 10,000 psi qualifies as high pressure. 12:3-10.
“Clemons uses a relatively, low-pressure (4,000psi) . . . Clemons does not remove coating from a surface” ¶ 63.	The 2,000 psi handheld pressure washers could remove a stripe from a highway. 13:3-7, 23:17- 24:4.
Jones does not teach an articulating link. ¶ 50.	<p>Jones has “a <i>link</i> that raises the . . . nozzle assembly up and down.” 48:16-21.</p> <p>“pulling . . . lever 57, it goes through this <i>linkage</i> and this cable, and as he pulls that lever back and forth, it raises -- or it pivots that bar 55.” 49:23-50:1.</p> <p>“A. Yeah, it's like a <i>linkage</i>. You might call it a link. <i>Probably a link is a good word for it.</i> . . . And so what the purpose of that link is [sic] it allows -- the whole trailer assembly on the back . . . to pivot right and left with respect to the tractor as shown in Figure 5.” 51:18-52:8.</p>

Dr. King also provided contradictory testimony with respect to the definition of “high pressure.” In his declaration, Dr. King stated that “[a] person of ordinary

skill in the art reviewing the '116 Patent would consider the broadest reasonable interpretation of the term 'high pressure' to be a pressure sufficiently high to be able to blast a coating off of a hard surface, by severing the bonding between the coating and the hard surface.” Waterblasting-2012 at ¶ 34. In the very same paragraph, Dr. King stated that, based on this definition, “high pressure” must be “greater than 25,000 psi.” *Id.* This statement not only contradicts Dr. King’s own subsequent testimony that the handheld pressure washer he personally used, which he guessed to have pressures around 2,000 psi, could remove stripes from a highway, but also contradicts the industry definition of “high pressure” as established herein in Part II(A). Blasters-1018 at 13:3-7; 23:17- 24:4. Indeed, a paper presented at an FAA conference and NLB Corporation’s website both define “high pressure” as starting at 2,000 psi. Blasters-1019.

The contradictions highlighted above go to the heart of several key issues in this IPR trial, thereby eviscerating credibility of Dr. King’s declaration.

2. Dr. King lacks expertise in the industry, and he admittedly based his opinion on information he obtained about current cleaning system during a “recent” visit to Patent Owner’s facility

During his cross-examination, Dr. King testified that, with the exception of “small handheld pressurized water sprayers” he rented for household cleaning tasks, he has no personal experience with systems that remove coatings from surfaces.

Blasters-1018 at 23:1-24:7. Dr. King also testified that at least a portion of his expert opinion was based on information he *recently* received from “Steve”—one of Patent Owner’s employees. *Id.* at 40:17-41:6. Furthermore, Dr. King testified that his interpretation of at least some aspects the cleaning system claimed in the ‘116 Patent was based on the information pertaining to the cleaning systems *currently* produced by Patent Owner—rather than the cleaning systems that existed when the ‘116 Patent was filed, almost 15 years ago. *Id.* at 40:19-25.

The examples of Dr. King’s conflicting testimony, assertions that contradict non-testimonial statements of the industry experts, and his admitted lack of expertise with the cleaning systems significantly undermine his credibility and erode the probative value of his declaration.

IV. THE PRIOR ART CITED IN THE PETITION DISCLOSES EACH AND EVERY LIMITATION OF CLAIMS 1-6 AND 10, INCLUDING AN “ARTICULATING LINK”

