

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SOLARIS OILFIELD SITE SERVICES OPERATING, LLC, and SOLARIS
OILFIELD SITE SERVICES PERSONNEL, LLC,

Petitioners

v.

MASABA, INC.,

Patent Owner

Case No. IPR2024-01179

Patent 11,780,689

PETITIONERS' REPLY TO PATENT OWNER'S RESPONSE

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Petitioners demonstrated that the Challenged Claims are unpatentable. Patent Owner's Response ("POR") fails to show otherwise. Instead, Patent Owner ("PO") mischaracterizes Petitioners' arguments, knocking down strawmen irrelevant to the Petition's reasons for combining the prior art. Indeed, the '689 Patent inventors used *Dynatek's* teachings exactly as POSITAs would have by "looking to put ***something like the [Dynatek] Econolader*** at the top of the bucket elevator." EX1120, 1.¹ PO argues that its claimed inventions are not obvious because they were allegedly copied, praised, and commercially successful in Petitioners' purported infringement. But the reasons Petitioners' system has been successful and praised have no nexus to the allegedly-novel features of the '689 claims.

PO's accusations that Petitioners allegedly stole PO's design ignore what really happened. When PO started working on the top fill system, Petitioners and their Senior Principal Engineer Jeremy Weinstein had designed and built oilfield aggregate handling systems for many years. Mr. Weinstein—a POSITA in his own right—told PO what elements to include, and PO merely implemented components and functionalities well-known to POSITAs to assemble the system. Even after PO filed its patent application, PO could not meet Petitioners' needs. The only unit PO ever built or sold (after repeated delays) literally fell apart during transport.

¹ Emphasis supplied to quotations unless otherwise noted.

Petitioners had no choice but to build their own top fill systems, and the ‘689 Patent should not prevent them from doing so.

I. DR. DURHAM IS A POSITA.

In order to avoid Dr. Durham’s expertise, PO limits a POSITA’s relevant experience to designing and building *mechanical* aspects of aggregate handling systems. However, the ‘689 Patent’s intrinsic record is not so limited. *See DyStar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1362–63 (Fed. Cir. 2006) (error to ignore “higher-level perspective” based on the patent’s “purpose” in defining POSITA). Its specification states that its inventions include methods of using (*e.g.*, “setting up” and “operating”) such systems, and describes numerous electrical components and systems necessary to that invention. EX1001, 13:35-15:38. Moreover, the only real-world application in the patent is filling silos with sand for oilfield fracturing operations, and almost all its cited prior art involves oilfield equipment. EX1001, 4:13-18; EX1110, ¶¶15-18; EX1111, ¶¶29-32.

PO doesn’t dispute that Dr. Durham has extensive experience using and evaluating such systems. He also has more than enough training (*e.g.*, multidisciplinary classes in his bachelor’s and Ph.D programs) and experience designing and evaluating mechanical aspects of conveying systems used in fracturing to be a POSITA under any reasonable definition. EX1110, ¶¶19-20. Nor

have Dr. Durham’s opinions ever been excluded in a patent case to Petitioners’ knowledge.²

The declarations of David Smith (EX1111) and Jeremy Weinstein (EX1112) also confirm Dr. Durham’s opinions on the disputed issues. Mr. Smith and Mr. Weinstein each have over 15 years of mechanical engineering experience, and Mr. Weinstein’s experience includes designing multiple systems for handling frac sand and other materials for several oilfield services providers. EX1111, ¶¶4-8; EX1112, ¶¶4-7.

II. GROUND 1

A. *Waldner* Discloses an “Extension Conveyor...”.

PO construes this term to require a device that imparts motion to aggregate, which PO applies to exclude chutes that rely on gravity. POR, 28. The Board should reject this construction. PO cites nothing in the patent’s intrinsic record to support it, much less does PO analyze such evidence under applicable law. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1313-14 (Fed. Cir. 2005). To the contrary, POSITAs would understand that many “conveyors” use gravity to impart motion to the materials they transport. EX1111, ¶¶33-36; EX1131-EX1134.

² Dr. Durham’s exclusion in *Trusty v. Sunbeam Prods., Inc.*, No. 2:13–CV–02039, 2014 WL 1410259, *3-5 (W.D. Ark. Feb. 19, 2014) is irrelevant to this IPR. *See id.* (citing 8th Circuit requirements for causation in products liability cases).

Even under PO's construction, *Waldner's* discharge chute is not a fixed tube or pipeline; it is orientable to move aggregate material to its outlet. EX1004, 15:14-21, 25:30-26:19, 26:55-63. Therefore, *Waldner's* discharge chute "imparts motion to the aggregate to transport it from one point to another". EX1110, ¶21. That it does so in cooperation with gravity (as any conveyor on Earth must) doesn't exclude it from PO's construction.

