

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

UNVERFERTH MANUFACTURING CO., INC.,
Petitioner,

v.

J&M MANUFACTURING CO., INC.,
Patent Owner.

Case IPR2014-00758
Patent 8,585,343 B2

Before JAMES T. MOORE, HYUN J. JUNG, and MIRIAM L. QUINN,
Administrative Patent Judges.

MOORE, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. BACKGROUND

A. Introduction

On May 15, 2014, Unverferth Manufacturing Co., Inc. (“Petitioner”), filed a petition under 35 U.S.C. §§ 311–319 for *inter partes* review of claims 1–14 of U.S. Patent No. 8,585,343 B2 (“the ’343 Patent”). IPR2014-00758, Paper 1 (“the ’758 Petition,” “Petition,” or “Pet.”). J&M Manufacturing Co., Inc. (“Patent Owner”) filed a Preliminary Response (“Prelim. Resp.”) on August 22, 2014. IPR2014-00758, Paper 6. We granted the ’758 Petition as to certain challenges to the patentability of claims 1–14, and declined to institute on an additional challenge to those same claims on October 28, 2014. IPR2014-00758, Paper 7 (“’758 Decision”). Patent Owner filed a Corrected Response, Paper 17 (“PO Resp.”), and Petitioner filed a reply, Paper 20 (“Reply”).

Oral argument was conducted July 15, 2015, and a transcript of the proceeding is of record. Paper 25.

This trial is now ready for resolution on the merits. One motion remains outstanding, a motion to seal Exhibit 1017, which motion is granted as discussed below.

B. The ’343 Patent

The ’343 Patent relates to grain carts. Ex. 1001, 1:11–12. Large combines harvest crops by passing through fields, taking in the crops, and separating the grain. Prelim. Resp. 4. The harvested grain is then stored onboard the combine. *Id.*

A combine is a very large machine best suited for harvesting in the field, and is not efficient for use as a grain transport vehicle. *Id.*

The grain harvested usually must go to a market or off the field for processing. Over-the-road-trailer trucks are a more efficient way to do that. However, a semi-trailer, typically, cannot be brought into the field due to local conditions, and, typically, is parked on a road next to the field being harvested. *Id.*

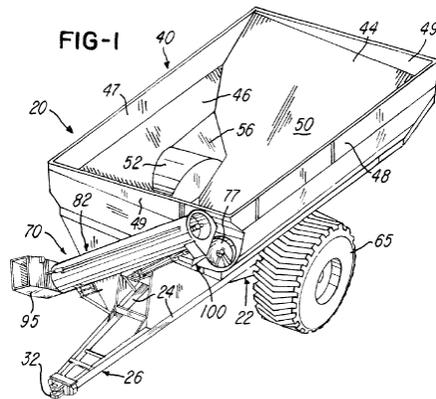
The harvested grain must be transferred from the combine to the semi-trailer. Grain carts were devised to be pulled alongside the combine by a tractor. A grain cart can receive the grain from the combine, while the combine continues its specialized operation. Once the onboard storage of the combine is emptied or the grain cart is filled, the grain cart may be pulled to the road next to the semi-trailer. The contents of the grain cart are discharged into the semi-trailer. This process may be repeated as often as necessary, allowing the combine to continue operation. *Id.* at 4–5.

Grain harvesting has employed the use of grain carts pulled by tractors as far back as the 1960s. PO Resp. 2, citing Ex. 2001 ¶ 6. These grain carts were pulled by a tractor to chase a combine, which unloaded grain into the cart's open container. The cart would then transport and transfer the grain into trailers waiting on a road or an edge of the field. *Id.* This system of harvesting is said to allow the combine to continue harvesting in the field, while the grain cart offloads grain from the combine. *Id.*

Larger and simpler grain carts are desirable for their efficiencies and reduced maintenance costs. Ex. 1001, 1:32–47. Moreover, it is desirable to have the grain cart capable of discharging grain further away from the cart itself to allow for greater separation distance between the grain cart and a receiving vehicle. *Id.* at 1:48–62.

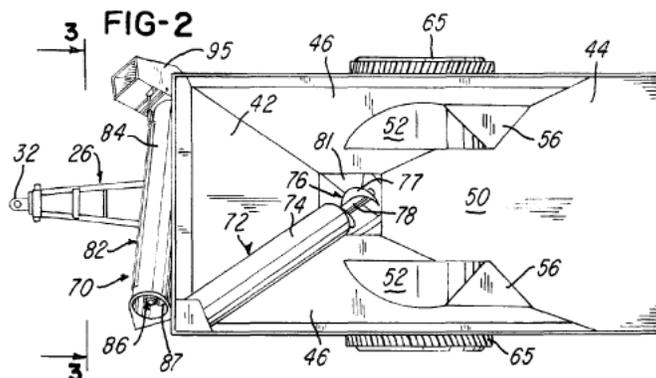
The '343 Patent describes as its invention a grain cart that includes an open top container having inclined bottom walls and secured to a frame supported by a set of wheels, and with the frame having a front hitch adapted to be pivotally connected to a tow tractor. *Id.* at 2:4–8.

Figure 1, reproduced below, is a perspective view of such a grain cart.



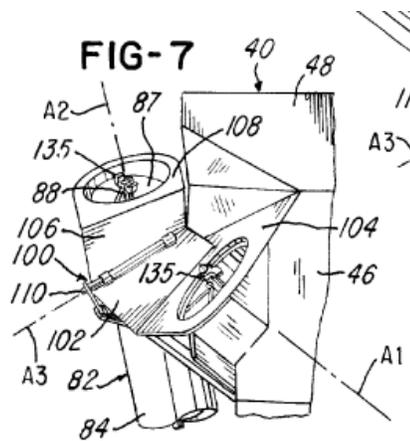
The '343 Patent further describes an elongated single auger conveyor, which includes an inclined lower conveyor section mounted on the container adjacent an inclined front bottom wall of the container and an extended upper auger conveyor section. Each of the conveyor sections includes a power-driven auger having a helical flight and rotatable on an axis within a tubular housing. *Id.* at 2:7–13.

Figure 2, reproduced below, is a top plan view of such a conveyor.



The '343 Patent further describes an extended upper auger conveyor section, which has a grain discharge outlet portion and is supported by a hinge assembly adjacent a front corner portion of the container. The hinge assembly is said to provide for pivoting the upper conveyor section on an axis extending offset and “askewed” at an acute angle relative to the axis of the auger in each conveyor section. *Id.* at 2:14–19.

Figure 7, reproduced below is a perspective view of such a hinge.



The hinge assembly is said to enable:

[t]he extended upper conveyor section to pivot between a grain discharge position projecting upwardly, laterally outwardly and forwardly from the container and a retracted stored position projecting downwardly from the hinge assembly in front of the front wall of the container at a substantial angle relative to a horizontal plane. In the stored position, the discharge outlet portion of the upper conveyor section does not project beyond a vertical plane extending adjacent the right side wall of the container.

Id. at 2:19–28.

Figure 8, reproduced below, is a top plan view, which illustrates the extended position.

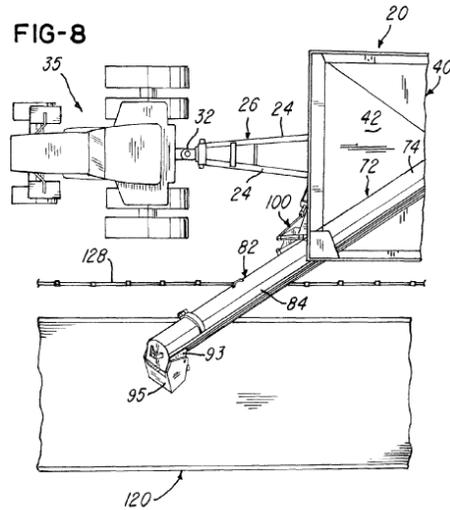
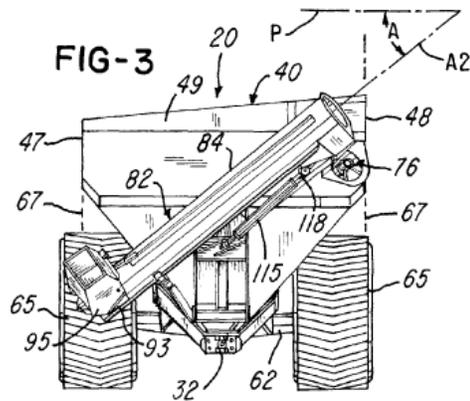


Figure 3, reproduced below, is a side view, which illustrates the retracted position of the upper portion of the discharge chute.



