

Filed June 22, 2026

On behalf of **FreightCar America, Inc.**

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FREIGHTCAR AMERICA, INC.
Petitioner,

v.

NATIONAL STEEL CAR LIMITED,
Patent Owner.

Case IPR2025-01046
Patent No. 8,166,892

PETITIONER'S REPLY TO PATENT OWNER'S RESPONSE

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1005	U.S. Patent No. 1,321,928 (“Lindström”)
1006	U.S. Patent No. 4,941,411 (“Wong”)
1007	<i>Excerpts from Lancashire & Yorkshire Wagons, Vol. II</i> , by Noel Coates, Copyright 2006 (“Coates”)
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1036	<i>Publication of a Report on the Effect of Imports of Steel on the National Security: An Investigation Conducted Under Section 232 of the Trade Expansion Act of 1962, as Amended</i> , Department of Commerce, Bureau of Industry and Security, Federal Register, Vol. 85, No 129, July 6, 2020
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1063	Daniel P. Holbrook, <i>Duluth, Missabe & Iron Range Equipment, 1883–2004</i> (2019)
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I. INTRODUCTION

Patent Owner NSC (“PO”) identifies no missing elements in Petitioner’s analysis and instead alleges distinguishing features that are not claimed. PO also ignores many of the Petition’s figures and motivations. A focus on the *claims* in view of *all* the evidence shows the ’892 claims are invalid.

II. CLAIM CONSTRUCTION

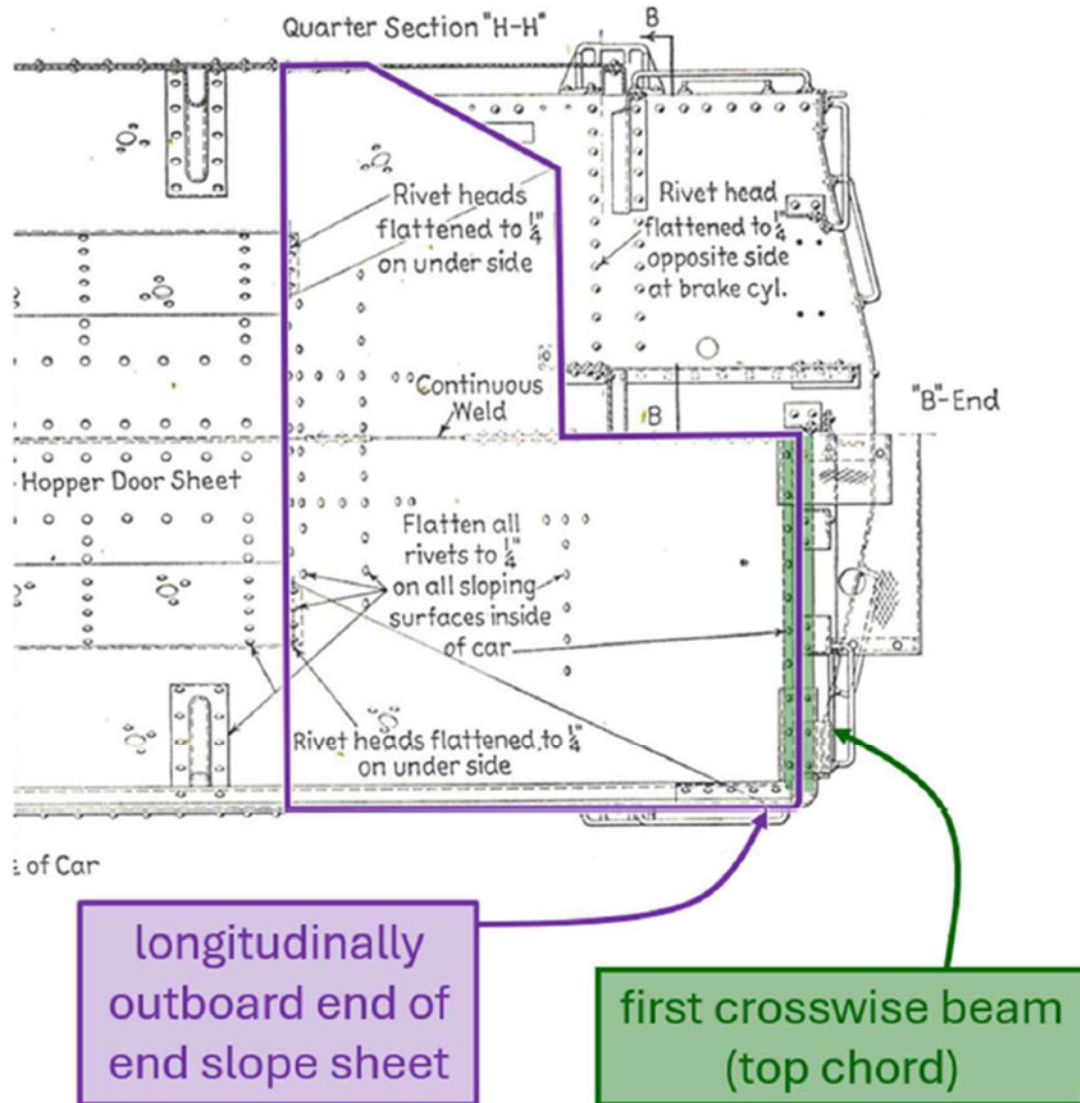
The challenged claims are unpatentable under any reasonable construction that accounts for the ’892 patent’s only disclosed embodiment. Construction of “sloped side sheet” is discussed below with respect to claim 6.

III. ARGUMENT

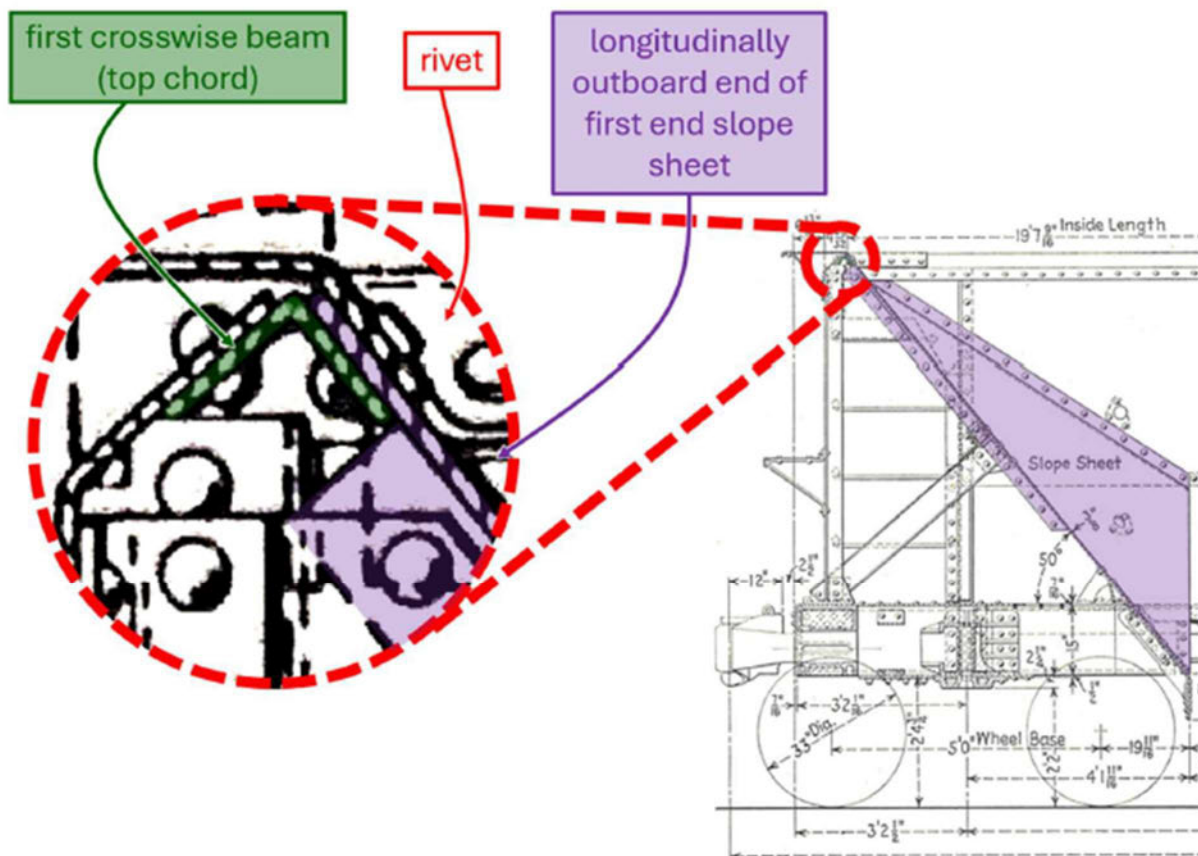
A. Ground 1b

1. Limitation [2i]

PO argues that the 1946 Cyclopedia’s NSC ore car (“NOC”) lacks an end slope sheet “reinforced by a first cross-wise extending beam.” PO does not dispute the NOC top chord’s cross-wise nature:



Pet. at 51 (single-quadrant top-view showing the beam extends the full width, EX1003 at 19). Instead, PO argues that the chord: (1) does not provide “distinct reinforcement at the slope-sheet joint”; (2) “cap[s] the end wall generally”; and (3) is not shown “functioning as that reinforcement at the claimed locus.” POR at 13. But reinforcement could hardly be more distinct, as the slope sheet rests *directly against* and is *riveted to* the crosswise beam:



Pet. at 51.

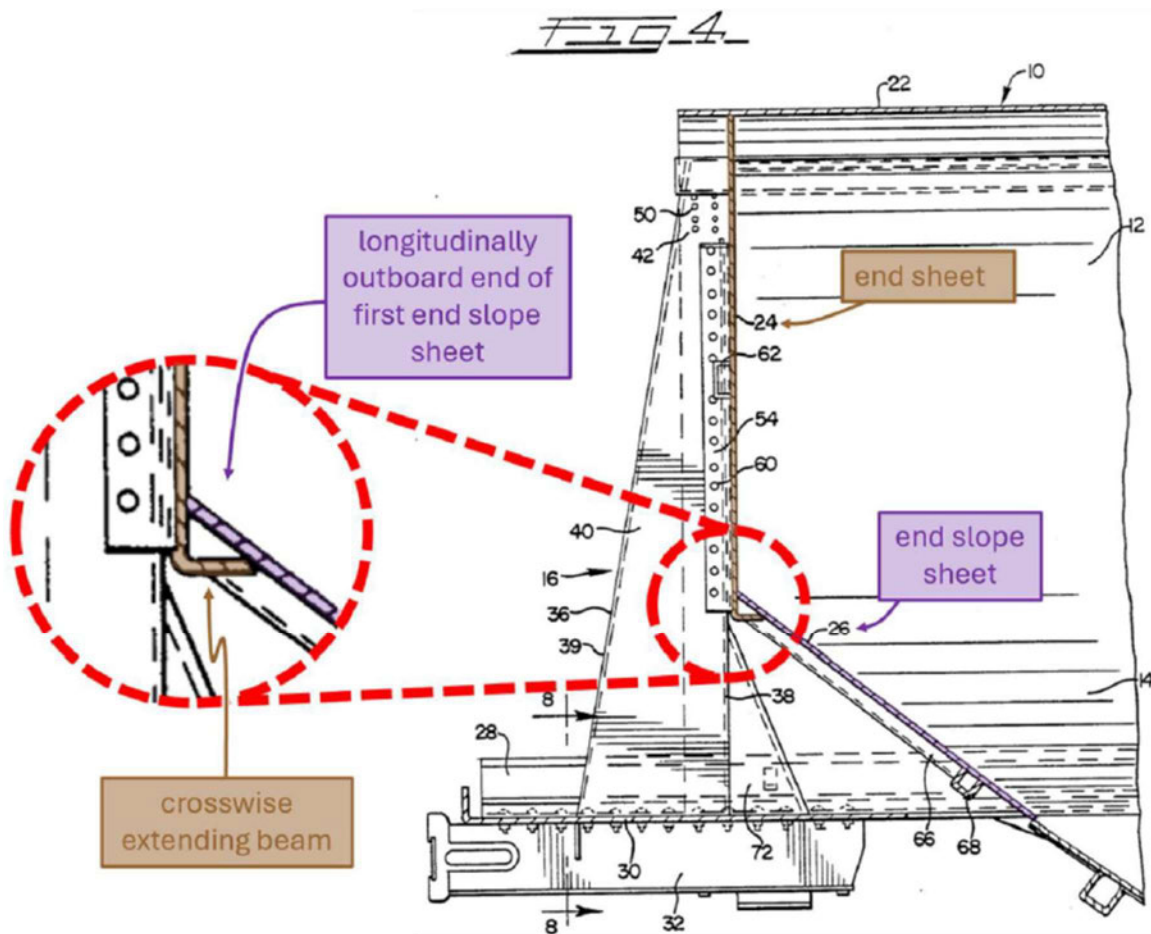
PO argues at 13–16 the beam must have a “closed section,” “formed and welded to the sheet.” But this is not claimed. PO also argues the top chord and first cross-wise beam must be “different structures with different functions,” but as the Board noted, claim 2 “does not recite an ‘end top chord,’” so there is no reason NOC’s end top chord “cannot constitute” the crosswise extending beam. Paper 27 at 22–23.

PO argues that the Board’s finding “misses the point” because claim 8 “adds” an end top chord. POR at 13. But claim differentiation merely requires that a

dependent claim “specify a further limitation of the subject matter.” 35 U.S.C. § 112(d); *Littelfuse, Inc. v. Mersen USA EP Corp.*, 29 F.4th 1376, 1380 (Fed. Cir. 2022) (scope of dependent not “coextensive” with parent claim). Here, claim 8 recites an end post that extends from draft sill to top chord, mounted above the draft sill toward the striker. Nothing prevents the structure Petitioner identifies from filling the role of claim 2’s basic “first crosswise beam” (supporting the slope sheet) and claim 8’s compatible, but more specific “cross-wise extending outboard end top chord” (providing an upper termination for the end post). As NSC’s expert admitted, ***a top chord can serve as a beam, and vice versa.*** EX1056 at 261:18–21, 262:6–8.

PO argues that the NOC’s v-shaped crosswise beam does not “primarily” reinforce the slope sheet, “but is a stiffening member to the overall structure of the railcar” (POR at 14), whereas the claimed crosswise beam “primarily functions to provide reinforcement for the slope sheet” (*id.* at 16). But as PO’s use of the hedging term “primarily” acknowledges, chords can be beams and vice-versa, and nothing in the claims precludes a beam/chord from simultaneously serving both a reinforcing and a stiffening function.

The petition also cites Wong for limitation [2i]. Again, PO does not deny that the identified structure in Wong (L-shaped detail) runs cross-wise:

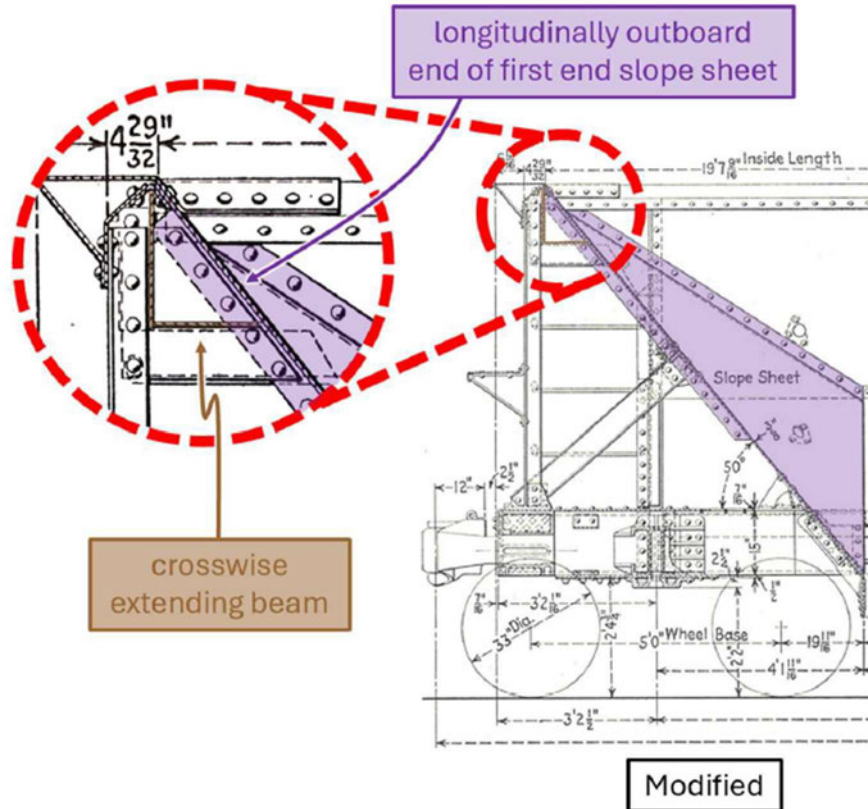


Petition at 52. Instead, PO argues that Wong does not “use” this beam “as a reinforcement.” POR at 18. The figure alone disproves this, and Dr. Viz admitted the “triangular section beam” adds a strength advantage. EX1056 at 209:11–210:4.

PO argues presence of “aluminum channel stiffener members”—62, 66, and 68—demonstrates the L-shaped detail does not reinforce. POR at 18–19. But if 62 and 68 reinforce, the similar L-shaped detail further reinforces. A POSITA would have understood Wong’s hollow beam extends cross-wise, reinforces, and is located as claimed. When such a beam is added at the top of the NOC slope sheet, it satisfies limitation [2i].