B. POSITAs Would Have Used *Dynatek's* Teachings in *Waldner*.

PO's expert applies an improper standard, asserting that POSITAs wouldn't consider similar systems for handling aggregate materials to improve *Waldner*. EX2004, ¶40. However, a POSITA is "not an automaton" and would have had "good reason to pursue the known options within his or her technical grasp" to improve *Waldner*, either by substituting *Waldner's* components with *Dynatek's* **or** using *Dynatek's* teachings. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007); *cf.* Paper 7, page 8. Mr. Anderson argues that the problem allegedly facing the '689 inventors did not "assume[] a solution that uses 'a conveyor system.'" EX2004, ¶36. But *Waldner*, *Sleeman*, and other references use conveyors for that purpose. *E.g.*, EX1004, Abstract, 2:37-3:60, 13:51-14:3, 14:47-15:3; EX1008, Abstract, 3:6-15; EX1010, Abstract, 1:63-2:34; EX1003, ¶¶63-69. And Petitioners specifically instructed PO to build a system "with a high angle **conveyor** and a truck dump/**conveyor**" to fill silos. EX1100, 3; *see* EX1112, ¶¶8-9. Any purported

skepticism of bucket elevators is likewise irrelevant since *Waldner* already discloses them.³ See *SynQor, Inc. v. Vicor Corp.*, No. 2021-2211, 2023 WL 234186, at *4 (Fed. Cir. Jan. 18, 2023) (skepticism must be “attributable to the claimed **combination** of [prior art features], as opposed to ... prior art features in isolation....”).

1. Increased Reach and Range of Motion

PO’s complaint that POSITAs had no reason to extend the reach of *Waldner*’s system (POR, 30-31) misses Dr. Durham’s point. Because a belt conveyor’s discharge rate doesn’t depend on gravity, modifying or substituting *Waldner*’s chute to incorporate one of similar length would increase its reach ***independent of and without changing the discharge rate/speed from it***. See EX1003, ¶¶115, 118; EX2003, 75:24-81:13. Mr. Anderson acknowledged that once *Waldner*’s chute is telescoped out, the farther horizontally it reaches, the shallower its angle must be, slowing the speed at which aggregate will slide down the chute. EX1113, 298:7-299:7. *Dynatek*’s horizontal belt conveyors avoid this issue.

PO assumes that *Waldner*’s system would never need to fill silos behind the bucket elevator. POR, 31. Space is limited at most oilfield well sites, and it might

³ Moreover, at least two other companies—including Mr. Anderson’s former employer—had silo filling systems that used bucket elevators. EX1113, 39:8-42:6; EX1028; EX1037-1038. Any industry concerns regarding bucket elevators were about heat and maintenance issues, not whether they would work. EX1112, ¶¶19-20.

not be feasible to deploy *Waldner's* system to place all silos within 180-degrees' reach from the bucket elevator. EX1110, ¶¶35-37; EX1003, ¶59. Having to collapse and reposition that system to reach additional silos would increase cost and downtime. EX1111, ¶¶37-39; EX1113, 89:6-13 ("time is money" in the oilfield). Moreover, even for silos in front of the bucket elevator, an articulated chute or belt conveyor would increase range of motion because the same system could place its outlet both at silos closer to the bucket elevator (see Figure 1 below) and silos farther from the bucket elevator (Figure 2 below) without changing its downward angle.⁴ EX1110, ¶¶22-24, 28; EX1111, ¶¶43-49. A telescoping chute or conveyor of similar length would not be able to fill at both locations. *Id.*; *cf.* EX1113, 161:2-165:5, 329:16-335:14 (Anderson discussing similar issues, using EX1039, EX1041).

⁴ Indeed, Petitioners articulated this requirement to PO. EX1112, ¶13; EX1104, §6.2.

Figure 1 ([articulated](#) and [telescoping](#) conveyors)

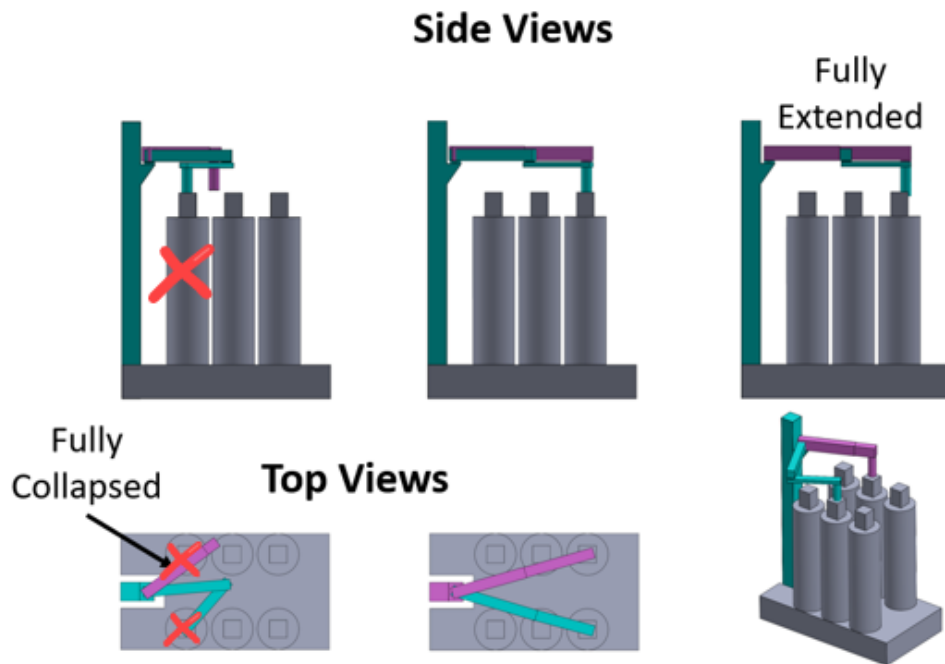
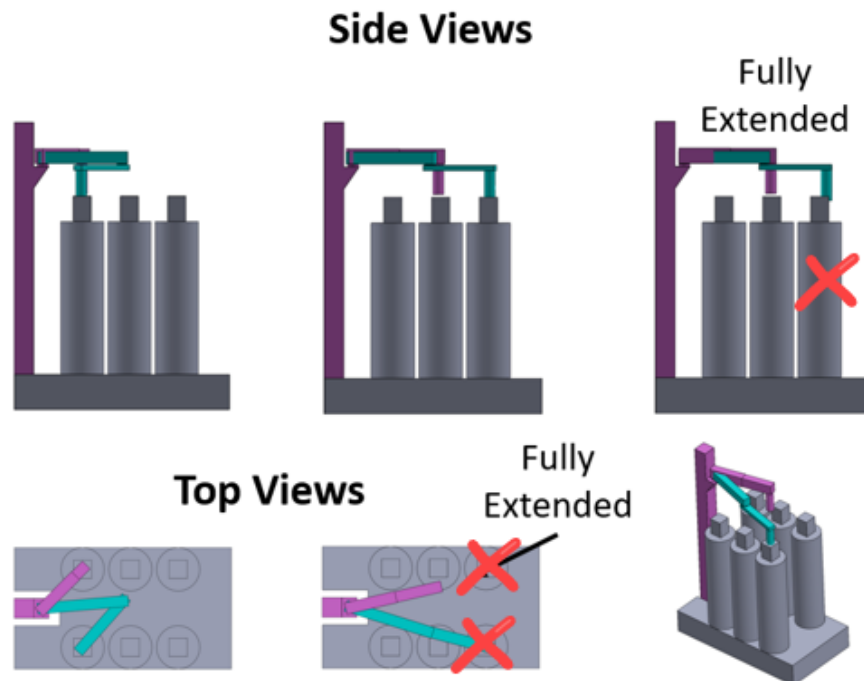