C. Exemplary Claims

Claims 1, 3, 7, and 12 are the independent claims among the challenged claims of the '343 Patent. Claim 1, which is illustrative of the claims at issue in this *inter partes* review, recites:

1. A grain cart adapted to be pulled by a tow tractor for transferring grain from a combine in a field to an open-top semi-trailer, said cart comprising:

a frame supported by a set of wheels and having a front hitch adapted to be pivotally connected to the tractor,

a container supported by the said frame for receiving a volume of grain and having a front wall portion, a left side wall portion and a right side wall portion,

said grain cart having only a single auger conveyor including an inclined lower conveyor section and an upper conveyor section having an outer end portion with a grain discharge outlet,

each said conveyor section including a power driven auger having a helical flight and rotatable on an axis,

said inclined lower conveyor section being located proximate said front wall portion and having an inlet positioned within said container to receive grain from said container,

said upper conveyor section supported by a hinge adjacent a front left corner portion of said container for folding movement on a pivot axis between a retracted stored position and an inclined grain discharge position projecting upwardly, laterally outwardly and forwardly with respect to said front left corner portion,

said upper conveyor section including said outer end portion with said grain discharge outlet having a length causing said outer end portion with said discharge outlet to extend beyond said right side wall portion of said container when said upper conveyor section moves on said pivot axis between said discharge position and said storage position,

said hinge connecting said upper conveyor section to said lower conveyor section and providing for pivoting said upper conveyor section on said pivot axis, said pivot axis being askewed at an acute angle relative to a plane perpendicular to

said axis of said auger in said lower conveyor section and also being askewed at an acute angle relative to a plane perpendicular to said axis of said auger in said upper conveyor section,

a power actuator connected to move said upper conveyor section between said stored position and said grain discharge position, and

said upper conveyor section of said single auger conveyor in said stored position extending downwardly forward of said front wall portion and at an angle greater than thirty five degrees relative to a horizontal reference plane while remaining substantially between said left side wall portion and said right side wall portion to facilitate transporting said grain cart.

D. The Challenge at Trial to the Patentability of Claims

We instituted this *inter partes* review in connection with the challenge to the patentability of claims 1–14 in the '343 Patent under 35 U.S.C. § 103(a) based upon three references. They are:

Grieshop	US 5,013,208	May 7, 1991	Ex. 1002
Christianson	US 4,433,946	Feb. 28, 1984	Ex. 1003
Parker	Brochure	2005	Ex. 1004

'758 Decision 16.

Already of record, but important in this decision, is Exhibit 1007, an illustration of a side-fold grain cart. We also include in the record Board Exhibit 3001, an excerpt of the dictionary on which we relied on for the plain meaning definitions of two of the words in the claim.

II. ANALYSIS

A. Claim Interpretation

We interpret patent claim language in an *inter partes* review by ascribing to that language its broadest reasonable meaning in light of the specification of the patent. 37 C.F.R. § 42.100(b); *In re Cuozzo Speed Techs., LLC*, No. 2014-1301, 2015 WL 4097949, at *6 (Fed. Cir. July 8, 2015); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). We also interpret claim language according to its ordinary and customary meaning to one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). In interpreting the claims, there is a “heavy presumption” that a claim term carries its ordinary and customary meaning. *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002).

We note, for completeness of the record, that our decision remains unchanged under either the “broadest reasonable interpretation” standard or the district court standard of construing each claim of the patent in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

Patent Owner asserts that the claim terms should take on their ordinary and customary meanings. Prelim. Resp. 16. Patent Owner did not challenge the Board’s definition of terms as defined in the Decision on Institution. PO Resp. 10.

We expressly interpret below only those claim terms that require analysis to resolve arguments related to the patentability of the contested claims.

1. Askewed

Petitioner asserts that the term “askewed” should be construed as “turned or slanted.” Pet. 9. We disagree. “Askewed” is subject to a plain meaning definition – “out of line.”¹ This plain meaning is confirmed by the specification, which states, for example, that pivoting the upper conveyor section occurs on an axis “extending offset and askewed at an acute angle relative to the axis of the auger in each conveyor section.” See Ex. 1001, 2:16–19, 3:58–63. Specifically, the axis is “askewed” because it is out of line with reference to the other axes, which are illustrated in Figure 7, reproduced above, as axes A1 and A2.

2. Oriented Oblique

Petitioner asserts that “oriented oblique” should be construed to mean “turned or slanted.” We again disagree. “Oblique” has a generally accepted meaning of “neither perpendicular nor parallel.”² The language of claims 3 and 7 confirm that the term is being used according to this generally accepted meaning because the term is used to describe the recited “pivot axis” orientation, relative to other axes. See Ex. 1001, 6:37–41, 7:27–31.

The remainder of the terms in the claims are given their plain meaning as well.

¹ See, e.g., *Webster’s New Collegiate Dictionary*, p. 66 (1977) (Ex. 3001).

² Ex. 3001 at 792.

Patent Owner observes that Grieshop distinguishes over side-fold carts, such as the Par-Kan cart illustrated in Ex. 1007. PO Resp. 12. We specifically note the hinge of the grain cart, which appears to be set off at an angle from the conveyor to accomplish the side fold, as noted by Petitioner. Pet. 2. The photograph of the Par-Kan cart in Ex. 1007 is reproduced below:



A figure of a perspective photograph of a Par-Kan side fold grain cart.

2. *Christianson (Ex. 1003)*

Christianson describes a pneumatic grain conveyor. Ex. 1003. Christianson has separator chamber 11, which serves to separate grain from air, allowing the grain to bypass fan 9. *Id.* at 2:57–59. Discharge spout system 12 of Christianson includes lower tube 20 and upper tube 22. *Id.* at 2:62–66; Fig. 2. The tubes are hinged. Hinge mechanism 55 includes pin 60 having axis 66, which is skewed with respect to a plane perpendicular to axis 26 of the aligned portion of tubes 20, 22. *Id.* at 4:8–10.

Figure 6 of Christianson is reproduced below:

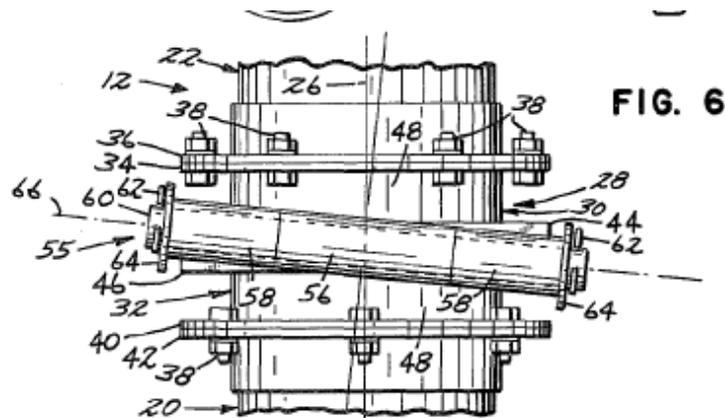


Figure 6 is a side view of a hinge set at an angle.

The purpose of the folding mechanism of discharge spout system 12 of Christianson is to prevent upper tube 22 from having to be removed during transport of pneumatic conveyor 10. *Id.* at 1:21–25.

Hydraulic cylinder 68 is attached between lower and upper tubes 20, 22 for moving upper tube 22 between the operational and folded positions. *Id.* at 4:30–40.

3. Parker (Ex. 1004)

Parker describes a dual auger grain cart. Ex. 1004, 1. The grain discharge auger has an upper and a lower auger conveyor section, hinged together, of which the lower auger conveyor section is positioned outside the container parallel to a front wall thereof. *Id.* at 1, 3. In the grain discharge position, the upper auger conveyor section projects upwardly and laterally outwardly with respect to the container. When the upper auger conveyor section is folded into the storage position, the upper auger conveyor section remains in the same plane as the lower auger conveyor section. *Id.* at 1–2.

A Figure from page 2 of Parker is reproduced below:



The figure is a perspective photographic view of a front fold grain cart.

C. Patentability Standard

To prevail in its challenges to the patentability of claims, the petitioner must establish facts supporting its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d).