PO attempts to distinguish Wong based on its discussion of steel and aluminum. POR at 17, 19–21 (“mixed-materials,” etc.). But Wong’s relevant teaching in Fig. 4—bending an end wall to create a hollow beam reinforcement—is material-agnostic, and the L in Wong is actually an aluminum/aluminum junction. PO argues the Petition never reconciled issues such as interference with existing members. However, Dr. Viz admitted that such “fit-up” modifications (e.g., making a notch) were within the knowledge of a POSITA. EX1056 at 230: 2–7.

PO proposes several strawman modifications and argues the Petition “fails to articulate *how*” the Wong modification would be incorporated into the NOC. POR at 22–23. These arguments ignore the modification illustrated in the Petition:



Pet. at 53. This suffers from none of the concocted “interference,” “excess material,” or “puncture” problems of PO’s strawman alternatives.

PO argues that the Wong modification would fail because it would not transfer load “directly down” to the undercarriage of the car. POR at 23. But the simple claim term “reinforced” does not specify the load transfer details. In addition, *cross-wise* extending beams *never* transfer load “directly” down; they shift load *laterally* to other portions of the slope sheet and, where the ends of the beam are attached to other structures such as posts, to those other structures.

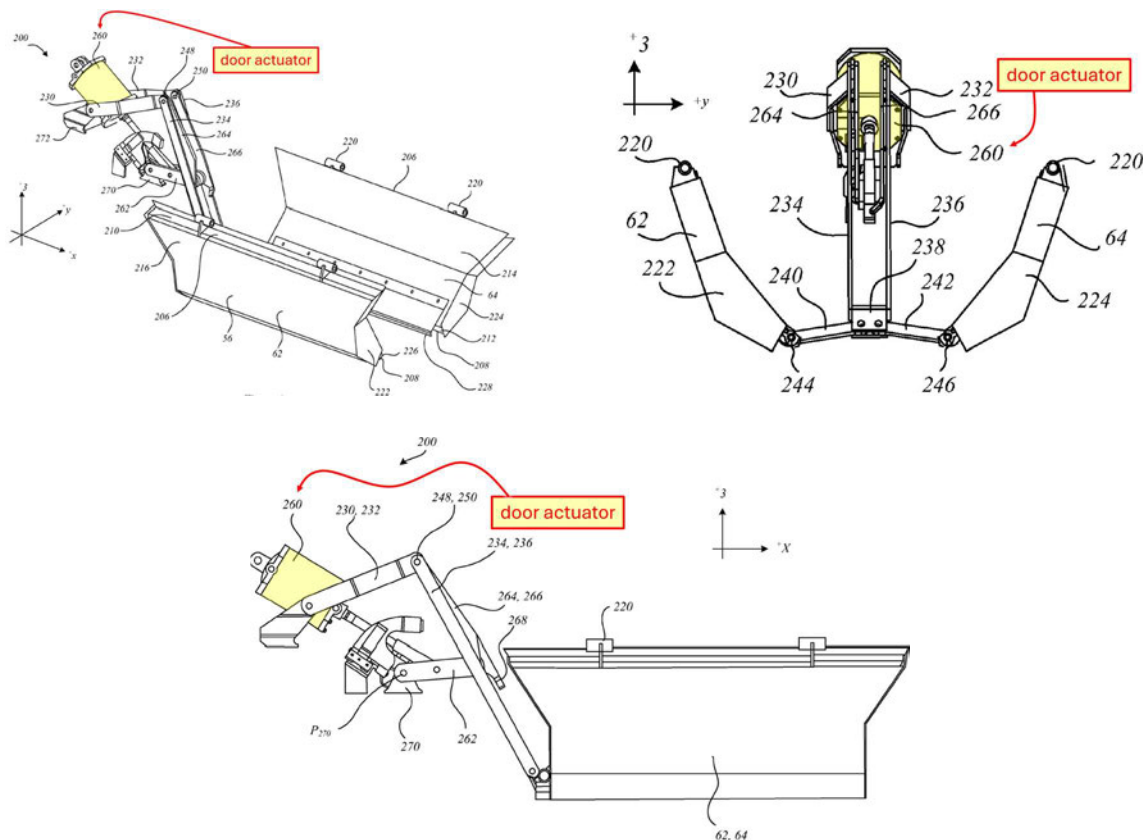
Finally, PO argues that adding Wong’s beam would be “redundant,” yet require “substantial time investment” for “redesign.” POR at 23. But a POSITA in 2009 would have known that stiffening reinforcements are added to railcars all the time without a full redesign. Moreover, these are no longer redundant when the stress increases. Thus, unlike removing a beam, *adding* a beam to an already-stable configuration does not require “redesign” analysis. From Wong’s teachings, a POSITA would have seen the benefits of this simple modification.

2. Limitation [2I]

The ’892 patent describes a “door actuator” and how it interacts with a mechanical transmission, various mechanical components such as cams, locks, a pivot arm or lever, a push rod, etc. EX1001, cols. 7:14–15, 44–50; 19:4–48; 22:14–62. The ’892 patent never illustrates the door actuator in the machinery space

context, instead using figures 4a–6c to show how it mechanically connects to the hopper doors, “raised upwardly” from the shear plate and “tilted downward.”

EX1001, 19:56–58.



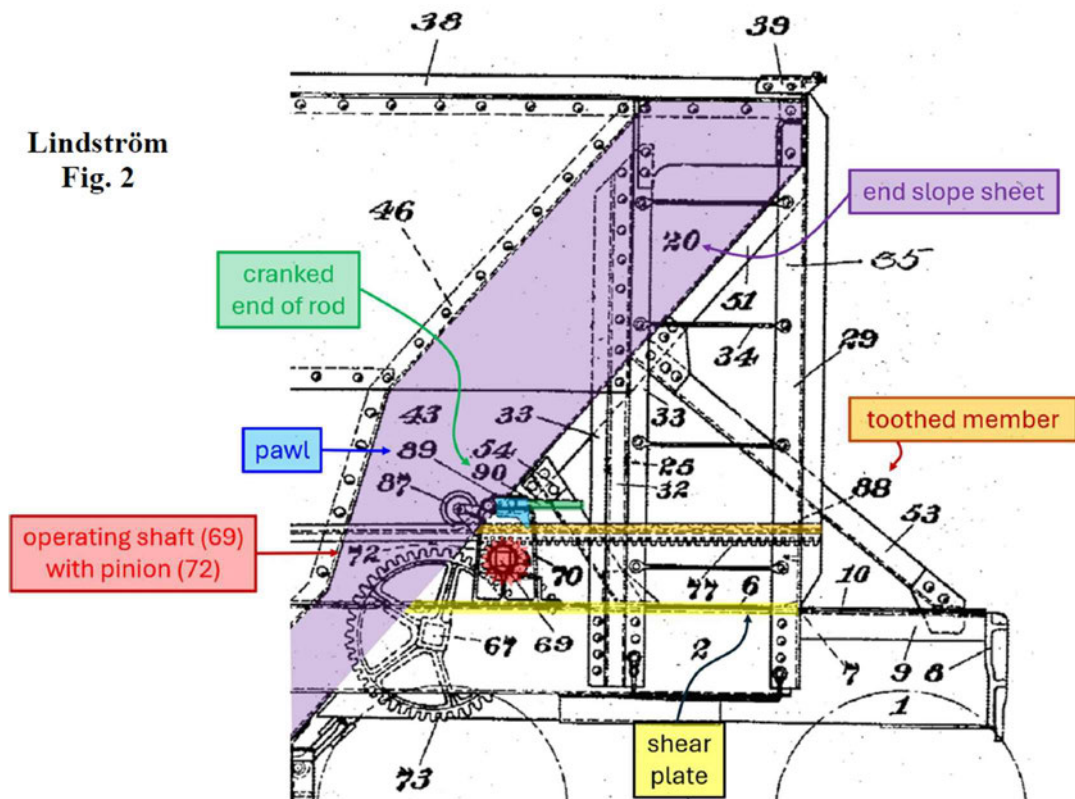
EX1001 Figs. 4a, 5a, 6a. Yet the '892 patent claims the actuator broadly, as: (1) “mounted above” the shear plate; (2) “at least partially overhung” by the end slope sheet; and (3) “connected to” the door “by a mechanical transmission.” Support for this broad claim language is found in this passage: “A longitudinally acting pneumatic actuator is at least partially lodged *in the machinery space* directly above the draft sill.” EX1001, 9:27–29 (emphasis added). PO omitted from the claim even

the “longitudinally acting” and “directly above the draft sill” limitations. PO thus attempted to cover *any door actuator located anywhere in the machinery space*.

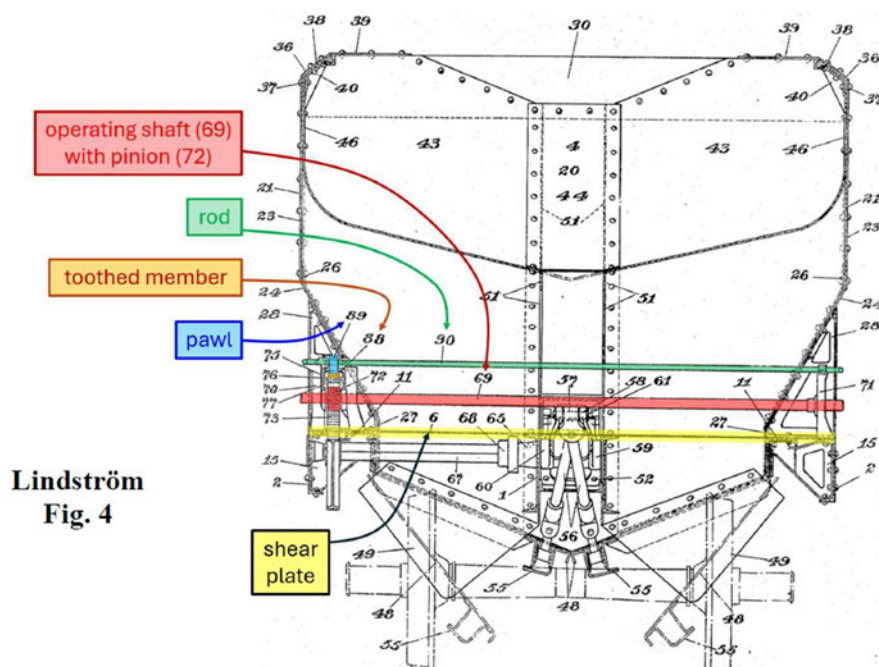
Given limitation [21]’s breadth (omitting cams, locks, pivot arms, levers, and push rods from the claim), PO’s criticisms based on the Lindström actuator’s “shafts, clutches, pinions, and linkages” is unwarranted. POR at 24. As Dr. Ahmadian explained, “[door-opening] mechanisms were ubiquitous on bottom-discharge ore cars.” EX1003 ¶ 59. Lindström simply provides one example of this ubiquitous industry knowledge. PO faults the Institution Decision for focusing on the claimed machinery space. POR at 24–25. But limitation [21] requires only a generic actuator in that space, so this focus was appropriate. The implementation details PO demands (*id.*) far exceed the scope of [21], which states nothing about “mount points,” “transfer[ring] reaction loads to primary structure,” “preserving door swing arcs and clearances,” and “routing of shafts, clutches, pinions/racks, chains/rods, and levers.” *Id.* Incorporating century-old technology, a POSITA in 2009 could have addressed these questions in any number of obvious ways. Because [21] includes no specifics, they are not relevant to the invalidity analysis.

Moreover, the Petition and declaration explain and illustrate how Lindström provides a specific implementation of the generically claimed actuator and mechanical transmission. Pet. at 56–59; EX1003 ¶¶ 51–60.

Lindström
 Fig. 2

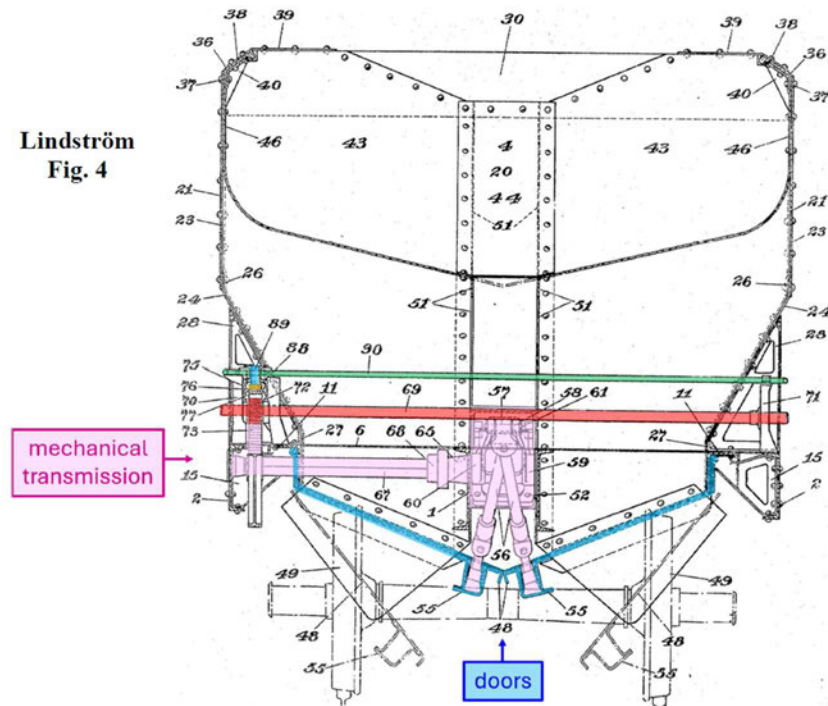


Pet. at 56.

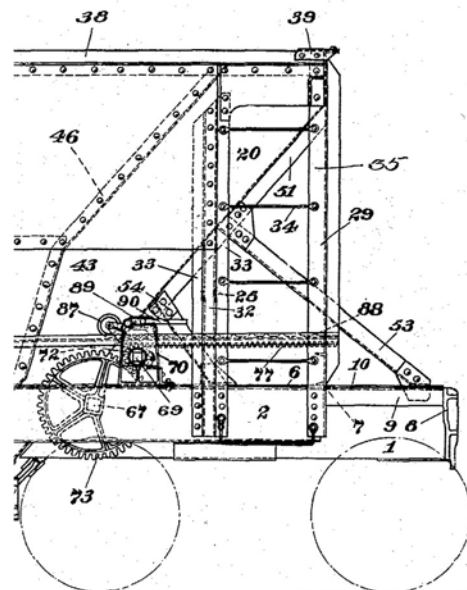
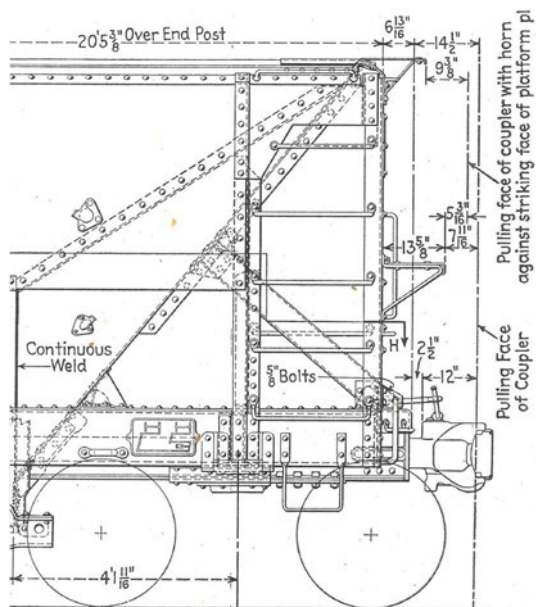


Lindström
 Fig. 4

Id. at 57.



Id. at 58. This implementation is compatible with the NOC, and success would be expected, because of the similarities between Lindström and that car. EX1003 ¶ 60.



EX1004 at 294; EX1005 Fig. 2. Thus, a POSITA would have looked to Lindström for “installation geometry,” “how ‘overhang’ is achieved,” and how “transmission is routed.” *See* POR at 25.

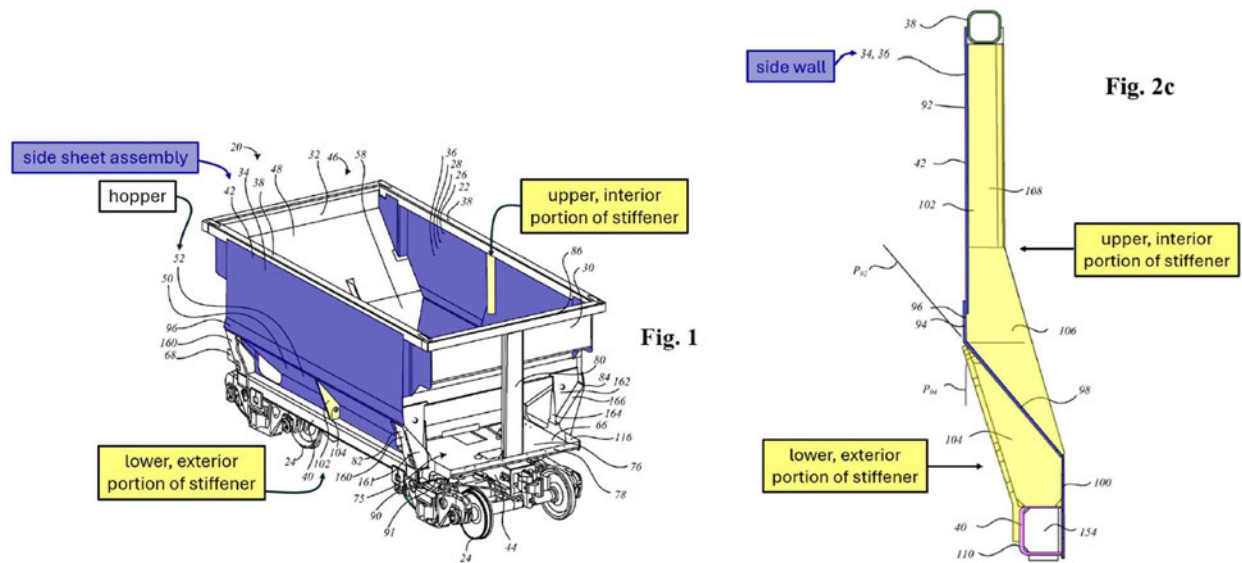
PO admits that the following photograph of an NOC shows a door opening mechanism in the machinery space. *Id.* at 26.