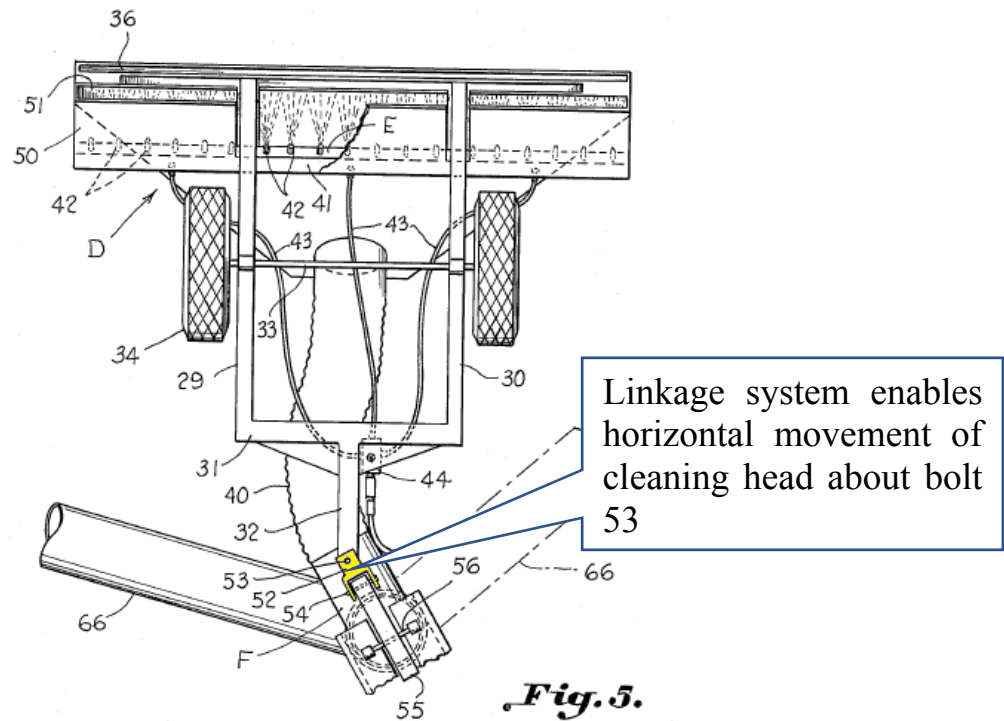
In the Institution Decision, the Board found that Petitioner demonstrated a reasonable likelihood that claims 1-6 and 10 are unpatentable over the prior art cited in the Petition. Patent Owner challenges the Board’s finding with respect to only one limitation: the articulating link. Patent Owner alleges that “neither Jones, Breither, nor NLB disclose [sic] the articulating link” and also that “neither Clemons nor NLB disclose [sic] an articulating link.” PO Response at 16, 22. The analysis provided

below establishes that Jones and Clemons in view of NLB each teach an articulating link.

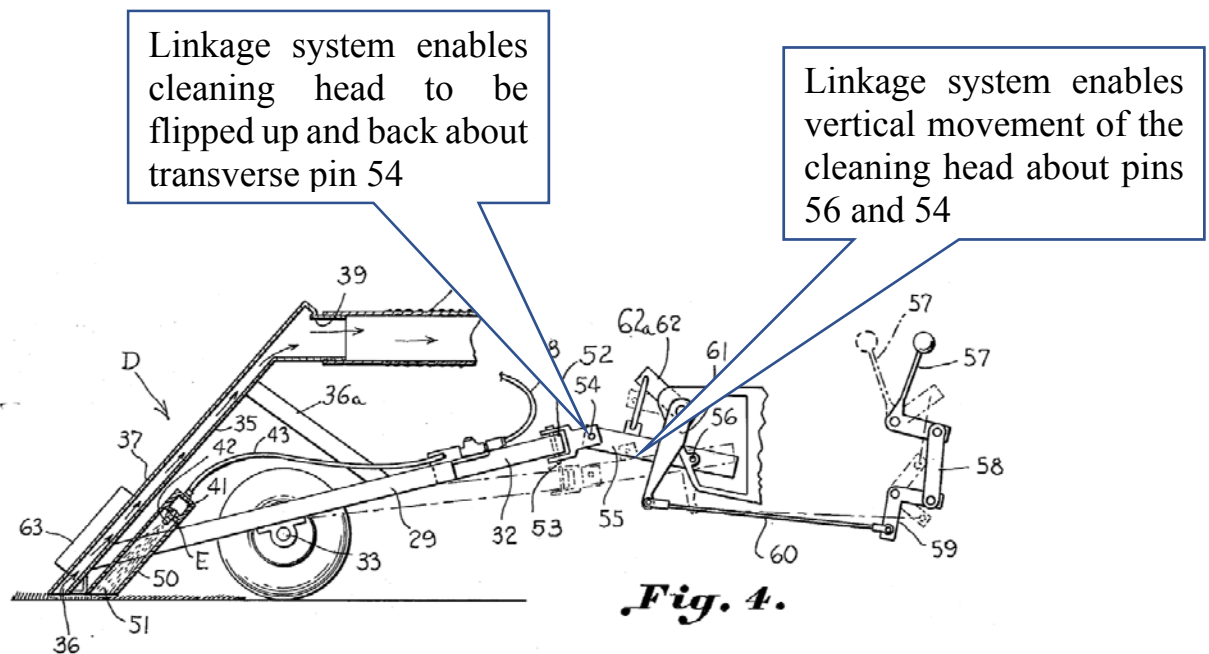
A. Jones discloses an articulating link that enables the cleaning head to move in a horizontal plane, a vertical plane, and be flipped up and back