“The burden of showing something by a preponderance of the evidence . . . simply requires the trier of fact to believe that the existence of a fact is more probable than its nonexistence before [he] may find in favor of the party who has the burden to persuade the [judge] of the fact’s existence.” *Metro. Stevedore Co. v. Rambo*, 521 U.S. 121, 137 n.9 (1997) (quoting *Concrete Pipe & Products of Cal., Inc. v. Construction Laborers Pension Trust for Southern Cal.*, 508 U.S. 602, 622 (1993)).

“Section 103 [of 35 U.S.C.] forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to

which said subject matter pertains.”” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). To establish obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *See CFMT, Inc. v. Yieldup Int’l Corp.*, 349 F.3d 1333, 1342 (Fed. Cir. 2003); *In re Royka*, 490 F.2d 981, 985 (CCPA 1974).

D. Reasons for Making the Combination of Grieshop, Christianson, and Parker

Petitioner urges that there is express motivation to combine the references found within the individual references, Christianson and Parker. Pet. 28. Christianson is said to describe that its askewed hinge axis can be utilized in grain handling devices having straight conveyor sections in order to store the upper conveyor section for transport. *Id.* (citing Ex. 1003, 4:11–17 and 26–29).

Parker is further said to describe diagonally folding an upper conveyor, which “allows . . . the benefit of extra reach, as well as the ability to fold within the width of the cart, without adding transport width or costly options to gain extra reach.” *Id.* (citing Ex. 1004 at 3).

The Petitioner’s witness, Mr. Frederick C. Kucklick, is a mechanical engineer with forty years of experience in mechanical engineering and design. Ex. 1013 ¶¶ 5–14. Having reviewed his credentials and relevant experience, we find him qualified to testify. He testifies that, in his opinion,

[A] person of ordinary skill in the art would have been motivated by the expressed teachings of these references to combine Grieshop, Christianson, and Parker to use an askewed hinge to orient the upper conveyor section in a diagonally stored position and achieve extended conveyor length without interfering with transportability or storage.

Id. ¶ 87.

Petitioner’s witness also testifies that one of ordinary skill in the art would:

[r]ecognize that in order to fold the upper conveyor section diagonally across the front of the container in a grain cart of the type shown by Grieshop, it would be necessary to fold the upper conveyor section in a different plane relative to the lower conveyor section to avoid hitting the container or the tractor.

Id. ¶ 89.

Petitioner’s witness appears reasonable and to have based his conclusions on evidence within the record.

Patent Owner asserts that both the Petition and Mr. Kucklick’s Declaration fail to provide a sufficient fact-based analysis to support the proposed combination of Grieshop, Christianson, and Parker, or to explain how the combination would have been achieved. Patent Owner alleges hindsight was used to pick and choose elements of the references. PO Resp. 23.

Patent Owner asserts that one of ordinary skill in the art would not have combined the references as the Petitioner has done, and lists several proposed reasons in the form of differences between the references. PO Resp. 23–26.

First, Patent Owner urges that one of ordinary skill in the art would not have combined the skewed hinge of Christianson with the grain cart of Grieshop because of the “many important” differences. PO Resp. 23.

Patent Owner states that while Grieshop is a grain cart, Christianson is not a grain cart. According to the Patent Owner, Christianson is a pneumatic conveyor device, while Grieshop stores grain until it is transferred to a

semitrailer; as a consequence, Christianson does not store grain. PO Resp. 23–24.

The Patent Owner then makes multiple statements in list form concerning particular physical differences between Grieshop and Christianson:

- Grieshop has a container having front, rear, and side wall portions and upper corner portions; while Christianson does not.
- Grieshop has auger conveyor sections and augers, while Christianson has pneumatic tubes.
- Christianson is not capable of having an auger.
- The upper auger conveyor section of Grieshop moves toward the centerline of the grain cart container as folding is initiated; while the upper tube of Christianson moves away from the centerline of the pneumatic conveyor device as folding is initiated.
- The discharge of Grieshop is to the driver's side, while the discharge of Christianson is to the curb side.
- The upper and lower auger conveyor sections are located on the front of the grain cart, while the conveyor system of Christianson is located on the back of the pneumatic conveyor device.
- The lower auger conveyor section of Grieshop extends at an angle generally parallel to an intersection of the front and right side walls of the container, while the lower tube of Christianson is substantially vertical.
- [Grieshop's] upper auger conveyor section must avoid hitting the container or the tractor when folded, while the skewed hinge axis of Christianson exists solely so that the upper tube can clear the lower tube when folded.
- The upper auger conveyor section of Grieshop is straight; the upper tube of Christianson is arcuate-shaped.
- The upper tube of Christianson folds in an opposite direction from the upper auger conveyor section of Grieshop.
- The upper auger conveyor section of Grieshop moves toward the center of the grain cart container as folding is

initiated; the upper tube of Christianson moves away from the center of the pneumatic conveyor device as folding is initiated.

- The upper auger conveyor section of Grieshop has forward reach; the upper tube of Christianson does not.
- The hinge of Christianson opens to a significantly greater angle than the hinge of Grieshop.
- The folding auger conveyor system of Grieshop does not require locking or retaining mechanisms; Christianson uses locking and retaining mechanisms to hold the upper tube in place.
- In the folded position, the outer end portion of the upper auger conveyor section of Grieshop is positioned below upper surfaces of the wheels and adjacent a vertical reference plane contacting the right side wall of the container; in the folded position in Christianson, the outer end portion of the upper tube is positioned above upper surfaces of the wheels and proximate the left side of the pneumatic conveyor device.
- Because the angle of motion of Grieshop is substantially less than 180 degrees, the actuating hydraulic cylinder can move the upper auger conveyor section from its folded position to its discharge position without any extra linkage. In Christianson, because the angle of motion of the upper tube is nearly 180 degrees, the actuating hydraulic cylinder normally would not be able to move the upper tube through that motion without additional linkage. However, because the upper tube is curved, the weight of the upper tube initiates movement, even though the hydraulic cylinder has virtually no moment arm in the folded position.

PO Resp. 24–26.

As evidentiary basis for these statements, Patent Owner first points to the deposition testimony of Mr. Kucklick, where it is said that he admits at least some of these differences. PO Resp. 26 (citing Ex. 2007, 22:5–24:19 and 49:2–4).

Patent Owner also contends that Grieshop expressly teaches away from Christianson because Christianson's tubes are on the rear and would not be visible during actuation or folding. PO Resp. 27.

Patent Owner further contends that the purposes of the Grieshop and Christianson hinges are "entirely different." This is said to be because Grieshop is designed not to hit the container, and Christianson is designed so that the two tubes can pass each other. *Id.*

Patent Owner points out these differences as part of an argument that the Petitioner greatly oversimplifies the substitution of the hinge of Christianson for the hinge of Grieshop. PO Resp. 27.

We are next pointed by Patent Owner to the declaration testimony of Mr. Fred P. Smith, a mechanical engineer with 30 years of experience. Ex. 2006 ¶ 7–13³. Having reviewed his credentials and relevant experience, we find him qualified to testify.

Mr. Smith testifies that one of ordinary skill in the art would have had to be a mechanical engineer with a couple of years of experience designing mechanical equipment, or 5–10 years of experience designing grain carts. *Id.* ¶ 20. He further testifies that Christianson merely discloses a general concept of using a skewed hinge, and that the precise skewed hinge of Christianson could not be used in a grain cart, which has a container to store grain and requires forward reach. Ex. 2006 ¶ 80. Mr. Smith further testifies that if the hinge of Christianson were directly substituted for the hinge of Grieshop, the upper auger conveyor section of Grieshop would dangle

³ We refer to corrected Exhibit 2006, the filing of which was authorized by Paper 16.

downward and would not be capable of moving into an unloading position.
Id. ¶ 81.

Mr. Smith also appears to be the source for the statements by Patent Owner’s counsel that the purpose of Grieshop and Christianson are entirely different and their objectives are entirely different. *Id.* ¶ 75.

Although not cited by the Patent Owner directly in this section, we observe the testimony of the inventor as to how he developed the invention is contained in the record. Mr. Wood describes in detail how he went about trying to make a front-fold grain cart having extended reach:

[W]ith torch and welder, I began to fabricate with much trial and error to make adjustments to the hinge assembly. I found that the way to keep the same position of the lower auger conveyor section, which was positioned in the front left corner of the grain tank, with the discharge position that I desired for the upper auger conveyor section, and with the upper auger conveyor section folding diagonally across the front of the grain cart, was to skew the hinge pin. This model was named “X-Tended Reach™.” Among other elements, this is the grain cart design that is claimed in the ‘343 Patent.