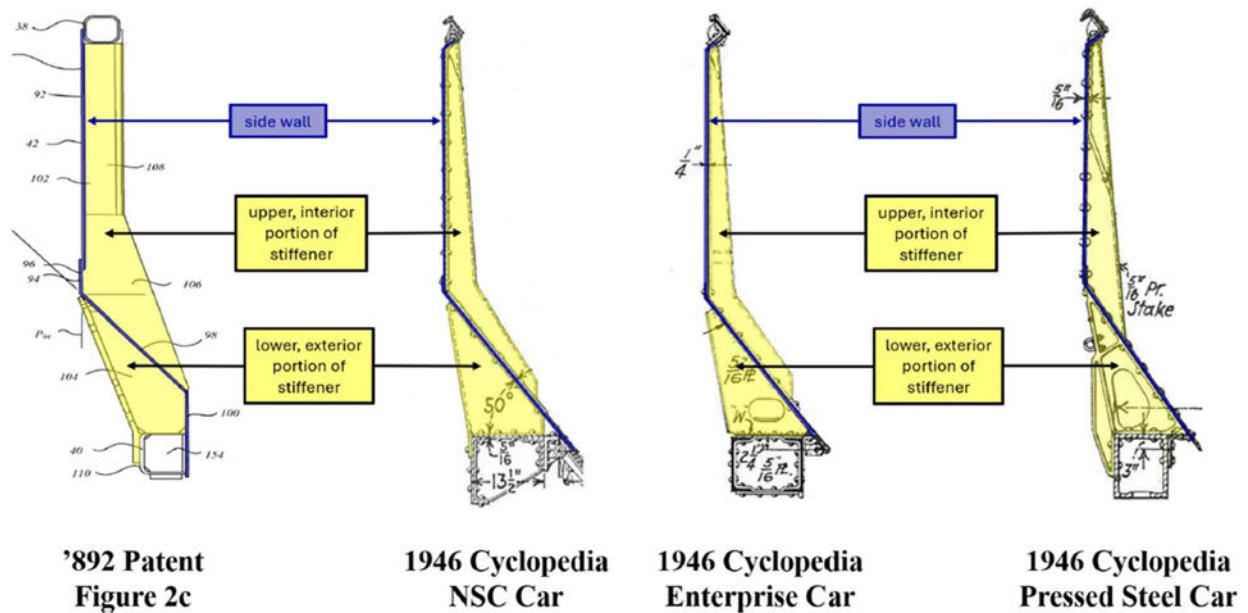
EX1004 at 28. PO argues that this teaches *against* incorporating the Lindström door actuator. But showing *any* door actuator in that space proves feasibility of locating one “mounted above said shear plate . . . at least partially overhung by said first end slope sheet [and] . . . connected to said door by a mechanical transmission,” as claimed. This evidence supports invalidity.

3. Limitation [2u]

The Petition explains how the '892 Patent uses the term “web continuity” to describe sidewall stiffener portions aligned across the side wall:

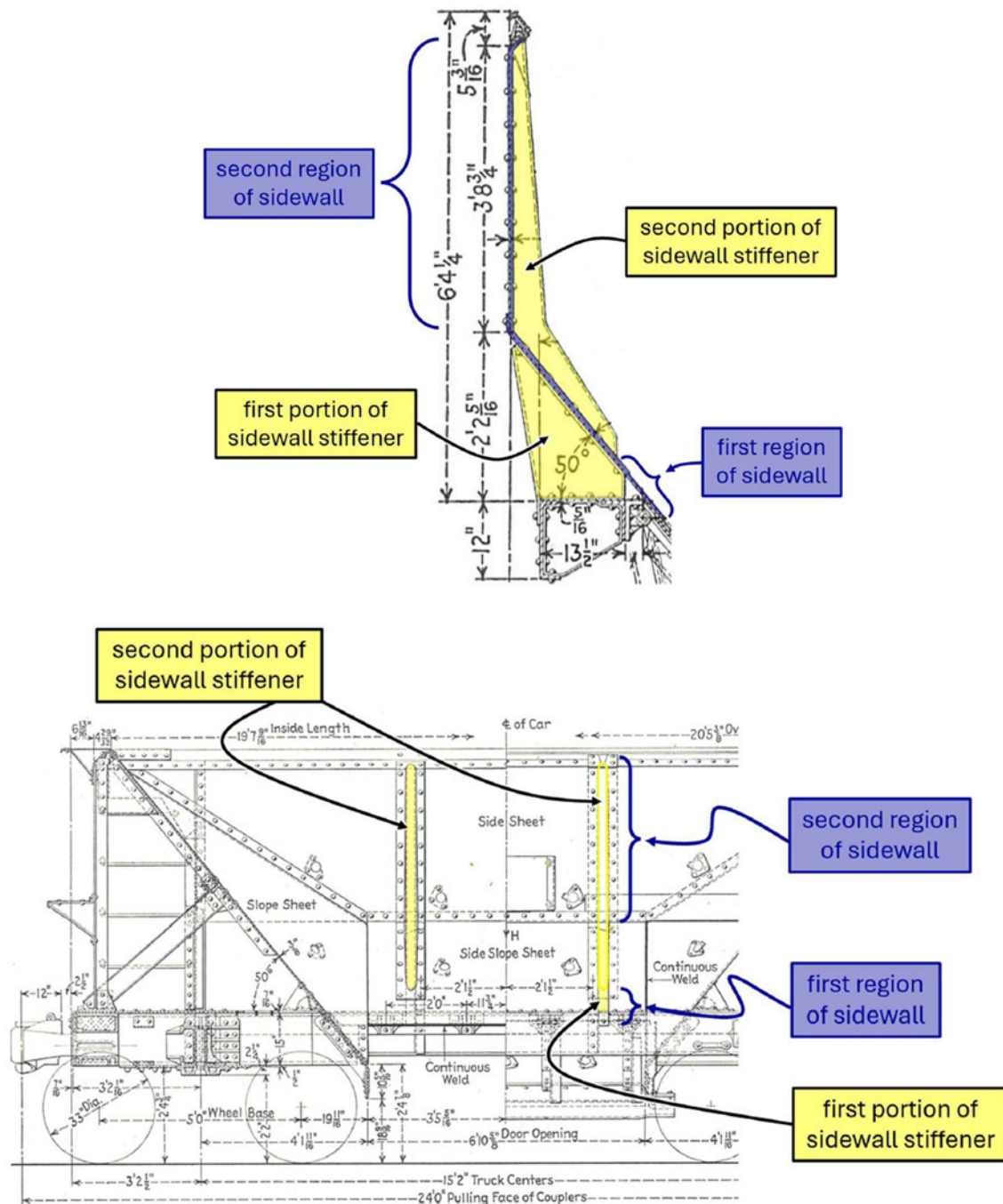


Pet. at 9–10. The Petition also shows how such aligned stiffeners were well known:



Id. at 14.

PO does not dispute limitations 1[e]–[1h], acknowledging that the NOC discloses aligned stiffeners.



Pet. at 32–33.

PO argues that NOC’s sidewall stiffeners have no “web,” so “web continuity cannot be achieved.” POR at 28. But the NOC’s stiffeners are posts with webs, just as the ’892 patent describes its stiffeners: “the post has stiffening member web

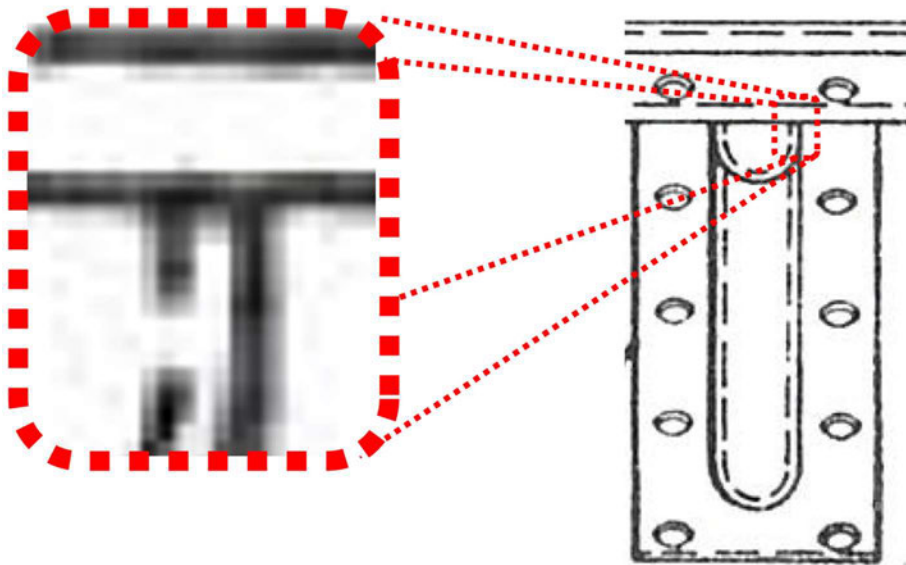
continuity in a vertical plane [and] the wall sheet traverses the stiffening web”
EX1001, 15:64–65.

The Board demonstrated that Claim 2 requires no particular (I- or T-beam) stiffener shape, because dependent Claim 15 refers to “flat bar . . . positioned in vertical-transverse planes.” Paper 27 at 34. Even if Claim 15’s flat bar forms an I-beam, Claim 2 logically must encompass other shapes as well. *Id.* The Board also showed that a T-section configuration should not be imported into claim 2. *Id.* (citing *SuperGuide*).

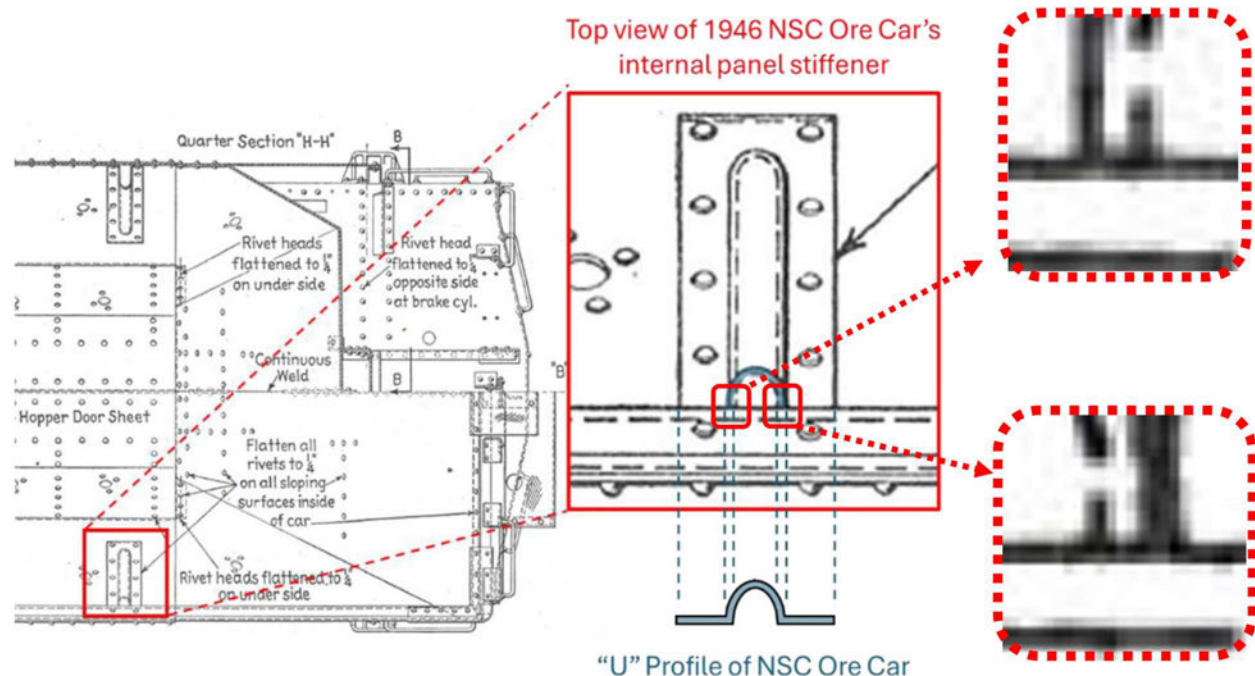
Moreover, the NOC stiffeners do have webs, and the webs are aligned. As used in the ’892 patent, “web” simply refers to a wall or plate that is perpendicular to a flange. Thus, “the vertical stiffener, 102, **acts as the web** of a T-section, and the local region of the wall section to which it is joined **functions as the flange** of that T-section.” EX1001, 15:54–57. Where a T-section leg is aligned, across the flange, with another T-section leg, they are co-planar, resulting in web continuity: “Portions 104 and 106 are co-planar, or substantially co-planar, such that stiffener [member] 102 has web continuity through member 94.” EX1001, 15:44–46. The web and the flange can swap roles, because after referring to the sidewall as a flange, the ’892 patent describes it as a web: “Expressed differently, the **web of the sidewall** traverses the sidewall stiffener.” *Id.*, 15:50–51. In each case, the web and the flange are perpendicular to each other. Dr. Viz agreed that perpendicularity is the key to

identifying a “web.” EX1056 at 99:8–12; 101:20–21; 104:4–6; 114:15–19; 115:16–19; 117:14–17 (“the perpendicular part of a beam . . . that’s perpendicular to a flange”).

PO argues that a U-shaped stiffener has no web, and therefore cannot have web continuity. But *each leg of the U-shaped stiffener perpendicularly abuts the sidewall*, so just as in the ’892 patent, “the local region of the wall section to which it is joined functions as the flange of that T-section.” EX1001, 15:55–57. A POSITA would have understood that each leg of the stiffener is the web of a T-section.



See Pet. at 33, 64. PO’s figure below has been further annotated to show that the U-shaped stiffener has *two* webs because its legs are perpendicular to, and form T-sections with, the sidewall:



See POR at 28. PO's emphasis of the U-profile fails to acknowledge that the '892 patent describes the side sheet as the flange of its described T-sections. The perpendicular portions, or legs of the T-sections are the "specific component[s] of the structural element which resist[] shear loading," consistent with the statement by Dr. Viz (EX2058 ¶ 96, POR at 28) regarding the function of a web.

Moreover, PO does not dispute that each of the NOC's stiffeners has an aligned counterpart web on the other side of the sidewall. Accordingly, each two-part stiffener has a set of aligned T-section webs which provide the claimed "web continuity."

As described above, PO alleges a special definition of "web"—a "unique structural detail" (POR at 28)—is required for web continuity. In contrast, PO proposed the following construction in the related district court case: "having

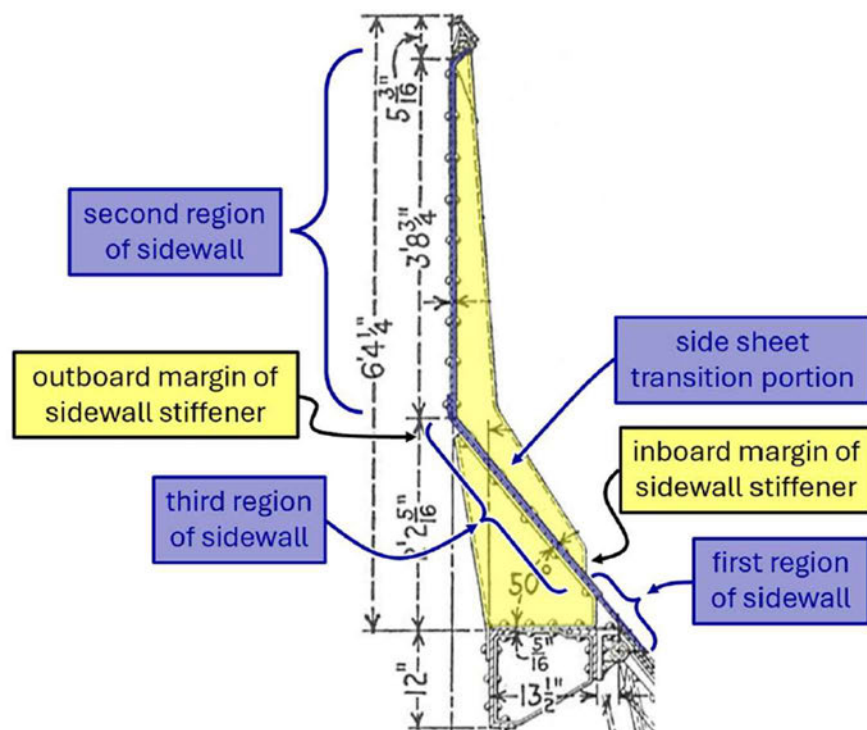
substantial co-planar alignment of the first and second portions through a transition portion to resist shear force.” EX1058 at 2. This broad construction includes no special definition of web and instead relies on “co-planar alignment” and shear-force resistance. The NOC’s stiffeners clearly satisfy this construction.