Patent Owner provides the following untenably narrow construction for the term “articulating link:” a structure that mounts the blast head to the tractor and “allows the blast head to have three degrees of freedom: horizontal translation (left and right), vertical translation (up and down), and vertical rotation (flipped up and back).” PO Response at 12. Jones discloses a structure that satisfies even this unreasonably narrow construction.

Specifically, Jones discloses “a swivel joint 52 which is pivotally connected by means of a bolt 53,” “a transverse pin 54,” and “a pin 56.” Blasters-1002 at 3:64–68 and 4:3-7. As depicted below, the linkage mechanism disclosed in Jones enables the cleaning head to move horizontally about bolt 53, vertically via pin 56 and pin 54, and also be flipped up and back about pin 54.



Blasters-1002 at FIG. 5 (annotated)



Blasters-1002 at FIG. 4 (annotated)

The linkage mechanism enables the cleaning head to move horizontally (left to right) about bolt 53, vertically (up and down) via pins 56 and 54 responsive to manipulation of handle 57, and to be flipped up and back about transverse pin 54. *See id.* at 3:63-4:18. Patent Owner's own expert, Dr. King, testified that Jones discloses "a link that raises the nozzle -- raises the nozzle assembly up and down," and that "it allows [the cleaning head] to pivot right and left with respect to the tractor as shown in Figure 5," and "[i]t pivots it up and down, and it's pivoting about that bolt 56." *Blasters-1018* at 48:18-19, 52:5-8, 50:19-51:2. Thus, Jones teaches the "articulating link" in accordance with both the plain and ordinary meaning of the term provided in Part II(B) of this Reply and the untenably narrow construction advanced by Patent Owner.

B. The combination of Clemons and NLB discloses an articulating link

Clemons and NLB each discloses an articulating link. Clemons discloses "an arm 42 pivotally attached to frame 12 at pivot point 44. Arm 42 can be manually pivoted or pivoted via a motorized force to raise/lower cleaning head 40 and set a forward-to-rear pitch angle of cleaning head 40 relative to surface 100." *Blasters-1008* at 3:36-41. Thus, pivotable arm 42 of Clemons is a connecting structure that permits relative movement of the cleaning head. Therefore, Clemons discloses an "articulating link" limitation of claim 1 under the proper construction provided in Part II(B) of this Reply.

NLB also discloses an articulating link. NLB discloses that the blast head can be “hydraulically lowered or raised,” a fact acknowledged by Dr. King during his cross-examination. Blasters-1006 at pg. 4; Blasters-1018 at 28:2-5. With respect to movement in the horizontal plane, Dr. King stated that, in NLB, “the blast head is shown attached to a fixed support that *can move left or right* by the support sliding along the plate track on the front of the device.” Waterblasting-2012 at ¶ 60. Thus, NLB discloses a structure that connects the blast to a tractor and enables relative movement of the blast head, which satisfies the legally proper construction of the term “articulating link” provided in Part II(B) of this Reply.