Ex. 2001 ¶ 35⁴.

In rebuttal, Petitioner recalls Mr. Kucklick to testify in a supplemental declaration that the references come from the same field of endeavor, have structural similarity where it matters, and the references solve similar problems. Ex. 1014 ¶¶ 8–10. Moreover, he challenges the level of difficulty asserted by the Patent Owner, and testifies that the “replacement of the non-askewed hinge of Grieshop with an askewed hinge (like the one in

⁴ We refer to corrected Exhibit 2001, the filing of which was authorized also by Paper 16.

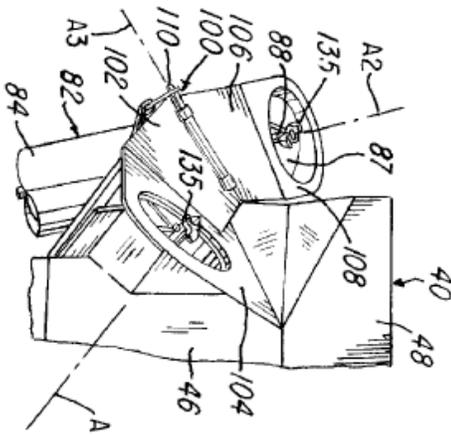
Christianson) would have been a straightforward process at the time of the . . . invention.” *Id.* ¶ 12.

We have carefully considered both positions, but find Mr. Kucklick’s testimony to be more persuasive. We are not persuaded by Mr. Smith’s position that Grieshop and Christianson are “completely” or “entirely” different. Given the field of the invention, bulk handling of farm products, and the fact that each is a grain handler, we find that they are in the same field of endeavor and also logically would commend themselves to the attention of the skilled artisan at the time the invention was made.

For example, Grieshop describes “[a] wagon for transporting grain and other particulate matter” (Ex. 1002, Abst.) and Christianson notes in its Background section that “grain handling equipment commonly makes use of vertically extending tubing to elevate and direct grain into a truck or grain bin.” Ex. 1003, 1:19–22.

Although we do not wish to understate the engineering work required on the part of Mr. Wood, replacing the non-askewed hinge with an askewed hinge was known in the art, even if Mr. Wood was unaware of it at the time. We find that askewed hinging was known in the field of grain carts. *See, e.g.*, Ex. 1007 (depicting a Par-Kan grain cart with an askewed hinge).

We juxtapose the hinge of Figure 7 of the instant patent (rotated 90 degrees) with that of prior art Par-Kan grain cart (Ex. 1007), known as early as 2006, below.



Consequently, we find that the evidence of record supports the conclusion that it was known in the relevant art that a hinge, such as in Christianson, could be utilized in a grain cart. We, therefore, conclude this combination of references is appropriate.

E. The Patentability of Claims 1–14 over Grieshop, Christianson, and Parker

The Petition contends that the combination of Grieshop, Christianson, and Parker renders claims 1–14 unpatentable under 35 U.S.C. § 103(a).

Petitioner asserts that Grieshop teaches nearly all of the elements of claims 1–14 of the '343 patent. As part of the assertion, it is noted that Grieshop is a continuation of U.S. Patent No. 5,340,265 (“the '265 patent”), and the '343 patent admits that the '265 patent discloses many features of the claimed grain cart. Pet. 17, citing Ex. 1001, 1:12 (stating that the invention relates to “a grain wagon or cart of the type disclosed in U.S. Pat. [No.] 5,340,265.”).

According to Petitioner, the only element of the '343 patent that is new over Grieshop is the use of a hinge assembly with an “askewed” or “oblique” pivot axis for diagonally folding an upper auger conveyor

section into a stored position across the front of the container. Pet. 17 (citing Ex. 1001, 2:14–30 and 4:47–5:3).

The '343 Patent is said to incorporate “an askewed pivot axis to address the desire to increase the length of the upper conveyor, while also storing the upper conveyor substantially within the container profile for transport.” Pet. 17 (citing Ex. 1001, 4:50–62).

The Petitioner provides the testimony of Mr. Kucklick, a mechanical engineer with a degree in mechanical engineering and 40 years' experience in the field. Ex. 1013 ¶¶ 5–14; *see* Appx. A. As noted above, we find him to be qualified to testify.

He testifies that:

I cannot find anything in the claimed grain carts of the '343 patent which was not already known or disclosed in the prior art or obvious to a person of ordinary skill in the art. The '343 patent claims a grain cart with a storable front-folding auger conveyor, that incorporates the very same, decades-old mechanical engineering techniques, that were well-known throughout the industry. More specifically, the '343 patent claims to have invented the use of an “askewed” or “oblique” pivot axis for folding an upper auger conveyor section into a stored position, diagonally across the front of the container. But, as discussed below, the prior art references, including Christianson, for example, expressly disclosed the use of an askewed or oblique pivot axis to fold an upper conveyor section within the profile of a towable grain handling apparatus.

Ex. 1013 ¶ 64.

He further testifies that one of ordinary skill in the art would have been motivated to combine the references because:

Motivation to modify Grieshop is, in fact, expressly disclosed in both Christianson and Parker. For example, Christianson describes that its askewed hinge axis can be utilized in grain

handling devices having straight conveyor sections like those in Grieshop in order to store the upper conveyor section for transport. Ex. 1003, at col. 4, ll. 26-29. Moreover, Parker teaches that diagonally folding an upper conveyor “allows . . . the benefit of extra reach, as well as the ability to fold within the width of the cart, without adding transport width or costly options to gain extra reach”. Ex. 1004, at 3. Thus, it is my opinion that a person of ordinary skill in the art would have been motivated by the expressed teachings of these references to combine Grieshop, Christianson, and Parker to use an askewed hinge to orient the upper conveyor section in a diagonally stored position and achieve extended conveyor length without interfering with transportability or storage.

Ex. 1013 ¶ 87.

Patent Owner asserts that both the Petition and Mr. Kucklick’s Declaration fail to provide a sufficient fact-based analysis to support the proposed combination of Grieshop, Christianson, and Parker, or to explain how the combination would have been achieved. Patent Owner alleges hindsight was used to pick and choose elements of the references. Patent Owner further asserts that one of ordinary skill in the art would not have combined the references as the Petitioner has done, and lists several proposed reasons. PO Resp. 23–26.⁵

With this background in place, we look to the specific claim elements.

Claim 1

A grain cart adapted to be pulled by a tow tractor for transferring grain from a combine in a field to an open-top semi-trailer, said cart comprising:

a frame supported by a set of wheels and having a front hitch adapted to be pivotally connected to the tractor,

⁵ Paper 17, Patent Owner Corrected Response (“PO Resp.”).

a container supported by the said frame for receiving a volume of grain and having a front wall portion, a left side wall portion and a right side wall portion,

We find that Grieshop describes a grain cart adapted to be pulled by a tow tractor to transfer grain to a truck. Ex. 1002, Fig. 1 (especially reference numerals 12 and 20).⁶ Grieshop further describes that the cart has a frame supported by a set of wheels and having a front hitch adapted to be pivotally connected to a tractor. *Id.* at Figs. 3–4 (especially reference numerals 16, 14, and the hitch at the far left of Fig. 4). Grieshop further describes that the container has a front wall portion, a left side wall portion and a right side wall portion. *Id.* at Fig. 4 (especially reference numerals 30a–30d); Pet. 22–23.

said grain cart having only a single auger conveyor including an inclined lower conveyor section and an upper conveyor section having an outer end portion with a grain discharge outlet,

each said conveyor section including a power driven auger having a helical flight and rotatable on an axis,

said inclined lower conveyor section being located proximate said front wall portion and having an inlet positioned within said container to receive grain from said container,

said upper conveyor section supported by a hinge adjacent a front left corner portion of said container for folding movement on a pivot axis between a retracted stored position and an inclined grain discharge position projecting upwardly,

⁶ See also the associated description in the specification of Grieshop, Ex. 1002, as necessary herein. For economy of words we will not repeat the entire description, as one may see from the illustrations the match to the claim elements directly.

laterally outwardly and forwardly with respect to said front left corner portion,

Grieshop describes a single auger conveyor with an inclined lower conveyor section and an upper conveyor section having an outer end portion with a grain discharge spout. *Id.* at 23, Fig. 4 (especially reference numerals 60, 80, and 88). Grieshop further describes a power driven auger having a helical flight and rotatable on an axis. *Id.* at Fig. 5 (especially reference numerals 38, 60, and 80). Grieshop also describes an inclined lower conveyor section located proximate the front wall portion, the inclined lower conveyor section having an inlet positioned within the container to receive grain from the container. *Id.* at Fig. 4 (especially reference numerals 60, 54, and 30b; Pet. 23–24).