4. Claim 2 as a whole

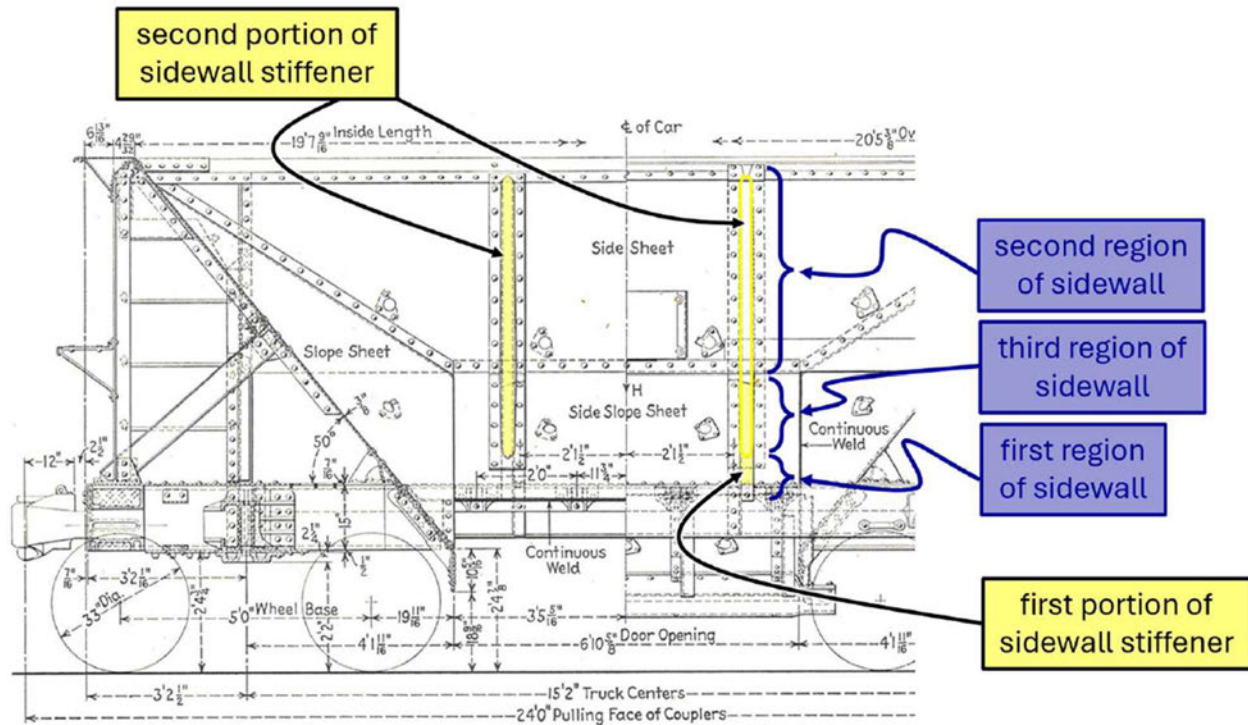
PO’s assertion regarding Claim 2 as a whole (POR at 29) ignores pages 34–64 of the Petition.

5. Claim 4

Claim 4 describes a transition portion of the sidewall, through which the stiffener has vertical web continuity:



Pet. at 66.

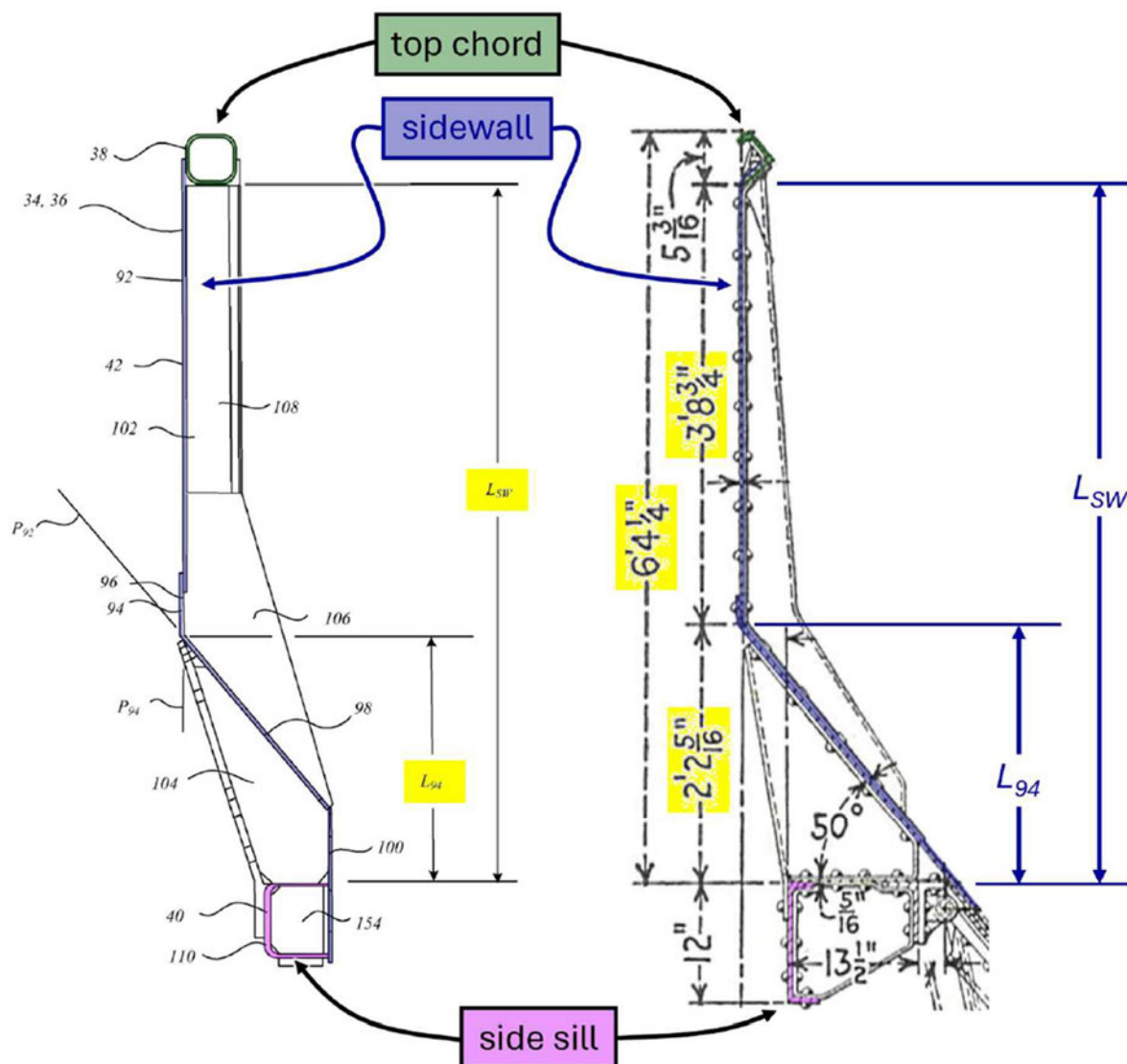


Id.

PO relies on its [2u] arguments for Claim 4 and further states that the NOC’s “hat/U and angle pieces are not a *single* web.” POR at 30 (emphasis added). But the claim does not require that only a single web be present. Moreover, to be a web, a perpendicular structure need not be isolated or constitute the *only* perpendicular member for a given single flange. For example, in the ’892 patent, the center sill 44 includes “a pair of spaced apart webs 168,” while the “central region of shear plate 76 forms the top flange.” EX1001, 17:11–13. Thus, the multi-web stiffeners described above satisfy claim 4.

6. Claim 5

Claim 5 specifies a relative height for the transition portion of Claim 4, and the Petition provided a rigorous analysis based on the NOC's own labeled dimensions, concluding that the NOC meets the claim limitation with the relevant height (37%) falling between 1/4 and 2/3. Pet. at 68. The figure below compares the NOC to features in the '892 patent:



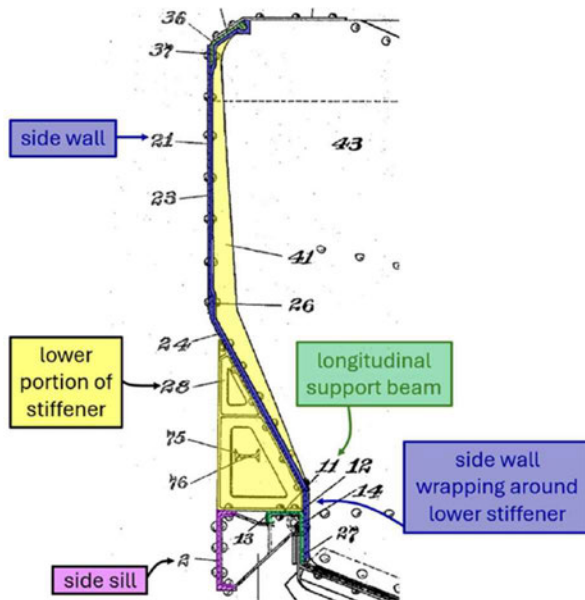
Pet. at 67.

PO claims that the drawings are “not to scale” and not grounded in “reliable, dimensioned engineering drawings.” POR at 30. But the 1946 Cyclopedia provides dimensions (highlighted in yellow). Moreover, 50 and 5/16 inches really is approximately 37% of 71 and 1/16 inches, and 37% indeed falls between 1/4 (25%) and 2/3 (66%). This is just math, not “eyeballing” or “back-solving.” POR at 31.

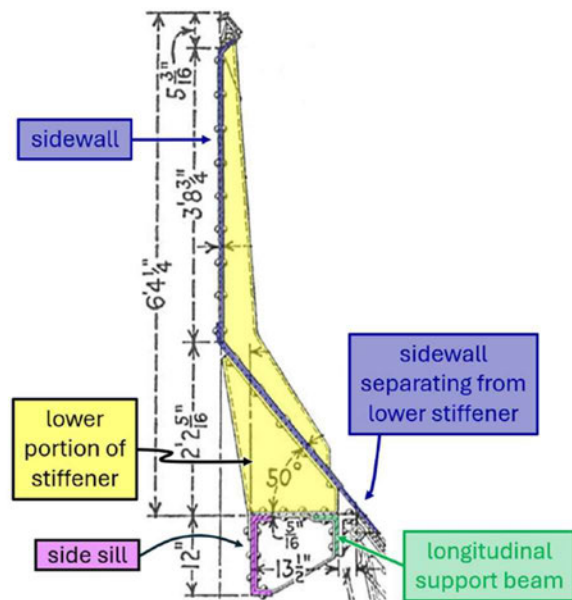
7. Claim 6

PO argues that Petitioner’s use of alternative constructions is improper (POR at 32–33), but this approach is reasonable before the Board addresses claim construction. *See* Paper 27 at 13–14. This ground addresses PO’s proposed construction, and also satisfies the District Court’s post-petition construction of “sloped side sheet” that POR cites: “a sheet extending in a longitudinal direction with respect to a side of the hopper and which forms a sloped surface” (POR at 10).

PO argues that Lindström, a secondary reference, lacks the claimed “sloped side sheet” (POR at 35), but that structure is already present in the primary reference—the NOC. A POSITA would have seen strength benefits from Lindström’s wrapped sidewall, as well as discharge benefits of the smooth ramp in the NOC:

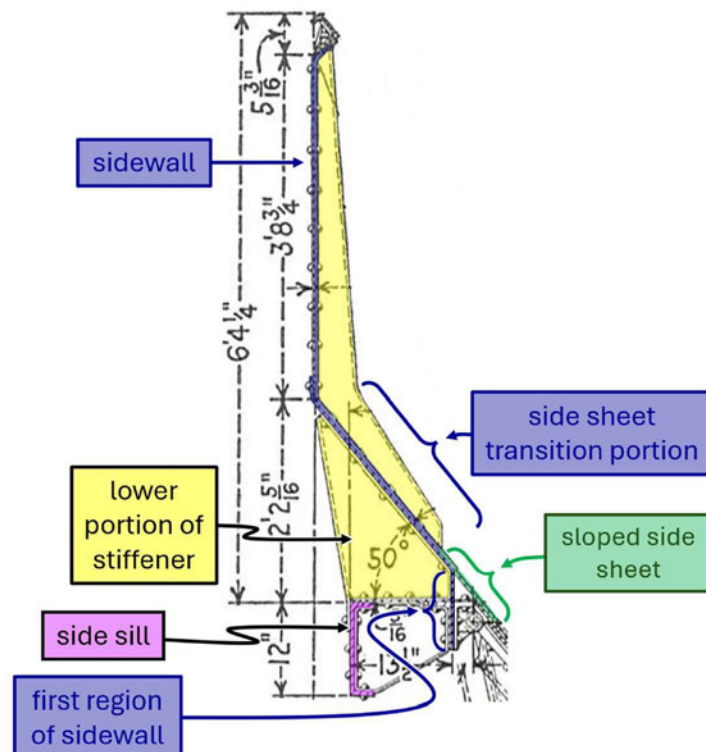


**Lindström
Fig. 5**

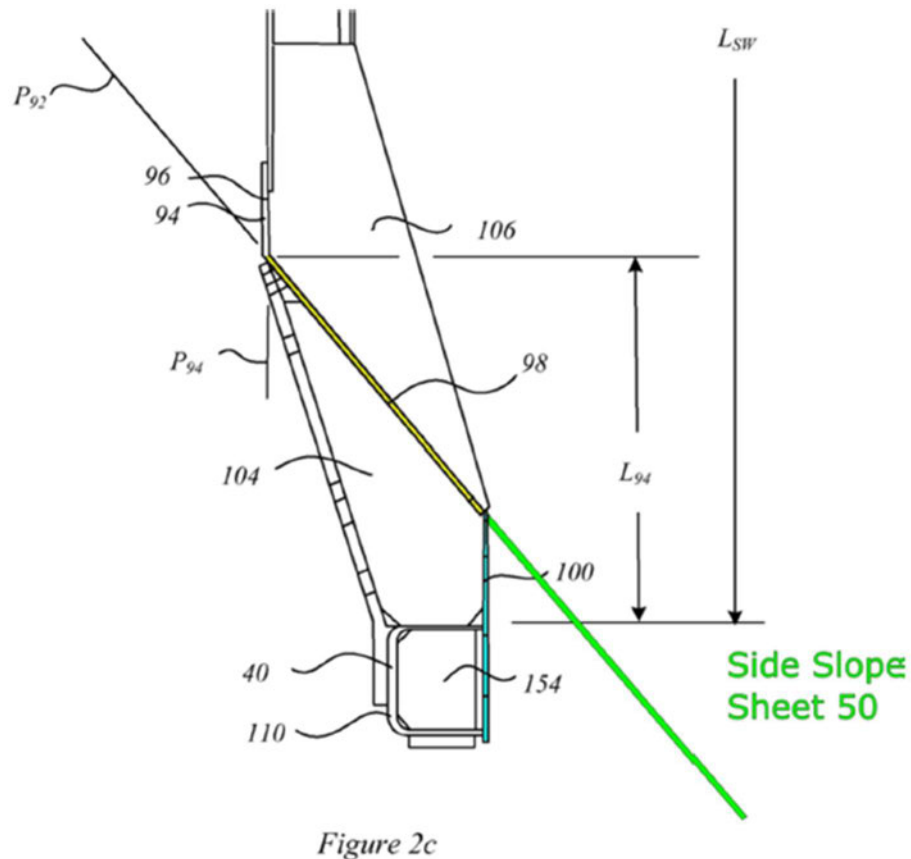


**NSC Ore Car
(Unmodified)**

Pet. at 69. Together, they disclose claim 6 under both PO's proposed construction (Pet. at 68) and under the District Court construction:



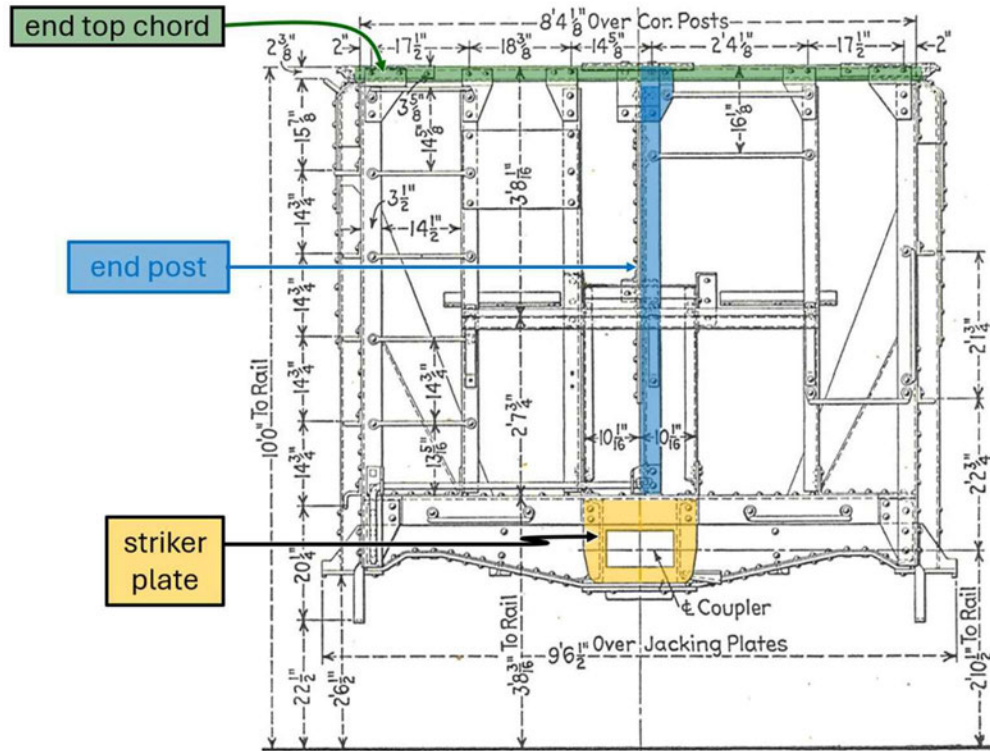
Pet. at 70. Indeed, after Petitioner disclosed the above modification, NSC added a green line to Fig. 2c to illustrate NSC's construction.