Figure 2 ([articulated](#) and [telescoping](#) conveyors)



PO argues that one could simply make *Waldner*'s bucket elevator taller and/or its discharge chute longer to reach these locations. POR, 31. This fails for several reasons. First, the existence of alternative solutions doesn't disprove that combining *Waldner* and *Dynatek* would have been obvious. *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004) ("a particular combination" need not "be the preferred, or the most desirable, combination ... in order to provide motivation"). Moreover, PO's alternatives would not necessarily be preferable. The increased height needed to prevent aggregate from piling up at the inlet of *Waldner*'s discharge chute would be significant. To provide the reach needed to convey dry sand into Petitioners' silos that predated the '689 Patent,⁵ *Waldner*'s bucket elevator would need to be about 33 feet taller, and its gravity-fed chute would need to be about 10 feet longer, than if it used a belt conveyor. EX1110, ¶¶29-33; EX1111, ¶¶42, 54-58.

Taller bucket elevators would present numerous disadvantages:

- increased length when collapsed—decreasing maneuverability, requiring increased storage space and additional permitting for road transport;
- increased weight—requiring stronger axles and more fuel for transportation; and

⁵ See EX1151, 3 (angle of repose for dry sand); EX1112, ¶15; EX1129.

- increased leverage force to deploy—requiring more powerful lift structures.

EX1110, ¶27; EX1111, ¶63. Longer discharge chutes also would be heavier and harder to manipulate, and the discharge speed/rate from them would still vary depending on their angle. EX1110, ¶34; EX1111, ¶64.

Finally, as Mr. Anderson conceded, making *Waldner's* bucket elevator taller or its chute longer would require knowing what reach and range of motion was needed before the system is built, and then redesigning and requalifying the system to have a taller elevator and/or longer chute. EX1113, 190:4-191:10. As demonstrated above, using *Dynatek's* teaching of articulated belt conveyors would make *Waldner's* system more flexible because a single system could reach more silos without a re-design.

2. Mechanical Control

PO argues that *Waldner's* chute and *Dynatek's* Econoloader “provide an equal level of mechanical control/precision”. POR, 31-32. This is wrong. Mr. Anderson admitted that the lateral position of *Waldner's* chute outlet can only be adjusted without changing its angle by moving the entire chute from a single point (*i.e.*, where it is attached to the bucket elevator). EX1113, 194:18-195:7. The second pivot joint of *Dynatek's* articulated arm teaches a second point for lateral adjustments,

providing better leverage and requiring less force to move the outlet. EX1110, ¶¶38-39.

3. Discharge Rates

Dr. Durham's rationale for incorporating a belt conveyor into *Waldner's* chute is neither "vague" nor "conclusory". POR, 40-41. He explained that controlling the speed of *Dynatek's* belt conveyor would "be more advantageous in its ability to control speed of discharge as opposed to gravity based systems" like an airslide or *Waldner's* chute. EX1003, ¶¶117-118. He noted that this would "improve control of delivery and discharge of the particulate matter" and allow "better control and discharge rates" from *Waldner's* chute. *Id.*

PO argues that, since the amount of aggregate *Waldner's* system can move from a truck to a silo in a given time is limited at the input where the truck unloads aggregate (*i.e.*, at first belt conveyor 42), POSITAs could not use *Dynatek's* belt conveyors to increase the overall "discharge rate" of *Waldner's* system. POR, 32. This argument is a strawman. Dr. Durham did not suggest that POSITAs would combine *Dynatek* with *Waldner* to increase the total amount of aggregate discharged by the overall system. Instead, belt conveyors would permit increased discharge rates *from Waldner's chute independent of its angle*. EX2003, 76:2-77:14, 86:3-11; EX1110, ¶¶40-42. This would "improve control of delivery and discharge" of aggregate. EX1003, ¶118. PO's concerns regarding "significant wear" and "low

reliability” of conveyor belts are more strawmen. POR, 41. PO assumes a “configuration” involving a tube-shaped conveyor belt (e.g., “tubveyor”) that Dr. Durham never proposed and the ‘689 claims don’t require. EX1113, 181:5-183:11; EX1110, ¶44.