Furthermore, A POSA would have recognized that the articulating link in NLB could have been further improved by including pivoting arm 42 of Clemons to enable a POSA to adjust the forward-to-rear pitch angle of the blast head relative to the surface being cleaned. Blasters-1009 at ¶ 173. Thus, the combination of Clemons and NLB teaches an articulating link that allows the blast head to move left and right, up and down, and be flipped up and back, which satisfies Patent Owner’s untenably narrow construction of “articulating link.”

For the reasons set forth above, Jones and the combination of Clemons and NLB each unequivocally teaches an “articulating link” recited in claim 1. Patent Owner does not dispute the Board’s finding of a reasonable likelihood of obviousness with respect to any other limitations. Thus, the Board should find that

every limitation of each challenged claim is disclosed in the prior art cited in the Petition.

V. THE '116 PATENT IS OBVIOUS IN VIEW OF THE CITED REFERENCES

A. The combination of Jones, Breither, and NLB is proper and renders obvious claim 1

In the Institution Decision, the Board found a reasonable likelihood that the combination of Jones, Breither, and NLB renders obvious claim 1. Institution Decision at 35. Patent Owner challenges this finding by arguing that combination of Jones and NLB is improper. This Section of the Reply addresses the legal flaws and factual mischaracterizations on which Patent Owner constructed its arguments. The cited references, expert testimony, and industry documentation conclusively support the Board's finding that "Petitioner provide[d] a sufficient basis for combining NLB with Petitioner's other references." Institution Decision at 8.

1. Jones does NOT teach away from using a high-pressure pump in its cleaning system

Patent Owner alleges that "Jones and Breither teach away from the extreme pressure used by NLB and the 'high pressure' claimed in the '116 Patent – thus there would be no motivation for one to combine the references as Petitioner asserts." PO Response at 13. This conclusory assertion is legally flawed and unsupported by the record.

It is well established that “[a] reference teaches away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken in the claim. A reference that merely expresses a general preference for an alternative invention but does not criticize, discredit, or otherwise discourage investigation into the claimed invention does not teach away.” *Meiresonne v. Google, Inc.*, 849 F.3d 1379, 1382 (Fed. Cir. Mar. 7, 2017) (internal quotations and citations omitted). Here, neither Jones nor Breither include any disclosure that would discourage or lead a POSA away from replacing Jones’s water pump, water hoses, nozzles, vacuum pump, and vacuum hoses with the their ultra high-pressure counterparts disclosed in NLB. Indeed, none of the cited references criticize, discredit, or otherwise discourage investigation into a cleaning system having ultra high-pressure components. Accordingly, Jones and Breither do not teach away from “high-pressure” components claimed in claim 1.

2. Inclusion of NLB’s ultra-high pressure components would NOT render Jones unusable for its intended purpose

Patent Owner argues that a POSA would not have been motivated to replace the pump disclosed in Jones with the ultra high-pressure pump disclosed in NLB because “[t]hat kind of power and pressure would entirely remove or shred the turf that Jones is designed to clean—a counterproductive result at least.” PO Response at 13-14. This argument is constructed on a flawed assumption that a pump must

always discharge water at the highest pressure the pump is capable of achieving. The record shows that this assumption is false. Indeed, testimony of both expert witnesses and non-testimonial evidence from NLB Corporation (“NLB Pump Advertisement”), which was published prior to the filing date of the ‘116 Patent, explain that pumps can be easily adjusted with common components to regulate the discharge pressure.

In his cross-examination, Dr. King testified that adjustable valves are “extremely common” for setting the discharge operating pressures on fluid pumps. Blasters-1018 at 33:16-34:1 (“So if you had a 40,000 psi pump, you would set it for the pressure that you wanted it to operate at. ... ” “You might adjust it to different settings for different situations.”). Likewise, NLB Pump Advertisement states that the subject of the advertisement—a 40,000 psi pump—includes the “BV40-010 By-Pass valve which makes setting and maintaining system pressure as easy as a turn of the handle.” Blasters-1020 at 3; Blasters-1021 at 7.