Grieshop also describes an upper conveyor section supported by a hinge adjacent a front left corner portion of the container for folding movement on a pivot axis between stored and discharge positions. *Id.* at Fig. 4 (especially reference numerals 78, 80, and Figure 2, illustrating the extended position projecting upwards, forwards, and outwards); Pet. 24.

said upper conveyor section including said outer end portion with said grain discharge outlet having a length causing said outer end portion with said discharge outlet to extend beyond said right side wall portion of said container when said upper conveyor section moves on said pivot axis between said discharge position and said storage position,

Grieshop describes an outer end portion with a grain discharge spout having a length causing the outer end portion with the discharge outlet to extend beyond the right side wall portion of the container when the upper conveyor section moves on the pivot axis between the discharge position and

the storage position. *Id.* at Figs. 1–4 (especially reference numerals 88, 98, and 30c); Pet. 24.

said hinge connecting said upper conveyor section to said lower conveyor section and providing for pivoting said upper conveyor section on said pivot axis, said pivot axis being askewed at an acute angle relative to a plane perpendicular to said axis of said auger in said lower conveyor section and also being askewed at an acute angle relative to a plane perpendicular to said axis of said auger in said upper conveyor section,

Christianson describes upper and lower conveyor sections of a pneumatic grain handling apparatus connected by a hinge. The hinge has a pivot axis askewed at an acute angle relative to a plane perpendicular to the axis of the lower conveyor section. The hinge also is askewed at an acute angle relative to a plane perpendicular to the axis of the upper conveyor section. Ex. 1003, Fig. 6 (especially reference numeral 66).

We find that Christianson specifically describes a reason to incorporate an askewed hinge:

Because axis **66** is in a plane which extends generally transversely through axis **26** but is skewed with respect to a plane perpendicular to axis **26**, the pivoting of upper tube **22** about axis **66** moves the upper portion of tube **22** away from the lower portion of tube **20** thereby allowing tubes **20** and **22** to pass one another and effectively fold within transit profile **18**.

Ex. 1003, 4:10–17.

Mr. Kucklick testifies that:

Christianson demonstrates that both a hinge with an askewed pivot axis and, correspondingly, the angle at which the upper conveyor section folds in the stored position when using such a hinge, were known. The askewed pivot axis, and the angle of the upper conveyor section in the stored position, as shown in Christianson, are solutions to the exact problem allegedly addressed by the '343 patent – i.e., folding a long upper conveyor section so that it does not interfere with transportability of the grain cart. *See, e.g.*, Ex. 1003, at col. 1, ll. 30-60. More specifically, Christianson (e.g. at Figure 6, shown below), discloses upper and lower conveyor sections 22 and 20 of a grain handling apparatus connected by a hinge 55. The hinge 55 has a pivot axis 66 that is askewed at an acute angle (or oblique) relative to a plane perpendicular to the axis of the lower conveyor section 20 and also askewed at an acute angle (or oblique) relative to a plane perpendicular to the axis of the upper conveyor section 22.

Ex. 1013 ¶ 73.

We also find that an askewed pivot point was used specifically on side fold grain carts. Ex. 1007, *see* PO Resp. 12 (last line).

a power actuator connected to move said upper conveyor section between said stored position and said grain discharge position, and

We find that Grieshop describes a power actuator connected to move the upper conveyor section between the stored position and the grain discharge position. Ex. 1002, Fig. 3 (especially reference numerals 100 and 104); Pet. 24.

said upper conveyor section of said single auger conveyor in said stored position extending downwardly forward of said front wall portion and at an angle greater than thirty five degrees relative to a horizontal reference plane while

remaining substantially between said left side wall portion and said right side wall portion to facilitate transporting said grain cart.

We find that Parker describes a grain cart where the downward angle of the folded upper conveyor section is downwardly, while remaining substantially between the left side wall portion and the right side wall portion to facilitate transporting the grain cart. Ex. 1004, 1, 2. Mr. Kucklick testifies that this angle is about 35 degrees. Ex. 1013 ¶ 81.

Parker also specifically describes that diagonally folding an upper conveyor “allows the 838 and 938 the benefit of extra reach, as well as the ability to fold within the width of the cart, without adding transport width or costly options to gain extra reach.” Ex. 1004, 3.

We also find that one of ordinary skill in the art would have been motivated to modify the cart of Grieshop to include a front fold discharge chute as described in Parker, for the benefits of folding within the width of the cart. One would have known of the use of askewed hinges, such as the one described in Christianson, and been informed further by those already used in the art, such as the Par-Kan side fold cart.

Patent Owner has challenged the combination of references, but, as noted above, we have found the testimony of Mr. Kucklick to be credible on the issues of the technical challenges.

Patent Owner also asserts that Petitioner has relied on hindsight and used the claims of the ‘343 Patent as a roadmap to modify Grieshop. PO Resp. 32.

We have carefully considered this argument, but find that the evidence of record, including Ex. 1007 and the testimony of Mr. Kucklick, provide support for the conclusion that one of ordinary skill in the art would

have been aware of the use of an askewed hinge in farm product bulk handlers. Ex. 1007 illustrates its use in a side-fold cart. While it would be an engineering task to reconfigure such a hinge for front fold carts, we find that that this engineering was within the level of one of ordinary skill in the art at the time the invention was made.

Patent Owner asserts that one of ordinary skill in the art would not have modified Grieshop to satisfy the stored position requirement. PO Resp. 38. This is said to be so because Parker is a dual auger grain cart and, as such, has many “deficiencies.” They are said to include:

- Dual auger carts have no forward reach.
- Dual auger carts have poor operator visibility of the auger during unloading.
- Dual auger carts cost more to manufacture and maintain.
- Dual auger carts move grain in an inefficient manner.
- The redirection of grain in dual auger carts damages grain.
- Much more horsepower is required to operate the augers in dual auger carts.
- The chains, sprockets, belts, and pulley are problematic and result in higher initial cost and higher maintenance cost, as well as extended down time.
- Tank clean-out for the horizontal auger is less efficient and more time consuming.

PO Resp. 39.

Mr. Smith testifies to these deficiencies. Ex. 2006 ¶¶ 94–96. He notes also that Grieshop identifies certain deficiencies, and, therefore, Grieshop expressly teaches away from the alleged modification. *Id.* ¶ 96.

Mr. Kucklick in rebuttal testifies that dual auger carts compete with single auger carts in the marketplace and are prevalent. Ex. 1014 ¶ 26. He characterizes the deficiencies as differences, and in some respect superior

performance is obtained, such as faster unloading and handling of wet grain.
Id. ¶¶ 28–29.

On balance, we find that the evidence supports the Petitioner on this matter. Certainly, single auger and dual auger carts were well known alternatives, each with certain benefits and drawbacks. But we do not agree with the Patent Owner that this distinction would have driven a person of ordinary skill, looking to improve the forward and lateral reach of a grain cart, away from applying the teaching of the stow position of Parker.

Hindsight

Patent Owner also specifically challenges the Petition on a hindsight basis, urging that Petitioner makes a bare assertion of a simple substitution. Patent Owner asserts that Petitioner has not addressed in what ways the skewed pivot axis and the surrounding hinge structure of Christianson would have had to be altered in order to substitute them into Grieshop, or how one of ordinary skill in the art would have achieved the desired substitution. PO Resp. 31–32.

Patent Owner also urges that Petitioner has relied erroneously upon Christianson for a teaching of straight conveyors. PO Resp. 33. Specifically, the section in question in Christianson reads as follows:

Because axis **66** is in a plane which extends generally transversely through axis **26** but is skewed with respect to a plane perpendicular to axis **26**, the pivoting of upper tube **22** about axis **66** moves the upper portion of tube **22** away from the lower portion of tube **20** thereby allowing tubes **20** and **22** to pass one another and effectively fold within transit profile **18**. . . .

The arcuate shape of upper tube **22** is likewise advantageous in that tube **22** moves past lower tube **20** near its lower end where tube **22** is further spaced from tube **20**. Comparatively, a

straight tube would pass tube **20** at a higher location and require a much greater skew angle of axis **66**.

Ex. 1003, 4:11–17, 23–29.