PO does not seem to dispute that belt conveyors could increase the discharge speed or rate capability from *Waldner’s* chute.⁶ Even if doing so would not increase the overall system discharge rate, it would prevent aggregate from piling up at the inlet of the chute or belt conveyor. POSITAs would recognize that this would beneficially decrease the weight on the chute or belt conveyor. EX1110, ¶¶40-42; EX1111, ¶¶67-68. PO’s alternative solution of widening *Waldner’s* chute (POR, 33) doesn’t rebut the obviousness of combining *Dynatek* with *Waldner* instead. See *Fulton*, 391 F.3d at 1200. Indeed, a wider discharge chute could be heavier and harder to manipulate, and may not increase the chute’s discharge rate if, e.g., aggregate is obstructing the chute. EX1110, ¶43; EX1111, ¶69.

For at least these reasons, POSITAs would have used *Dynatek’s* teachings of an outboard pivot and optionally a belt conveyor to enhance the reach, range of motion, and control of *Waldner’s* discharge chute and/or to increase the discharge

⁶ Although PO quibbles with Dr. Durham’s usage of “rate” instead of “speed” (POR, 33), he specifically referenced “speed” of discharge and “particle movement rates” (EX1003, ¶¶115, 117), and Mr. Anderson at least recognized the concept Dr. Durham was describing.

speed or rate from it. Again, a POSITA is not an automaton or someone without ordinary creativity. *KSR*, 550 U.S. at 421. It would be within their capabilities to make the necessary modifications to integrate *Dynatek's* teachings into *Waldner's* system for their intended purposes. That is exactly what the '689 inventors did—they “look[ed] to put *something like the [Dynatek] Econoloader* at the top of the bucket elevator” in order to deliver sand to all six silos in Petitioners' equipment. EX1120, 1; *see also* EX1112, ¶¶9-11, 22; EX1111, ¶¶50-53, 58, 64-66.

C. A POSITA Would Have Substituted *Dynatek's* Econoloader for *Waldner's* Discharge Chute.

1. *Belt Mistracking*

Virtually any conveyor belt, including those already in *Waldner*, could potentially mis-track.⁷ However, POSITAs knew how to address this risk using careful design techniques and well-known solutions such as levelling and stabilizing devices, sensors, belt tensioning mechanisms, and specially-designed belt rollers to keep conveyor belts side-to-side level. EX1110, ¶¶44-46; EX1111, ¶¶70-76; EX1112, ¶25; EX1135, 4-10; EX1004, 24:4-25:6, 28:1-30:30, 30:60-33:39

⁷ PO's argument that *Waldner* doesn't address mistracking because its “chute only functions if it is not horizontal” (POR, 36) is another strawman. As illustrated in EX1111, ¶¶54-55, *Waldner's* chute need only be angled end-to-end, not a side-to-side angle that risks mistracking. *Waldner's* bucket elevator (in the operational configuration) and *Dynatek's* pedestal are substantially vertical, and *Dynatek* shows its conveyor belts in a substantially horizontal plane. EX1005, 2-3; EX1003, ¶¶141, 167, 170-171. Therefore, even if *Waldner's* chute “does not need to be level side-to-side”, the extension conveyor in the combined system would be.

(disclosing several features); *see In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1382 (Fed. Cir. 2007) (“[W]e do not ignore the modifications that [POSITAs] would make to a device borrowed from the prior art.”). The ‘689 inventors merely implemented these well-known solutions, and commercial conveyors like the Econoloader likely would have such measures built-in. EX1111, ¶74. And, *Waldner’s* system would require frequent inspection and maintenance during use anyway, and so any belt mistracking in the *Waldner/Dynatek* system could be addressed before it causes problems. EX1110, ¶47; EX1111, ¶74; EX1113; 53:3-55:9.

2. Weight and Wind

PO concludes that incorporating *Dynatek’s* Econoloader would require more complex mounting structures to accommodate its added weight and wind loads. POR, 37. However, Mr. Anderson did not quantify the added weight or wind loads or explain why *Waldner’s* existing mounting and stabilizing mechanisms would be insufficient. EX1113, 200:8-202:4, 209:8-19; *see also id.*, 95:16-96:22 (guy wires and outriggers were known to POSITAs), 210:2-7.⁸ To the contrary, if POSITAs could have addressed the increased weight and wind loads of a longer or wider

⁸ Mr. Anderson’s concern that the Econoloader would be moved by wind also doesn’t make sense, since heavier objects with less surface area tend to be more stable in wind. EX1110, ¶48; EX1111, ¶77. If wind could cause mistracking of the Econoloader’s belts, POSITAs would already know how to address that (and Dynatek likely did). *See* Section II.C.1, *supra*.