Dr. King also testified that larger nozzle diameters, greater number of nozzles, and actively reducing pump speed will all result in lower discharge pressures. Blasters-1018 at 42:23-43:3, 43:18-22, 43:9-12. He further testified that a POSA would have understood this “very simple” relationship between the various components of a pumping system and its discharge pressures. *Id.* at 43:15.

Mr. Boos agreed that a pump's discharge pressure could be controlled through a variety of means. In his cross-examination, Mr. Boos testified that "NLB uses up to 40,000 psi, but it's a range. It can be throttled down or throttled up, but the maximum would be up to 40,000 psi." Blasters-1023 at 35:9-12. Mr. Boos explained that one could "use the engine control box and lower the rpm of the engine which in turn will drop [the pump's] pressure." *Id.* at 37:14-16. Mr. Boos's testimony also confirmed that operating pressure of cleaning system can be adjusted by using "larger nozzles or more nozzles," and/or using "a flow control bypass valve." *Id.* 37:22-23, 38:1-4. Mr. Boos further clarified that a pump rated for 40,000 psi can be throttled down to virtually zero psi by lowering the RPMs of the engine powering the pump. *Id.* at 37: 9-38:6.

Accordingly, a POSA would have understood that if the cleaning system in Jones were equipped with ultra high-pressure pump disclosed in NLB , the system could have easily been adjusted to reduce the discharge pressure through a variety of means, including throttling down the engine, increasing the number of nozzles, increasing the nozzle diameter, and/or adjusting the relief valve to achieve a desired pressure. Thus, the ultra-high pressure pump disclosed in NLB could be readily used to output the cleaning liquid at a pressure suitable for cleaning the turf, or any other surface, without damaging it.

3. Patent Owner’s argument pertaining to physical combinability is legally flawed

Patent Owner asserts that a POSA would not have been motivated to combine Jones with the ultra-high pressure components of NLB due to various alleged design difficulties. PO Response at 15-16. These assertions—even if true, which they are not—cannot rescue an obvious claim from invalidation. It is well-established that “it is not necessary that [the cited references] be physically combinable to render obvious [the claimed invention] The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference, but rather whether a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention.” *Allied Erecting and Dismantling Co., Inc. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (internal quotations and citations omitted).

The motivation for combining Jones and Breither with NLB is articulated on pages 25-26 of the Petition. As the Board held in the Institution Decision, “Petitioner provide[d] a sufficient basis for combining NLB with Petitioner’s other references.” Institution Decision at 8. Furthermore, whatever difficulties associated with equipping a cleaning system with an ultra high-pressure pump, hoses, nozzles, engine to power the pump, *etc.* had already been overcome by NLB prior to the filing date of the ‘116 Patent. *See* Blasters-1018 at 27:11-31:17 (describing the ultra-high

pressure cleaning system disclosed in NLB). In any case, under the legal principles set forth in *Allied Erecting*, the combination of Jones, Breither, and NLB is proper. Because the combination of Jones, Breither, and NLB teaches all limitations of claim 1, claim 1 is invalid for being obvious.