Patent Owner states that these passages simply explain why an arcuate upper tube is used in combination with the skewed hinge of Christianson. We are told that the statement that a straight tube would pass tube 20 at a higher location and require a much greater skewed angle of axis 66° does not present an alternative embodiment. PO Resp. 34 (citing Ex. 2006 ¶ 86). Rather, Patent Owner explains why a straight tube would not be used with the skewed hinge of Christianson. *Id.*

Mr. Smith testifies that a straight tube would not work. He urges that a straight upper tube would not have any lateral reach, would not be able to fold across the rear of the pneumatic conveyor device at all, unless the upper tube were significantly shortened, the discharge spout would contact the ground if straightened alone, and, thus, would not be able to rotate past the downward vertical position. Mr. Smith also testifies that a straight conveyor tube would have to rotate an additional approximately 45° in order to fold diagonally across the pneumatic conveyor device, but the hinge would not work, as tubes would interfere near the hinge. Ex. 2006 ¶ 86.

Mr. Kucklick testifies in rebuttal to Mr. Smith's testimony. Ex. 1014. One general theme in his testimony is that Mr. Smith unduly complicates the issues, and fails to take into account the degree of skill of the person of ordinary skill in the art. *See, e.g., id.* ¶ 35. Indeed, Mr. Kucklick objects to the truncated quotation from his deposition where the Patent Owner failed to include the phrase: “beyond the fact that, as I mentioned, nobody would do it that way.” *Id.*

We are in agreement with Mr. Kucklick. Although, as noted above, we do not downplay the engineering challenges in modifying industrial machinery, the person of ordinary skill in the art, even under the Patent Owner's standard, would have had 5–10 years of experience in building grain carts. Consequently, certain modifications to meet physical limitations have to be expected as within the level of ordinary skill. Although Exhibit 1003 clearly has a preference for a curved tube, we find that it does also disclose it is possible to have a disfavored straight tube embodiment. Consequently, we find substitution of straight tubes would have been within the ordinary level of skill in the art. *See, e.g.,* Ex. 1003, 4:26–29.

In this instance the askewed hinge was known in the art, as evidenced by Christianson and the Par-Kan side-fold grain cart. Accordingly, we conclude that the combination of references would be viewed as combinable by one of ordinary skill in the art at the time the invention was made.

Secondary Considerations

Long Felt Need

Patent Owner next contends that the Grieshop, Christianson, and Parker references and the motivation to combine presented by Petitioner must be considered in light of the entire state of the grain cart market and relevant prior art during the time period of the Grieshop, Christianson, and Parker references, up to the filing of '343 Patent. PO Resp. 45.

According to the Patent Owner, these considerations reveal that there was a long-felt need for the claimed invention of the '343 Patent, specifically a single auger, front folding grain cart having an auger system that maximized upward, laterally outward reach and forward reach. *Id.*

Patent Owner asserts that Mr. Kucklick testified that “extra reach would be important to users of grain carts.” PO Resp. 45 (citing Ex. 2007 37:11–16). Patent Owner asserts that this need existed as early as 1986, when the first front fold carts were developed. *Id.* at 47.

Petitioner’s witness Mr. Kucklick observes that the Grieshop patent discouraged parties from developing the front fold area. Ex. 1014 ¶ 39. Grieshop covers the standard front fold grain cart. *Id.* at 40 ((citing Ex. 1015, 25:13–20) (testimony of patent owner witness Mr. Smith) and Ex. 2001 ¶ 21 (testimony of ’343 inventor, Mr. Wood)).

We find Petitioner’s observation about the Grieshop patent, which expired in 2008, has some merit. It seems evident that farm equipment manufacturers will enforce their patents from time to time, so it is reasonable to conclude that the existence of the Grieshop patent could have had a chilling effect on development. *See, e.g.*, Ex. 1016, 47:19–49:15. In particular, the following testimony is pertinent to this issue:

Q. And do you remember approximately when J & M asserted the '208 Patent against these companies?

A. It would be in the early '90s.

Q. So shortly after the patent issued, they would have asserted the patent against these companies --

A. Correct.

Q. -- is that fair to say?

A. Correct.

Q. And is it your understanding that these efforts to enforce the '208 patent against these competitors resulted in those competitors taking front fold single auger grain carts off the market?

A. Yes.

Id. at 48:4–19.

Consequently, weighing the evidence of the length of time bearing on the “long-felt need” factor of secondary indicia of non-obviousness is, at best, neutral.

Petitioner’s Efforts

Patent Owner next points to Petitioner’s own attempts to patent the front folding cart with extended reach. Petitioner filed two provisional applications, No. 61/152,521 (Ex. 2008) and 61/228,284 (Ex. 2009). Patent Owner characterizes the hinge structure of the provisional applications as “slightly different.” PO Resp. 47, n. 5.

Patent Owner also points to the Petitioner’s advertising that states “[s]ince the first Unverferth corner-auger grain cart introduction in 1988, we’ve been stretching our imaginations to develop a single, corner-auger front-fold design with the greatest, forward, outward and upward reach.” Ex. 2011, 2; PO Resp. 48. Patent Owner then urges that this statement, applying to the Petitioner’s X-TREME grain carts, provides nexus to the claims of the ’343 Patent. *Id.*

We are not persuaded that these items provide the requisite nexus to the instant claims. Although Patent Owner characterizes the hinge structure as “slightly different,” the provisional applications reference an “offset angle” for the conveyor sections. Exs. 2008–09. We are not provided with any persuasive explanation about how the hinge would fall within the claimed subject matter. The same is true of the advertising material.

As a consequence, we find this position and evidence unpersuasive.

Patent Owner’s Efforts

Patent Owner turns to its efforts to develop an acceptable solution. Patent Owner argues it worked on a solution for almost 20 years before it

arrived at the solution claimed in the '343 Patent. Patent Owner stated that it started receiving demands for greater auger reach. Ex. 2001 ¶ 24; PO Resp. 50.

According to the Patent Owner, one reason for this demand was that the market wanted grain carts with increased capacity. *Id.* Patent Owner began working to satisfy this need by increasing the length of the upper auger conveyor section on a standard front-fold grain cart in 1990. Ex. 2001 ¶ 27. According to Patent Owner, however, this setup had drawbacks, including because the longer auger was beyond the transport profile width restriction, the upper auger conveyor section had to be removed before the grain cart could be initially shipped to the dealer, which required increased labor costs in order to prepare the grain cart for shipping, more set up time for delivery to the customer, and general wear and potential damage to the auger in all transport phases. *Id.*

Patent Owner states that its next attempt to gain extra reach was with a flow control spout, which Patent Owner developed in 1999. *Id.* ¶ 28; PO Resp. 51. Patent Owner found that the spout did not completely solve the need for extended reach because some farmers preferred spouts that discharged grain directly downward. Ex. 2001 ¶ 29; PO Resp. 51.

Patent Owner asserts it next attempted to maximize reach by incorporating an extendable upper auger tube that comprised telescoping conveyor sections controlled by hydraulics. *See* Ex. 2001 ¶ 30; *see* Ex. 2017.

Patent Owner states its next attempt to achieve extra reach, in 2003, involved the replacement of the extendable upper auger tube assembly with

rigid upper auger conveyor section having an upward bend at the hinge point. PO Resp. 53.

Patent Owner lastly states that it conceived of the invention that is claimed in the '343 Patent in 2007. Ex. 2001 ¶ 35. It urges that the fact that Patent Owner made multiple initial attempts, over the course of approximately 10 years, to achieve extra reach prior to inventing the solution claimed in the '343 Patent, supports the long-felt need in the industry for the claimed invention. Ex. 2006 ¶ 122; PO Resp. 53.

We do give the Patent Owner's evidence in this regard some weight. It does appear that they put much effort into improving their products' reach, and there was a continuing search for improvement. Ex. 2016; Ex. 2017. We find that Mr. Wood is credible on the effort he personally put into developing the claimed hinge. *See generally* Ex. 2001.

However, this evidence, when compared to the evidence of Exhibits 1002, 1003, 1004, and 1007, does not overcome the evidence of obviousness of the claimed subject matter. Each of the claimed elements were known in the art, and utilized for their known purpose to give predictable results.

Accordingly, we conclude that the Petitioner has prevailed and established by a preponderance of the evidence that claim 1 is unpatentable under 35 U.S.C. § 103(a) over Grieshop,

Claim 2

2. The grain cart as defined in claim 1 wherein said power actuator comprises an inclined elongated hydraulic cylinder, and said upper conveyor section of said single auger conveyor in said stored position extends downwardly from said hinge above and generally parallel to said hydraulic cylinder connecting said frame to said upper conveyor section.