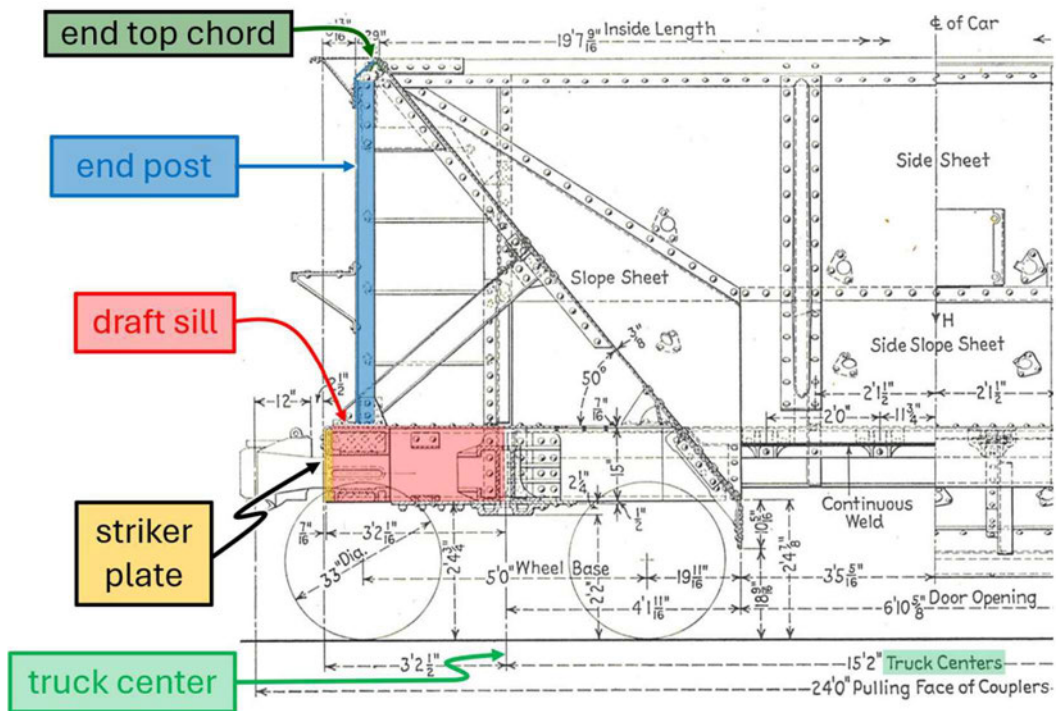
POR at 11. PO argues no “rationale” is provided (POR at 36), but this ignores the motivations explained in the Petition. Pet. 69–70.

8. Claim 8

Claim 8 refers to one of the most ubiquitous elements of that last century of railcars: an end post mounted in the standard position:



Pet. at 71.



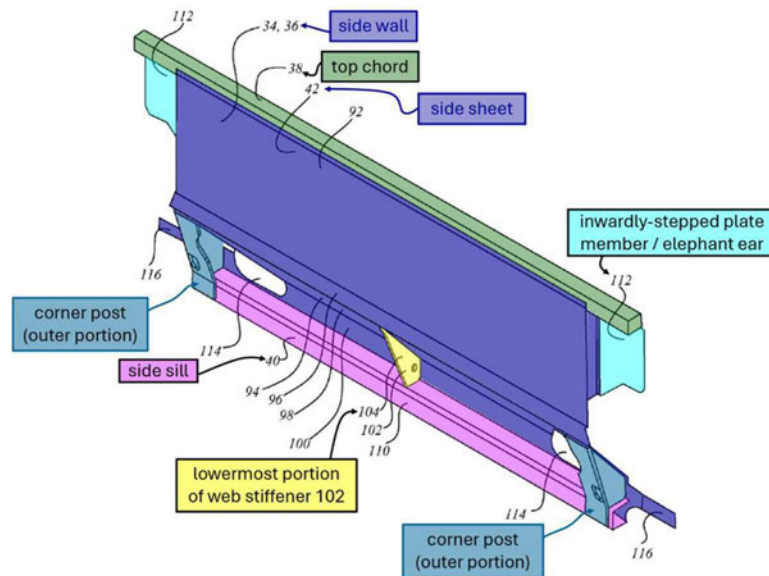
Id. at 72.

PO argues the post may not extend “all the way” between the draft sill and end top chord and speculates about “an intervening cover plate, weldment, or sub-structure,” and “a gusset or web under the chord.” POR at 37. But such details are not claimed. Indeed, connections (such as a “weldment”) are standard means to connect end posts, so a weldment or connection hardware is expected but not dispositive. The 1946 Cyclopedia illustrates the NOC’s end post with similar placement and similar detail to that of the ’892 patent drawings. Moreover, “fit-up” is well understood by a POSITA. EX1056 at 230.

PO argues that the word “mounted” precludes additional structure “at the sill level.” POR at 37. But the claim does not say the end post abuts or attaches directly to the draft sill. In the NOC, the end post is located “above” the draft sill. This is all the claim requires.

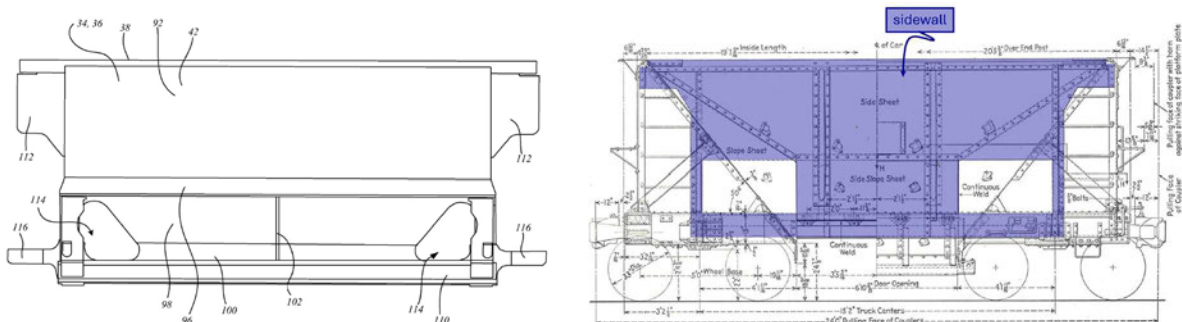
9. Claim 11

In the ’892 patent’s only embodiment, the corner posts are part of the sidewall. EX1001 at 13:14–18 (“side walls 34, 36 may *act as deep beams*, and may *carry vertical loads to main bolsters 90* that extend laterally from the centerplates.”). Fig. 2a is “an isometric view of a sidewall of the gondola car of FIG. 1.” *E.g., id.* at 10:52–53. As shown below, the sidewall includes the laterally outer portions of the corner posts.

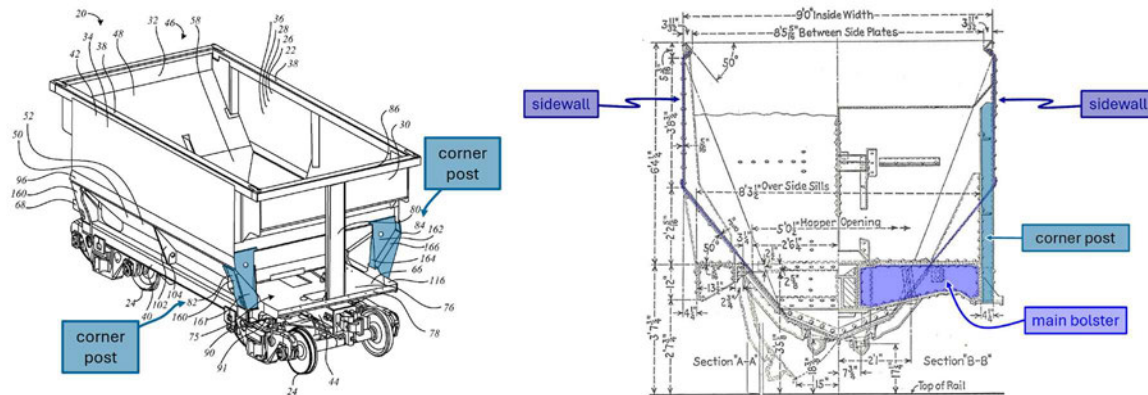


Id., Fig. 2a. Just like the thicker top chord and side sill, the strong corner posts are part of, and mate with, the sidewalls. PO’s argues this is contradictory, “equivocal and self-defeating.” POR at 38–42. But this argument would render the ’892 patent invalid for lack of written description.

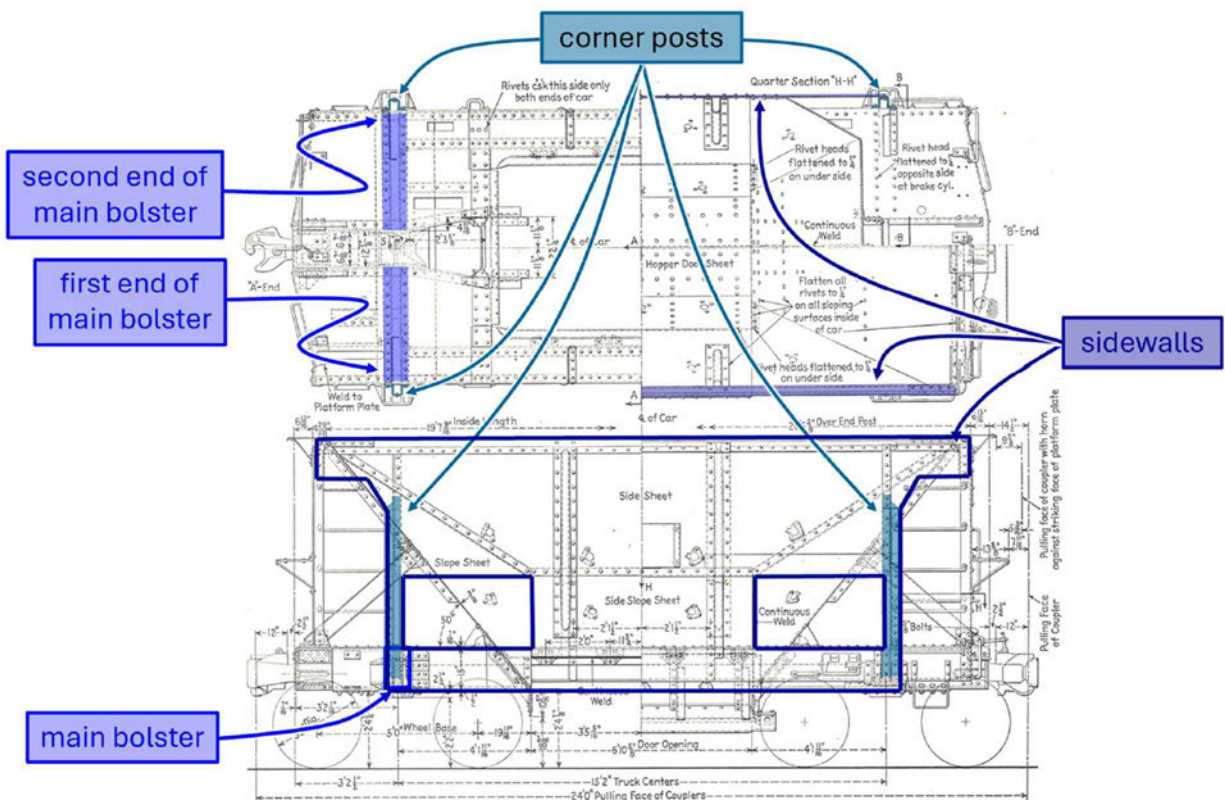
PO argues the Petition provides “conflicting interpretations.” *Id.* Not so. The Petition simply provides different views, some of the full sidewall and others with portions thereof. *E.g.*, Petition at 73–74 (claim 11), 20–22 (limitation [1b]), 39 (limitation [2e]). For example, the ’892 patent’s FIG. 2b shows a side view of its “sidewall,” and the Petition identifies an analogous sidewall in the NOC.



EX1001, Fig. 2b; Pet. at 20. A different angle shows the corner post is wider (extending farther laterally inward) than the rest of the sidewall:

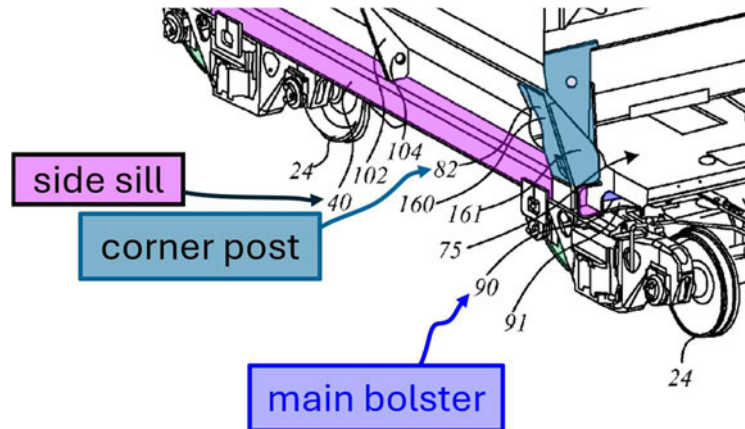


EX1001, Fig. 1; Pet. at 74. Thus, the '892 patent and the NOC disclose similar mating of corner posts with sidewalls.

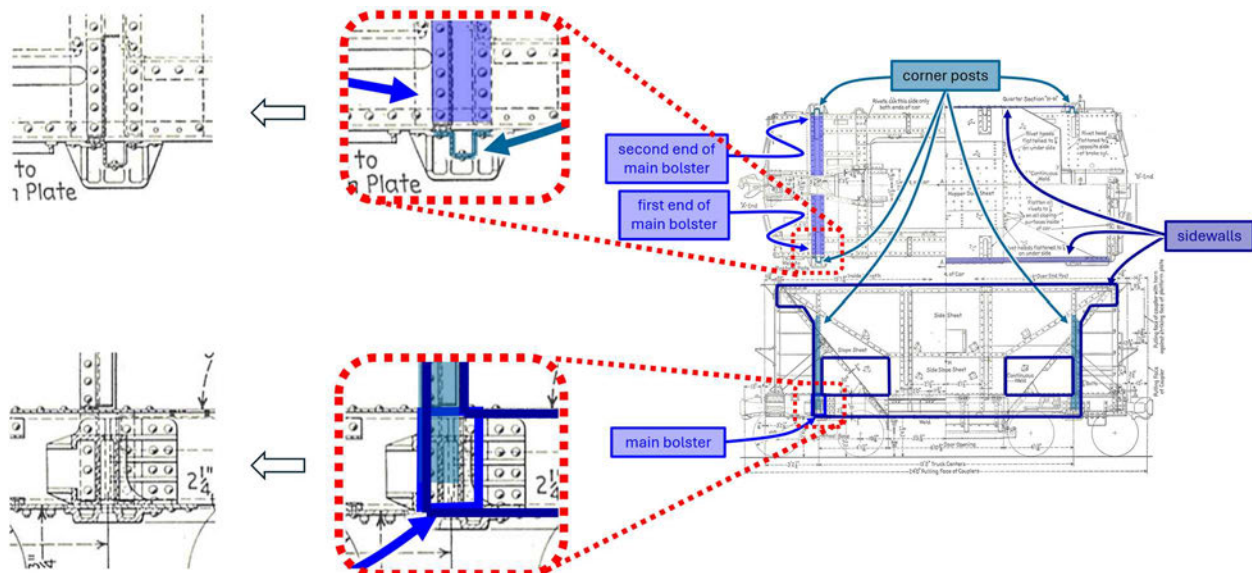


Pet. at 73.