B. Claims 3 and 4 of the ‘116 Patent are obvious over the combination of Jones, Breither, NLB, and Herhold

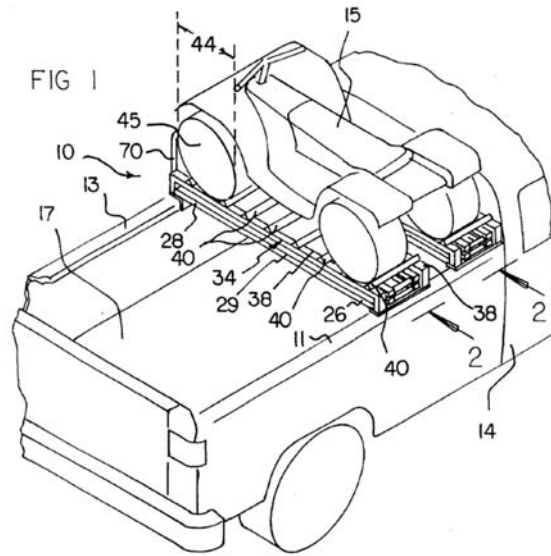
Patent Owner acknowledges that Herhold discloses a shroud, which is the only additional limitation recited in claim 3. PO Response at 17. However, Patent Owner alleges that claims 3 and 4 are nonobvious for the same two reasons as claim 1: missing articulating link and lack of motivation to combine Jones, Breither, and NLB. *Id.* at 17-18. Both of these legally flawed and factually erroneous contentions have been conclusively laid to rest in Parts IV(A) and V of this Reply. Thus, the combination of Jones, Breither, and NLB with Herhold renders obvious claim 3. With respect to claim 4, Patent Owner does not challenge that Jones discloses a blast head attached to a wheeled chassis. Therefore, based on the evidence in the record, claim 4 is also obvious.

C. Claims 5 and 6 are obvious over the combination of Jones, Breither, NLB, Herhold, and Schrunk

With respect to claim 5, Patent Owner lists several alleged design difficulties associated with transporting a tractor on a truck—namely lack of space and weight distribution issues. *Id.* at 19. Patent Owner asserts that “Claim 5 solves these

problems by docking the tractor ‘transversely on said bed portion of said truck.’” *Id.* at 20. Patent Owner alleges that claim 5 is nonobvious because “[t]he vehicles of both NLB and Jones are incapable of fitting transversely on a truck within the legal width” and because “the articulating link is not disclosed by the prior art cited in the petition.” PO Response at 20.

Patent Owner’s arguments lack merit for at least two reasons. First, the lengths of the tractor and blast head are obvious design choices. Indeed, Jones explicitly states that “[t]he motorized vehicle C may be any suitable conventional utility vehicle” without imposing any size requirements for the utility vehicle or the cleaning head. *Blasters-1002* at 3:10-11 (emphasis added). *Schrunk* discloses advantages of transversely docking and transporting a utility vehicle on a truck bed and a system for accomplishing this objective. *See Blasters-1005* at 2:12-31. In combining Jones, Breither, NLB, and Herhold with *Schrunk*, the lengths of the utility vehicle and the blast head would be selected such that the utility vehicle can be docked and transported transversely on a truck bed, as depicted in FIG. 1 of *Schrunk*.



Blasters-1005 at FIG. 5.

Second, Jones discloses an articulating link that enables the cleaning head to be flipped up and back, thus reducing the overall length of the tractor-cleaning head assembly. *See* Part IV(A), *supra*. Thus, claim 5 is obvious over the combination of Jones, Breither, NLB, Herhold, and Schrunk.

With respect to claim 6, Patent Owner argues that “the ‘small vehicle’ which Schrunk’s system is meant to carry does not include a mobile blast head.” PO Response at 21. This argument misses the point. Schrunk discloses the ramp for transversely docking a utility vehicle onto a truck, as claimed in claim 6. Blast-ers-1005 at Abstract. Jones discloses a tractor carrying a cleaning head. The combination of these two references unequivocally renders obvious the ramp for transversely

loading a tractor onto a truck. Thus, claim 6 is obvious over Jones, Breither, NLB, Herhold, and Schrunk.

D. Combination of Clemons and NLB is proper and renders obvious claims 1-4 and 10

In the Institution Decision, the Board found a reasonable likelihood that claim 1 is unpatentable over Clemons and NLB. Institution Decision at 40. Patent Owner challenges this finding by making the following conclusory assertions: (1) technology disclosed in Clemons does not constitute a “cleaning system,” (2) a POSA would not have been motivated to modify Clemons in view of NLB, (3) “neither Clemons nor NLB disclose [sic] an articulating link,” and (4) Mr. Boos failed to provide a rationale for combining Clemons with NLB. Each of these arguments is refuted below.