We find that Grieshop describes an inclined elongated hydraulic cylinder connecting the upper conveyor section to the frame. Ex. 1002, Fig 2, ref. num. 100. Parker also describes that the upper conveyor section can be generally parallel to such a hydraulic cylinder. Ex. 1004, at 2–3.

We conclude that it would have been obvious to modify the grain cart of Grieshop so that the upper conveyor section is parallel to the hydraulic cylinder in the stored position as it is a known configuration, as evidenced by Parker. Accordingly, we conclude that a preponderance of evidence establishes that claim 2 is unpatentable in view of Grieshop, Christianson, and Parker.

Claim 3

3. A grain cart for transferring grain from a combine in a field to a trailer, said cart comprising

We find that Grieshop describes a grain cart. Ex. 1002, Fig. 1; Pet 47. It is not in dispute that Grieshop's grain cart, or grain carts in general, may be used in a field to transfer grain from a combine to a trailer. Ex. 1004, p. 2.

a container for receiving a volume of grain and having a lower interior portion, a front wall portion, a pair of side wall portions and first and second opposite, upper corner portions located proximate intersections of said front wall with said respective side wall portions,

We find that Grieshop describes a container with the recited wall and corner portions. Ex. 1002, Fig. 4 (especially reference numerals 30 and their intersections); Pet. 48.

an auger conveyor including a lower conveyor section that is upwardly inclined and an upper conveyor section,

We find that Grieshop describes an auger conveyor having both an upwardly inclined lower section and an upper conveyor section. *See, e.g.*, Ex. 1002, Fig 3 (reference numerals 54 and 30); Pet. 48.

each of said lower and upper conveyor sections including a power driven auger,

We find that Grieshop describes each auger section includes a power driven auger. Ex. 1002, Fig. 5 (reference numerals 86, 38); Pet. 48.

said lower conveyor section having an inlet positioned proximate said lower interior portion of said container to receive grain from within said container and transport the grain to said upper conveyor section,

We find that Grieshop describes an inlet in the lower interior portion of the grain cart. Ex. 1002, Figs. 4 and 5 (especially reference numerals 60, 58, and 30d operating in cooperation); Pet. 48.

said upper conveyor section supported by a hinge adjacent one of said upper corner portions, said hinge operative to allow a folding movement of said upper conveyor section relative to said lower conveyor section about a pivot axis and between an upwardly inclined grain discharge position and a retracted, stored position,

We find that Grieshop describes an upper conveyor supported by a hinge adjacent an upper corner. *See* Ex. 1002, Fig. 6 (reference numeral 78, and Figure 4); Pet. 48.

wherein said upper conveyor section is coupled with said lower conveyor section in said upwardly inclined grain discharge position to receive grain from said lower conveyor section and said upper conveyor section extends upwardly, laterally

outwardly, and forwardly relative to one of said upper corner portions in said upwardly inclined grain discharge position,

We find that Grieshop describes an upper conveyor coupled with a lower section and extending outwardly laterally upwardly and forwardly as illustrated in Ex. 1002, Figs. 2, 4. Pet. 48–49.

and wherein in said retracted, stored position, said upper conveyor section is located along said front wall and oriented at a downward angle below a horizontal plane at said hinge such that said upper conveyor section extends from said hinge to an opposite side of said container from said hinge while remaining substantially between said side wall portions to facilitate transporting said grain cart,

We find that Parker describes a retracted, stored position along the front wall, oriented at a downward angle, and remaining substantially within the side walls of a grain cart. Ex. 1004, p. 2; Pet. 49.

a power actuator connected to move said upper conveyor section between said retracted, stored position and said upwardly inclined grain discharge position, and

We find that Grieshop describes a powered actuator to move the upper conveyor section. Ex. 1002, Figs. 2 and 3 (reference numeral 100); see Ex. 1002, 4:30:60.

said pivot axis being oriented oblique relative to longitudinal axes of said upper and lower conveyor sections and oriented oblique relative to planes perpendicular to said longitudinal axes of said upper and lower conveyor sections.

Finally, we find that Christianson describes a hinge oblique to longitudinal axes of upper and lower conveyor sections and planes

perpendicular thereto. *See* Ex. 1003, Fig. 6. Such oblique hinges were known in the art. *See* Ex. 1007.

As noted above, we find that one of ordinary skill in the art would have been motivated to modify the cart of Grieshop to include a front-fold discharge chute as described in Parker for the benefits of folding within the width of the cart. One of ordinary skill in the art at the time the invention was made would have known of the use of askewed hinges such as described in Christianson, and been further informed by those already used in the art in the Par-Kan side fold cart.

Accordingly, we conclude that the Petitioner has established that the subject matter of claim 3 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 4

4. The grain cart as defined in claim 3, further comprising: a frame supported by a set of wheels including first and second front wheels, said frame supporting said container.

We find that Grieshop describes a frame 14 supported by a set of wheels 16 including first and second front wheels, where the frame supports the container 30. Ex. 1002, Figs. 1–4; 3:8–11.

Accordingly, we conclude that the Petitioner has established that the subject matter of claim 4 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 5

5. The grain cart as defined in claim 4, wherein said upper conveyor section includes an outer discharge end and said outer discharge end is located below upper surfaces of said wheels when said upper conveyor section is in the retracted, stored position.

We find that Parker describes positioning the outer discharge end of the upper conveyor section at least in part below the upper wheel surface. Ex. 1004, 2.

Accordingly, we conclude that the Petitioner has established that the subject matter of claim 5 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 6

6. The grain cart as defined in claim 5, wherein said outer discharge end of said upper conveyor section is located adjacent a vertical reference plane contacting one of said side wall portions of said container when said upper conveyor section is in the retracted, stored position.

We find that Parker describes an upper conveyor section with a discharge end located adjacent a vertical reference plane of the container's right side wall, when in the stored position. See Ex. 1004 2.

Accordingly, we conclude that the Petitioner has established that the subject matter of claim 6 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 7

7. A grain cart comprising: a container configured to hold a quantity of grain, said container having front, rear and laterally opposed side walls;

We find that Grieshop describes a grain cart having a container to hold grain, with the claimed wall structure. Ex. 1002, Fig. 1; Pet. 50–51.

a folding auger assembly having upper and lower auger assembly portions connected by a joint assembly, said lower auger assembly portion having a lower auger housing with first

and second ends and an auger rotatably disposed in said lower auger housing, said upper auger assembly portion having an upper auger housing with first and second ends and an auger rotatably disposed in said upper auger housing;

We find that Grieshop describes a folding auger assembly with the upper and lower assemblies, joint, and rotatable auger. Ex. 1002, Figs. 5–7; Pet. 51.

the first end of said lower auger housing having an intake proximate a bottom of said container to receive grain and said second end of said lower auger housing being disposed adjacent to a forward upper corner of said container where said front wall intersects one of said laterally opposed side walls;

We find that Grieshop describes the lower auger first end and second ends, located at the bottom and the forward upper corner. Ex. 1002, Figs. 4–5; Pet. 51.

the first end of said upper auger housing is disposed adjacent said second end of said lower auger housing and said second end of said upper auger housing has a discharge opening to discharge grain from said container;

We find that Grieshop describes the relative placement of the first end of the upper auger and the second end of the lower auger, with the discharge opening. Ex. 1002, Figs. 2 and 5–7; Pet. 50.

said joint assembly includes a pivot axis about which the upper auger assembly portion is pivotable relative to said lower auger assembly portion between a grain discharge position in which said first end of the upper auger assembly portion abuts said second end of said lower auger assembly portion and in which said upper auger assembly portion extends upwardly, laterally outwardly, and forwardly relative to said forward upper corner to permit grain to be discharged from said container

We find that Grieshop describes a pivot axis permitting pivoting action to result in the forward, upward, and outward discharge position. Ex. 1002, Figs. 4 and 6; Pet. 50.

and a stored position in which said upper auger assembly portion extends downwardly from said second end of said lower auger assembly portion diagonally across said front wall of said container while remaining substantially between said laterally opposed side walls of said container to facilitate transporting said grain cart; and

We find that Grieshop describes a stored position wherein the upper auger assembly is positioned downwardly along the front wall and substantially between the side walls such that transportation would be facilitated. Ex. 1002, Figs. 1 and 3. We also find that Parker describes a similar stored position. Ex. 1004, 1–2.

said pivot axis being oriented oblique relative to longitudinal axes of said upper and lower auger assembly portions and oriented oblique relative to planes perpendicular to said longitudinal axes of said upper and lower auger assembly portions.