PO argues that the Petition fails to show corner posts that “originate from the bolster’s ends” and doesn’t “rule out intervening structure.” POR at 42–43. But such details are not claimed. In the ’892 patent, the corner post does not contact the bolster because the side sill intervenes:

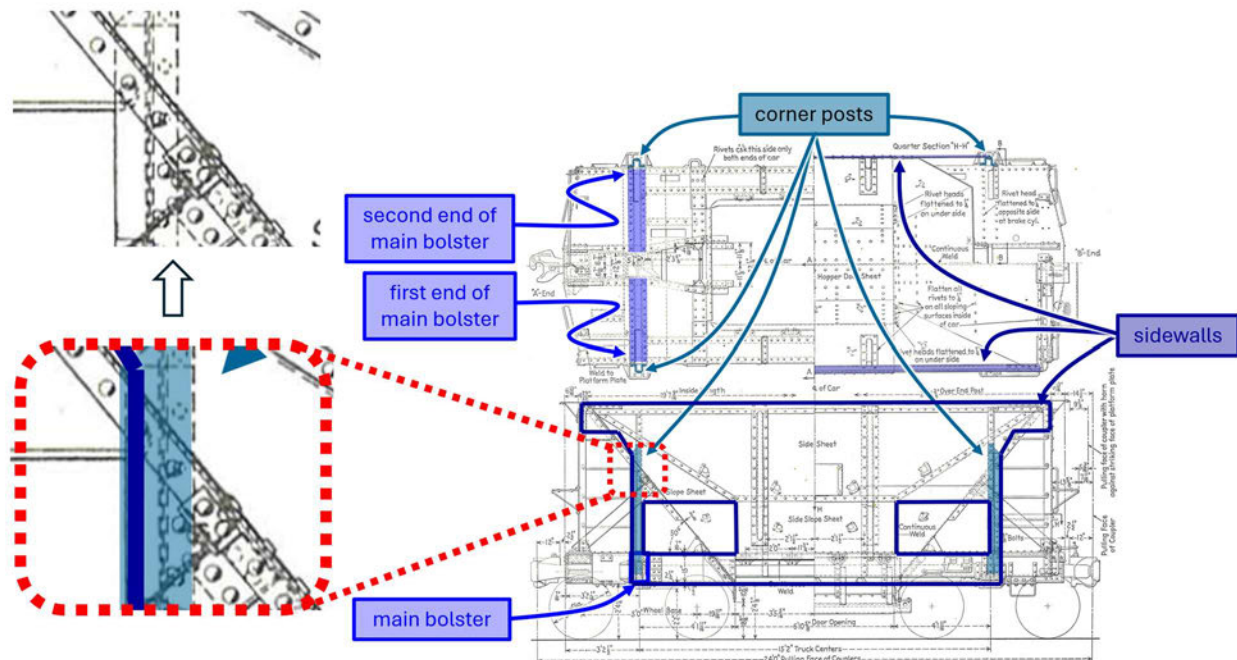


EX1001, Fig. 1. If this is inconsistent with the claim, PO’s argument would also render the ’892 patent invalid for lack of written description. The Petition shows the NOC’s corner posts originating from the bolsters’ ends:



See Pet. at 73 (left side removes label colors).

PO argues that the Petition fails to show a “post-to-sidewall interface” or “discernible joint or attachment interface” between corner posts and sidewalls in the NOC. POR at 43. But such an interface is shown in the petition:



See Pet. at 73.

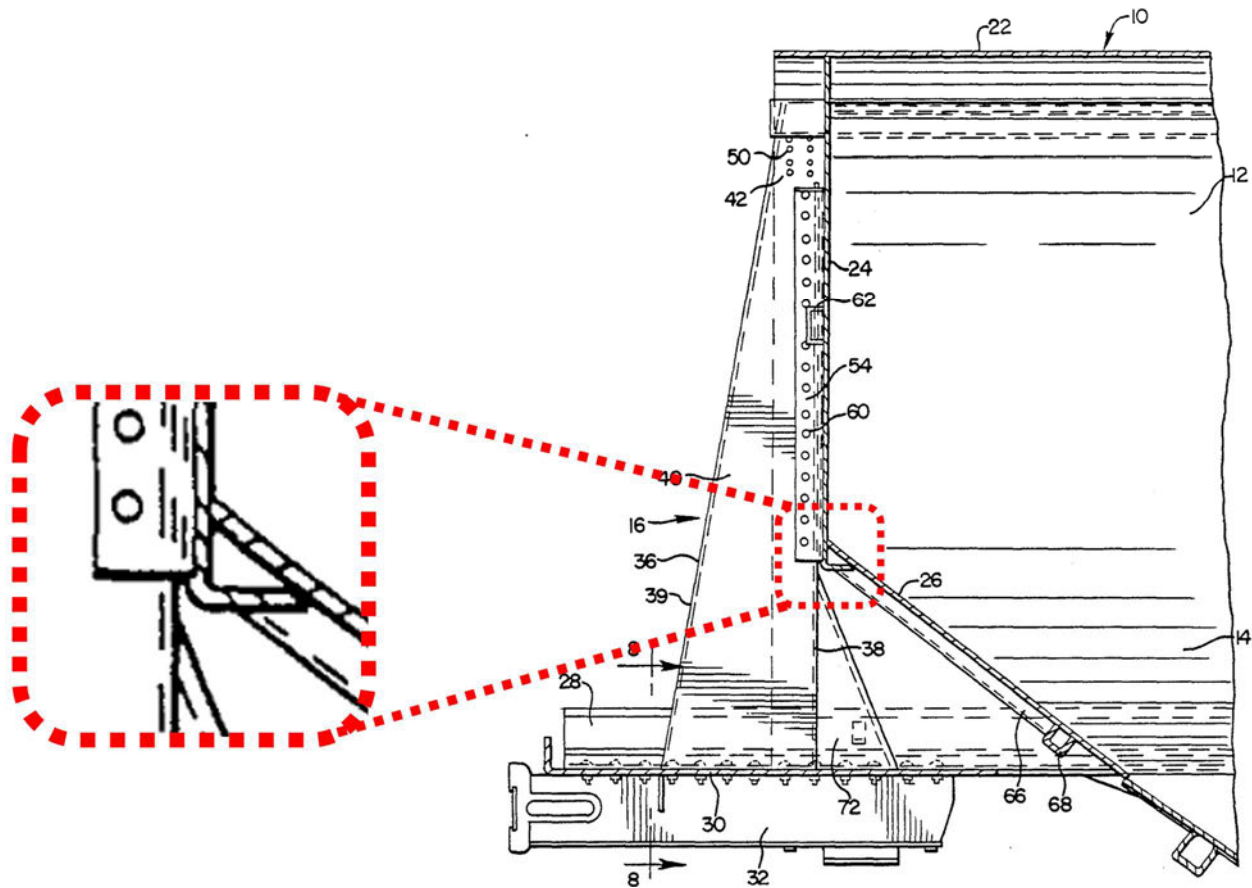
10. Claim 12

PO’s claim 12 arguments (POR at 43) fail for the reasons provided above.

B. Ground 1c

1. Limitation [9a]

PO argues that a POSITA would have no reason nor motivation to add Wong’s end wall and “hollow beam at the wall/slope-sheet interface by bending that end wall.” POR at 44.

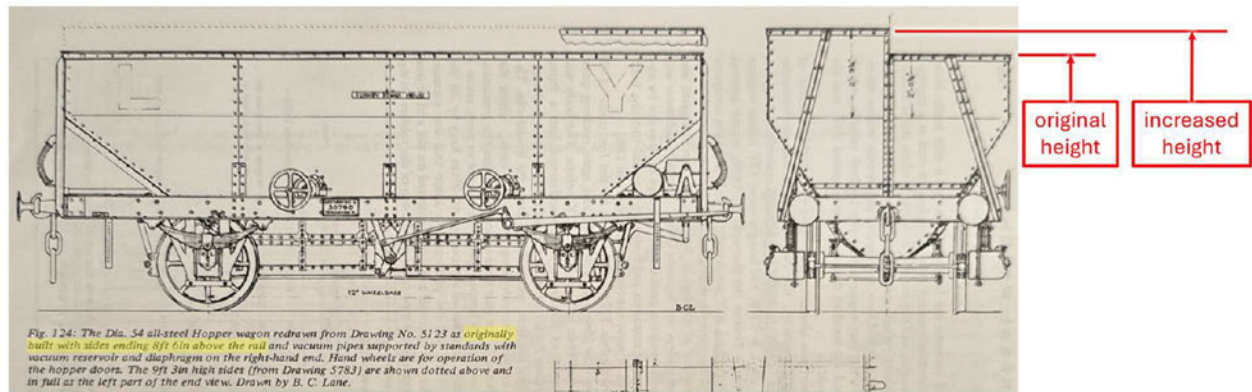


EX1006, Fig. 4. But PO does not deny that the modification would increase hopper volume (Pet. at 78), and Dr. Viz admitted that the Wong L-beam has structural advantages. EX1056 at 208:2–210:4.

Importantly, Dr. Viz never denies that, as demonstrated in the Petition (*id.* at 78–80), end walls were well-known in 1946. PO argues the end wall modification would be “constrained by a multitude of factors.” POR at 45. But Dr. Viz admitted these factors were within the skill of a POSITA. EX1056 at 266:21–267:18. Accordingly, a POSITA would have known how to choose materials or adjust sizing to address “geometries and load capacities,” “load distribution,” gravity drop and

“angle of repose,” and “hydrostatic pressure.” See POR at 45. The admissions by Dr. Viz support that a POSITA: (1) would have considered the end wall and beam aspects of the modification together (e.g., using the hollow-section beam to add stiffness or strength if needed due to adding the end wall); and (2) easily balanced the relevant considerations. Pet. at 81.

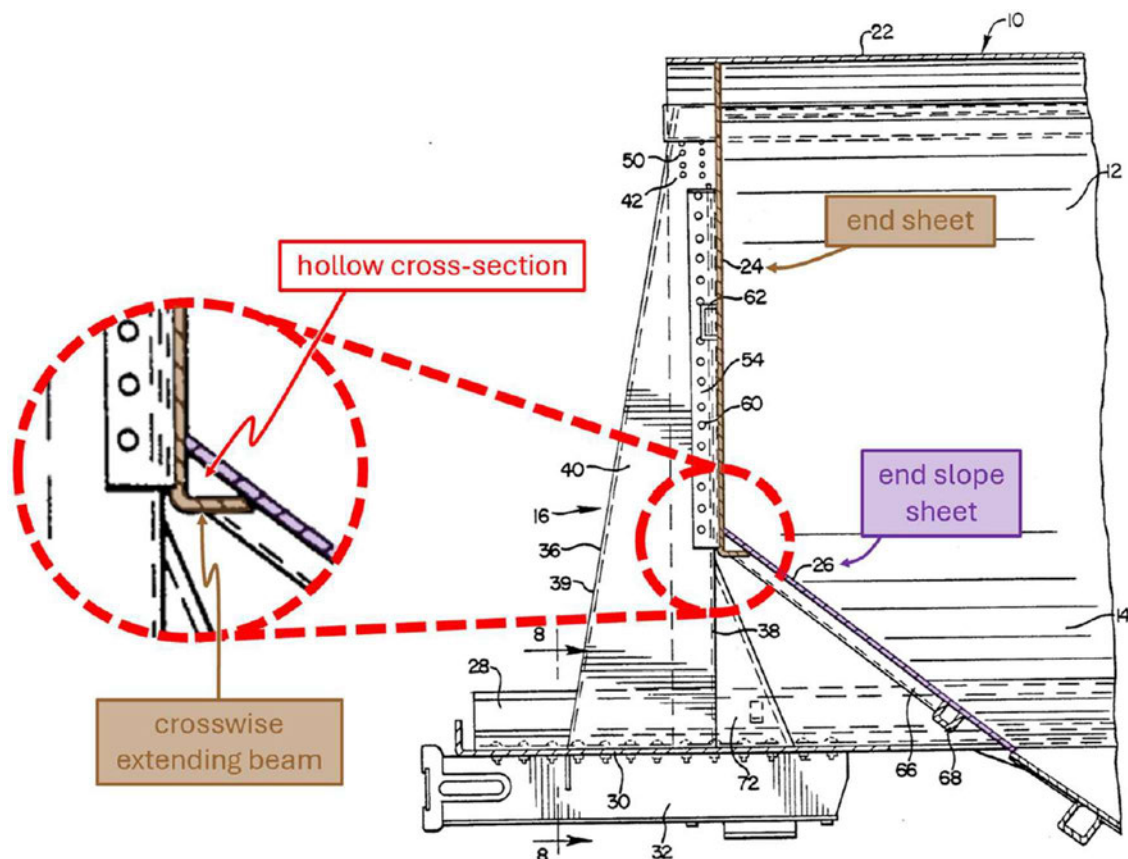
The Petition further supports a reasonable expectation of success for the proposed modification with a historic example of the L&Y hopper car:



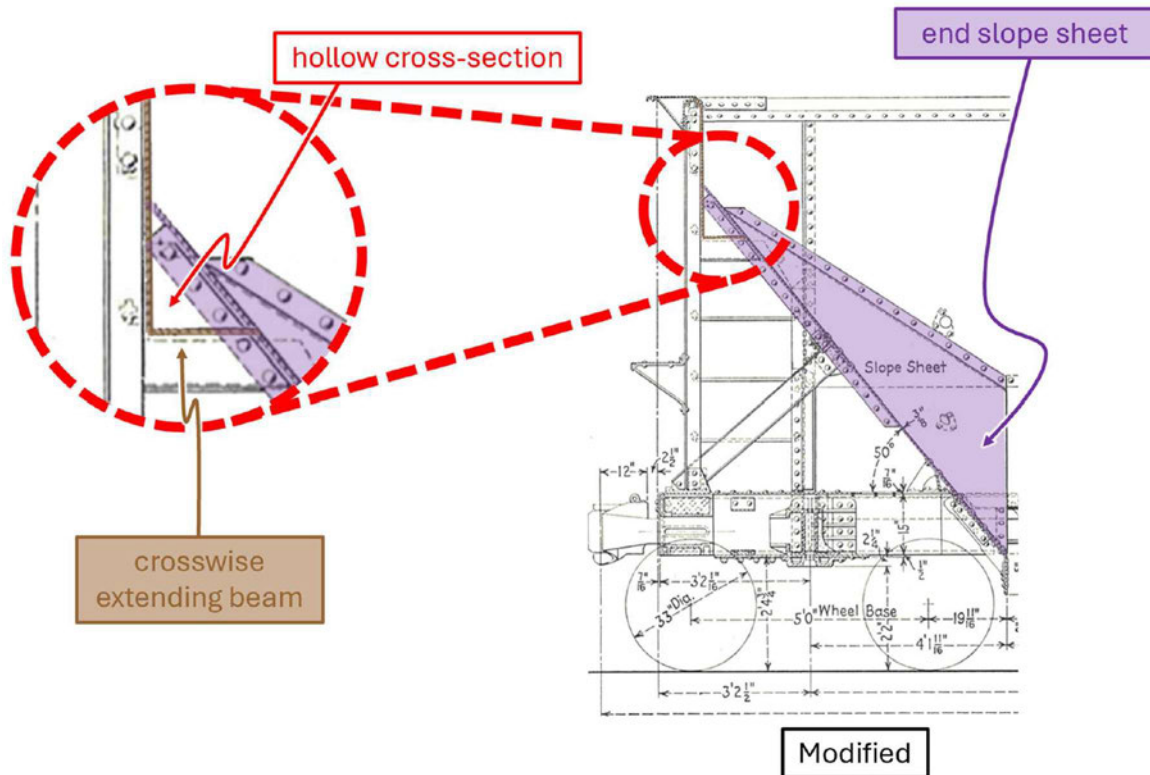
Pet. at 81. This directly contradicts PO’s assertions that “[c]hanging the height of a car can leave it ineffectual for its intended purpose, e.g., by not being able to carry its full intended load due to the increased structural weight.” POR at 45. PO’s only response to the L&Y example is to assert this would have been a “vastly different” modification than the one proposed (*id.*), but both involve extending the end walls upward, increasing their height and the car’s load capacity.

2. Limitation [9b]

PO argues that the Petition “never shows” that the proposed Wong beam modification of the NSC ore car is a reinforcing beam, located where the end wall meets the slope sheet. POR at 47. But the reinforcement function is apparent from the illustrated shape. Dr. Viz admitted that Wong’s L-shaped approach forms a “triangular section beam” with structural advantages. EX1056 at 208–210. This supports that the Wong modification is a reinforcing beam.