discharge chute or a taller bucket elevator in *Waldner* as PO suggests (EX2004, ¶¶41, 43, 46), POSITAs could have done so for the increased weight of *Dynatek's* Econoloader. EX1111, ¶¶91-92; EX1110, ¶48; *see ICON*, 496 F.3d at 1382 (explaining that POSITAs would size prior art components to fit a given application). Finally, although modifying *Waldner's* system to accommodate a heavier conveyor or withstand winds may involve “design decisions [that] entail making tradeoffs among multiple objectives”, such tradeoffs “do[] not necessarily obviate motivation to combine”. *Corephotonics, Ltd. v. Apple Inc.*, No. 2020-1961, 2021 WL 4944471, at *6 (Fed. Cir. Oct. 25, 2021) (quoting *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016)); *Fatigue Fracture Tech., LLC v. Navistar, Inc.*, 837 F. App'x 793, 797-99 (Fed. Cir. 2020) (nonprecedential) (rejecting argument that POSITAs would not be motivated to combine prior art process for manufacturing rods that was too slow; claims did not specify speed, and prior art would be faster for certain types of rods).⁹

3. Transportable Height

In concluding that *Waldner's* system incorporating the Econoloader would be too tall in its transport configuration for highways, Mr. Anderson wrongly assumed that *Waldner's* ramps are taller than they actually are, and that POSITAs would

⁹ As another “tradeoff”, POSITAs might simply avoid using the combined *Waldner/Dynatek* system in high winds. EX1113, 208:4-209:7.

double-stack the Econoloader arms on top of the ramps. EX1110, ¶¶49-52; EX1111, ¶¶78-84. Using the proper measurements and the Econoloader’s two pivot joints to re-position its arms,¹⁰ POSITAs could have arranged those components to fit within a total height of 11.5-12.5 feet, which would comply with all U.S. highway regulations. EX1110, ¶53; EX1111, ¶85. If any other sizing adjustments to *Waldner’s* components were needed to accommodate the Econoloader, POSITAs certainly could have made them. EX1110, ¶54; EX1111, ¶86; *see ICON*, 496 F.3d at 1382. Even if the height of the combined system still required a permit, that design tradeoff would not defeat obviousness. *Corephotonics*, 2021 WL 4944471, at *6; *Fatigue Fracture*, 837 F. App’x at 797-99.¹¹

Therefore, PO’s concerns would not have dissuaded POSITAs from using *Dynatek’s* Econoloader in *Waldner’s* system. Indeed, similar articulated conveyors were well-known. EX1112, ¶¶9-11; EX1126-1128. The ‘689 inventors even contacted *Dynatek* about using Econoloaders in their system, and only decided not to because they were too tall, too heavy, and not long enough to reach the silos.

¹⁰ PO’s “unique way to fold” the extension conveyors to minimize the system’s height (POR, 39) was not inventive; it was simply the result of using the Econoloader’s inherent functionality. EX1110, ¶52; EX1111, ¶¶80-81.

¹¹ None of the ‘689 claims require transporting the system on highways, much less without permits. Moreover, *Waldner’s* system likely would already require permits for highway transport due to its collapsed length (corresponding to typical silo heights). EX1110, ¶54; EX1111, ¶¶59-62, 87-88; EX1153, 3; EX1138, 4.

EX2005, ¶12; EX1114, 124:16-126:14. As discussed above, substituting the Econoloader into *Waldner* would not have made the system too tall. Nor do the ‘689 claims specify the system’s height, weight, or reach. And, those issues didn’t dissuade PO from using *Dynatek*’s teachings with routine height and weight adjustments that POSITAs would have made. Cf. EX1111, ¶¶50-53, 58, 64-66; EX1112, ¶¶9-11, 22.

D. The *Waldner*/*Dynatek* combination discloses Claim 4.

PO asserts that *Waldner*’s chute cannot be “substantially perpendicular” to the bucket elevator because it must be angled downward to dispense aggregate.¹² POR, 42 n.7. However, Mr. Anderson couldn’t say how much of an angle less than 90 degrees might still be “substantially perpendicular”. EX1113, 228:11-231:22. In any event, in the proposed combination with *Dynatek* (including the orientation shown therein), the articulated belt conveyor would be substantially perpendicular to *Waldner*’s bucket elevator in the operational configuration.

E. *Waldner*, either alone or with *Dynatek*, discloses Claims 6 & 7.

PO argues that *Dynatek*’s truss frame cannot be a “conveyor support frame” because it looks different from the ‘689 Patent’s frame 154. Of course, PO doesn’t

¹² Claim 4 only requires the extension conveyor to be substantially perpendicular to the bucket elevator in a “raised position corresponding to an operational configuration.” *Waldner*’s chute undisputedly can be so oriented (EX1003, ¶¶154, 167; EX1113, 145:15-21), and it need not actively dispense aggregate in that orientation to satisfy claim 4.

identify it as a means-plus-function element or provide any claim construction of it. Nor would POSITAs necessarily construe claim 6 to require that the conveyor support frame be *attached to* the aggregate elevating assembly as PO does. EX1110, ¶¶55-56; EX1111, ¶¶97-98. Even if so construed, in the proposed combination, the proximal end of *Dynatek's* truss frame would be attached to *Waldner's* bucket elevator frame, either directly or in combination with structures like *Waldner's* brackets 252, links 256, and pins 258. EX1110, ¶¶57-59; EX1111, ¶¶99-101.