We find that Christianson describes the orientation of an axis oblique to conveyors. Ex. 1003, Fig. 6; Pet. 52. Christianson also describes a disfavored straight tube version of the pneumatic conveyor. Ex. 1003, 4:7–29.

Mr. Kucklick testifies that it is his opinion that one of ordinary skill in the art at the time of the alleged invention would have modified the hinge of the grain cart disclosed in Grieshop to include the transport position of Parker using the oblique pivot axis of Christianson. Ex. 1013. We find this

testimony credible, especially in view of Ex. 1007, which shows such a hinge in a side fold cart. Pet. 2.

We, therefore, conclude that the Petitioner has established that the subject matter of claim 7 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 8

8. The grain cart as defined in claim 7 further including a power actuator connected to move said upper auger assembly portion between said grain discharge position and said stored position.

We find that each of Grieshop, Christianson, and Parker describes a power actuator to move the upper auger between the stored and discharge positions. Ex. 1002, 4:30–60, Figs. 2–3; Ex. 1003, 4:30–33, Fig. 1; Ex. 1004, 2–3; Pet. 41, 52.

We, therefore, conclude that the Petitioner has established that the subject matter of claim 8 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 9

9. The grain cart as defined in claim 7 further including a wheeled frame upon which said container is mounted.

We find that each of Grieshop, Christianson, and Parker describes a wheeled frame. Ex. 1002, Fig. 1; Ex. 1003, Fig. 1; Ex. 1004, 1–4; Pet. 41–42, 53.

We, therefore, conclude that the Petitioner has established that the subject matter of claim 9 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 10

10. The grain cart as defined in claim 7 wherein the discharge opening is located adjacent to a vertical reference plane contacting one of the lateral side walls when said upper auger assembly portion is in the stored position.

We find that Grieshop describes that its discharge opening is located adjacent to a vertical reference plane contacting one of the lateral side walls when the upper auger assembly portion is in the stored position. Ex. 1002, Figs. 2–4. Sidewall 30 in Figure 2 is obscured by the end of upper auger section 80 in Figure 3 and visible from above in Figure 4. It is evident that the upper auger end is near, or adjacent, the sidewall and a vertical reference plane.

We also find that Parker describes the end of the upper conveyor section located adjacent a vertical reference plane of the container’s right side wall, when in the stored position. Ex. 1004, 2.

We, therefore, conclude that the Petitioner has established that the subject matter of claim 10 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 11

11. The grain cart as defined in claim 7 wherein said upper auger assembly portion extends downwardly forward of said front wall at an angle greater than thirty-five degrees relative to a horizontal reference plane in the stored position.

Mr. Kucklick testifies that Parker describes a substantial angle “greater than twenty-five degrees and thirty-five degrees.” Ex. 1013 ¶ 133. He also testifies that the specific angle is a matter of design choice. *Id.* We find that this testimony is credible. We also observe that the

difference between Christianson's stored position of 45 degrees and Parker's of about 25 to 35 degrees appears to accommodate the particular design of the conveyor.

We, therefore, conclude that the Petitioner has established that the subject matter of claim 11 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claim 12

*12. A grain cart comprising:
a wheeled frame;
a container mounted on said frame having a bottom and front, rear and laterally opposed side walls;*

We find that Grieshop describes a grain cart having a wheeled frame and a container mounted on the frame with the opposed walls. Ex. 1002, Figs. 1–2; Pet. 53–54.

a lower auger assembly having an inlet located proximate said container bottom to receive grain from said container, said lower auger assembly extending upwardly at an inclined angle from proximate said container bottom and terminating near a forward upper corner formed by the intersection of said front and one of said side walls;

We find that Grieshop describes a lower auger assembly having the inlet at the container bottom to receive grain and a terminal portion at the forward corner of the front wall and a side wall. Ex. 1002, Figs. 4–5; Pet. 54.

an upper auger assembly pivotally connected to said lower auger assembly proximate said forward upper corner and including a grain discharge end,

We find that Grieshop describes an upper auger assembly connected to the lower auger assembly and having a grain discharge end. Ex. 1002, Figs. 2–3; Pet. 54.

said upper auger assembly being pivotable relative to said lower auger assembly on a pivot axis between a grain discharge position wherein said upper auger assembly portion extends upwardly, forwardly, and laterally outward with respect to said forward upper corner

We find that Grieshop describes an upper auger assembly, which can pivot between the discharge position where it extends upwardly, outwardly, and forwardly. Ex. 1002, Figs. 2–4; Pet. 54.

and a stored position wherein said upper auger assembly is disposed diagonally downwardly along said front wall of said container with said discharge end being disposed substantially between said laterally opposed side walls to facilitate transporting said grain cart;

We find that Grieshop describes a stored position wherein the upper auger assembly is positioned downwardly along the front wall and substantially between the side walls such that transportation would be facilitated. Ex. 1002, Figs. 1, 3. We also find that Parker describes a similar stored position. Ex. 1004, 1–2; Pet. 54.

and said pivot axis being oriented oblique relative to longitudinal axes of said lower and said upper auger assemblies and oriented oblique relative to planes perpendicular to said longitudinal axes of said upper and lower auger assemblies.

We find that Christianson describes the orientation of an axis oblique to conveyors. Ex. 1003, Fig. 6; Pet. 52. Christianson also describes a

disfavored straight tube version of the pneumatic conveyor. Ex. 1003, 4:7–29; Pet. 55.

Mr. Kucklick testifies that it is his opinion that one of ordinary skill in the art at the time of the alleged invention would have modified the hinge of the grain cart disclosed in Grieshop to include the transport position of Parker using the oblique pivot axis of Christianson. Ex. 1013. We find this testimony credible, especially in view of Ex. 1007, which shows such a hinge in a side fold cart. Pet. 2.

We, therefore, conclude that the Petitioner has established that the subject matter of claim 12 is not patentable over the combination of Grieshop, Parker, and Christianson.

Claims 13 and 14

13. The grain cart as defined in claim 12 wherein said upper auger assembly is disposed at an angle greater than twenty-five degrees relative to a horizontal reference plane in the stored position.

14. The grain cart as defined in claim 12 wherein said upper auger assembly is disposed at an angle greater than thirty-five degrees relative to a horizontal reference plane in the stored position.

Mr. Kucklick testifies that Parker describes a substantial angle “greater than twenty-five degrees and thirty-five degrees.” Ex. 1013 ¶ 133. He also testifies that the specific angle is a matter of design choice. *Id.* We find that this testimony is credible. We also observe the difference between Christianson’s stored position of 45 degrees and Parker’s of about 25 to 35 degrees appears to be to accommodate the particular design of the conveyor.

We, therefore, conclude that the Petitioner has established that the subject matter of claims 13 and 14 is not patentable over the combination of Grieshop, Parker, and Christianson.

III. MOTION TO SEAL

Petitioner filed a Motion to Seal on May 4, 2015. The motion requests that we permit sealing of Exhibit 1017, which is a sales document. According to Petitioner, Exhibit 1017 is a document that the Patent Owner produced in a corresponding district court litigation, *J&M Mfg. Co., Inc. v. Unverferth Mfg. Co., Inc.*, No. 1:12-cv-931 (S.D. Ohio). During Oral Argument, Patent Owner asserted that the document contained confidential information. Tr. 4:31–5:24.

As both parties agree this document contains confidential, non-public information, and as this decision in no way relies upon Exhibit 1017, there is no compelling public interest in the Exhibit remaining public. We, therefore, GRANT the motion to seal Exhibit 1017.

The Patent Owner should note that confidential information becomes public 45 days after the date of this decision, and should file a motion to expunge within 15 days of the date of mailing of this decision if it wishes timely expungement of the document prior to that event. 37 C.F.R. § 42.56; Trial Practice Guide, 77 Fed. Reg. 48,761 (Aug. 14, 2012).

IV. CONCLUSION

Petitioner has established by a preponderance of evidence that claims 1–14 are unpatentable as being directed to obvious subject matter.

V. ORDER

It is ORDERED that:

Claims 1–14 have been shown to be *unpatentable*;

Petitioner’s Motion to Seal is GRANTED.

This is a final decision. Parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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