Pet. at 83. Moreover, the Petition's figures clearly show that the proposed modification is at the top of the slope sheet, as claimed:



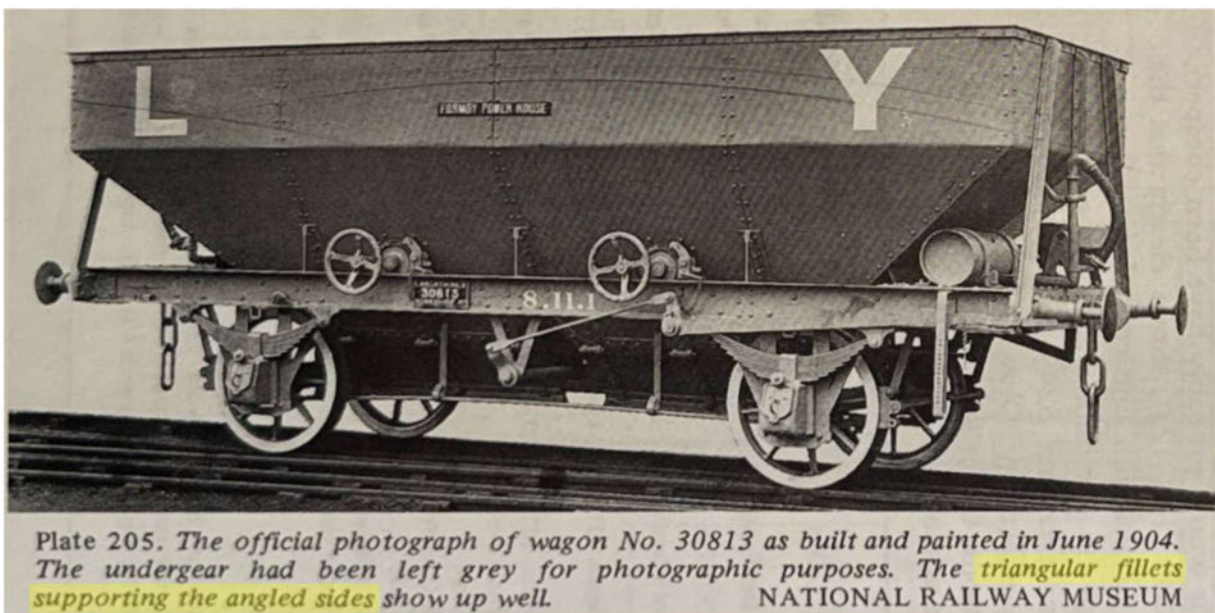
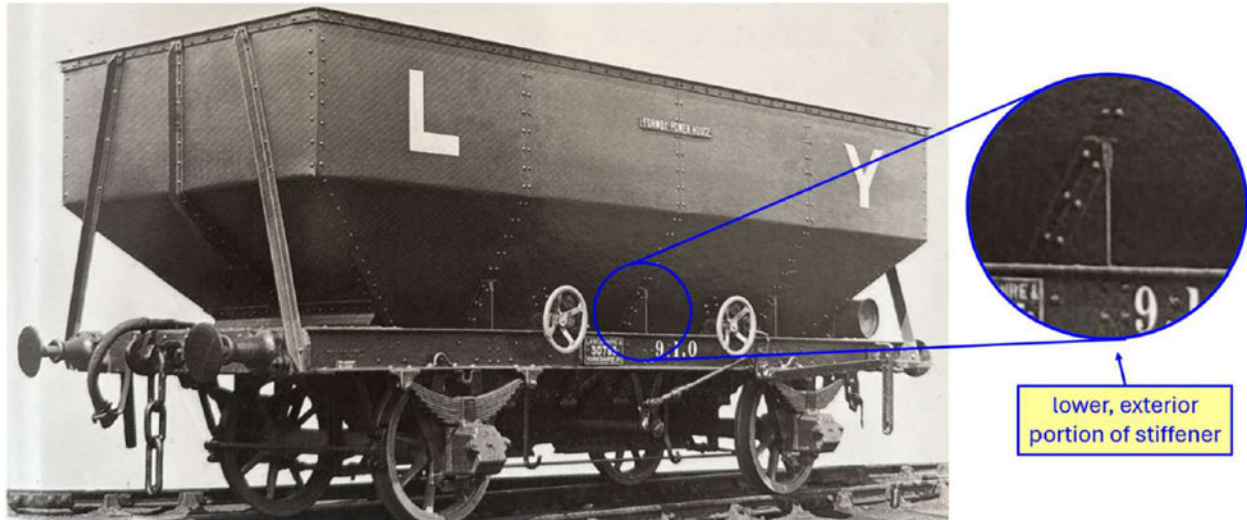
Pet. at 84.

PO argues that “Petitioner never engages with interference/fit concerns created by the added end-wall fold” and states that the modification “can conflict with existing stiffeners and flanges.” POR at 48. However, Dr. Viz admitted that such “fit-up” modifications (e.g., making a notch) were within the knowledge of a POSITA. EX1056 at 230: 2–7. Accordingly, a POSITA would have expected success in applying these standard techniques.

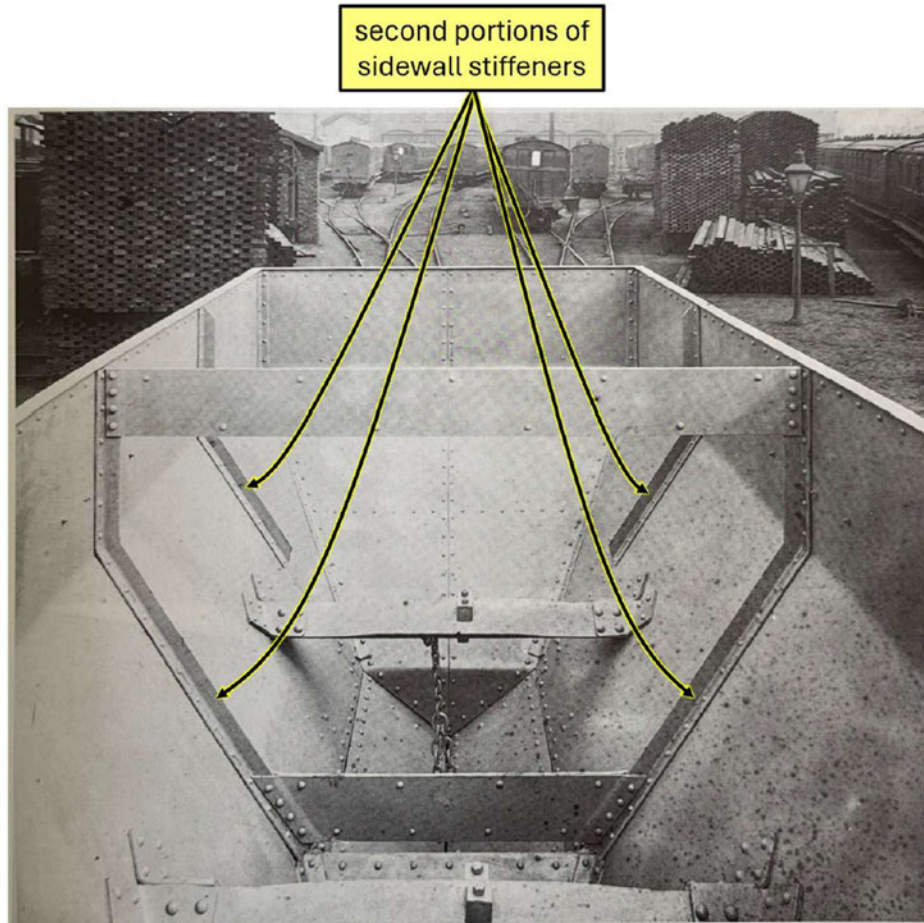
C. Ground 1d

1. Claim 15

PO never argues that the L&Y stiffeners are not made of material that is flat and bar-shaped:



Pet. at 85. Instead, PO argues that the Petition’s historic photograph evidence provides no “material callout,” “specification sheet,” “manufacturing source,” etc. that expressly labels the L&Y stiffeners as “flat bar.” But from the photographs alone, a POSITA would have no trouble identifying this ubiquitous, basic building block of railcar manufacturing. EX1003 ¶¶ 39–40.

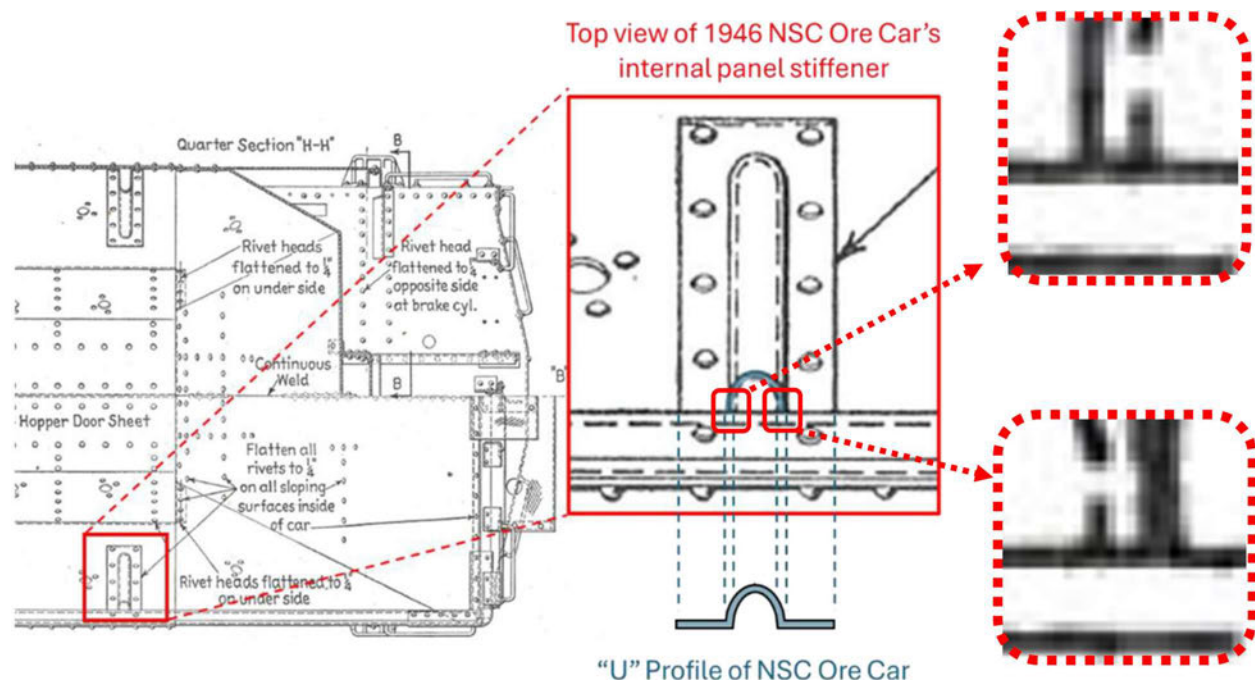


Id. at 86.

PO argues that the proposed modification to substitute flat bar versions (as in the L&Y Hopper Car) for the existing stiffeners is not a “routine” substitution because stiffness, connection geometry, and load paths would change. POR at 49. But flat bar stiffeners were well understood (e.g., based on a century of use by 2009) and neither geometry nor load paths would change because the flat material would be located where the NSC ore car already has stiffeners. All relevant stiffeners (NSC,

Lindström¹, and L&Y) are oriented vertically with aligned upper (inside) and lower (outside) portions, and all are fastened to the sidewall with bolts, rivets, or welding. This common alignment avoids out-of-plane bending and local buckling both before and after the modification. Thus, the factors argued by PO actually demonstrate how swapping stiffeners, but retaining vertical alignment, would be a routine substitution for a POSITA.

PO repeats its limitation [2u] argument that the NOC lacks a web. POR at 50–51. But as explained above, the sidewall acts as a flange to the legs of the U-section, forming two local T-sections:



¹ Petitioner does not “lean[] on Lindström” for “vertical-alignment/web-continuity features” (POR at 50); the NOC has these features. Pet. at 64–65.

See POR at 28. Moreover, substituting the L&Y flat-bar stiffeners would replace this double-web structure with a single-web structure that even more closely tracks the '892 patent's embodiment.

PO asserts there is no “reasonable basis or rationale” for this modification, but this ignores Dr. Ahmadian's explanation of flat bar stiffeners (EX1003 ¶¶ 38–40) and of why a POSITA would have made this substitution in the context of claim 15 invalidity (*id.* ¶ 71). For example, flat bar was common, inexpensive, and regularly used for a century. *Id.* Flat bar provides efficient support and avoids waste. *Id.* The modification would be a simple substitution from a well-known group of options to obtain predictable results. *Id.*

D. Ground 2b

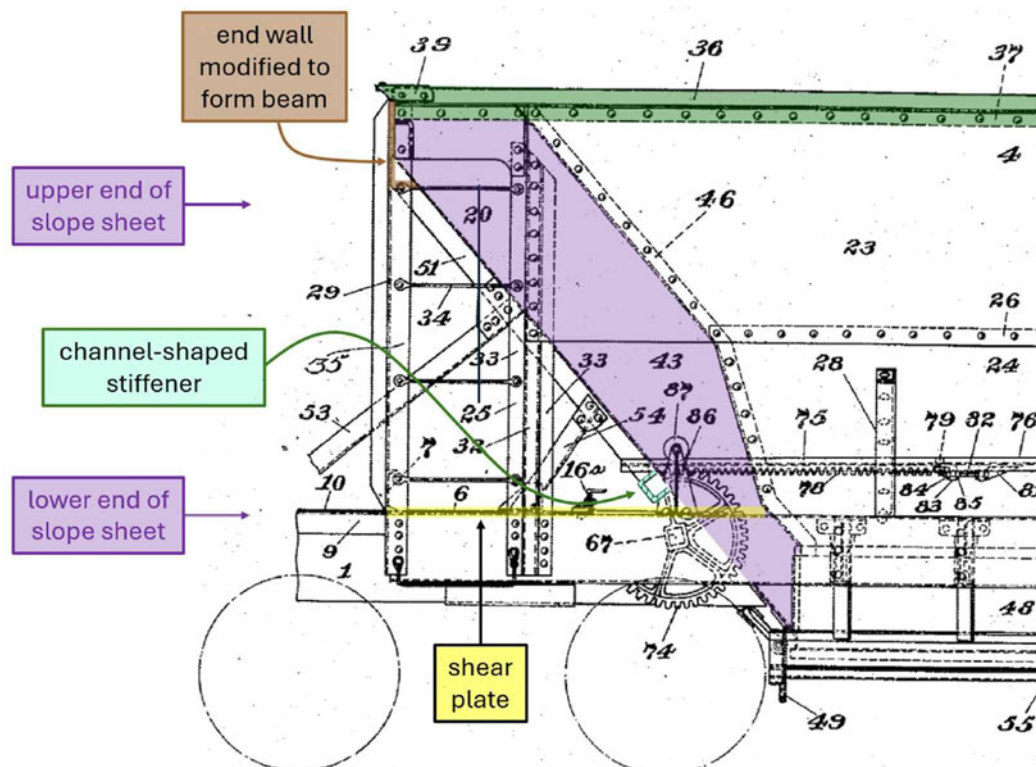
1. Limitation [2i]

PO's arguments parallel those it presents for limitation [2i] in Ground 1b. But as explained above, Wong's other stiffeners (POR at 53–54) are logically irrelevant. Regarding Wong's “purposes and problems” and “true focus” (*id.* at 54), it is error to “look only to the problem the patentee was trying to solve” in an obviousness analysis. *KSR Int'l. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) (“KSR”). *Accord In re Dillon*, 919 F.2d 688, 693 (Fed. Cir. 1990) (*en banc*) (structural similarity can show obviousness despite different utility).

PO argues that “Lindström’s disclosed components block Petitioner’s add-on beam,” that the blocking elements include “stiffening flanges 51,” and that properly fastening the end wall to the slope sheet would have been “challenging or even impossible.” POR at 54–56. But as Dr. Viz admitted, such “fit-up” modifications were well known to a POSITA. EX1056 at 230.

2. Limitation [2j]

PO asserts that Petitioner “does not actually map a second beam at the claimed location.” POR at 57. But the Petition shows the beam modification (labeled “channel-shaped stiffener”):

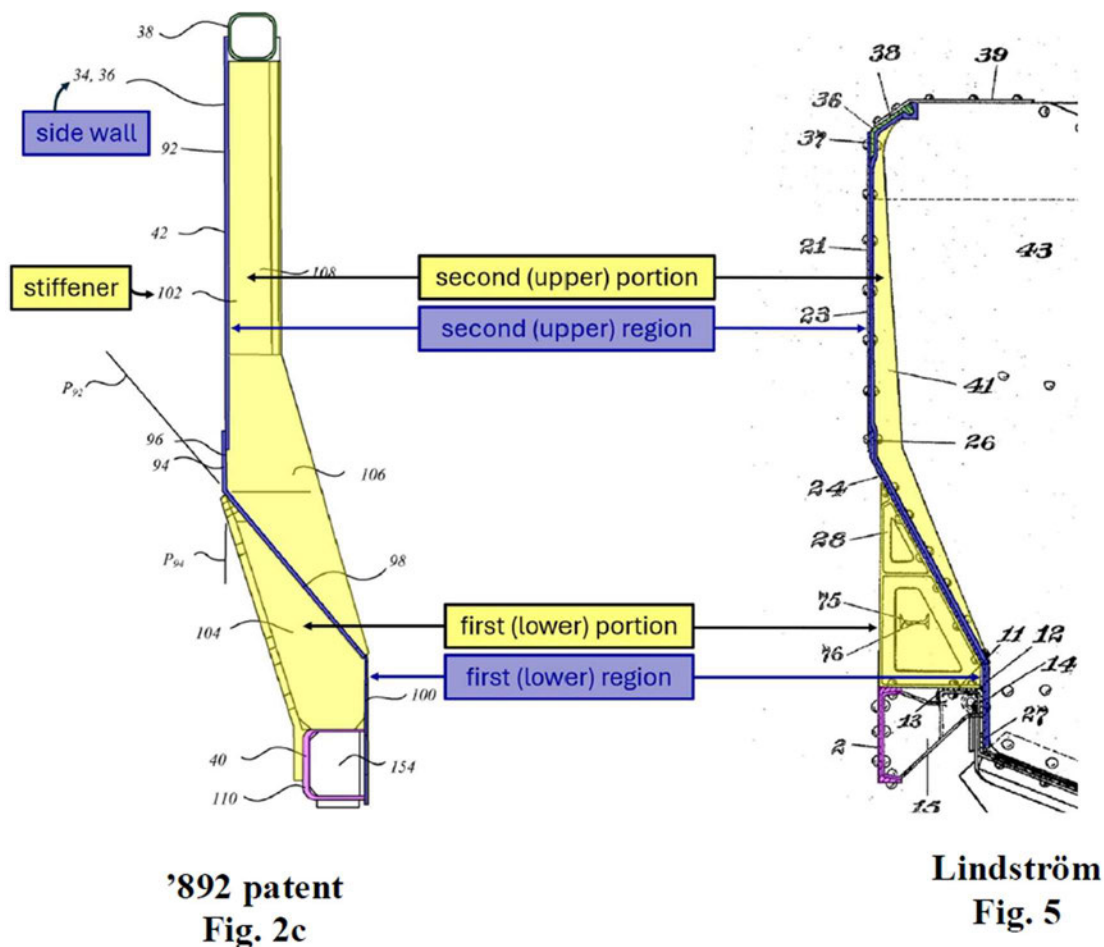


Pet. at 109. PO also argues that this “conflicts with Lindström’s geometry and fastening scheme” (POR at 57–58), but a simple notch can be used for this fit-up

process, as a POSITA would have known. EX1056 at 230. This would not “likely destroy the structural integrity of Lindström’s slope sheet” (POR at 61), because Wong demonstrates using multiple stiffeners of this type. Dr. Viz could not support PO’s argument that the modified stiffener is “hovering in the air” (*id.* at 58, 61); he instead alleged the illustration provides “no securement detail” but agreed that Wong illustrates its stiffener 68 similarly. EX1056 at 281:3–283:20.