Waldner's links 256/262 and pins 258/264 rotate and swing when actuators 270/266 are actuated.¹³ Thus, they are “moveable” as required in claim 6. As Mr. Anderson admitted, claim 7 only adds that *a portion* of the conveyor support frame moves away from or toward the deployable frame. EX1113, 239:3-244:1 (referencing EX1040). *Waldner's* pivot pins (*i.e.*, a portion of the conveyor support frame) are “moveable” per claim 6 and, when combined with *Dynatek*, the distal portions of *Dynatek's* truss frame on *Waldner's* discharge chute would move relative to *Waldner's* bucket elevator frame per claim 7. EX1004, 26:12-19, 26:55-61 (“discharge end 246a” moving toward or away from frame 254); EX1003, ¶¶181-182.

¹³ Contrary to PO's argument (POR, 48), Petitioners read the combination of actuators 266 and 270 on the “conveyor extension lift structure”. Pet., 50; EX1003, ¶¶180-181.

III. GROUND 1A: Claims 6 & 7

Ground 1A does not require that *Waldner*'s chute is detached for transport. POR, 49. *Sleeman* and *Waldner* disclose very similar systems, which PO doesn't dispute. Pet., 64; EX1003, ¶¶268, 272. Therefore, POSITAs would consider *Sleeman*'s alternative mechanisms for attaching and manipulating a discharge chute to improve *Waldner*. *Id.*; see *KSR*, 550 U.S. at 401 (combination obvious "if a technique has been used to improve one device, and [POSITAs] would recognize that it would improve similar devices in the same way"). Petitioners only noted the detachment of *Waldner*'s chute as one "example" of why POSITAs *might* do so.

Sleeman's spouts are mounted on "a horizontal pivot shaft 60 defining a horizontal tilt axis," and tilt actuator 70 controls their vertical rotation about that axis. Pet., 66, 70 (discussing claims 1[h] and 1[i]);¹⁴ EX1003, ¶¶276, 279. Mr. Anderson concedes that *Sleeman*'s tilt actuator 70 operates as claim 7 requires. EX1113, 245:4–249:1; see also EX1110, ¶¶60-61 (Dr. Durham clarifying). And, *Waldner* also discloses the "conveyor extension lift structure". Even if Petitioners had not identified one in *Sleeman*, that would not defeat Ground 1A. See, e.g., *Palo Alto Networks, Inc. v. Centripetal Networks, LLC*, 122 F.4th 1378, 1386 (Fed. Cir. 2024) (rejecting arguments about disclosures of references individually).

¹⁴ Petitioners expressly incorporated the discussion of 1[h] into the discussions of claims 6-7. Pet., 72; EX1003, ¶¶287-291.

IV. GROUND 2

Even if *Waldner* and *Dynatek* do not teach a moveable conveyor support frame as claims 6 and 7 recite, *Pham* does. For example, Dr. Durham explains that POSITAs would use *Pham*'s teachings to make *Waldner*'s brackets 252 movable, which would facilitate collapsing the discharge chute into the stowed position. EX1003, ¶¶300, 306, 308; Pet., 76-77. PO disputes this by arguing that Dr. Durham assumed *Waldner*'s discharge chute is detached for transport. POR, 54-55. But neither the Petition nor Dr. Durham's opinions in Ground 2 even mention that issue. Pet., 75-77; EX1003, ¶¶297-301. Moreover, as discussed in Section III., *supra*, POSITAs would still consider ways to improve *Waldner*, such as *Pham*'s teachings to support moveable conveyors with frames and/or make an existing frame (e.g., *Waldner*'s brackets 252) more fully collapsible. PO's other criticisms (POR, 56) are strawmen attacking claim elements already taught in *Waldner* and/or *Dynatek*, and do not relate to *Pham*'s vertically collapsible frame.¹⁵ See *Palo Alto Networks*, 122 F.4th at 1386.

¹⁵ At most, PO's arguments address physically substituting *Pham*'s frame into *Waldner*. But using *Pham*'s teachings would not require bodily incorporation. *Allied Erecting*, 825 F.3d at 1381.

V. GROUND 3¹⁶

A. *Auld* is Analogous Art

PO's attempt to divorce the fields of "transferring aggregate" and "mixing concrete" is unsupportable. POR, 59. PO ignores that concrete *is* a mixture of gravel (an aggregate) with cement, and thus *Auld* necessarily involves handling aggregate materials. EX1111, ¶102. Indeed, *Waldner* describes its field as "portable conveyor systems for loading of *particulate material*", and specifically references a prior art "mobile concrete batching system" in which a receiving hopper "accepts bulk cement from a hopper-bottom truck." EX1004, 2:12-19. Mr. Anderson could not distinguish between "aggregate" and other particulate materials based on their particle sizes or sources, admitting that his distinctions were debatable and "not set in stone" to POSITAs. EX1113, 112:11-114:15; *see also* EX1114, 160:1-161:1 ("it's like asking is ice water or is water ice"). In any event, POSITAs "of ordinary creativity" would deem *Auld*'s system sufficiently analogous to *Waldner*'s to combine their teachings. EX1111, ¶¶103-104; EX1003, ¶¶314-316; *cf.* EX1113, 24:8-27:18.