1. Clemons DOES disclose a cleaning system

As the Board correctly found in its Institution Decision, “Clemons discloses a *cleaning system* for removing debris from a hard surface, such as a runway or a street.” Institution Decision pg. 37 (emphasis added). Indeed, the very title of Clemons is “Self-Propelled Brushless *Surface Cleaner* with Reclamation” and the specification of Clemons recites the term “clean” 223 times. *See* Blasters-1007. Nevertheless, Patent Owner alleges, falsely, that the technology disclosed in Clemons is not a “cleaning system” because, supposedly, it is not “a system for

removing durable coatings which are tightly bonded to a hard surface by abrading away the hard surface by impacting it with high velocity water.” PO Response at 22.

Even under Patent Owner’s unsubstantiated, narrow construction, Clemons still discloses a cleaning machine. Patent Owner’s own expert, Dr. King, testified that “small handheld pressurized water sprayers” could have probably removed stripes from a highway, albeit at a slower pace. Blasters-1018 at 23:17-24:4. Dr. King estimated that these small handheld pressure washers operate at “2,000 psi or somewhere in that range.” *Id.* at 13:3-7. Clemons discloses a system in which water is discharged onto a hard surface at 4,000 psi, which, based on Dr. King’s testimony, is more than sufficient to remove durable coatings tightly bound to a hard surface. Blasters-1008 at 6:16.

Furthermore, as established in the Petition, a POSA would have been motivated to replace pumps, nozzles, and hoses disclosed in Clemons with their ultra-high pressure counterparts disclosed in NLB. The combination of Clemons and NLB would have been capable of discharging pressures of up to 40,000 psi, which unambiguously satisfies Patent Owner’s untenably narrow definition of a cleaning system. Therefore, both Clemons by itself and the combination of Clemons and NLB are cleaning systems.

2. A POSA would have modified Clemons in view of NLB

In the Institution Decision, the Board correctly found that “Petitioner provide[d] sufficient reasoning for its combination of Clemons and NLB.” Institution Decision pg. 39. Patent Owner challenges this finding without providing any articulated rationale. PO Response 22. The combination of Clemons and NLB is proper at least for the reasons set forth below.

Both the Clemons and NLB systems employ pressurized water to remove coatings from a hard surface and utilize a vacuum recovery system to remove spent liquid and dislodged coatings. Blasters-1008 at Abstract, 1:60-63; Blasters-1006 at 2. A POSA would have understood that the cleaning system of Clemons could have been improved by including a secondary “compact and maneuverable” utility vehicle, such as the StripeJet™ tractor disclosed in NLB, which is specifically designed to clean “areas with limited access (e.g., parking lots, garages, intersections).” Blasters-1006 at 4, 5; Blasters-1009 at ¶ 143-44. The improved system of Clemons combined with NLB would remain self-contained and operable by a single person, thereby meeting key objectives of Clemons and NLB and improving upon the capabilities of the Clemons system. Blasters-1009 at ¶ 142.

Furthermore, for the reasons explained in the Petition, it would have been obvious to further improve the cleaning system of Clemons by replacing the vacuum pump, the water pump, the water supply hose, and the spray nozzles of Clemons with the high-power, 1,000 CFM vacuum pump and “ultra-high pressure” water

pump, water supply hose, and spray nozzles of NLB, which are specifically designed for pressure of up to 40,000 psi. Blasters-1006 at 2, 4; Blasters-1009 at ¶ 147. This additional improvement would extend the capabilities of the cleaning system to a wider array of applications including “[f]loor coating removal.” Blasters-1005 at 4, Blasters-1009 at ¶ 147. Accordingly, a POSA would have been motivated to combine Clemons with NLB, thus achieving the cleaning system claimed in claim 1.

3. Combination of Clemons and NLB teaches an articulating link

Patent Owner alleges that “neither Clemons nor NLB disclose [sic] an articulating link.” PO Response at 22. Patent Owner provides no evidentiary support for this allegation. This alleged deficiency of Clemons in view of NLB has been conclusively refuted in Part IV(B) of this Reply. Therefore, this argument has no merit.