3. Limitation [2r]

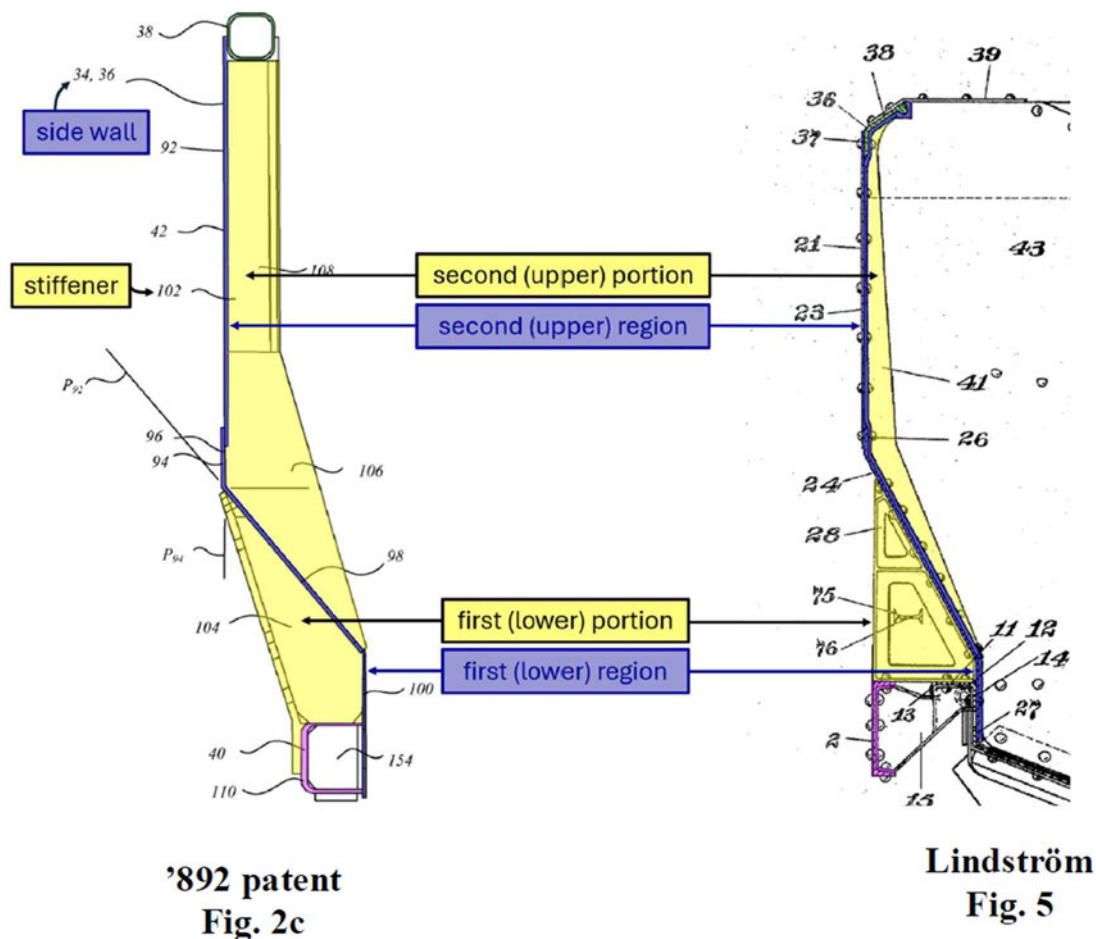
Limitation [2r] refers to how portions of the stiffener are “mounted to” regions of the sidewall, and the Petition provided this comparison:



Pet. at 95. PO argues that for the first portion to be “mounted to” the first region, Lindström must show a bolt or rivet in the vertical first region. POR at 62–65. But the claim does not require this, and Fig. 2c shows no bolts or rivets at all. PO argues the Petition does not “identify where the upper portion is mounted to the second region of the sidewall.” *Id.* at 62. But the figure above shows analogous mounting relationships in upper and lower regions for both the patent and Lindström.

4. Limitation [2s]

The phrase “as shown above” in the Petition at page 97 refers to an illustration found at page 95:



Pet. at 95. Thus, none of POs arguments for limitation [2s] (POR at 65–67) apply.

5. Limitation [2u]

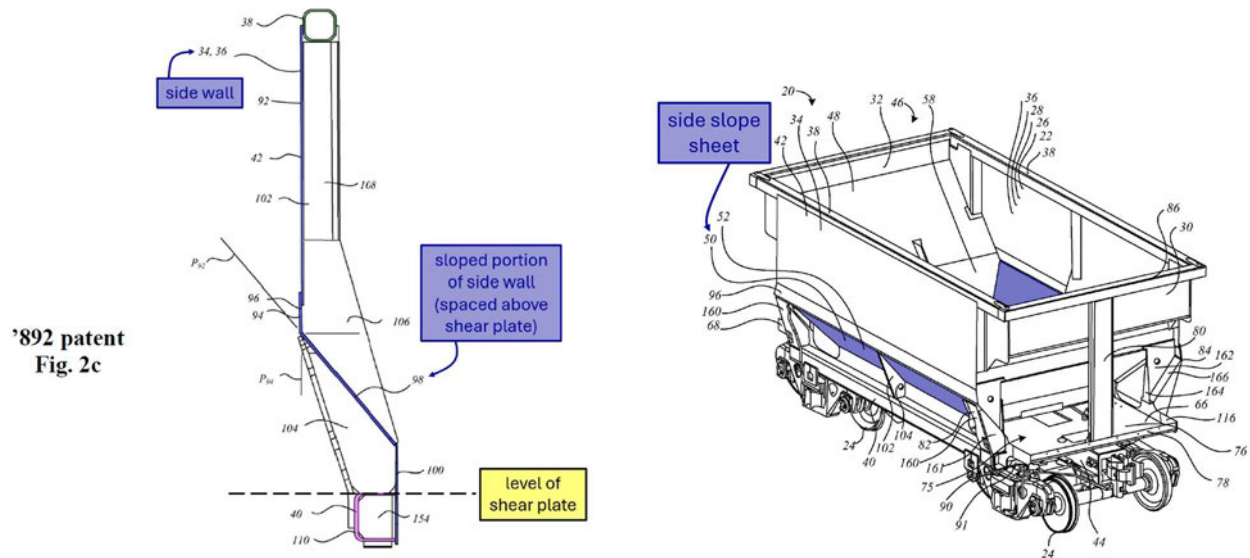
For limitation [2u], Ground 2b, PO repeats its Ground 1b arguments and summarizes: “[b]eing co-planar is not the same as possessing a single continuous web.” POR at 68. PO also reformulates limitation [2u] as a “unified web spanning the two stiffener portions.” *Id.* However, as shown above (’892 patent, Fig. 2c), the yellow web is not “single,” “continuous,” or “unified” because the blue sidewall traverses it. Moreover, as explained above for Ground 1b, limitation [2u], the aligned webs of the dual T-sections shown in the NOC demonstrate the claimed web continuity. The Petition shows that these teachings apply equally for grounds 1b and 2b, as a simple substitution for Lindström’s stiffeners (if they are not already aligned).

6. Claim 5

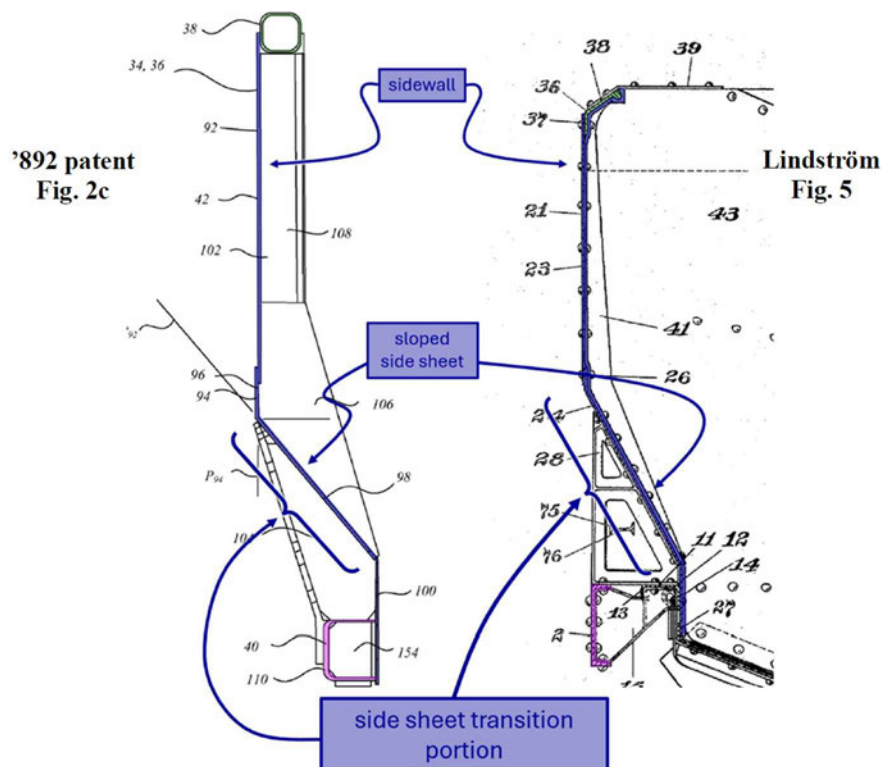
Similar to its argument for claim 5 in ground 1b, PO again argues that patent drawings are not to scale. But a transition between 1/4 (25%) and 2/3 (66%) of the overall sidewall height is not a tight constraint (covering approximately 40% of the possible heights) and thus does not require great precision. Moreover, as demonstrated above for Ground 1b, claim 5, the NOC includes dimensions and expressly discloses this limitation.

7. Claim 6

The Petition explains its interpretation for sloped side sheet based on the disclosure of the '892 Patent. Pet. at 118–119.



Pet. at 119; EX1001 at Fig. 1. The Petition shows Lindström's analogous structure:



Id. at 120. Accordingly, to the extent the '892 patent illustrates the claim 6 limitations, Lindström does as well. Regardless of what is labelled the “transition portion”, any interpretation that avoids the alleged “self-referential mapping” issue (POR at 71) would apply equally to both Lindström and the '892 patent. The patent figure and prior art structure is the same, so Lindström discloses this limitation under both Petitioner’s interpretation and under the District Court’s construction PO cites (POR at 10).

8. Claim 8

PO argues that two different structures are needed to fill two different functions, one to reinforce the slope sheet, and the other “being the end top chord of the end wall.” POR at 71. But the latter is not a function, and in fact the end top chord *does* act to reinforce the slope sheet. *See* EX1056 at 248:13–249:7. As explained above for Ground 1b, limitation [2i], the same structure can be a crosswise beam (claim 2) and an outboard end top chord (claim 8). Dr. Viz admitted that a top chord can serve as a beam, and vice versa. EX1056 at 261–262.

PO argues there was no motivation to modify Lindström, (POR at 72), but the Petition explains the modification would add strength precisely where significant stresses occur, and it would be a simple modification for a POSITA. Pet. at 123. Dr. Ahmadian also explained a POSITA would have been motivated to use a straight end post to transfer load efficiently to the draft sill. EX1003 at 108.

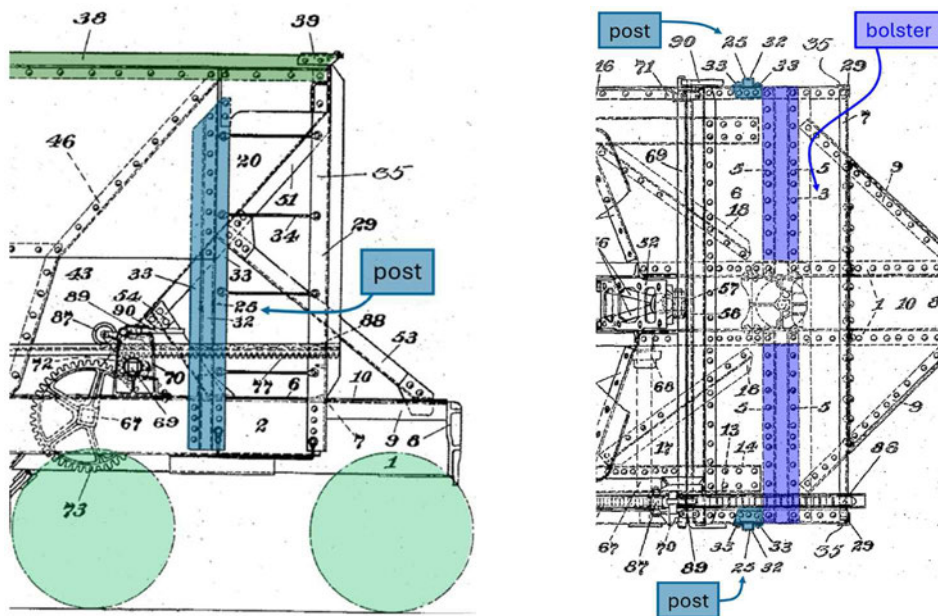
PO argues the Petition fails to show an “actual mounting interface” at the base of the end post and that the upper end is “tied to the chord.” POR at 72. But such details are not claimed. Moreover, Dr. Viz explained that “[m]odifying structural elements for fit-up . . . is something that as a general concept I think a POSITA would understand.” EX1056 at 230. Fit-up includes connecting the end post.

9. Claim 9

PO's arguments (POR at 73) fail as described for Ground 1c.

10. Claim 11

Similar to Ground 1b, PO criticizes the Petition’s figures for “oscillat[ing] on what counts as the sidewalls.” POR at 74. However, as explained above, that argument fails. Further, additional viewing angles resolve ambiguity as the corner post has a wider lateral width than the rest of the sidewall.



Pet. at 128–129.

11. Claim 12

PO's arguments (POR at 76) fail as described for claim 11.

E. Ground 2c

1. Claim 15

For Ground 2c, PO provides no arguments beyond those it raised for Ground 1d. As explained above, a POSITA would have recognized flat bar in the L&Y photographs and known to replace the stiffeners of the modified NOC with this well-known material—in the same position and fastened the same way.

F. The Alleged Objective Indicia Do Not Support Non-Obviousness

PO alleges that its commercial embodiment was a success. POR at 77–79. The facts from the district court action prove it was a commercial *failure*. A single customer, CN, made a single order of 232 ore cars from PO (EX1059), [REDACTED]

[REDACTED]

[REDACTED]

EX1060 at CN00099534.

[REDACTED]

EX1061 at NSC031405. [REDACTED]

[REDACTED]

[REDACTED] CN awarded the next two ore car orders to ARI (797 cars) and

Petitioner (600 cars). EX1062 at CN00094714–15. Sixteen years after it sold the patented cars to CN and applied for the '892 patent, PO still has not convinced CN or anyone else to buy its patented car. In light of this evidence, PO has not and cannot carry its burden of showing the invention was a commercial success. Nor has PO shown that its single sale of patented cars or Petitioner's sale of the accused ore cars was due to the alleged invention of the '892 patent.

PO claims that CN “specifically asked for open end-sections in subsequent orders” and characterizes this as “industry praise” for the invention. POR at 83. But the '892 patent does not claim “open end sections.” Instead, the '892 patent claims were allowed specifically based on the two-part sidewall stiffener with web continuity (Pet. at 15–16). PO does not even attempt to show a nexus between this allegedly novel feature and any alleged industry praise. Indeed, CN never requested a particular stiffener or sidewall design.

Finally, PO alleges that Petitioner copied PO's commercial embodiment of the claimed invention. POR at 81–83. But Petitioner's railcars are not copies of PO's railcars; any similarities are due to the customer's desire to standardize its fleet. EX1063 at 201, 209, 146–147 (DMIR standardization began in 1937); EX1064 at NSC021540 ([REDACTED]). Thus, the similarities between the patented and accused cars do not suggest the alleged invention of the '892 patent was not obvious.

IV. CONCLUSION

Petitioner requests cancellation of claims 2–15 of the '892 patent.

Respectfully submitted,

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Dated: June 22, 2026

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CERTIFICATE OF COMPLIANCE

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that this **PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE** contains 5,573 words (excluding any table of contents, table of authorities, mandatory notices under §42.8, exhibit list, certificate of service or word count, or appendix of exhibits or claim listing) and therefore complies with the type-volume limitations of 37 C.F.R. § 42.24(c)(4).

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that on the date below a copy of this
PETITIONER’S REPLY TO PATENT OWNER’S RESPONSE is being
served electronically on June 22, 2026, to the e-mail addresses shown below:

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