¹⁶ PO construes the "trailer structure..." of claims 3 and 21 to require a kingpin and a landing leg. POR, 58. But the '689 specification doesn't tie the landing leg to its function, *i.e.*, "permit[ting] the apparatus to be towed...." Therefore, the leg is not part of the corresponding structure. *See Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1298 (Fed. Cir. 2005). If the Board disagrees, Petitioners' analysis of the leg in claims 12 and 25 applies.

B. A POSITA Would Use *Auld*'s Teachings to Attach a Kingpin to *Waldner*'s Bucket Elevator.

PO does not dispute that *Waldner expressly* directs POSITAs to consider other hitch types for towing its system. EX1004, 12:28-34. Instead, PO debates semantics regarding whether *Auld*'s kingpin connection would more evenly distribute load on the towing vehicle or some other structure attached to it. Regardless, Mr. Anderson concedes that kingpin connections are “standard” for heavy loads and have “a plate that allows that load to be spread across [it] more evenly so [there is] less wear.” EX1113, 250:14-251:6; *see also* EX1110, ¶¶62-64; EX1111, ¶¶105-106. POSITAs would understand from *Auld* that attaching the hitch to the vertically-deployable component would reduce the framing material needed. EX1003, ¶¶320, 331, 349. Indeed, “frameless trailers” and hitches mounted directly on wheel-mounted conveyors were well-known. EX1111, ¶¶112-118.

Mr. Anderson addresses none of this analysis. He simply concludes that POSITAs “would not have conceived of doing such a thing” and lists differences between *Auld* and *Waldner* (e.g., “a silo is not a bucket elevator”). EX2004, ¶¶145-146, 149. But he doesn't explain *why* those differences would discourage POSITAs from combining their teachings.

PO also complains that a kingpin cannot be attached to *Waldner*'s bucket elevator because it is off-center on the trailer. POR, 63-65. Again, a POSITA is a “person of ordinary creativity” whom PO agrees could adjust the dimensions of

Waldner's discharge chute and bucket elevator. See EX2004, ¶¶41, 43, 46. If POSITAs could make those adjustments, they would likewise address this issue by, e.g., centering *Waldner's* bucket elevator on the trailer, extending its frame 50, or adjusting the trailer's width. EX1110, ¶¶65-68; EX1111, ¶¶107-111; see also EX1006, Figs. 3, 23-24 (elevating assembly 24 and main frame 26 centered on base frame 12, which serves as a trailer frame (*id.*, 38:3-8)); *ICON*, 496 F.3d at 1382.

VI. GROUND 4

PO's critique that *McIver's* rocker arm is not "more compact" than *Waldner's* hydraulic cylinders in an absolute sense is another strawman. POR, 66-67. As Dr. Durham explained, *McIver's* advantage is that its multi-segment arm structure folds to be more compact *while having a longer range of motion* than *Waldner's* cylinders. EX1003, ¶373. *Friesen* employs a similar concept for lifting a long conveyor, and thus would have motivated POSITAs to use a rocker arm like *McIver's* in *Waldner*. EX1003, ¶376. Mr. Anderson identifies differences between *Friesen's* and *McIver's* lift arms (EX2004, ¶173), but ignores their common features and does not rebut their benefits in *Waldner*.

PO also improperly isolates *McIver's* rocker arm 204, asserting that it is not "articulated". POR, 68-69. Both the Petition and Dr. Durham read *McIver's* elements

204, 206, and 210 on claim 13[1]. Pet., 95; EX1003, ¶¶393-394;¹⁷ EX2003, 147:20-148:23. There is no dispute that *McIver*’s pairs of elements 204/206 and 206/210 pivot with respect to one another, and therefore the overall structure comprising them is “articulated” in two places. EX1113, 264:4-265:13, 266:7-268:16; *see also* EX1110, ¶¶69-72 (Dr. Durham clarifying).

VII. SECONDARY CONSIDERATIONS

A. Alleged Praise, Commercial Success, and Skepticism

First, the Board cannot presume nexus between Petitioners’ commercial top fill system and the ’689 Patent. PO presents no testimony that Petitioners’ or PO’s systems satisfy all requirements of any ’689 Patent claim. PO’s bare conclusion and reference to its infringement lawsuit complaint (EX2037) cannot meet PO’s evidentiary burden required to presume nexus. *Viking Drill & Tool, Inc. v. Wang*, IPR2023-00474, 2024 WL 3311903, at *14 (July 5, 2024); *see also Volvo Penta of the Americas, LLC v. Brunswick Corp.*, 81 F.4th 1202, 1211 (Fed. Cir. 2023).

Any nexus is disproven by PO’s own evidence about the success of Petitioners’ systems. For example, Petitioners’ earnings calls (POR, 18-20) touted their systems’ transportability and ability to accept sand “belly-dumped” from the bottom of a truck, which increase delivery rates and reduce downtime over

¹⁷ Dr. Durham’s testimony that the “rocker arm is articulated” (POR, 69) was not limited to element 204. He also stated that the full “arm structure” was “articulated” between its first and second ends. EX1003, ¶394.