4. Mr. Boos provided ample rationale as to why a POSA would have been motivated to combine Clemons and NLB

Patent Owner’s allegation that Mr. Boos did not provide a rationale for combining Clemons with NLB contradicts the record. Indeed, Mr. Boos provided an explicit reasoning in paragraphs 142-147 of his expert declaration. Blasters-1009 at ¶ 142-147. Mr. Boos also extensively addressed this topic during his cross

examination. Blasters-1018 at 245:12-246:19. Thus, based on the record, Mr. Boos DID articulate a rationale for combining Clemons with NLB.

For the reasons set forth above, Clemons in view of NLB renders obvious claims 1-4 and 10 of the '116 Patent.

E. Clemons in view of NLB and further in view of Schrunk renders obvious claims 5 and 6

With respect to claims 5 and 6, Patent Owner advances a single conclusory assertion in attempt to rescue these claims from invalidation: “Clemons is not a ‘cleaning system.’” Patent Owner response at 23. Petitioner refuted this argument in Part V(D)(1) of this Reply. Thus, claims 5-6 are unpatentable over the combination of Clemons, NLB, and Schrunk.

VI. CONCLUSION

Petitioner has met its burden of establishing that claims 1-6 and 10 of U.S. Patent No. 7,255,116 are unpatentable and respectfully requests that the Board enter judgment in accordance therewith.

Respectfully submitted,
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CERTIFICATE OF WORD COUNT

The undersigned hereby certifies that, in accordance with 37 C.F.R. § 42.24(d), this Reply includes a total of 6,428 words. Per 37 C.F.R. § 42.24(c)(1), the total number of words excluding a table of contents, a table of authorities, a certificate of service or word count, and appendix of exhibits is 5,547.

Date: January 18, 2018

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that, in accordance with 37 C.F.R. § 42.6(e), the above Petitioner's Reply and a copy of the incorporated exhibits were served in their entirety on January 18, 2019 upon the following via electronic mail and USPS Priority Express Mail Label No. 9470103699300041872883.

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APPENDIX A—EXHIBIT LIST

Exhibit No.	Description
Blasters-1001	U.S. Patent No. 7,255,116 to Crocker (“the ‘116 Patent”)
Blasters-1002	U.S. Patent No. 3,902,219 to Jones (“Jones”)
Blasters-1003	U.S. Patent No. 3,011,206 to Breither (“Breither”)
Blasters-1004	U.S. Patent No. 6,889,914 to Herhold (“Herhold”)
Blasters-1005	U.S. Patent No. 5,494,393 to Schrunk (“Schrunk”)
Blasters-1006	NLB Corp. StripeJet™ Brochure (“the NLB Brochure”)
Blasters-1007	U.S. Patent No. 4,975,205 to Sloan (“Sloan”)
Blasters-1008	U.S. Patent No. 6,381,801 to Clemons, Sr. (“Clemons”)
Blasters-1009	Expert Declaration in Support of Petition for <i>Inter Partes</i> Review of U.S. Patent No. 7,255,116
Blasters-1010	Definitions of Terms from Thefreedictionary.com
Blasters-1011	Definitions of Terms from Merriam-Webster Dictionary Online
Blasters-1012	Definitions of Terms from Merriam-Webster Dictionary
Blasters-1013	Definitions of Terms from Dictionary.com
Blasters-1014	Definitions of Terms from The Oxford Dictionary
Blasters-1015	Definitions of Terms from Chambers Dictionary of Science and Technology
Blasters-1016	Declaration of Christopher Butler
Blasters-1017	CV of Scott F. Boos
Blasters-1018	Deposition Transcript of Dr. Randall King
Blasters-1019	NLB Corp. Website
Blasters-1020	NLB Corp. Pump Brochure for Model No. 4075D High-Pressure Liquid Jetting System (“NLB Pump Advertisement”)
Blasters-1021	Second Declaration of Christopher Butler
Blasters-1022	Conference paper entitled “AIRFIELD RUBBER REMOVAL” as presented at the 2002 Federal Aviation Administration Technology Transfer Conference and archived with the Federal Aviation Administration
Blasters-1023	Deposition Transcript of Mr. Scott Boos