pneumatic systems. *See e.g.*, EX2016, timestamp 3:23 (“Belly dump trucking allows for increased sand volume per truck load and increases the number of turns per truck.”); EX2012, timestamp 27:38 (“...you’re going to lower your driver need and driver time by moving to the belly dump ... that’s one of the largest drivers for the what and the why of the top fill.”). But *Waldner* and *Sleeman* likewise disclose transportable systems that accept sand belly-dumped from trucks,¹⁸ and the ‘689 claims’ elements absent from *Waldner* and *Sleeman* (*e.g.*, outboard pivot on extension conveyors, landing legs, king pins, and articulated lift arms) have nothing to do with these benefits. EX1110, ¶¶5-10. Similarly, PO’s declarant Mike Stanton noted PO’s system’s “minimal footprint”,¹⁹ but *Waldner*’s and *Sleeman*’s vertical bucket elevators also produce that benefit. *See* EX1006, 13:11-21 (“Use of a bucket elevator together with the main conveyor assembly and ... repositionable feed conveyors ... results in a much smaller footprint on site...”). Praise or success of Petitioners’ system based on features in the prior art cannot rebut the obviousness of PO’s claims that simply add other features. *See ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016) (discounting evidence relating to prior art features); *Ethicon Endo-Surgery, Inc. v. Covidien LP*, 812 F.3d 1023, 1034-35 (Fed. Cir. 2016)

¹⁸ EX1004, 11:60-65; EX1006, 1:57-2:55, 16:30-36; *see also* EX1003, ¶¶63-65.

¹⁹ Mr. Stanton’s views have no weight since he has no relevant technical experience. EX1115, 15:14-17:12.

(similar); *Bayer Healthcare Pharm., Inc. v. Watson Pharm., Inc.*, 713 F.3d 1369, 1377 (Fed. Cir. 2013) (“praise of what was clearly rendered obvious” is not persuasive). Petitioners’ alleged skepticism of bucket elevators—which *Waldner* and *Sleeman* already disclose—fails for similar reasons. *SynQor*, 2023 WL 234186, at *4; *see also* EX1112, ¶¶19-20 (concerns were not about whether bucket elevators would work).

PO does not explain how the alleged praise or commercial success stems from its alleged improvements to prevent belt mistracking and reduce the system’s weight and transport height. POR, 6-7. And even if they had, the ‘689 Patent doesn’t disclose—much less claim—any such improvements.²⁰ So any value in them cannot rebut the ‘689 claims’ obviousness. *Ethicon Endo-Surgery*, 812 F.3d at 1034 (discounting success due to unclaimed features).

In fact, PO’s work was a commercial failure. The unit that PO built and purportedly marked as “patent pending” literally fell apart on the highway due to an axle failure when Petitioners attempted to transport it, causing significant damage to the unit. EX1112, ¶¶35-39. Any alleged praise of PO—which was more about PO’s capabilities than the patented design—was completely negated by PO’s delays and failure to deliver a safely transportable system. EX1112, ¶¶34-39. And despite

²⁰ PO’s alleged solutions for these issues were also well-known to POSITAs. EX1111, ¶¶89-96; EX1110, ¶¶44-46; EX1112, ¶25; EX1113, 96:1-15.

attempts to market its patented design to other companies, PO has not built or been able to sell another unit since. EX1114, 133:19-134:8; EX1113, 92:6-93:2 (NOV declined to license PO design).

B. Alleged Copying

PO also asserts that Petitioners copied its patented design in their systems. However, even if Petitioners were shown to infringe—and they have not—infringement is not the same as copying. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1246 (Fed. Cir. 2010); *Iron Grip Barbell Co., Inc. v. USA Sports, Inc.*, 392 F.3d 1317, 1325 (Fed. Cir. 2004). PO wrongly attributes the similar dimensions of Petitioners’ and PO’s systems to Petitioners’ copying. POR, 72 (citing EX2005). In fact, both systems were built to fit dimensions of preexisting silos and trucks that **Petitioners** provided to PO. EX1112, ¶¶13-17; EX1110, ¶11. PO also ignores key differences between Petitioners’ and PO’s systems (*e.g.*, lack of integrated unloader ramps) indicating that Petitioners did not copy PO. EX1110, ¶12. Moreover, Petitioners could not have seen the ‘689 Patent until it published in October 2023, which was after Petitioners launched their own units in 2022.

Petitioners’ separate patent relating to its top fill system cannot salvage the ‘689 Patent either, particularly since PO fails to compare its disclosure or claims to

the ‘689 claims. Even if Petitioners’ patent were somehow relevant, that alone wouldn’t outweigh Petitioners’ strong obviousness case.²¹

Respectfully submitted,

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Date: July 28, 2025

²¹ PO only cites decades-old non-controlling district court cases—*American Medical Systems* and *Polaroid*—in which courts relied on numerous considerations to find the patents nonobvious.

**CERTIFICATE OF COMPLIANCE WITH TYPE-VOLUME
LIMITATION, TYPEFACE REQUIREMENTS, AND TYPE STYLE
REQUIREMENTS**

1. This **Petitioner's Reply to Patent Owner's Response** complies with the type-volume limitation of 5,600 words, comprising 5,600 words, excluding the parts exempted by 37 C.F.R. § 42.24(a).

2. This **Petitioner's Reply to Patent Owner's Response** complies with the general format requirements of 37 C.F.R. § 42.6(a) and has been prepared using Microsoft® Word in 14-point Times New Roman.

Respectfully submitted,

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CERTIFICATE OF SERVICE

In accordance with 37 C.F.R. § 42.6(e), I hereby certify that on July 28, 2025 a true and correct copy of the **PETITIONERS' REPLY TO PATENT OWNER'S RESPONSE** and Exhibits 1036-1153 were served electronically via e-mail in its entirety on counsel identified below by the Patent Owner for service at:

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